North County Multimodal Integrated Transportation Study – Final Report

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Chapter 1 - INTRODUCTION

In March 2013, the Los Angeles County Metropolitan Transportation Authority (Metro) directed the development of a North County Multimodal Integrated Transportation Study (NCMITS), with the cooperation of the North County Transportation Coalition (NCTC), to update the North County Combined Highway Corridors Study (NCCHCS) completed in 2004. The timing of this update of the NCCHCS report was appropriate due to the passage of Measure R in 2008. Measure R is a 30-year, one-half cent sales tax for transportation improvements. In addition, recent transit developments and significant changes in the transportation system in the North County over the past ten years necessitated the need for this update.

This report includes a description of transportation facilities and services, land use and major trip generators, current conditions, and developments since the 2004 NCCHCS Report. In addition to the NCMITS, Metro initiated a review of opportunities for implementing an Antelope Valley Inland Multimodal Freight Transfer Facility (i.e., "AV Inland Port"). This analysis incudes the formulation of an Antelope Valley economic strategy that includes freight terminals and inland port strategies. This additional study component will include its own set of baseline conditions relevant to these study topics in a separate report. Additionally, the incorporation of airport ground access is necessary to address auto, truck, and transit circulation, and integrate them with the Inland Port. As such, this report includes a ground access/multimodal connectivity study of the Palmdale and Lancaster airports under a separate, but integrated, component.

The North Los Angeles County subregion is comprised of the area north of the San Fernando Valley and the Angeles National Forest, as shown in **Figure 1-1**. The two most populous areas of the subregion are the Santa Clarita and Antelope Valleys. Santa Clarita is located in the southern portion of the subregion and is separated from Lancaster and Palmdale by the Angeles National Forest. State highways in this subregion include the Golden State (I-5), the Antelope Valley (SR-14), Henry Mayo Drive (SR-126), and SR-138. The Antelope Valley Transit Authority and Santa Clarita Transit provide local and commuter bus services, and Metrolink operates commuter rail services with stations located in the cities of Lancaster, Palmdale, and Santa Clarita.

The 2004 NCCHCS study developed a multimodal transportation plan for the North County, addressing both short- (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. This study was conducted in two phases based on the geographic focus and the character of trips made through, from, and to the study area. The first phase focused on the I-5 and SR-14 corridors, generally providing the north-south circulation through the study area, connecting corridor communities southward to the San Fernando Valley and the Los Angeles Basin, and northward to Kern County. The second phase focused on the SR-138 corridor, providing the east-west circulation, connecting the Antelope Valley in Los Angeles County and Victor Valley in San Bernardino County. An update on the status of each of the short- and long-term projects identified in the 2004 NCCHCS report are discussed in Chapter

3. The goal of the NCMITS study is to incorporate all of these changes and provide an updated multimodal transportation blueprint for North County.

Following the update of NCCHC recommendations, the subject of feasibility of an inland port is addressed and the opportunities presented by expanded future goods movement related industrial development is presented. Several potential areas where such development would make sense based on transportation accessibility, land use availability, and other issues are identified. Multimodal transportation improvements related to the development of these economic development opportunity areas are also presented.

Chapter 5 discusses passenger rail system integration, particularly related to existing and proposed Metrolink commuter rail service, the planned California High Speed Rail (CAHSR) project and its potential connection to the XpressWest high speed rail project via the High Desert Corridor right-of-way. The highspeed rail component of the High desert Corridor project would connect with the CHSR line at the Palmdale Transportation Center (PTC).

Chapters 7 and 8 combine the multimodal transportation improvements, by area or mode, into potential investment packages and regional priorities. Since the timing of many of the transportation projects and development opportunities is unknown at this time, this report presents strategies for future transportation investments geared to respond to potential future scenarios.

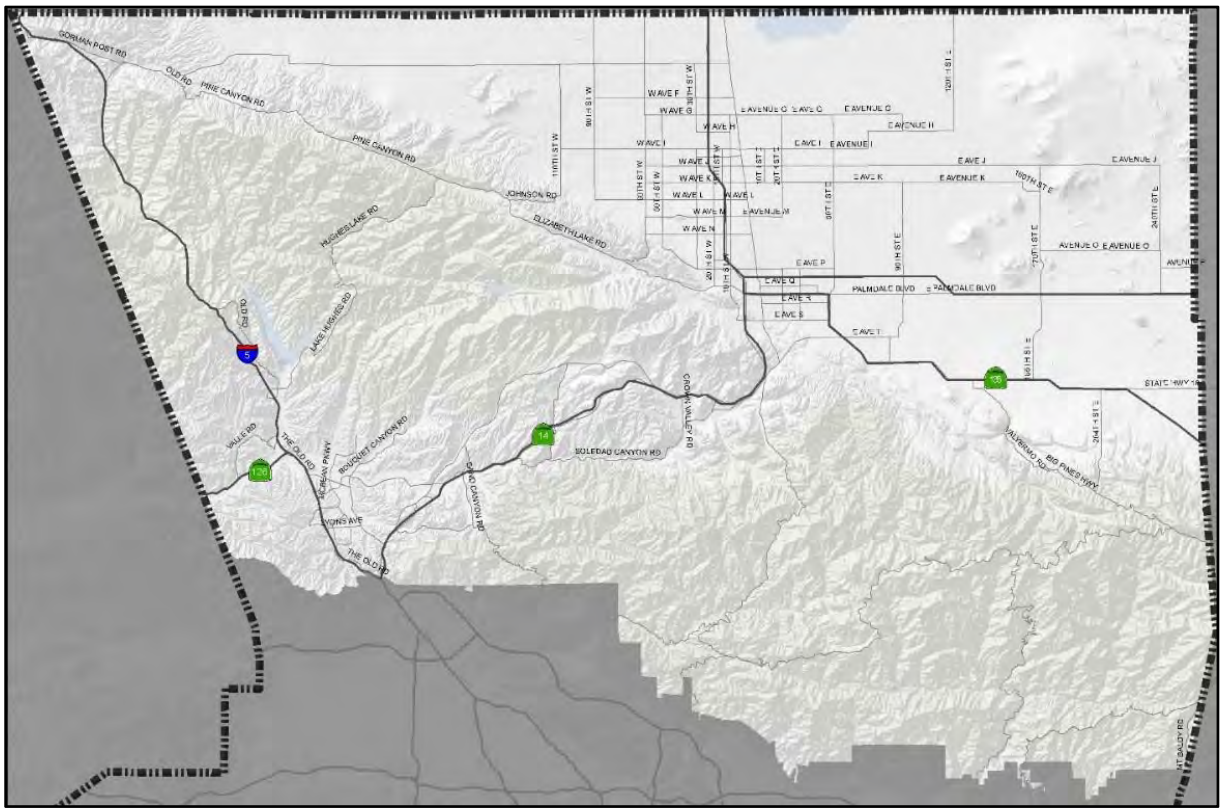


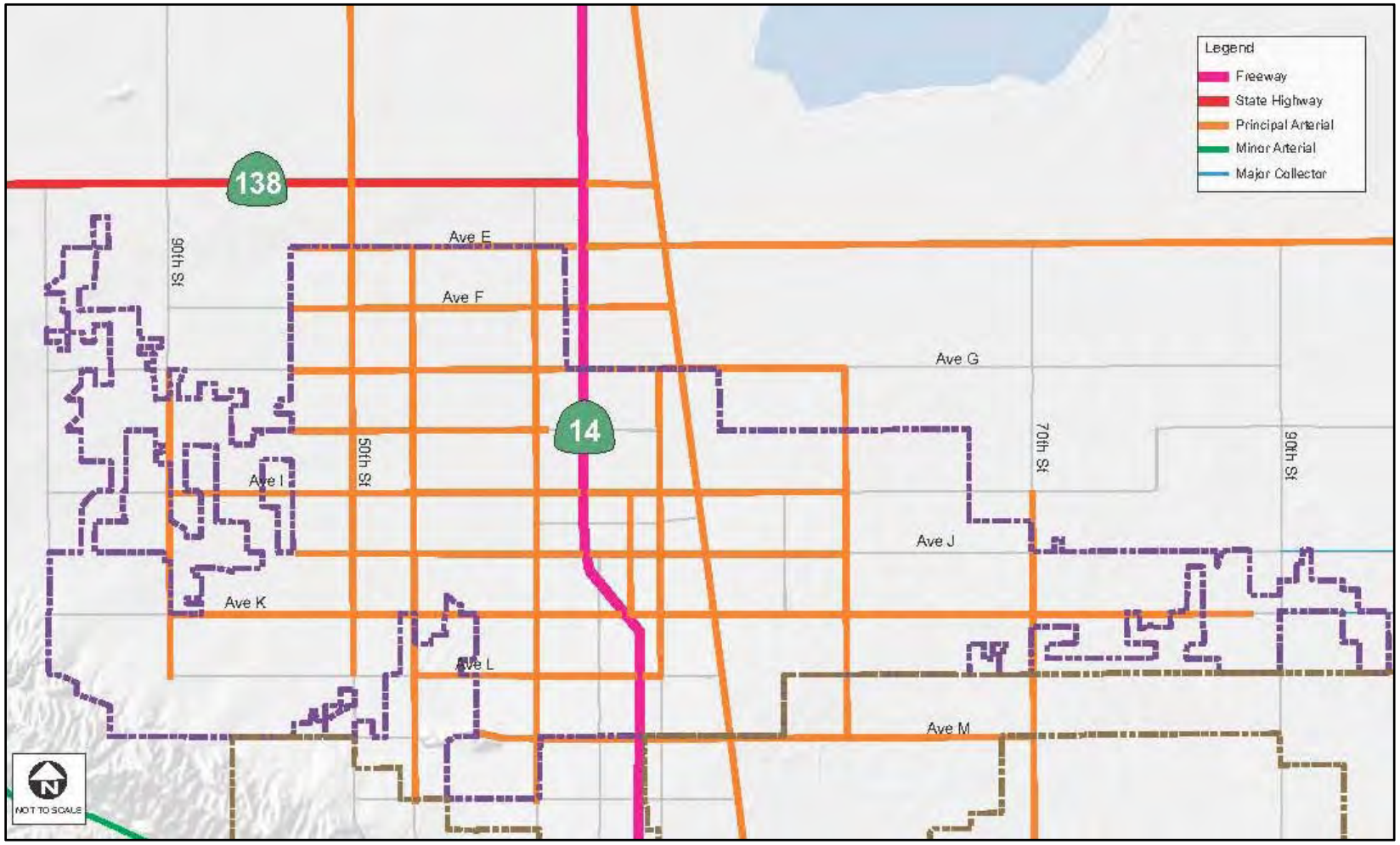
Figure 1-1: North Los Angeles County Subregion

Chapter 2 - EXISTING TRANSPORTATION FACILITIES AND SERVICES

The North County subregion is served by a variety of transportation facilities and services including a major interstate freeway, multiple state highways, regionally significant arterials, and active transportation facilities serving non-motorized modes of transportation. Both passenger rail and bus transit services are provided in the Subregion, with supporting multimodal transportation and park and ride facilities. The North County is also serviced by two airports, as well as freight rails and truck routes that are essential for supporting the goods movement and freight transportation in the region. Chapter 2 provides a discussion of these specific transportation modes.

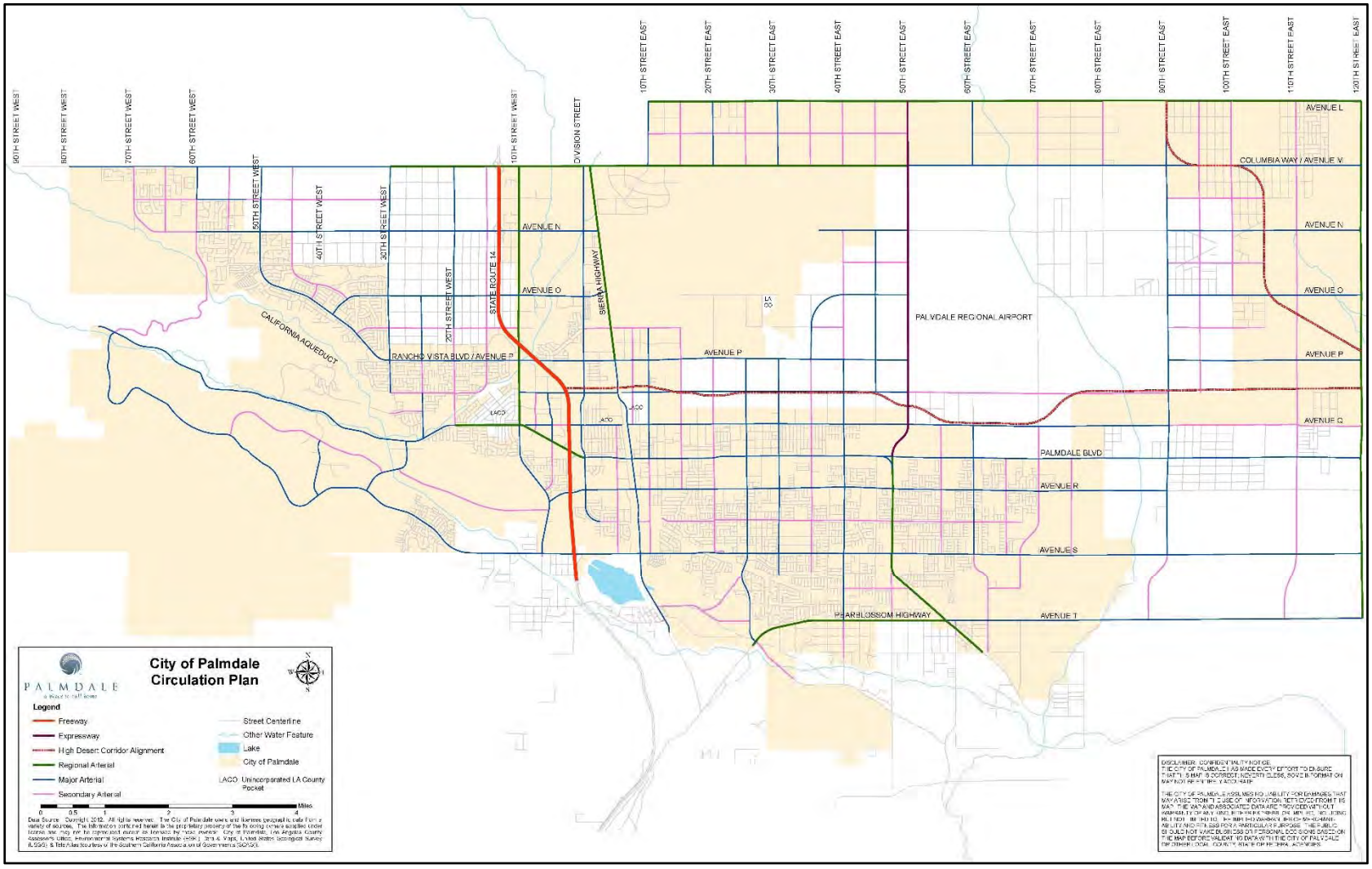
2.1. Roadways

Major routes, such as I-5, SR-14, SR-126 and SR-138, provide interregional travel from North County to destinations in Los Angeles, Ventura, Orange, Kern, San Bernardino counties and beyond. The roadway network also includes regionally significant arterials that offer alternate routes of access, including Sierra Highway and Angeles Crest Highway (SR-2). These routes parallel much of SR-14 and local highways that allow access through areas of the Los Padres National Forest and Angeles National Forest. **Figures 2-1**, **2-2** and **2-3** show the major roadways in the Cities of Lancaster, Palmdale, and Santa Clarita, respectively, in the North County Area. The maps also include roadways in the unincorporated Los Angeles County. Chapter 2 also describes the Surface Transportation Assistance Act of 1982 (STAA) truck routes, as well as some of the local truck routes within the Antelope Valley area.



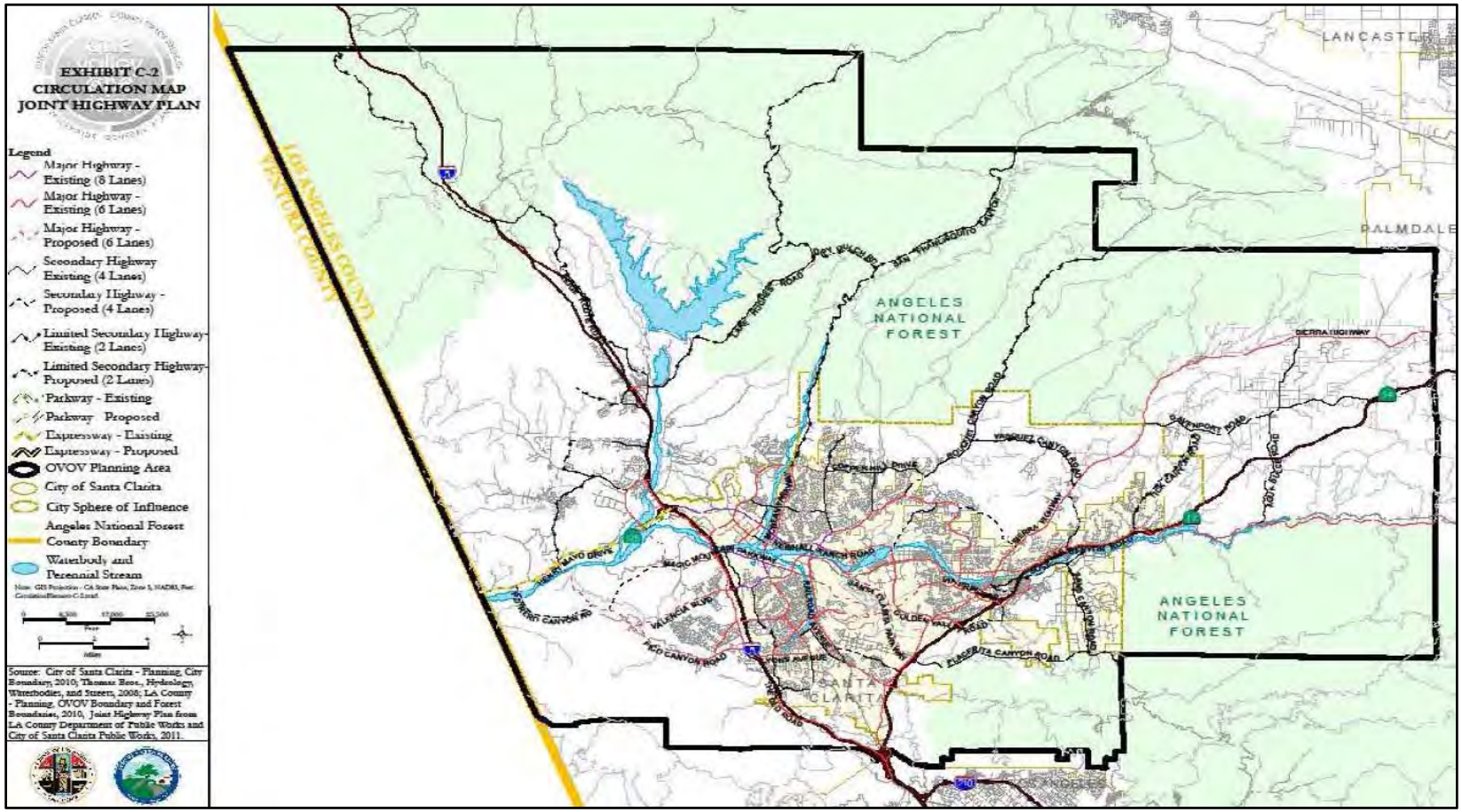
Source: City of Lancaster General Plan

Figure 2-1: Major Roadways in City of Lancaster



Source: City of Palmdale Circulation Plan

Figure 2-2: Major Roadways in City of Palmdale



Source: City of Santa Clarita Circulation Element

Figure 2-3: Major Roadways in City of Santa Clarita

2.1.1. Interstate 5

I-5 is a major north-south Interstate freeway stretching throughout the State between the United States-Mexico border and the California-Oregon State line. Within the North County Corridors Plan, I-5 extends from north of I-5/SR-14 interchange to the Kern County Line. This section of I-5 generally has three to five mixed-flow (MF) lanes in each direction, with six to seven MF lanes just south of SR-118 outside North County. I-5 has one high-occupancy vehicle (HOV) lane in each direction, from SR-134 to just south of I-5/SR-14 interchange. It also has HOV connectors to SR-14. According to the latest Caltrans Transportation Concept Report (TCR) for I-5, the annual average daily traffic (AADT) ranges from 129,000 near SR-138 to 285,800 near SR-126. Truck percentages range from nine percent to 24 percent within the North County area.

2.1.2. State Route 14

SR-14 is a north-south freeway, which connects I-5 with U.S. 395. SR-14 is a major commuter freeway serving and connecting the cities of Santa Clarita, Palmdale, Lancaster, and unincorporated areas of Los Angeles County, with the rest of the Greater Los Angeles area to the south. SR-14 generally has two to three MF lanes and one HOV lane in each direction, from Newhall Avenue to Escondido Canyon Road. The northbound HOV lane is active during the AM peak period. The southbound HOV lane is active during the PM peak period. According to the Caltrans *2013 Traffic Volumes on California State Highways*, the annual average daily traffic (AADT) for this corridor ranges from 29,500 at the Los Angeles/Kern County Line, to 160,000 at the I-5/SR-14 junction. The Caltrans *2012 Annual Average Daily Truck Traffic on the California State Highway System* shows that SR-14 truck AADT ranges from 1,700 at the SR-138/Avenue D interchange to 8,700 at the I-5/SR-14 Interchange. Truck percentages on this corridor range from 3.8 percent to 5.8 percent of total traffic.

2.1.3. State Route 138

SR-138 in Los Angeles County is an east-west state highway that begins from the San Bernardino County line, transitions north along SR-14, extends west at Avenue D north of Lancaster and terminates at the I-5 just south of the Los Angeles/Kern County Line. It has varying cross-section throughout its course, varying from undivided two-lane cross-section west of Lancaster, four to six lane divided cross-section in the City of Lancaster (duplexed with Antelope Valley Freeway), primarily five lane cross-section within the urbanized area of the City of Palmdale, and two to five lane cross-section in the unincorporated areas of rural Los Angeles County. According to the Caltrans *2013 Traffic Volumes on California State Highways*, the annual average daily traffic (AADT) for this corridor ranges from 3,150 at 110th Street West and Avenue D, to 23,700 at Sierra Highway/I-5. The Caltrans *2012 Annual Average Daily Truck Traffic on the California State Highway System* shows that SR-138 truck AADT ranges from 540 at the SR-14/Avenue D junction north, to 1,700 at Pearblossom Highway/Avenue T to the south-east. Truck percentages on this corridor range from 5.4 percent to 20.6 percent of total traffic.

2.1.4. Regionally Significant Arterials

Regionally significant arterials within North County include the following:

- Sierra Highway
- Lake Hughes Road
- San Francisquito Canyon Road
- Bouquet Canyon Road
- Elizabeth Lake Road
- Angeles Forest Highway and Big Pines Highway

Sierra Highway is a north-south road that runs from San Fernando Road/The Old Road in the City of Los Angeles, through the Newhall Pass interchange of I-5 and generally runs parallel to SR-14. It serves as one of the main thoroughfares in Santa Clarita Valley. Caltrans owns and operates the segment between SR-14/I-5 Junction and north of Placerita Canyon Road (SR-14U), while the City of Santa Clarita maintains the other portions in the Santa Clarita Valley. Sierra Highway, SR-14, and Union Pacific Railroad all cross the San Gabriel Mountains at Soledad Pass using different paths through the mountains. Sierra Highway also serves as one of the main north/south arteries through Palmdale and Lancaster.

Lake Hughes Road is a local highway that starts at the I-5 near Castaic in a north east direction to Lake Elizabeth Road. It is a two-lane road that provides a scenic alternative route through the canyons.

San Francisquito Canyon Road and Bouquet Canyon Road are two-lane scenic canyon roads that generally run in a north south direction from Elizabeth Lake in the north to Santa Clarita in the south. Elizabeth Lake Road is a two-lane arterial located in the Antelope Valley that runs from SR-14/SR-138 west through the Sierra Pelona Mountains and connects with Bouquet Canyon Road, San Francisquito Canyon Road, Lake Hughes Road, and continues as Pine Canyon Road on the northeasterly edge of the Los Padres National Forest.

Angeles Forest Highway is a two-lane road between SR-14 in the north and Angeles Crest Highway in the South.

Big Pines Highway is a two-lane arterial from SR-2 to 204th Street East north of Wrightwood. Big Pines Highway is the only alternate route for Wrightwood and surrounding areas.

2.2. Truck Routes

All three State Highway System (SHS) routes, I-5, SR-14, and SR-138 are designated as Surface Transportation Assistant Act (STAA) truck routes that allow STAA and California legal trucks. While I-5 and SR-14 are part of the STAA National Network, SR-138 is a Terminal Access route that also allows access to STAA trucks. Terminal Access routes are a California designation for routes that meet STAA standards, but that are not federally designated. **Figure 2-4** illustrates the North County region's truck routes map.

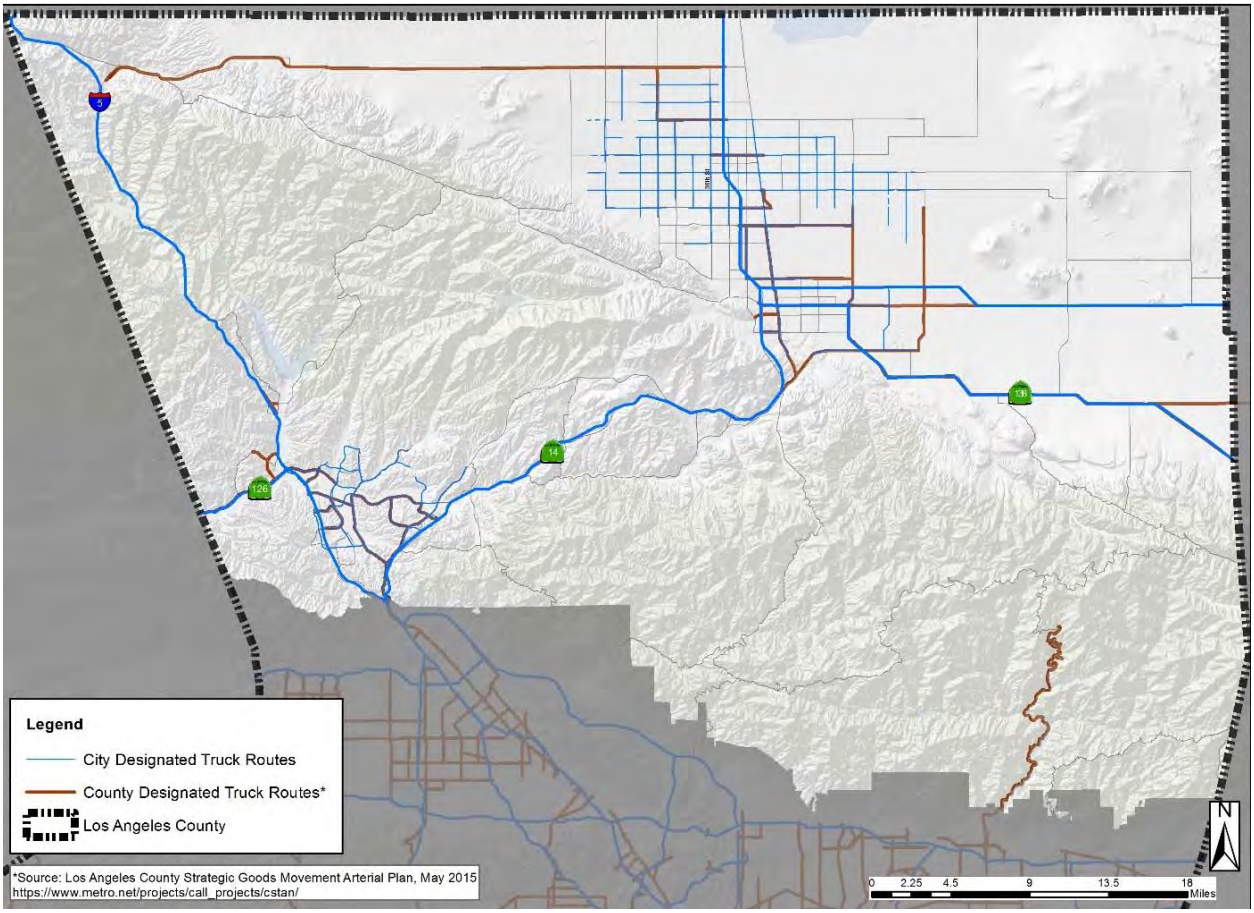


Figure 2-4: Truck Routes within North County

Truck volumes on key roadways in North County were discussed in *Section 2.1 Roadways*. The City of Lancaster allows truck traffic on the following streets or portions of streets:

- Avenue E
- Avenue F
- Avenue G
- Avenue H
- Avenue I
- Avenue J
- Avenue K
- Avenue L
- Avenue M
- Avenue N
- 20th Street West
- 30th Street West
- 40th Street West
- 50th Street West
- 60th Street West
- 70th Street West
- 80th Street West
- 90th Street West
- 100th Street West
- Sierra Hwy
- 10th Street East
- 20th Street East
- 30th Street East
- 40th Street East
- 50th Street East
- 70th Street East
- 80th Street East

In the City of Palmdale truck traffic is allowed on the following streets or portions of streets as listed in Palmdale Municipal Code:

- 10th Street West from Avenue P to Avenue M

- Sierra Highway from the Antelope Valley Freeway SR-14 to Avenue M
- 50th Street East from Palmdale Boulevard to Avenue M
- Avenue M from the Antelope Valley Freeway SR-14 to 50th Street East
- Avenue P from 10th Street West to 50th Street East
- City Ranch Road, Tierra Subida, Rayburn Road, and Avenue R, from the Palmdale Dump to Sierra Highway
- Avenue S from Antelope Valley Freeway SR-14 to Sierra Highway
- Pearblossom Highway from Sierra Highway to Fort Tejon Road
- Avenue T from Fort Tejon Road to 90th Street East

In the City of Santa Clarita, truck traffic not exceeding a gross weight of 14,000 pounds is allowed on all streets within City limits. Trucks exceeding this weight limit are not allowed to operate on some streets or portions of streets as listed in Santa Clarita Municipal Code (Section 12.48.060).

The Countywide Strategic Truck Arterial Network (CSTAN) study for Los Angeles County was completed in 2015. CSTAN arterial corridors represent a subset of Los Angeles County arterials that are most important to the trucking of goods. The truck routes for the North County as identified in the 2015 study are as follows:

- 60th Street West from West Avenue D to West Avenue G (Lancaster, Unincorporated)
- Division Street from East Avenue K to E Avenue K-8 (Lancaster)
- Business Center Parkway from East Avenue K-8 to East Avenue L (Lancaster)
- State Highway 138/Lancaster Road/West Avenue D from I-5 to Antelope Valley Freeway (Unincorporated)
- West Avenue G from 60th Street West to Antelope Valley Freeway (Lancaster, Unincorporated)
- West Avenue I from 30th Street West to Division Street (Lancaster)
- West Avenue K from Sierra Highway to Division Street (Lancaster)
- West Avenue L from Antelope Valley Freeway to Sierra Highway (Lancaster)
- East Avenue L from Sierra Highway to 4th Street East (Lancaster)
- West and East Avenue M from Antelope Valley Freeway to 50th Street East (Lancaster, Palmdale, Unincorporated)
- 10th Street West from West Avenue M to West Avenue P (Palmdale)
- Sierra Highway from West/East Avenue M to Pearblossom Highway (Palmdale, Unincorporated)
- 47th Street East from East Palmdale Boulevard to Fort Tejon Road (Palmdale)
- Fort Tejon Road from 47th Street East to Pearblossom Highway/East Avenue T (Palmdale)
- 50th Street East from East Avenue L to East Palmdale Boulevard (Palmdale, Unincorporated)
- 87th Street East from 90th Street East to East Avenue T (Unincorporated)
- 90th Street East from East Avenue L to 87th Street East (Palmdale, Unincorporated)
- Rancho Vista Boulevard from 10th Street West to Sierra Highway (Palmdale)
- East Avenue P from Sierra Highway to 50th Street East (Palmdale, Unincorporated)

- East Palmdale Boulevard from Antelope Valley Freeway to 120th Street East (Palmdale, Unincorporated)
- Rayburn Road from Tierra Subida Avenue to Division Street (Palmdale)
- East Avenue R from Division Street to Sierra Highway (Palmdale)
- East Avenue S from Antelope Valley Freeway to Sierra Highway (Palmdale, Unincorporated)
- East Avenue T from Fort Tejon Road/Pearblossom Highway to 87th Street East (Palmdale, Unincorporated)
- Pearblossom Highway from Antelope Valley Freeway Ramps to Oasis Road (Palmdale, Unincorporated)
- Antelope Highway from Pearblossom Highway to 263rd Street East (Unincorporated)
- Bouquet Canyon Road from Valencia Boulevard/Soledad Canyon Road to Magic Mountain Parkway (Santa Clarita)
- Railroad Avenue from Magic Mountain Parkway to Newhall Avenue (Santa Clarita)
- Newhall Avenue from Railroad Avenue to Antelope Valley Freeway (Santa Clarita)
- Rye Canyon Road from Newhall Ranch Road to I-5 (Santa Clarita)
- Magic Mountain Parkway from The Old Road to Bouquet Canyon Road/Railroad Ave (Santa Clarita, Unincorporated)
- McBean Parkway from Magic Mountain Parkway to I-5 (Santa Clarita)
- Newhall Ranch Road from I-5 to McBean Parkway (Santa Clarita)
- State Highway 126/Henry Mayo Drive from Barranca Drive to I-5 (Unincorporated)
- Golden Valley Road from Soledad Canyon Road to Sierra Highway (Santa Clarita)
- Placerita Canyon Road from Sierra Highway to Antelope Valley Freeway Ramps (Santa Clarita, Unincorporated)
- Sierra Highway from Via Princessa to The Old Road/San Fernando Road (Santa Clarita, Unincorporated)
- Soledad Canyon Road from Bouquet Canyon Road to Whites Canyon Road (Santa Clarita)
- Whites Canyon Road from Soledad Canyon Road to Via Princessa (Santa Clarita)
- Via Princessa from Whites Canyon Road to Antelope Valley Freeway (Santa Clarity, Unincorporated)
- Hasley Canyon Road from Del Valle Road to I-5 (Unincorporated)
- Commerce Center Drive from Hasley Canyon Road to State Highway 126 (Unincorporated)
- Copper Hill Drive from Kelly Johnson Parkway/Smyth Drive to Newhall Ranch Road (Santa Clarita)
- Valencia Blvd from I-5 to McBean Parkway (Santa Clarita)
- It is noted that some of above listed truck routes overlap with the truck routes as defined by the cities of Lancaster, Palmdale and Santa Clarita.

2.3. Existing Traffic Conditions

This section summarizes the existing traffic conditions based on traffic operations, existing bottlenecks and congestion hotspots, and accidents and incidents. Traffic operations provides performance measures

for existing conditions, and is based on Level of Service (LOS). Existing conditions data is obtained from Caltrans PeMS, Caltrans District 7 Transportation Concept Reports for I-5, SR-14 and SR-138, and California Highway Patrol (CHP)'s Statewide Integrated Traffic Records System (SWITRS).

2.3.1. Traffic Operations

Freeways

Traffic operations along I-5, SR-14, and SR-138 were analyzed based on the 2013 Caltrans Transportation Concept Report (TCR). The TCR is a planning document that identifies the existing and future route conditions, as well as future needs for each route on the State Highway System (SHS). Future needs of the system is based on LOS 'D'. In some of the heavily congested segments, the data for LOS 'D' and LOS 'F0' are presented to show the severity of congestion and what would be required to achieve that LOS.

Table 2-1 shows I-5 corridor's operational performance based on the I-5 TCR dated June 2013. The future 2035 Average Annual Daily Traffic (AADT) and Vehicle Miles Travelled (VMT) are derived from SCAG 2012-2035 Regional Transportation Plan/Sustainable Communities Strategies (RTP/SCS).

Table 2-1: Corridor Operational Performance - I-5

I-5 Segments	AADT 2008	AADT 2035	VMT 2008	VMT 2035	LOS 2008	LOS 2035	Configuration (both directions)			
							Existing	2035 Baseline RTP	LOS "D" Attainment	LOS "F0" Attainment
I-210 to SR-14	271,800	493,000	195,000	305,100	**F3**	**F3**	6 MF+1 HOV+2 TL	10 MF +2 HOV	28	20
SR-14 to SR-126	170,440	263,500	1,257,800	2,047,900	E	F0	4 MF+1 HOV+2 TL	10 MF +2 HOV	15	11
SR-126 (S) to SR-126 (N)	112,300	187,600	152,000	251,890	B	E	4 MF	8 MF	10	8
SR-126 (N) to SR-138 (S)	72,500	152,300	1,651,500	3,626,200	B	D	4 MF	8 MF	8	6
SR-138 (S) to Kern Co. Line	67,000	129,200	424,800	810,000	A	C	4 MF	8 MF	8	4

Source: I-5 TCR, 2013

As shown in **Table 2-1**, the I-210 to SR-14 segment on the I-5 corridor is projected to operate at an unacceptable performance level in year 2035. For attainment of LOS 'F0', this segment would need a total of 20 lanes for both directions. The other four segments, from SR-14 to Kern County Line, all meet the minimum level of service requirement of 'F0' as set by Caltrans.

Future 2035 traffic would require additional lanes on I-5 to achieve the acceptable concept level of service. Several capacity improvements are planned, programmed, and recommended for this corridor in the 2012 RTP. The I-5 TCR suggests that I-5 could be developed to maintain or attain the concept LOS 'F0'.

Table 2-2 shows SR-14 corridor's operational performance based on SR-14 TCR dated June 2014. The future 2035 Average Annual Daily Traffic (AADT) and Vehicle Miles Travelled (VMT) are derived from SCAG 2012-2035 RTP/SCS.

Table 2-2: Corridor Operational Performance – SR-14

SR-14 Segments	AADT 2008	AADT 2035	VMT 2008	VMT 2035	LOS 2008	LOS 2035	Configuration (both directions)			
							Existing	2035 Baseline RTP	LOS "D" Attainment	LOS "F0" Attainment
I-5 to San Fernando Rd	155,000	233,400	237,600	321,600	F0	F0	10 MF	10 MF	14 MF	10 MF
San Fernando Rd to Ward Rd	96,500	140,400	1,816,000	2,787,100	E	F0	6MF	6 MF	8 MF	6 MF
Ward Rd to South Jct. SR-138	83,000	110,000	864,000	1,454,100	D	F0	4 MF	4 MF	6 MF	4 MF
South Jct. SR-138 to Ave I	44,500	89,600	466,400	678,600	B	C	6 MF	6 MF	-	-
Ave I to Kern Co. Line	34,000	49,100	359,400	431,500	B	B	4 MF	4 MF	-	-

Source: SR-14 TCR, 2014

As shown in the **Table 2-2**, all five segments on the SR-14 corridor are projected to operate at acceptable performance levels in year 2035.

Table 2-3 shows SR-138 corridor's operational performance based on SR-138 TCR, dated June 2014. The future 2035 Average Annual Daily Traffic (AADT) and Vehicle Miles Travelled (VMT) are derived from SCAG 2012-2035 RTP/SCS.

Table 2-3: Corridor Operational Performance – SR-138

SR-138 Segments	AADT 2008	AADT 2035	VMT 2008	VMT 2035	LOS 2008	LOS 2035	Configuration (both directions)			
							Existing	2035 Baseline RTP	LOS "D" Attainment	LOS "F0" Attainment
Jct of Rte 5 to End of Fwy	3,200	27,500	6,500	56,200	A	D	2 MF	4 MF	-	-
End of Fwy to Jct Rte 14 North	4,200	33,600	147,300	1,176,500	B	**E**	1 MF	2 CONV	3	-
Jct Rte 14 South to Ave T	16,900	27,400	136,100	220,100	B	C	2 MF	4 CONV	-	-
Ave T to Rte 18	19,300	30,700	343,900	547,100	D	D	2 / 1	4 CONV	-	-
Rte 18 to San Bernardino County Line	12,500	19,000	70,000	106,900	B	C	1 MF	2 CONV	-	-

Source: SR-138 TCR, 2014

As shown in the **Table 2-3**, the segment between the end of freeway to the Junction of SR-14 N on SR-138 corridor is projected to operate at a deficient performance level in year 2035. This is a 35.07 mile long conventional highway segment. Based on the future LOS 'D' requirements, this segment would need total of three lanes.

Major Roadways

The deficient segments of the major roadways in North County have been identified based on the following sources:

- SCAG RTP 2035 travel demand model (includes all funded RTP projects)
- City of Lancaster General Plan Update (2008)
- City of Palmdale General Plan (1993)
- City of Santa Clarita General Plan Update
- NCMITS TAC Focus Group

The traffic operations on major roadways in the North County area were analyzed based on Volume to Capacity (V/C) ratio obtained from the SCAG RTP 2035 travel demand model. It should be noted that the forecast levels of service are based on generalized, policy-level daily roadway segment capacity assumptions and do not necessarily directly correlate with, or represent, projected peak hour operating conditions. **Table 2-4** lists the deficient roadway segments and their sources. In general, any segment projected to operate at LOS E or F was considered as deficient.

Table 2-4: Roadway Segments Operating at Deficient Levels

City/Area	Deficient Arterial	From	To	Source
Lancaster	Quartz Hill Rd	50th St West	45th St West	City of Lancaster General Plan Update
		45th St West	Columbia Wy (Ave M)	
	Columbia Wy	15th St West	SR-14	
		Quarz Hill Rd	40th St West	
	Lancaster Blvd	10th St West	Sierra Ave	
Palmdale	20th St East	Palmdale Blvd	Ave S	City of Palmdale General Plan
	25th St East	Ave S	4200' South of Ave S	
	Ave M	Sierra Hwy	5th St East	
	Ave P	10th St West	Sierra Hwy	
	Elizabeth Lake Rd	Bridge Rd	25th St West	
	Ave R-8	1200' East of 35th St East	40th St East	
	Barrel Springs Rd	25th St East	Pearblossom Hwy	
	10th St West	Ave O	Palmdale Blvd	NCMITS TAC Focus Group Feedback
	110th St West	West Ave K	Johnson Rd	SCAG 2035 Travel Demand Model (2012 RTP/SCS)
	47th St East	Barrel Springs Rd	Mount Emma Rd	
	90th St East	Palmdale Blvd	East Ave P	
	Angeles Forest Hwy	Big Tujunga Canyon Rd	Mount Emma Rd	
		Soledad Pass Rd	SR-14	
	East Ave P	30th St East	50th St East	

City/Area	Deficient Arterial	From	To	Source
	Ave Q	Sierra Hwy	City Limits	NCMITS TAC Focus Group Feedback
	East Ave S	25th St East	Casa Verde Dr	SCAG 2035 Travel Demand Model (2012 RTP/SCS)
		40th St East	47th St East	
	Elizabeth Lake Rd	Bouquet Canyon Rd	Godde Hill Rd	
		San Francisquito Rd	Johnson Rd	
	East Palmdale Blvd	60th St East	70th St East	
		90th St East	100th St East	
	Pearblossom Hwy	Cheseboro Rd	70th St East	
		SR-14 Ramps	32nd St East	
	50th St West	West Ave N	West Ave N-8	
	Sierra Hwy	East Ave O	East Palmdale Blvd	NCMITS TAC Focus Group Feedback
Santa Clarita	Bouquet Canyon Rd	Newhall Ranch Rd[1]	Haskell Canyon Rd	SCAG 2035 Travel Demand Model (2012 RTP/SCS)
		Plum Canyon Rd	Shadow Valley Ln	
		w/o Haskell Canyon Rd	Plum Canyon Rd	Santa Clarita General Plan Update 2012
		n/o Magic Mtn Pkwy	Newhall Ranch Rd	
	Calgrove Blvd	I-5 Ramps	Wiley Canyon Rd	SCAG 2035 Travel Demand Model (2012 RTP/SCS)
	Copper Hill Dr	High Ridge Dr	David Way	
		Mc Bean Pkwy[2]	Seco Canyon Rd	
	Lyons Ave	Orchard Village Rd[3]	Newhall Ave	Santa Clarita General Plan Update 2012
	Main St	Newhall Ave	Lyons Ave	SCAG 2035 Travel Demand Model (2012 RTP/SCS)
	McBean	s/o Ave Scott		Santa Clarita General Plan Update 2012
	Newhall Ave	Lyons Ave[4]	Main St	
		SR-14 Ramps	Lyons Ave	SCAG 2035 Travel Demand Model (2012 RTP/SCS)
	Railroad Ave	Newhall Ave[5]	Soledad Canyon Rd	
	Sand Canyon Rd	Placerita Canyon Rd	Soledad Canyon Rd	
	Seco Canyon Rd	Bouquet Canyon Rd	Pamplico Dr	
	Shadow Pines Blvd	Soledad Canyon Rd	Begonias Ln	
	Shadow Valley Ln	Bouquet Canyon Rd	Zimmerman Pl	

[1] *Includes the extent e/o Seco Canyon Rd of Santa Clarita General Plan 2012*
[2] *Includes the extent e/o McBean Pkwy of Santa Clarita General Plan 2012*
[3] *Includes the extent e/o Orchard Village of Santa Clarita General Plan 2012*
[4] *Includes the extent s/o Lyons of Santa Clarita General Plan 2012*
[5] *Includes the following extents of Santa Clarita General Plan 2012: 1)s/o Oak Ridge and 2) n/o Lyons*

City/Area	Deficient Arterial	From	To	Source
	Sierra Hwy	Placerita Canyon Rd	Golden Valley Rd	
		San Fernando Rd	Newhall Ave	
		Sand Canyon Rd	Vasquez Canyon Rd	
	Valencia Blvd	Mc Bean Pkwy	Westridge Pkwy	
	Valencia Blvd	s/o Cinema Dr	-	Santa Clarita General Plan Update 2012
	Valley St	Lyons Ave	Market St	SCAG 2035 Travel Demand Model (2012 RTP/SCS)
	Walnut St	Newhall Ave	Lyons Ave	
	Whites Canyon Canyon Rd	Soledad Canyon Rd[6]	Pleasantdale St	Santa Clarita General Plan Update 2012
	Wiley Canyon Rd	Calgrove Rd	Lyons Ave	SCAG 2035 Travel Demand Model (2012 RTP/SCS)
Los Angeles County/ Lake Hughes	Old Ridge Rte	SR-138	Pine Canyon Rd	
Los Angeles County/ Stevenson Ranch	Pico Canyon Rd	The Old Rd	Pico Canyon Service Rd	
	Stevenson Ranch Pkwy	Pico Canyon Rd	Poe Pkwy	
		The Old Rd	Hemingway Ave	

As each jurisdiction moves forward with planning and development approvals over the next 20 years, this table provides guidance as to which arterial segments should be programmed for improvements or where parallel arterial or alternate modal improvements are appropriate to address these forecast capacity deficiencies.

2.3.2. Bottlenecks and Congestion

Based on Caltrans Performance Measurement System (PeMS) data, the major congestion locations are located along I-5 and SR-14. No major congestion locations have been identified along SR-126 or SR-138. The PeMS system attempts to identify bottlenecks on the freeway system. PeMS defines a bottleneck at a specific location, at a specific five-minute time point, when there is a persistant drop in speed from one detector station to the next. PeMS runs this algorithm for each VDS and for each of three shifts (time periods), AM shift (5am-10am), noon shift (10am-3pm), and PM shift (3pm-8pm), for every day. For each bottleneck, the duration of the bottleneck, the distance upstream, and the total delay are recorded.

PeMS data for top bottleneck locations along I-5 and SR-14 was collected for the year 2013. **Table 2-5** lists all segments that experienced recurrent congestion in 2013 along I-5 southbound (SB). Recurring hotspots identified in the table are those which occur for more than 15 days. The observed percentage of PeMS

[6] *Includes the extent n/o Soledata of the Santa Clarita General Plan 2012*

data along these corridors was more than 50% for year 2013. The observed percentage for I-5 northbound (NB) was 56.1%, for I-5 SB was 66.4%, for SR-14 NB was 79% and for SR-14 SB was 76.6%.

Figure 2-5 shows the locations of major congestion hotspots along I-5 and SR-14. These tables provide the following information for each of the congestion hotspot:

Location: The detector station location where the bottleneck was identified. This station is upstream of the actual bottleneck. In other words, the next station downstream should be downstream of the bottleneck and hence in free-flowing conditions.

Time Period (Shift): AM (5am-10am), Noon (10am-3pm), PM (3pm-8pm)

Number of Days Active: This is the number of days that a bottleneck was detected at this location.

Average Extent (miles): For each day, the distance upstream that the bottleneck stretched for every 5 minutes is measured. The median of these distances for the duration of the bottleneck is taken and call that the spatial extent of the bottleneck for that day. This column is the average of those spatial extents for all of the days that the bottleneck was active.

Average Delay (Veh-hrs): This is the average delay with respect to 35 mph that this bottleneck caused on the days that it occurred.

Average Duration (mins): This is the average length of the time that this bottleneck lasted on the days that it occurred.

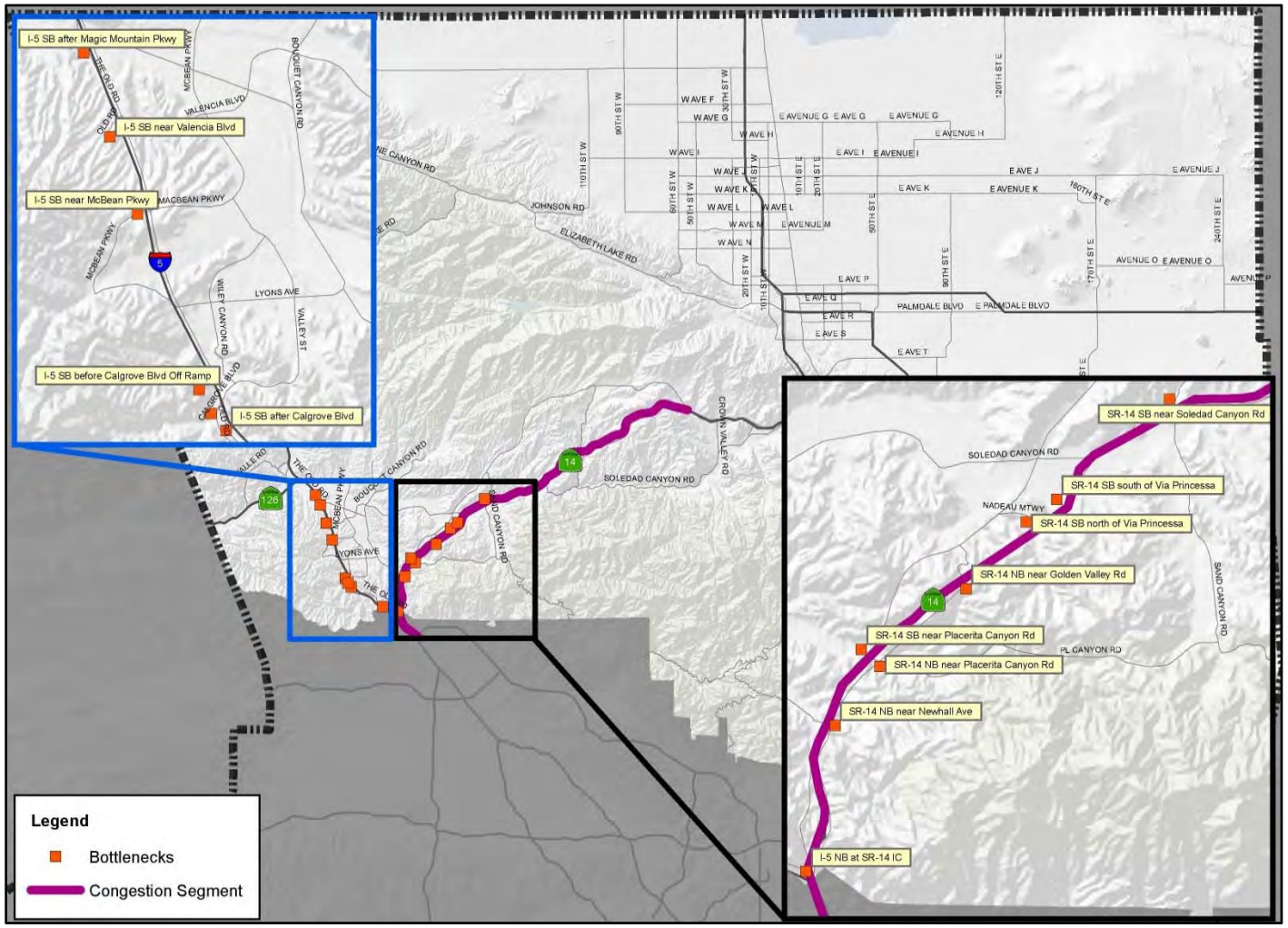


Figure 2-5: Congestion Hotspots along I-5 and SR-14

Table 2-5: Top Congestion Hotspots - I-5 Southbound

Location	Time Period	Number of Days Active	Average Extent (miles)	Average Delay (veh-hrs)	Average Duration (mins)
I-5 SB north of Calgrove Blvd Off Ramp	PM	122	0.8	43.1	57.5
	AM	49	0.7	15.6	33.3
	Noon	39	0.8	23.5	40.4
I-5 SB south of Calgrove Blvd	PM	83	2.4	223.0	132.6
I-5 SB at Valencia Blvd	PM	71	1.9	79.5	53.9
	Noon	17	1.6	36.3	71.8
I-5 SB south of Calgrove Blvd On Ramp	AM	59	2.2	153.2	69.1
	Noon	33	2.3	202.4	81.2
I-5 SB at McBean Pkwy	PM	34	2.7	162.2	43.2
I-5 SB at Weldon Canyon Rd	PM	29	2.3	34.9	115.2
	Noon	16	2.4	93.3	100.6
	AM	16	2.2	144.4	74.1
I-5 SB at Rye Canyon Rd	PM	17	1.0	45.5	73.5
I-5 SB south of Magic Mountain Pkwy	PM	15	1.8	94.9	54.0

As shown in **Table 2-5**, the major hotspot locations along I-5 SB in North County are near the SR-14 Interchange, Calgrove Boulevard, Valencia Boulevard, McBean Parkway, Weldon Canyon Road, Rye Canyon Road, and Magic Mountain Parkway.

Table 2-6 shows the segments along I-5 NB that experience recurrent congestion in 2013 along I-5 NB. As shown in **Table 2-6**, the major hotspot location along I-5 NB in North County is near SR-14 interchange.

Table 2-6: Top Congestion Hotspots - I-5 Northbound

Location	Shift	Number of Days Active	Average Extent (miles)	Average Delay (veh-hrs)	Average Duration (mins)
I-5 NB at SR-14 IC	Noon	19	3.3	437.9	69.2

Table 2-7 lists all segments that experience recurrent congestion in 2013 along SR-14 NB. As shown in **Table 2-7**, the major hotspot locations along SR-14 NB in North County are near Newhall Avenue, Placerita Canyon Road, and Golden Valley Road. The majority of congestion along SR-14 NB occurs during PM peak period.

Table 2-7: Top Congestion Hotspots – SR-14 Northbound

Location	Shift	Number of Days Active	Average Extent (miles)	Average Delay (veh-hrs)	Average Duration (mins)
SR-14 NB near Newhall Ave	PM	219	2.7	118.8	109.4
SR-14 NB near Placerita Canyon Rd	PM	44	3.1	134.9	42.3
SR-14 NB near Golden Valley Rd	Noon	18	1.4	6.3	21.1
	PM	17	1.4	19.4	47.1

Table 2-8 lists all segments that experience recurrent congestion in 2013 along SR-14 SB. As shown in **Table 2-8**, the major hotspot locations along SR-14 NB in North County are near Placerita Canyon Road, Via Princessa and Soledad Canyon Road. All congestion along SR-14 SB during AM peak period.

Table 2-8: Top Congestion Hotspots – SR-14 Southbound

Location	Shift	Number of Days Active	Average Extent (miles)	Average Delay (veh-hrs)	Average Duration (mins)
SR-14 SB near Placerita Canyon Rd	AM	156	5.7	379.9	93.1
	AM	125	4.6	37.4	74.3
SR-14 SB north of Via Princessa	AM	110	1.7	87.6	90.0
SR-14 SB near Soledad Canyon Rd	AM	23	3.4	37.4	43.5
SR-14 SB south of Via Princessa	AM	23	2.7	139.6	40.0

2.3.3. Accidents and Incidents

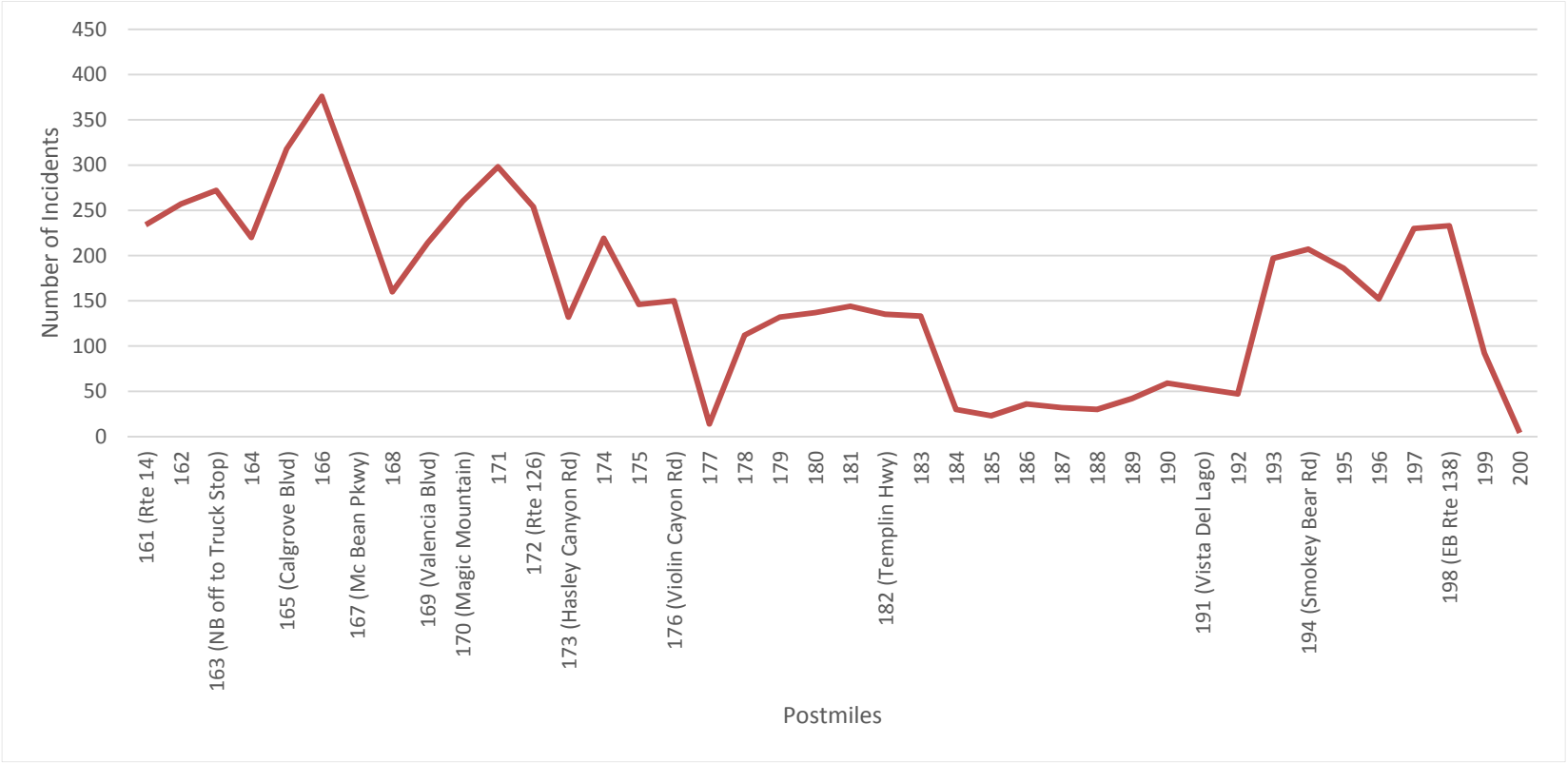
Traffic collision data for the North County area was obtained from SWITRS. Collision data for a three-year period, from January 1, 2011 to December 31, 2013, was collected for the cities of Lancaster, Santa Clarita and Palmdale. Data for the unincorporated Los Angeles County is collected by SWITRS, but is not reported by the North County Subregion. **Table 2-9** summarizes the accident data (fatal, injury, and property damage only (PDO) collisions) for the North County area.

Table 2-9: Accident Data (North County)

Year	Total Collisions	Fatal Collisions	Injury Collisions	PDO Collisions	Fatalities	Injuries	Severe Injuries
2011	3,930	18	1,704	2,208	18	2,636	76
2012	4,223	33	1,814	2,376	34	2,931	84
2013	2,681	26	1,664	991	28	2,562	91

Source: SWITRS report

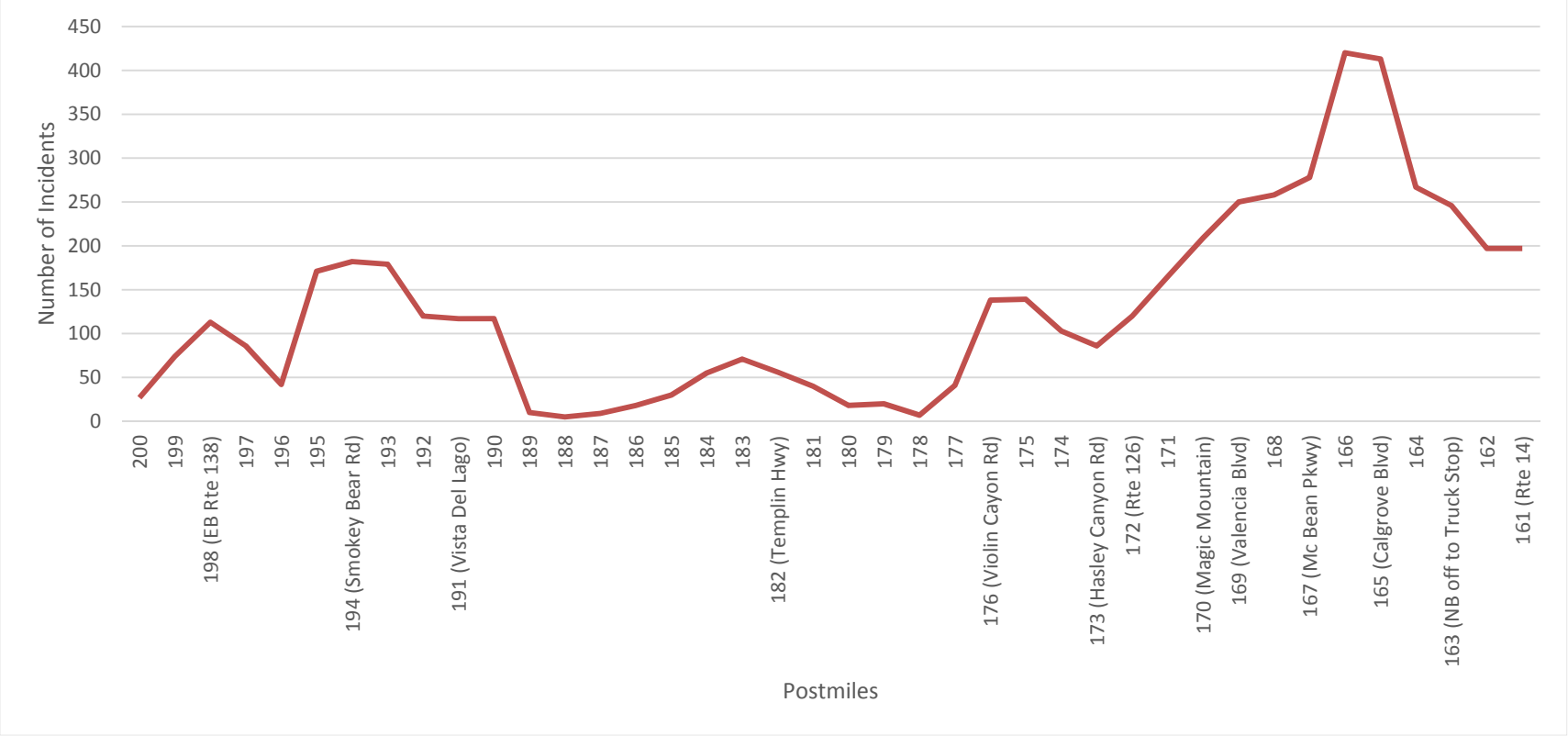
In addition to the SWITRS data, Caltrans PeMS data on incidents along I-5 and SR-14 was also collected and analyzed. PeMS data provided by CHP includes information on freeway direction, location, post mile, duration, and details of incidents. The details of incidents reported by CHP are broadly categorized as "Traffic Accidents and Other Incidents." Traffic accidents include cases of traffic collision. Other incidents include non-collision incidents, such as disabled vehicles and traffic hazards. In addition, PeMS data also provides spatial distribution of the incident data along the corridor. **Figures 2-6** through **2-9**, show the spatial distribution of incidents in 2013 along the I-5 NB, I-5 SB, SR-14 NB and SR-14 SB, respectively.



Source: PeMS CHP, 2013

Figure 2-6: Spatial Distribution of Incidents along I-5 NB

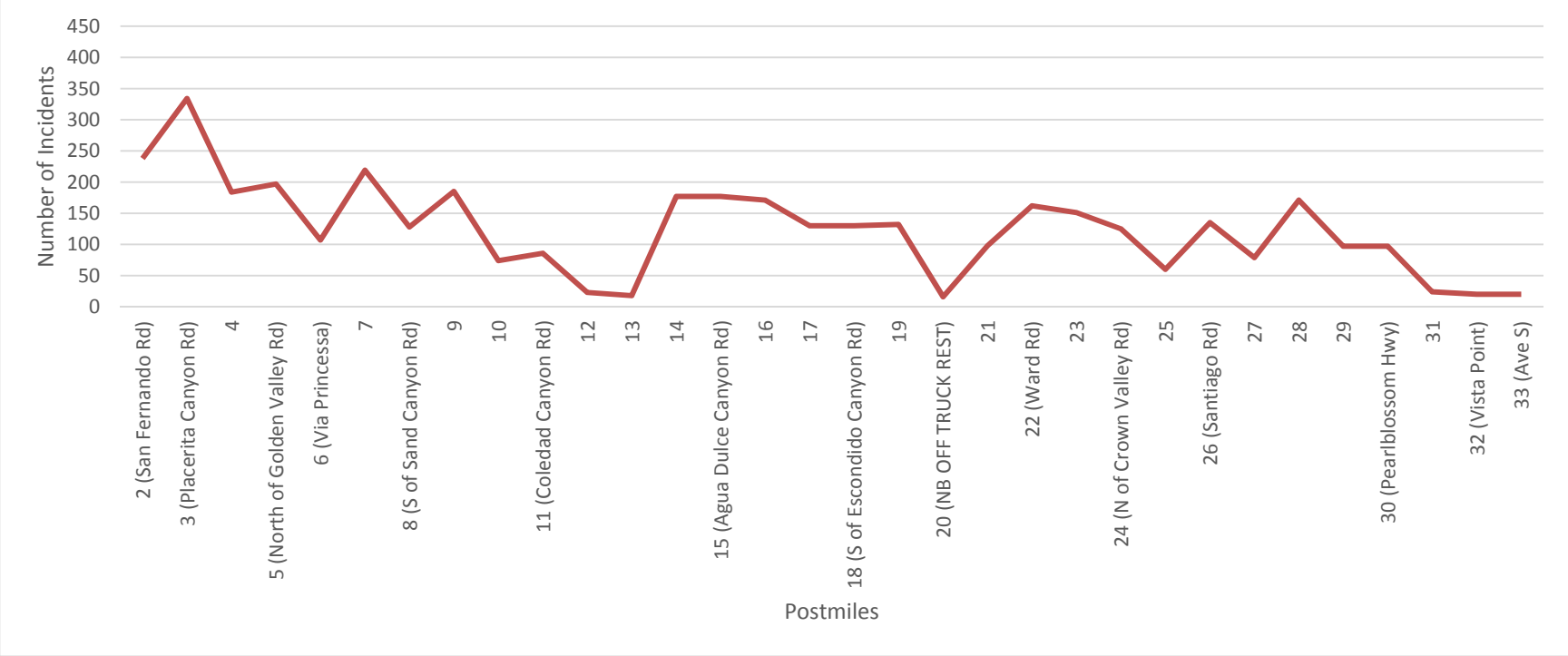
As shown in **Figure 2-6**, the highest number of incidents (376) along I-5 occur between Calgrove Boulevard and McBean Parkway, with 300 incidents occurring between Magic Mountain Parkway and SR-126.



Source: PeMS CHP, 2013

Figure 2-7: Spatial Distribution of Incidents along I-5 SB

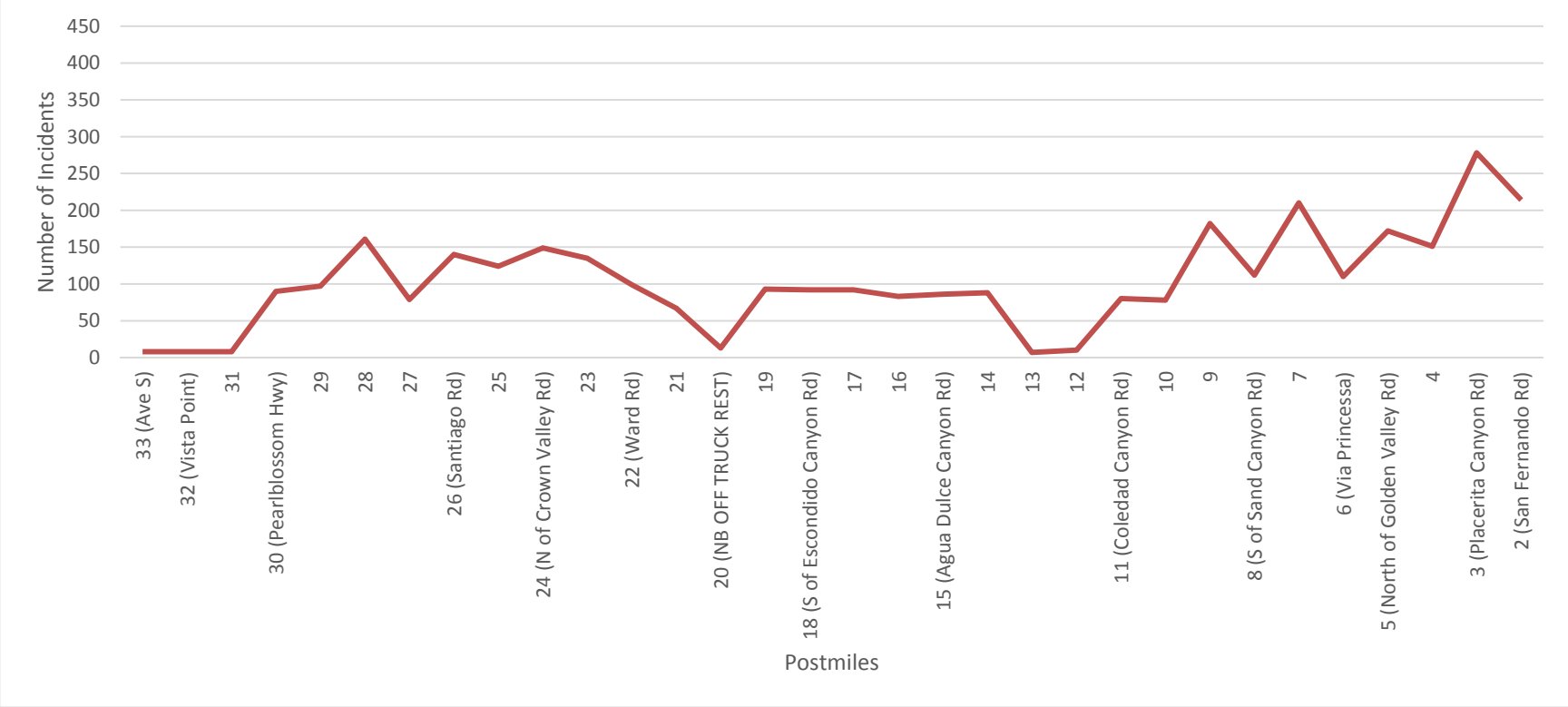
As shown in **Figure 2-7**, the highest number of incidents along I-5 SB (420) occurred between Calgrove Boulevard and McBean Parkway, same as in I-5 NB.



Source: PeMS CHP, 2013

Figure 2-8: Spatial Distribution of Incidents along SR-14 NB

As shown in **Figure2-8**, the highest number of incidents along the SR-14 NB in the North County area (334) happen near Placerita Canyon Road. Spatially, incidence occurrence reduces going northbound, with the most near Placerita Canyon Road and the least near Pearblossom Highway.



Source: PeMS CHP, 2013

Figure 2-9: Spatial Distribution of Incidents along SR-14 SB

As shown in **Figure 2-9**, the highest number of incidents along the SR-14 SB in the North County area (278) happen near Placerita Canyon Road, same as in SR-14 NB. Spatially, incidence occurrences increase going southbound, with the most near Placerita Canyon Road and the least near Pearblossom Highway.

2.4. State of Good Repair

2.4.1. Pavement Condition

The latest *Caltrans 2013 State of the Pavement Report* summarizes the results of the 2013 Pavement Condition Survey. Caltrans monitors the California State Highway System conditions using the Pavement Condition Survey. A map of pavement condition in the North County area is shown in **Figure 2-10**. From the figure, it can be seen that North County highway pavements are in relatively poor condition, compared to others in Los Angeles County. Many of the roadways have different levels of pavement distress, which is an indicator of physical deterioration of a roadway caused by hard use over time. The *Caltrans 2013 State of the Pavement Report* classifies pavement condition in the following five categories:

- No Distress – Good/excellent condition
- Minor Surface Distress – Fair Condition
- Poor Ride Only – Bad Condition
- Minor Structural Distress – Bad Condition
- Major Structural Distress – Bad Condition

The North County Subregion should continue to lobby for pavement maintenance funding both at the state level and the Los Angeles County level so that funding to address this issue is available in the future.

2.4.2. Bridge Condition

According to the Federal Highway Administration's (FHWA) *2013 National Bridge Inventory*, out of 427 bridges in the North County area, 40 (20%) are deficient. **Figure 2-10** and **Table 2-10** summarize the results of the bridge condition analysis in the North County area. Along the SHS, 44 out of 224 bridges are deficient, and on local roads 40 out of 203 bridges are deficient. 'Structurally Deficient' status means that a bridge has one or more structural defects that require attention. This status does not indicate the severity of the defect, but rather that a defect is present. 'Functionally Obsolete' status means that a bridge is no longer, by design, functionally adequate for its task. Reasons for this status include that the bridge does not have enough lanes to accommodate the traffic flow; it may be a drawbridge on a congested highway; or it may not have space for emergency shoulders.

Source: Caltrans 2013 Pavement Condition Survey

Figure 2-10: Pavement Condition – Caltrans District 7

Table 2-10: Bridge Condition

Route/Road Type	Total Number of Bridges	Number of Structurally Deficient Bridges	Number of Functionally Obsolete Bridges	Total Deficient	% Structurally Deficient	% Functionally Obsolete	% Deficient
North Los Angeles County State Highway System (SHS) Bridges							
I-5	67	9	10	19	13%	15%	28%
SR-2	9	0	2	2	0%	22%	22%
SR-14	123	16	4	20	13%	3%	16%
SR-18	1	1	0	1	100%	0%	100%
SR-126	10	0	0	0	0%	0%	0%
SR-138	14	0	2	2	0%	14%	14%
Sub-Total SHS	**224**	**26**	**18**	**44**	**12%**	**8%**	**20%**
North Los Angeles County Local Bridges							
City Street	91	13	8	21	14%	9%	23%
County Road	112	10	9	19	9%	8%	17%
Sub-Total Local Roads	**203**	**23**	**17**	**40**	**11%**	**8%**	**20%**
Total North County	**427**	**49**	**35**	**84**	**11%**	**8%**	**20%**

Note: "Structural Deficiency" and Functionally Obsolete" categories are defined by Federal guidance on "23 CFR 650 D".
Source: FHWA National Bridge Inventory (NBI)

The North County Subregion should continue to lobby for bridge rehabilitation funding both at the state level and the Los Angeles County level so that funding to address this issue is available in the future.

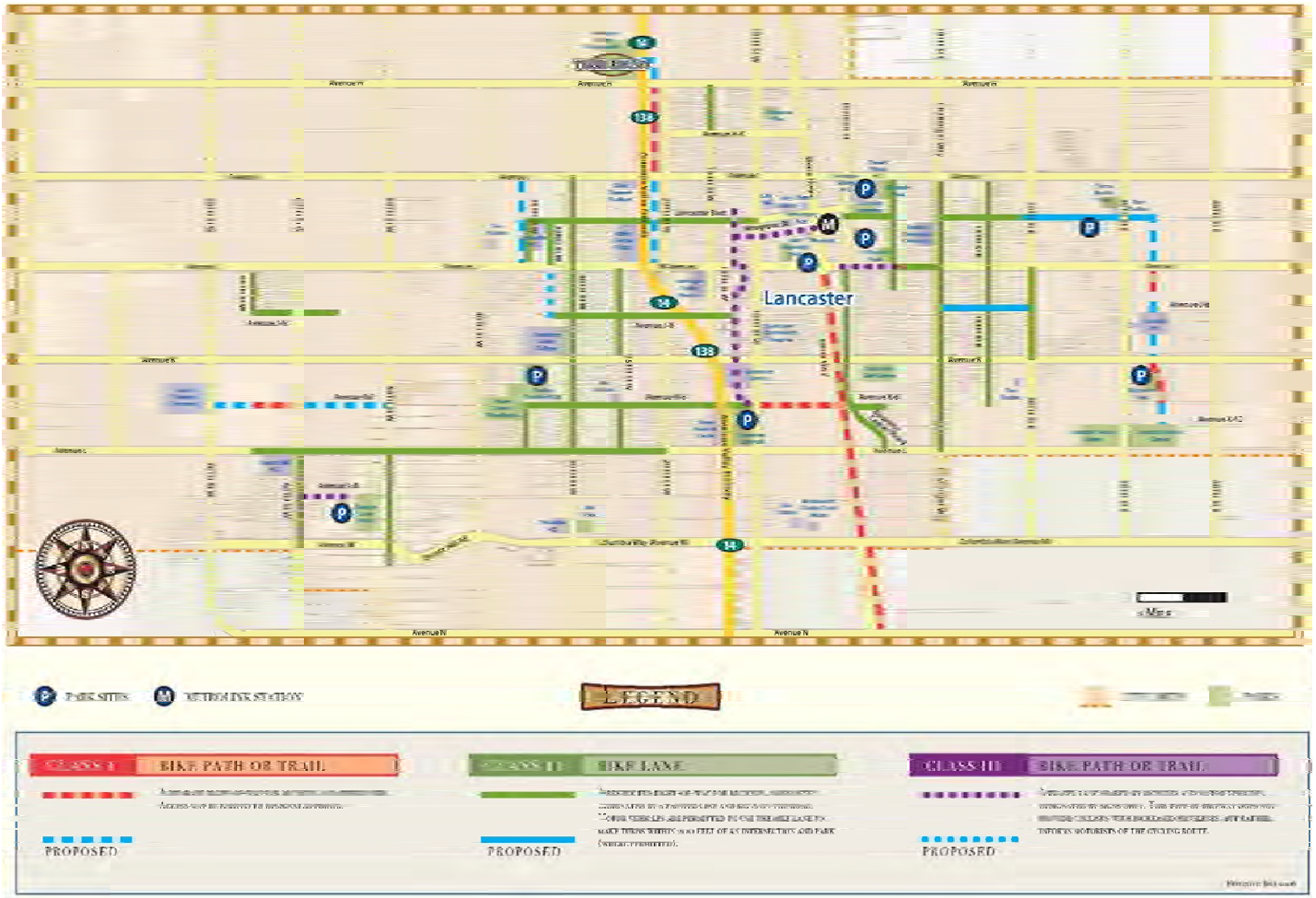
2.5. Active Transportation Facilities

Active transportation facilities include bicycle, pedestrian, and transportation enhancement alternatives (TEA) facilities. **Figures 2-11, 2-12 and 2-13** show the different types of bikeways within the cities of Lancaster, Palmdale and Santa Clarita, respectively. **Appendix A** includes the Los Angeles County Bicycle Master Plan maps showing the proposed bike paths/routes in the unincorporated portions of the North County area. Bikeways are classified in the following categories:

- Class I: Bike Path – off-street, shared-use path for bicycles and pedestrians
- Class II: Bike Lane – on-street, striped and signed dedicated travel lane for bicycles

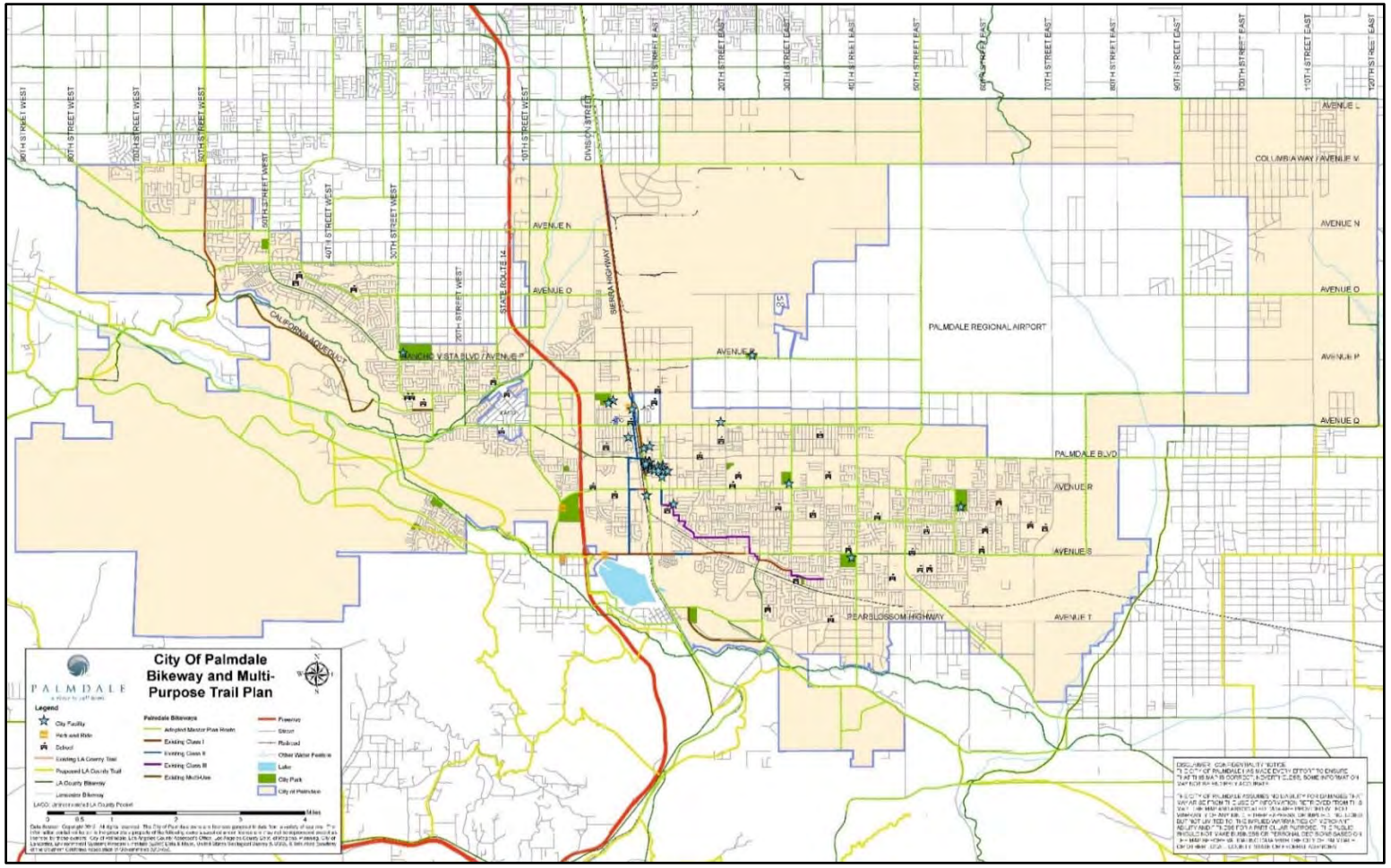
- Class III: Bike Route – signed route with an on-street travel lane shared by bicyclists and other vehicular traffic

Bike lanes and bike paths are clustered around the more populous areas of the Santa Clarita Valley and Antelope Valley, while bike routes are available throughout the many arterial highways that span from west to east, as well as the eastern edge of the Los Padres Forest along Elizabeth Road and Pine Canyon Road.



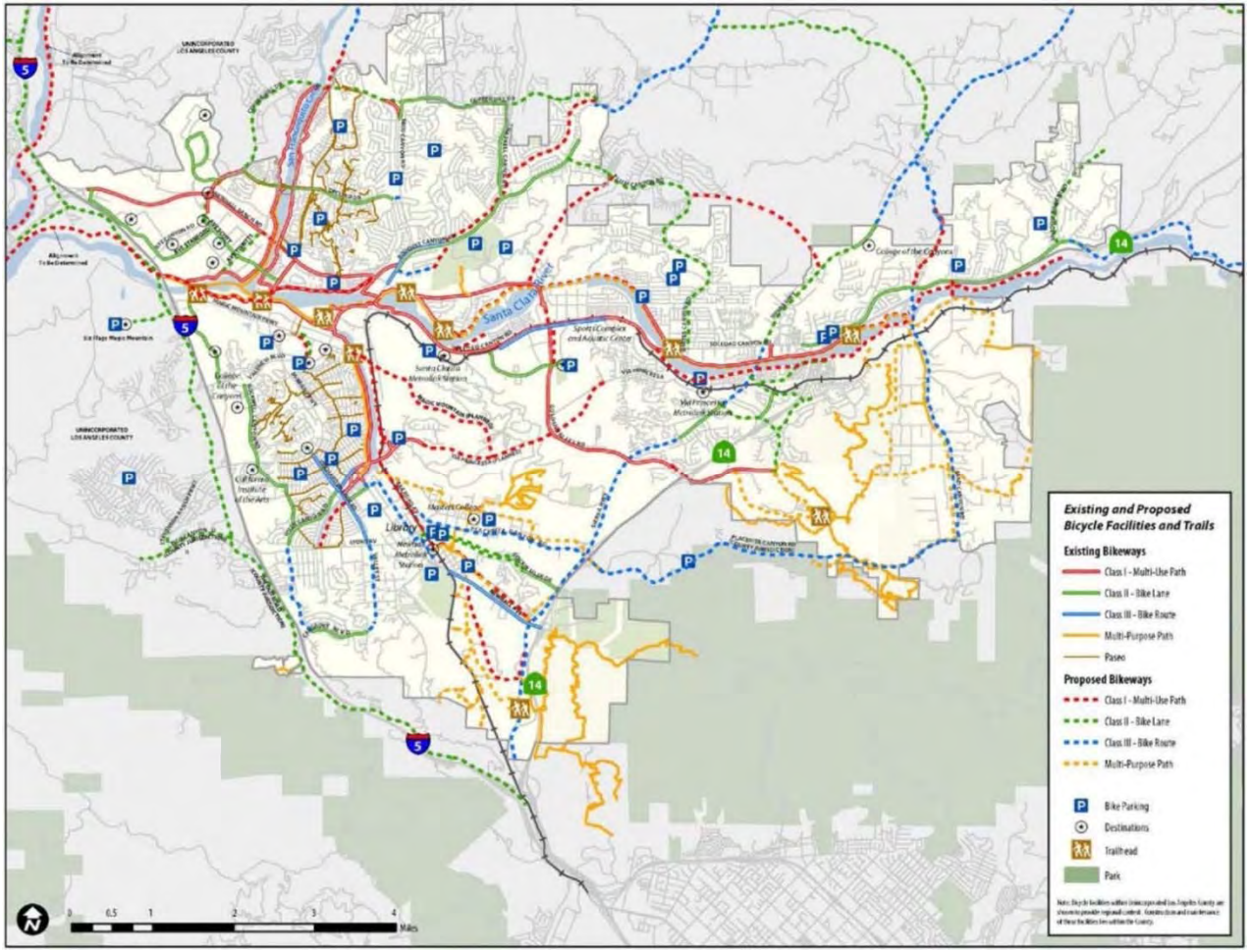
Source: City of Lancaster

Figure 2-11: City of Lancaster Bikeways



Source: City of Palmdale

Figure 2-12: City of Palmdale Bikeways



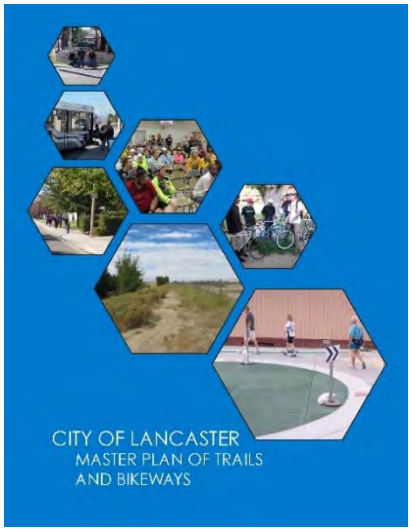
Source: City of Santa Clarita

Figure 2-13: City of Santa Clarita Bikeways

2.5.1. Active Transportation Conditions

The cities of Lancaster, Palmdale, and Santa Clarita all have bicycle and pedestrian plans in place. The following sections discuss the current conditions of active transportation activities for each of these cities.

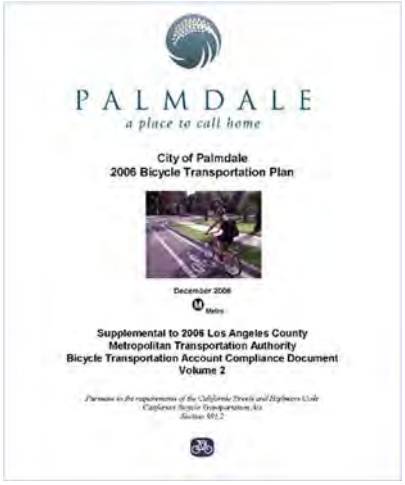
2.5.1.1. City of Lancaster



The City of Lancaster Master Plan of Trails and Bikeways integrates bicycles, pedestrian improvements, and trails as an important component of the transportation system. This Master Plan directly responds to citizen input from the General Planning process. This plan accommodates and encourages bicycle and pedestrian travel for both utilitarian and recreational trips. The plan provides detailed guidelines to ensure that the City implements best practices, and continues to develop in a manner that encourages active living. The guidelines include bicycle design guidelines, pedestrian design guidelines, trail design guidelines, landscape design guidelines, maintenance and operations guideline, and new development guidelines.

2.5.1.2. City of Palmdale

The Palmdale General Plan mentions that the City will adopt and implement a Bikeway Plan to encourage non-vehicular travel throughout the City. In 2006, the City of Palmdale adopted the Bicycle Transportation Plan, as an extension of the General Plan. The Palmdale Bicycle Plan evolved from numerous studies and public hearings involving a Citizen Advisory Committee, the Planning Commission and the City Council. Issues and concerns identified during the public hearing process were evaluated, addressed, and were subsequently incorporated into the Palmdale Bicycle Plan. The City of Palmdale recognizes that a bikeway network enhances the quality of life for residents and visitors to the City. The City is currently working on developing the Active Transportation Program (ATP) Plan. The ATP will update the City's Bicycle and Trails sections of the General Plan. It will also include an update of the City's Bicycle Transportation Plan, create a new Complete Streets Plan (including revisions to the City's Circulation Element of the General Plan), and revise the Suggested Route to School Plan for schools located within the City of Palmdale. The final adoption process of the ATP Plan is scheduled to be completed in January 2017.



2.5.1.3. City of Santa Clarita

The City of Santa Clarita Non-Motorized Transportation Plan guides the future development of bicycle and pedestrian facilities, paseos and trails within the City. This plan focuses on the City's bicycle and pedestrian network, planning and policies related to bicycling and walking, non-motorized connections to transit, and safe routes to schools. The Non-Motorized Transportation Plan outlines a range of recommendations to guide Santa Clarita toward the goals of providing bikeways, trails and paseos for all Santa Clarita residents; increasing the number of people who bike and walk for everyday needs; improving safety for bicyclists and pedestrians; and increasing public awareness and positive attitudes about biking and walking in Santa Clarita.

2.6. Transit and Ridesharing Services

The North County has numerous transit and ridesharing services and facilities to serve the transportation needs of the Santa Clarita and Antelope Valley communities. These include the commuter trains, express buses, local buses, regional buses, regional transportation centers, and park-and-ride lots.

2.6.1. Palmdale Transportation Center

The Palmdale Transportation Center is a regional multimodal transportation facility that offers connections between Antelope Valley Transit Authority (AVTA) local and commuter bus service, Metrolink commuter rail service, Santa Clarita Transit, Greyhound bus service and Amtrak Throughway bus service. It is located approximately 0.7 miles east of SR-14, and just west of Sierra Highway between Avenue P12 and Avenue P14. The center was completely rebuilt in April 2005 and features a "clock tower plaza" with enclosed waiting room with concessions, vending and other amenities. The Palmdale Transportation Center has 586 parking spaces available for patrons. The center is considered as a station location for the future California High Speed Rail line from San Francisco to Los Angeles. It is also being considered as a connecting station for the high-speed rail connection between the CHSR service in Palmdale and the potential XpressWest high-speed rail line to Las Vegas station in Victorville.

The center operates from 3:00 a.m. to 12:00 a.m. (midnight) on weekdays and from 6:00 a.m. to 10:30 p.m. on weekends. **Figure 2-14** shows the location of the Palmdale Transportation Center.

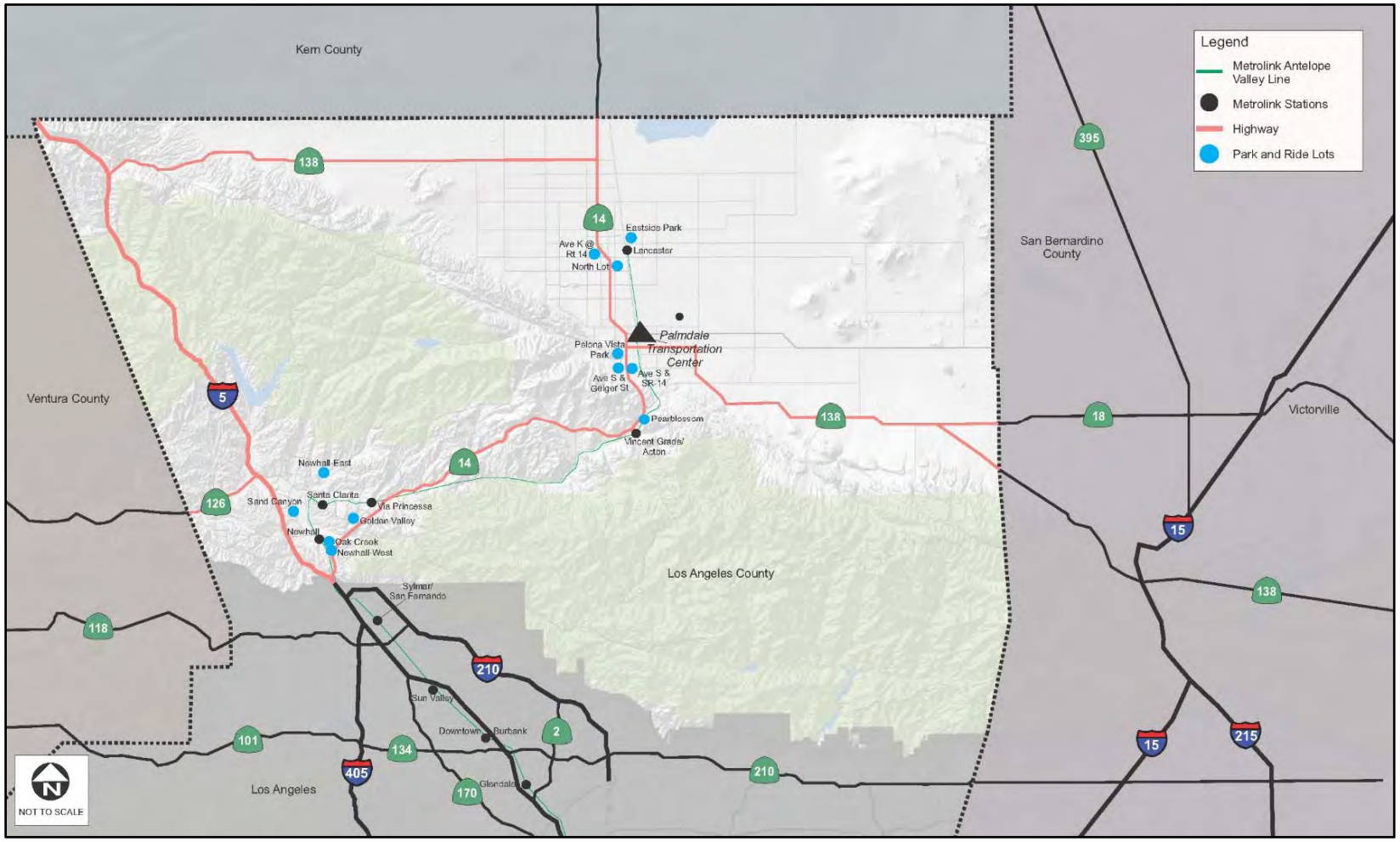


Figure 2-14: Public Transportation Facilities

2.6.2. Park and Ride Facilities

There are 18 park-and-ride lots in the Santa Clarita Valley and Antelope Valley, totaling approximately 5,500 spaces. Of these, the Newhall, Santa Clarita, Via Princessa, Vincent Grade/Acton, Palmdale Transportation Center, and Lancaster are also Metrolink park-and-ride facilities. Other park-and-ride lots belong to Caltrans or the cities in North County. **Figure 2-14** shows the park and ride facilities in North County.

2.6.3. Metrolink

The Southern California Regional Rail Authority (SCRRA) is a Joint Powers Authority (JPA) that operates the Metrolink regional rail service. Metrolink runs the Antelope Valley Line between the Los Angeles Union Station and the cities of Santa Clarita, Palmdale, and Lancaster. Fifteen trains per day operate in both directions on weekdays, including one express train in the AM peak period in the southbound direction and one express train in the PM peak period in the northbound direction. Express trains stop only at Palmdale, Santa Clarita, San Fernando, Burbank and LA Union Station. Metrolink runs six trains on Saturdays and Sundays on this line. **Figure 2-14** shows the Metrolink system in the North County area. There are six Metrolink stations within the North County area: Lancaster, Palmdale, Vincent Grade/Acton, Via Princessa, Santa Clarita, and Newhall.

Table 2-11 shows the average weekday boarding on the Antelope Valley Line. Ridership on this Line grew steadily for nearly 10 years, from approximately 2000 to 2008 when the Great Recession from December 2007 through June 2009 contributed to a decline in ridership throughout the Metrolink system. Ridership began to recover in 2011, and ridership stabilized for a few years, but again experienced a decline from 2013 to 2014.

Table 2-11: Average Weekday Metrolink Boardings

Stations	FY 13	FY 14
Lancaster	423	371
Palmdale	439	375
Vincent Grade/Acton	123	110
Via Princessa	508	432
Santa Clarita	342	282
Newhall	347	323
Total	**2,181**	**1,891**

Note: Metrolink Financial year is from July to June

2.6.4. Bus Transportation

There are various bus routes that service North County. The primary bus service provider in the Antelope Valley is the Antelope Valley Transit Authority, and Santa Clarita Transit is the major bus transit provider for the Santa Clarita Valley. Other bus transportation options include Greyhound and Antelope Express.

2.6.4.1. Antelope Valley Transit Authority (AVTA)

The Antelope Valley Transit Authority works as a JPA and serves a population of more than 450,000 residents of the cities of Lancaster and Palmdale in the Antelope Valley, as well as the unincorporated areas of northern Los Angeles County. AVTA covers a total service area of 1,200 square miles and is bounded by the Kern County line to the north, the San Bernardino County line to the east, the Los Angeles National Forest to the south, and I-5 to the west. The fixed route service area consists of approximately 100 square miles. AVTA has transfer centers in Lancaster and Palmdale.

AVTA operates a network of 13 local transit routes, three commuter routes, and two supplemental school routes during the week. The three commuter routes include:

- Route 785 – To Downtown Los Angeles
- Route 786 – To Century City/West Los Angeles
- Route 787 – To West San Fernando Valley

AVTA also operates the North County TRANSporter which is designed to connect transportation services between Santa Clarita Valley and the Antelope Valley during off-peak hours, Monday through Friday. The service offers ten trips each weekday between the Palmdale Transportation Center and the Newhall Metrolink Station, with additional connections to McBean Regional Transit Center. The service is intended to connect passengers with Metrolink trains and the schedules coincide to make travel convenient. The North County TRANSporter also connects to the 757 NoHo Express provided by Santa Clarita Transit which takes passengers to the North Hollywood Station. The AVTA provides two commuter buses for the TRANSporter service. The route is currently serving more than 1,000 passengers per week and is a vital part of AVTA's transit services.

According to the 2012 National Transit Database, AVTA had 11,488 average weekday unlinked trips; 4,287 average Saturday unlinked trips; and 3,235 average Sunday unlinked trips. Unlinked passenger trips include the number of passengers who board public transportation vehicles. Passengers are counted each time they board vehicles, no matter how many vehicles they use to travel from their origin to their destination. **Table 2-12** shows the ridership of AVTA. Between 2011 and 2013, overall ridership increased by 22%, with an increase of 24% in average weekday unlinked trips.

Table 2-12: Antelope Valley Transit Ridership

	2011	2012	2013	Change % 2011-2013
Average Passenger Miles	37,970,422	41,783,977	60,462,694	59%
Annual Unlinked Trips	2,895,865	3,174,651	3,520,220	22%
Average Weekday Unlinked Trips	9,864	11,488	12,234	24%
Average Saturday Unlinked Trips	3,956	4,287	4,813	22%
Average Sunday Unlinked Trips	2,816	3,235	3,621	29%

Source: 2013 National Transit Database

2.6.4.2. City of Santa Clarita Transit

The City of Santa Clarita Transit took over local transit operations from the County of Los Angeles in August 1991. It is responsible for all transit operations and maintenance related services including: local, commuter, Dial-A-Ride and Access Services Incorporated (ASI). Services include nine local fixed routes within the Santa Clarita Valley; four commuter services, and two express routes to the San Fernando Valley and Antelope Valley. It has a 75-vehicle fleet that provides service to four million riders annually. The commuter express service, which operates Monday through Friday, includes the following routes:

- Route 757 – North Hollywood, Red Line, Orange Line
- Routes 796 & 791 – Woodland Hills, Canoga Park, Chatsworth
- Route 797/792 – UCLA, Westwood, Century City
- Route 799/794 – Union Station, Downtown Los Angeles

A new local Route 12 that travels from the McBean Regional Transit Center (MRTC) to Plum and Whites Canyon was added on August 9, 2014. This new route effectively replaces the eastern segment of Routes 1 and 2, which formerly ran from Castaic and Val Verde to Canyon Country.

According to the 2012 National Transit Database, Santa Clarita Transit had 12,061 average weekday unlinked trips; 5,706 average Saturday unlinked trips; and 4,416 average Sunday unlinked trips. **Table 2-13** shows the ridership of Santa Clarita Transit. Between 2011 and 2013, annual ridership decreased by a modest 1.7%, with a decrease of 1.1% in average weekday unlinked trips.

Table 2-13: Santa Clarita Transit Ridership

	2011	2012	2013	Change % 2011-2013
Average Passenger Miles	39,379,865	38,412,841	25,483,345	-35%
Annual Unlinked Trips	3,724,490	3,626,743	3,661,301	-1.7%
Average Weekday Unlinked Trips	12,469	12,061	12,329	-1.1%
Average Saturday Unlinked Trips	5,884	5,706	5,862	-0.4%
Average Sunday Unlinked Trips	4,032	4,146	4,061	-0.7%

Source: 2012 National Transit Database

2.6.4.3. Greyhound

Greyhound has a service stop in the San Fernando Valley, just south of the I-5/SR-14 junction that connects service from Los Angeles to Bakersfield and the Bay Area.

2.6.4.4. Antelope Express

Antelope Express provides airport shuttles to LAX with four pick up/drop off locations. It also provides charter services to the general public. Antelope Express headquarters are located at the Antelope Valley Fly Away bus terminal in the City of Palmdale.

2.7. Airports

This section presents information on the airports in the North County area, as shown in **Figure 2-15.**

2.7.1. Palmdale Regional Airport

Palmdale Regional Airport located in the City of Palmdale began civilian operations in 1971. This facility has two main runways[7] and a third smaller runway, which is used as an assault strip. The US Air Force Plant 42 and Edwards Air Force share a runway with the regional airport. The layout and boundaries of the airport are shown in **Figure 2-16.** In 2013, the City of Palmdale took over the control of the airport from Los Angeles World Airports (LAWA), managing it via the Palmdale Airport Authority. LAWA still owns more than 17,500 acres of the airport land at this location. In June 2007, United Airlines began daily service to San Francisco International Airport but suspended flights in December 2008. In January 26, 2009, LAWA announced the closure of commercial operations at the airport due to the economic recession. The terminal was once accessed via 20th Street East, but the roadway into the terminal has since closed. Regardless, SCAG RTP Aviation projections for 2035 indicate 2.6 Million Annual Passengers (MAP) and 115,000 tons of cargo for Palmdale Airport, with the City of Palmdale currently negotiating with the US Air Force for a new lease.

[7] *Source: Airport Diagram @ http://aeronav.faa.gov/d-tpp/1602/00310AD.PDF*

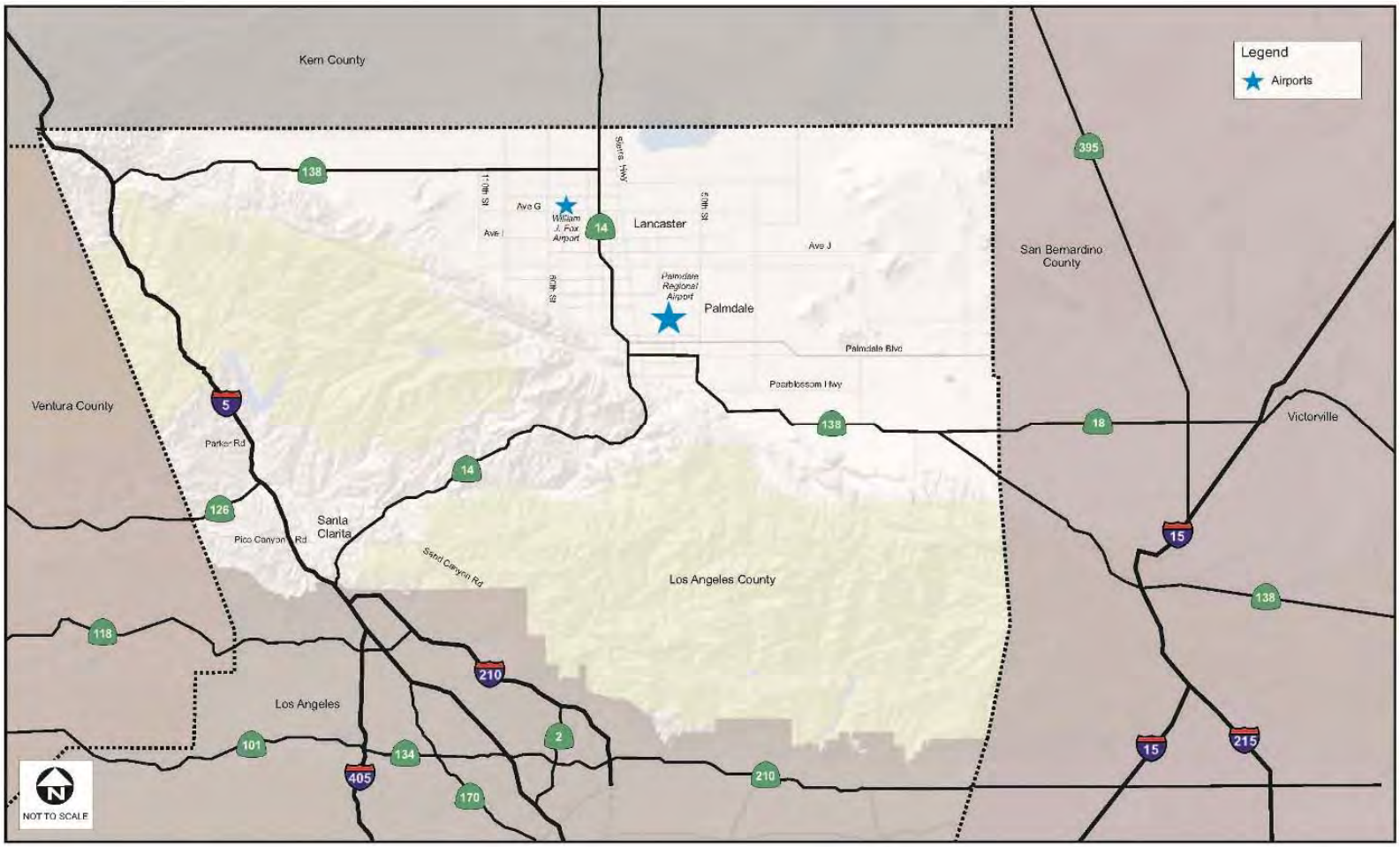


Figure 2-15: North County Airports

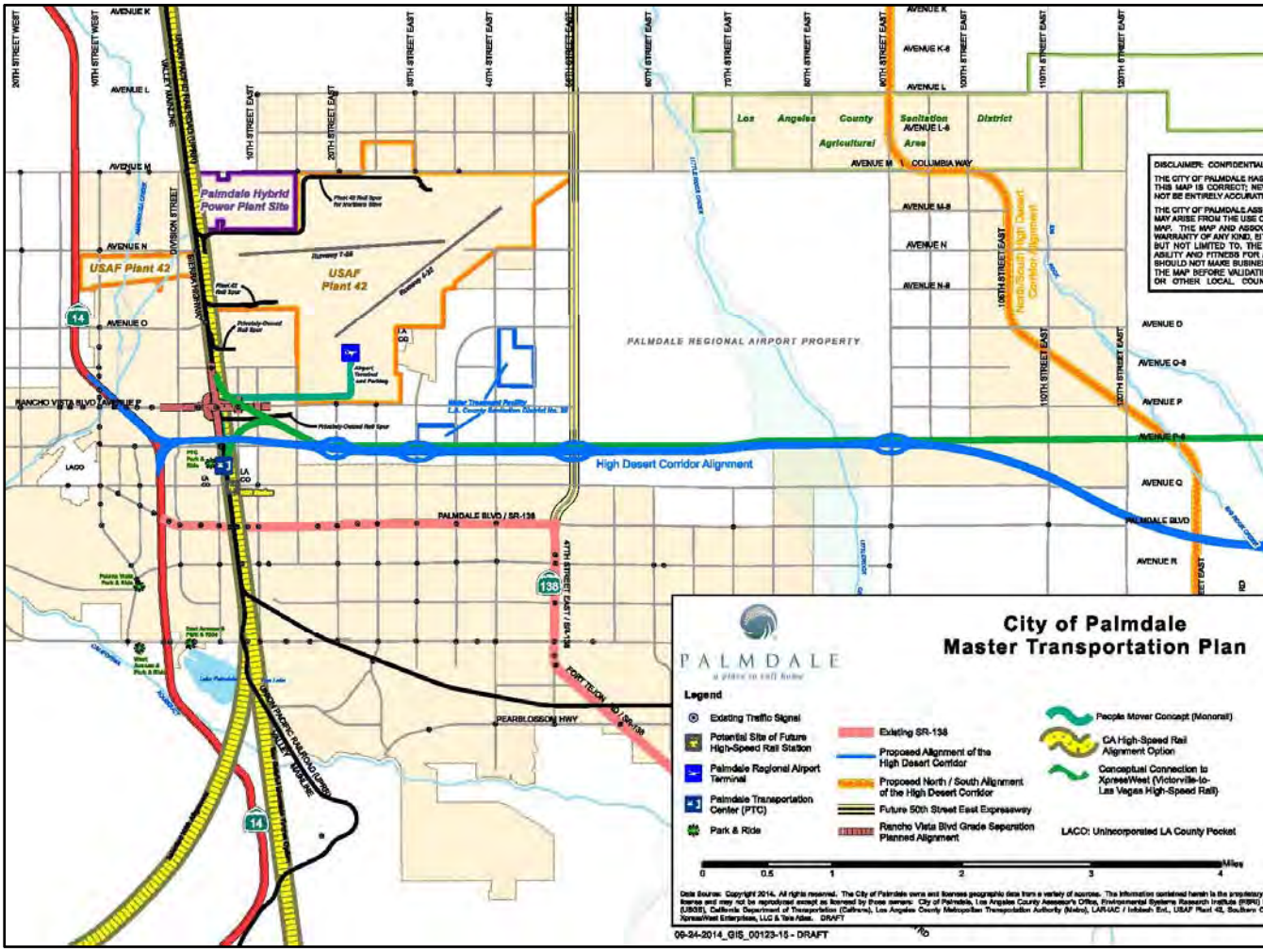


Figure 2-16: City of Palmdale – Master Transportation Plan

2.7.2. William J. Fox Airfield

General William J. Fox Airfield is a Los Angeles County owned public airport, located 1.5 miles west of SR-14 within the City of Lancaster (as shown in **Figure 2-15**). It is locally known as Fox Field and serves as a general aviation facility to the Antelope Valley. It has one runway. The main entrance to the airport is accessed via William J. Barnes Avenue. SR-14 provides connection to William J. Barnes Avenue via Avenue G from the east, while 50th Street West connects to William J. Barnes Avenue to the south of the airport.

Aircraft operations averaged 224 per day for the 12-month period ending December 31, 2013. An Antelope Valley Hospital helicopter uses this airport. The U.S. Forest Service also has an air tanker base on this facility. In addition, Fox Field is home of the Milestones of Flight Aviation Museum. Los Angeles County hosts annual air shows at Fox Field.

It should be noted that while the official classification of Fox Field is Regional General Aviation, it meets all minimum standards for a Primary Commercial Non-Hub airport.

2.8. Freight Railroads

The freight railroad system in the North County consists of one Class I line haul freight railroad. It is owned and operated by Union Pacific (UP). As defined by the U.S. Department of Transportation (USDOT) - administered Surface Transportation Board (STB) regulations, a Class I – haul-freight railroad is one with an annual operating revenue of $433.2 million or more for at least three consecutive years.

There are no Class II or Class III railroads that operate within the North County area.

2.8.1. Union Pacific

The largest freight railroad in the United States, the Class I Union Pacific Railroad (UP), operates 3,267 miles of track in California, serving the Los Angeles Metropolitan area and operating intermodal facilities in the Ports of Long Beach and Los Angeles. The UP railroad ships a significant volume of intermodal freight and is the largest shipper of chemicals in the country. Within North County, Union Pacific tracks parallel the I-5 freeway to Santa Clarita at Soledad Canyon Road and diverges northeast along State Route 14.

2.9. Socio-Economic Conditions

The census data was collected for North County at the geographic level of the Census County Division (CCD). According to the United States Census Bureau, a CCD is a subdivision of a county that is a relatively permanent statistical area established cooperatively by the Census Bureau and state and local government authorities. The CCDs used to extract data for the North County area are Newhall CCD, North Antelope Valley CCD and South Antelope Valley CCD.

All the census data was obtained from *2008-2012 American Community Survey 5-Year Estimates*. American Community Survey is the Census Bureau's population estimates program that produces population, demographics, and housing unit estimates.

2.9.1. Population

The 2012 Census Bureau's population estimates reported that the North County had a population of 649,746. As shown in **Figure 2-17**, the racial makeup of North County included: 406,670 Whites (47.1%); 246,326 Hispanics or Latinos of any race (28.5%); 65,469 African Americans (7.6%); 45,091 Asians (5.2%); 3,618 Native Americans (0.4%); 1,097 Pacific Islanders (0.1%); and 94,707 from other races (11%).

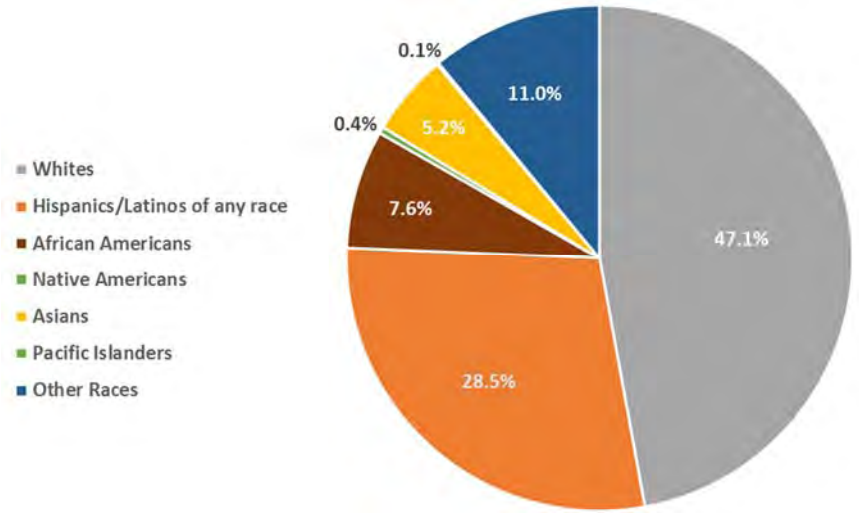


Figure 2-17: North County 2012 Population Estimates

The age distribution was 210,098 (32.3%) under 20; 46,787 (7.2%) from 20 to 24; 173,884 (26.8%) from 25 to 44; 164,540 (25.3%) from 45 to 64; and 54,437 (8.4%) 65 or older, as shown in **Figure 2-18**. The median age was 33.3 years. For every 100 females, there were 101.8 males. For every 100 females age 18 and over, there were 98.5 males of the same age.

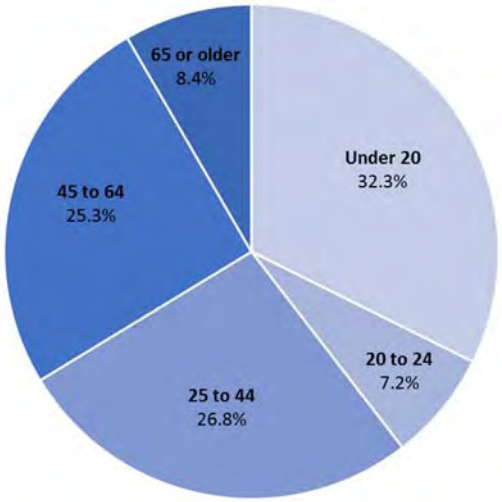


Figure 2-18: North County 2012 Age Distribution Estimates

There were 212,753 housing units, of which 196,241 (92.2%) are occupied, as shown in **Figure 2-19**. Out of these, there are 133,705 (68.1%) owner-occupied and 62,536 (31.9%) renter-occupied. The homeowner vacancy rate was 2.9%; and the rental vacancy rate was 7.2%. The average household size of owner-occupied households is 3.21 and of renter-occupied household is 3.22. Out of 196,241 households, 9,512 (4.8%) have no vehicle; 52,150 (26.6%) have one vehicle; 79,634 (40.6%) have two vehicles; and 54,945 (28.0%) have three or more vehicles available.

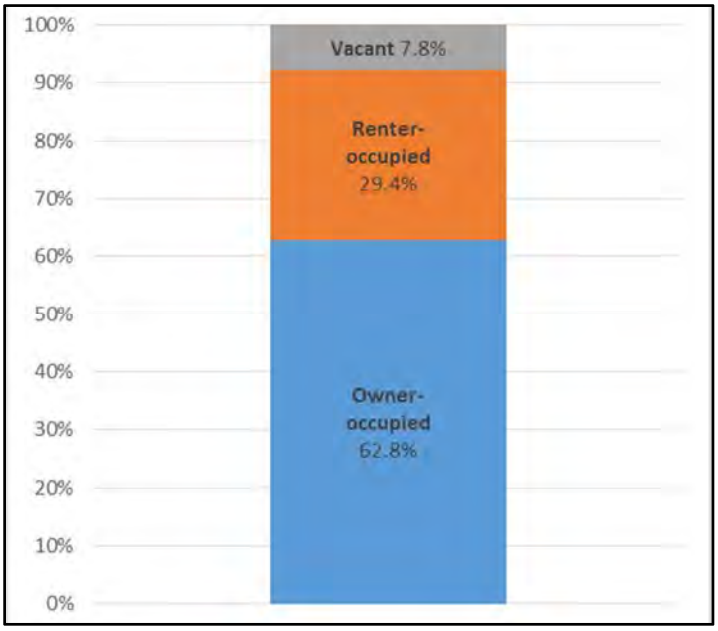


Figure 2-19: North County 2012 Housing Units Estimates

2.9.2. Employment

The 2012 Census Bureau's population estimated the size of the North County labor force to be 305,031, of which 34,393 (11.3%) were unemployed. There are 97,164 (31.9%) people employed in management, business, science and arts occupations; 47,397 (17.6%) in service occupations; 70,606 (26.2%) in sales and office occupations; 26,588 (9.8%) in natural resources, construction and maintenance occupations; and 28,193 (10.4%) in production, transportation and material movement occupations. [8] **Figure 2-20** shows the comparison of occupation between North County and Los Angeles County. Occupation patterns for North County and Los Angeles County are similar.

[8] *Source: American Community Survey (ACS). Supporting documentation and statistical testing can be found on the American Community Survey website in the Data and Documentation section. The ACS produces these estimates, it is the Census Bureau's Estimates program that disseminates the official estimates.*

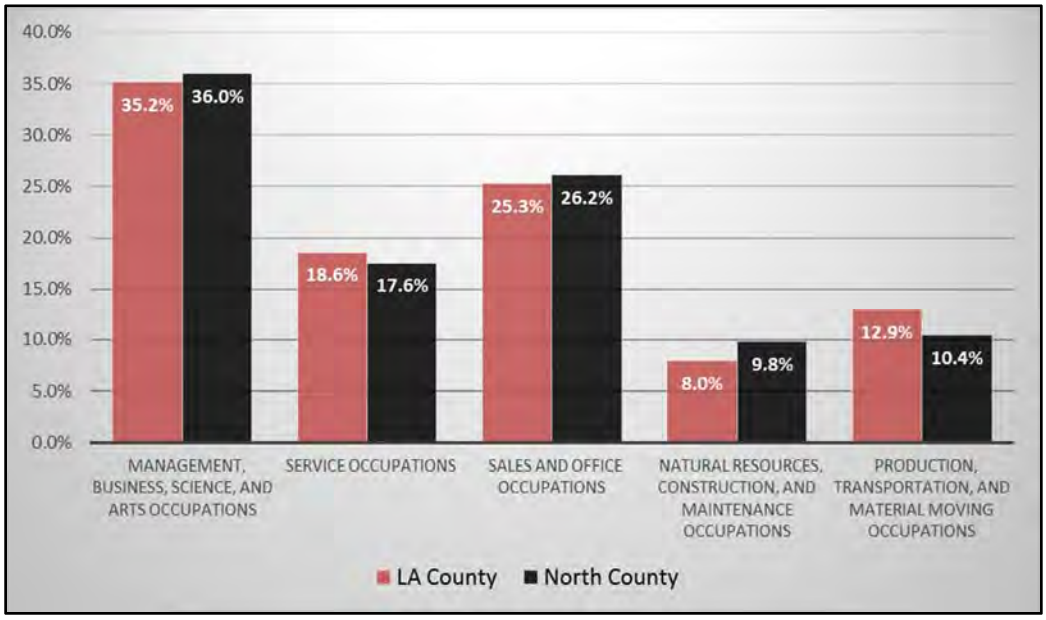


Figure 2-20: Occupation Type

2.9.3. Income

The 2012 Census Bureau's population estimates reported that North County had a mean household income of $70,149, with 11.4% of the families living below the poverty line. There are 19,202 (9.8%) households with less than $15,000 annual income; 54,011 (28%) earn between $15,000 and $50,000 per year; 33,177 (16.9%) earn between $50,000 and $75,000 per year; 28,961 (14.8%) earn between $75,000 and $100,000 per year; and 60,950 (31.1%) have more than $100,000 annual income. **Figure 2-21** shows a comparison of household incomes between North County and Los Angeles County.

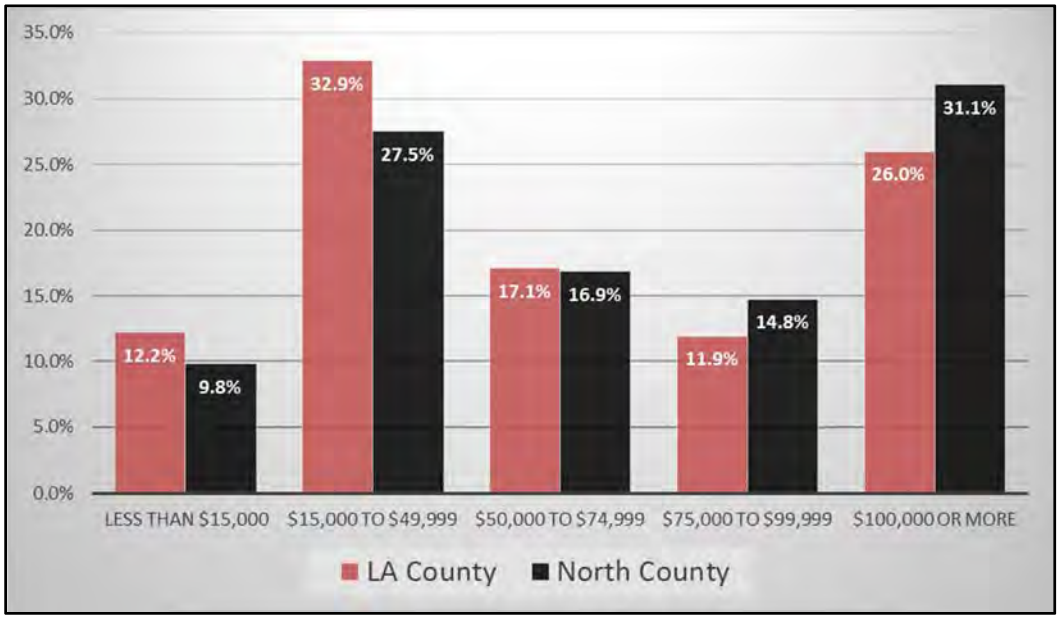


Figure 2-21: Household Income

2.9.4. Growth Projection

According to the SCAG projections in the 2012-2035 Regional Transportation Plan (RTP) shown in **Table 2-14**, the projected population growth rate in the North County area between 2008 and 2035 is 45%. Between 2008 and 2035, the population is projected to increase by 30% in Lancaster; by 38% in Palmdale; and by 35% in Santa Clarita.

Table 2-14: Population Projection for North County

Population	Year 2008	Year 2020	Year 2035	2008-2020 Change	2008-2035 Change
North County	652,000	787,000	947,000	21%	45%
Lancaster	154,500	174,800	201,300	13%	30%
Palmdale	149,200	179,300	206,100	20%	38%
Santa Clarita	175,900	201,000	237,100	14%	35%
Unincorporated County	172,400	231,900	302,500	35%	75%

Source: SCAG 2012 -2035 RTP/SCS Growth Forecast[9]

Table 2-15 and **Figure 2-22** show the projected population in counties adjacent to North County. Based on the population projections table, it can be seen that Kern County and San Bernardino County are projected to grow at a faster rate than Los Angeles County.

[9] *http://www.scag.ca.gov/Documents/LosAngelesNorthLA.pdf*

Table 2-15: Population Projection for Los Angeles, San Bernardino, and Kern Counties

Population	Year 2010	Year 2020	Year 2035	2010-2020 Change	2010-2035 Change
Los Angeles County	9,825,000	10,441,000	11,243,000	6%	14%
Kern County	841,000	1,057,000	1,619,000	26%	93%
San Bernardino County	2,016,000	2,268,000	2,750,000	13%	36%

Source: State of California, Department of Finance, Report P-1 (County): State and County Total Population Projections, 2010-2060. Sacramento, California, January 2013

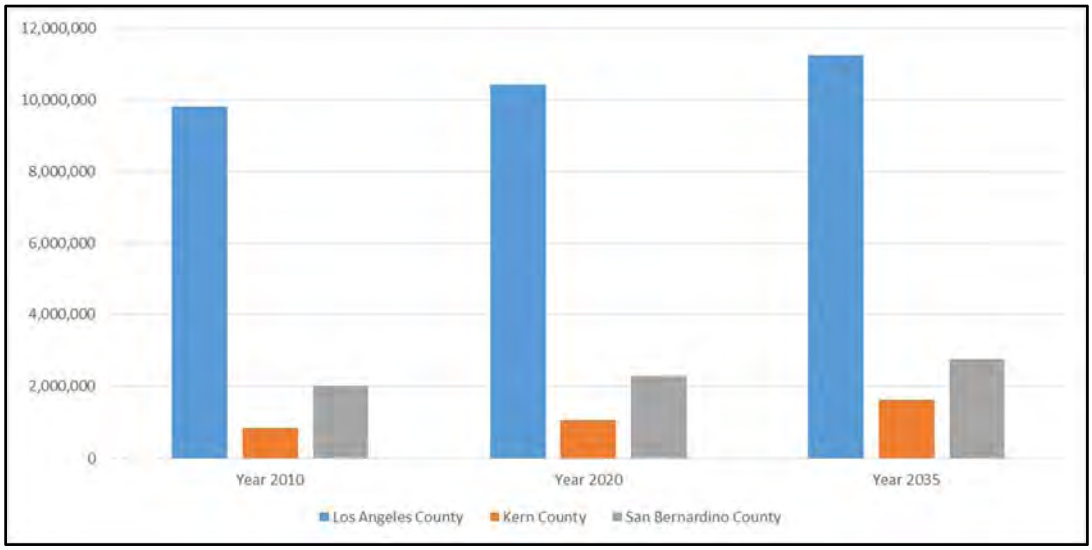


Figure 2-22: Population Projection for Los Angeles, San Bernardino, and Kern Counties

Table 2-16 and **Table 2-17** show the SCAG 2012 RTP housing and employment projections, respectively, for the cities of Lancaster, Palmdale, and Santa Clarita. Housing and employment totals for the three cities are projected to grow by 35% and 28%, respectively, between 2008 and 2035.

Table 2-16: Housing Projections for North County

Housing	Year 2008	Year 2020	Year 2035	2008-2020 Change	2008-2035 Change
North County	201,000	252,000	304,000	25%	51%
Lancaster	46,300	52,200	58,800	13%	27%
Palmdale	41,900	51,300	58,800	22%	40%
Santa Clarita	59,300	70,100	81,900	18%	38%
Unincorporated	53,500	78,400	104,500	47%	95%

Source: SCAG 2012 -2035 RTP/SCS Growth Forecast[10]

[10] *http://www.scag.ca.gov/Documents/LosAngelesNorthLA.pdf*

Table 2-17: Employment Projections for North County

Employment	Year 2008	Year 2020	Year 2035	2008-2020 Change	2008-2035 Change
Lancaster	49,700	51,900	54,200	4%	9%
Palmdale	32,700	38,900	47,200	19%	44%
Santa Clarita	92,900	108,700	122,600	17%	32%
Total	175,300	199,500	224,000	14%	28%

2.10. Existing Travel Patterns

The 2012 Census Bureau's population estimates show average travel time to work to be 35.1 minutes in North County. In 2012, 202,514 (77.0%) workers drove alone to work; 36,733 (14.0%) carpooled to work; 6,632 (2.5%) used public transportation; 2,940 (1.1%) walked to work; 2,491 (0.9%) used other means; and 11,568 (4.4%) worked from home.

Figure 2-23 shows the comparison of travel times to work between North County and Los Angeles County. As shown in the figure, the workers in North County have longer travel times in comparison to other Los Angeles County workers. Almost 22% of North County workers commute for more than one hour to work, compared to 12% of Los Angeles County workers. The average commute travel time for Los Angeles County is 29.1 minutes.

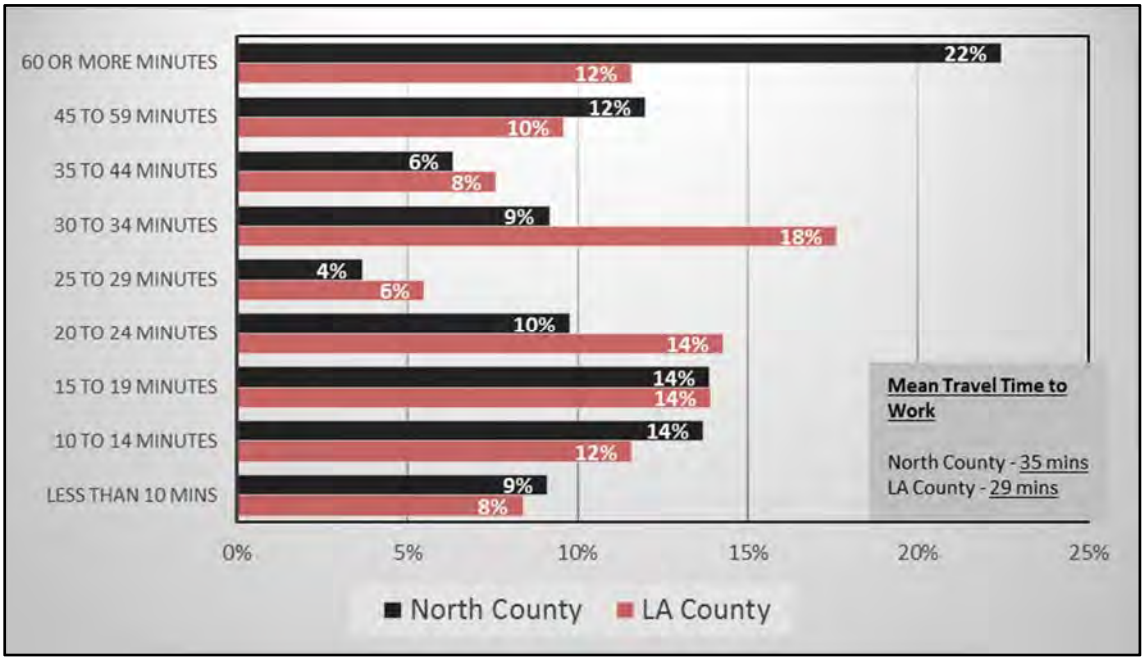


Figure 2-23: Travel Time to Work

According to the 2012 Census Bureau's population estimates in North County, almost 42% of commuters leave home before 7 a.m. for work, compared to 30% in the Los Angeles County. **Figure 2-24** shows the comparison of time leaving home to go to work between North County and Los Angeles County.

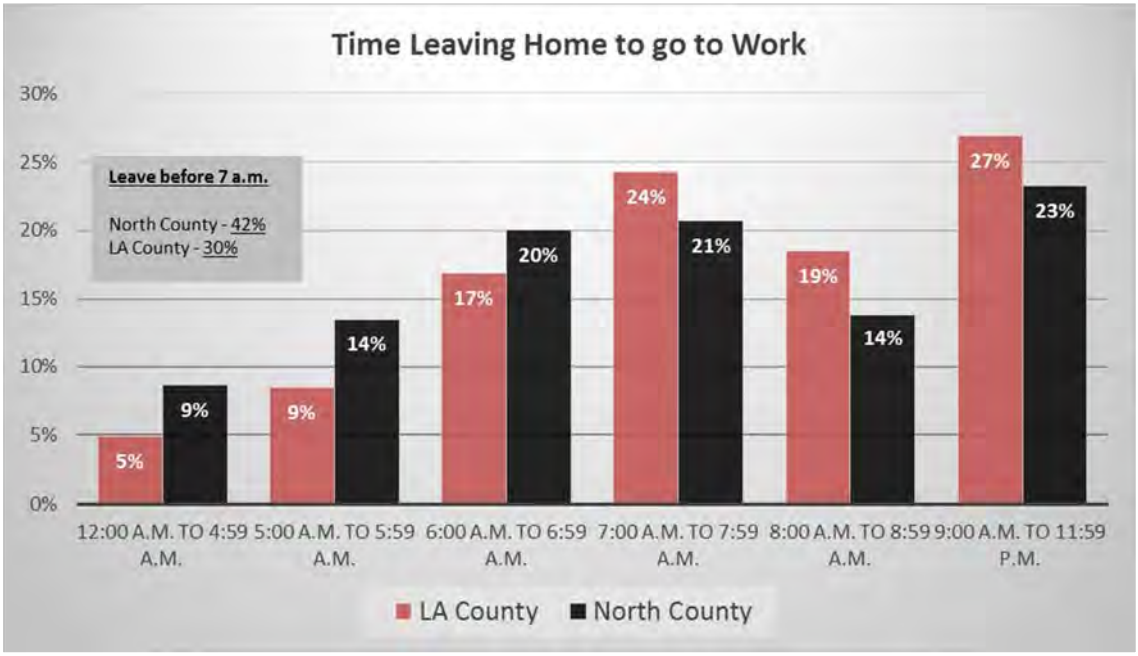


Figure 2-24: Time Leaving Home to go to Work

Compared to Los Angeles County, the commuters in North County have longer travel times, leave earlier from their homes, and use autos more.

2.11. Land Use/Major Trip Generators

This section describes some of the land uses and major trip generators in North Los Angeles County. Commercial, retail, industrial, and residential developments in the Santa Clarita Valley are concentrated to the east of I-5, west of SR-14, and south of Los Padres National Forest. Although there is scattered development in the community of Acton, the majority of developments in the Antelope Valley are concentrated along both sides of the SR-14 freeway and north of the SR-14/SR-138 interchange. These developments generate the majority of trips that use the I-5, SR-14, and SR-138 freeways to access other parts of the region. **Figures 2-25, 2-26, and 2-27** show land uses of the cities of Lancaster, Palmdale and Santa Clarita, respectively. **Appendix B** has land use of unincorporated County area. **Figure 2-28** shows the major trip generators in the North County Area.

2.11.1. Residential

Residential developments are clustered between the I-5 and SR-14 freeways in the City of Santa Clarita, which includes the neighborhoods of Saugus and Canyon Country. Residential development in the cities

of Lancaster and Palmdale is clustered along SR-14 between the California Aqueduct in Palmdale, and Avenue H in Lancaster.

The cities of Lancaster and Palmdale experienced a housing bust as a part of the economic crash in the late 2000s. Both cities experienced a large number of foreclosures during the recent recession. However, in 2013, median home prices rose, and previously stalled construction has been restarted and expedited due to the City's development incentive programs. With more affordable housing available in the Antelope Valley area. As compared to other cities, people are once again buying and moving into the area. This high demand for housing will generate more traffic in the future.

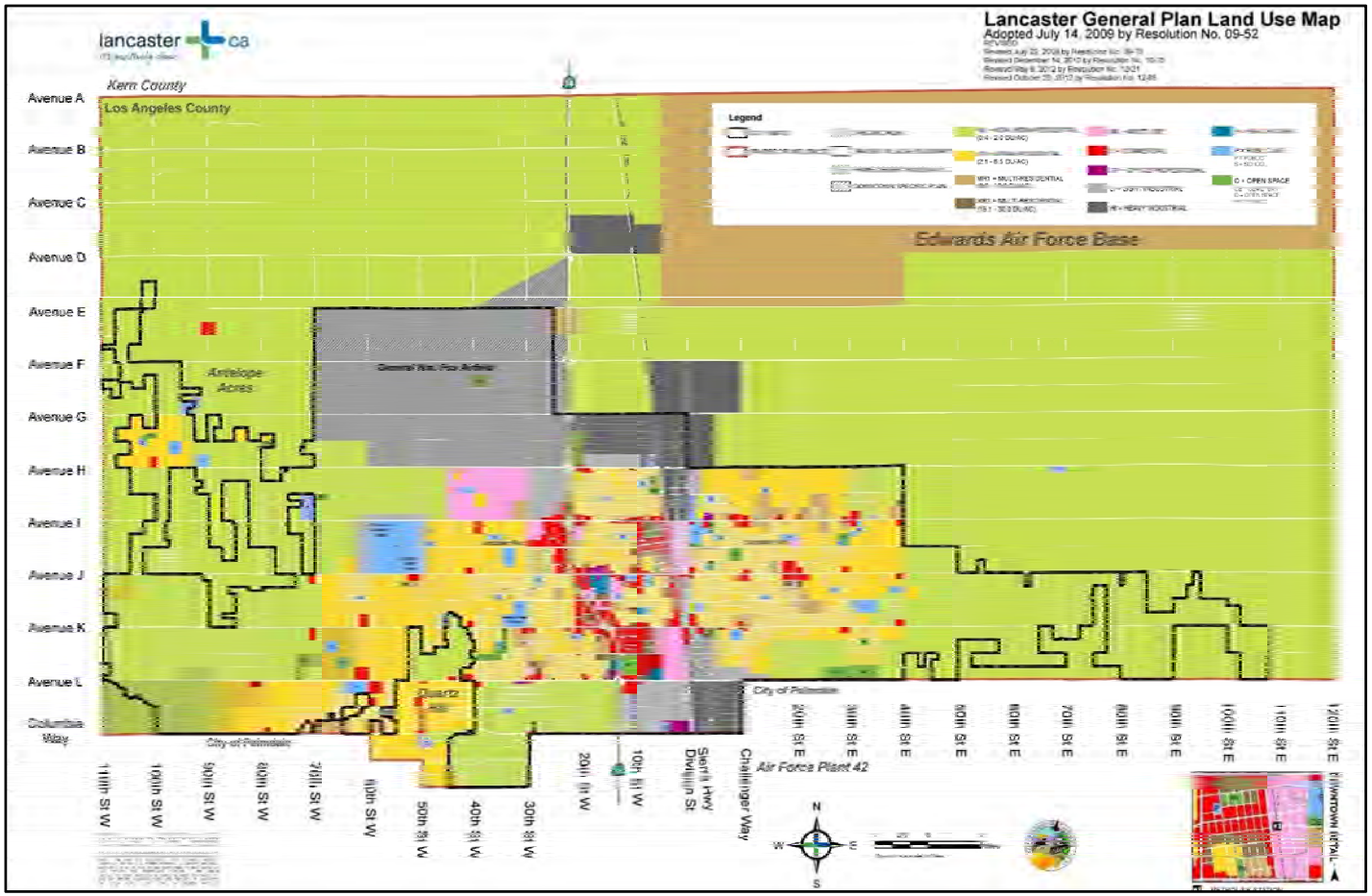
2.11.2. Commercial/Retail/Industrial

The North County area businesses are comprised of a variety of industries including agriculture, aviation/aerospace, education, entertainment, film and television, government, health, logistics/distribution, manufacturing, natural resources, and renewable energy. The top five major employers in Lancaster, Palmdale, and Santa Clarita are listed below:

Lancaster	**Palmdale**	**Santa Clarita**
Lockheed Martin	China Lake Naval weapons	Six Flags Magic Mountain
Northrop Grumman[11]	County of Los Angeles	William S. Hart Union School District
Antelope Valley Mall	Lockheed Martin	College of The Canyons
Wal-Mart	Palmdale School District	Princess Cruises
Edwards Air Force Base	Edwards Air Force Base	Saugus Union School District

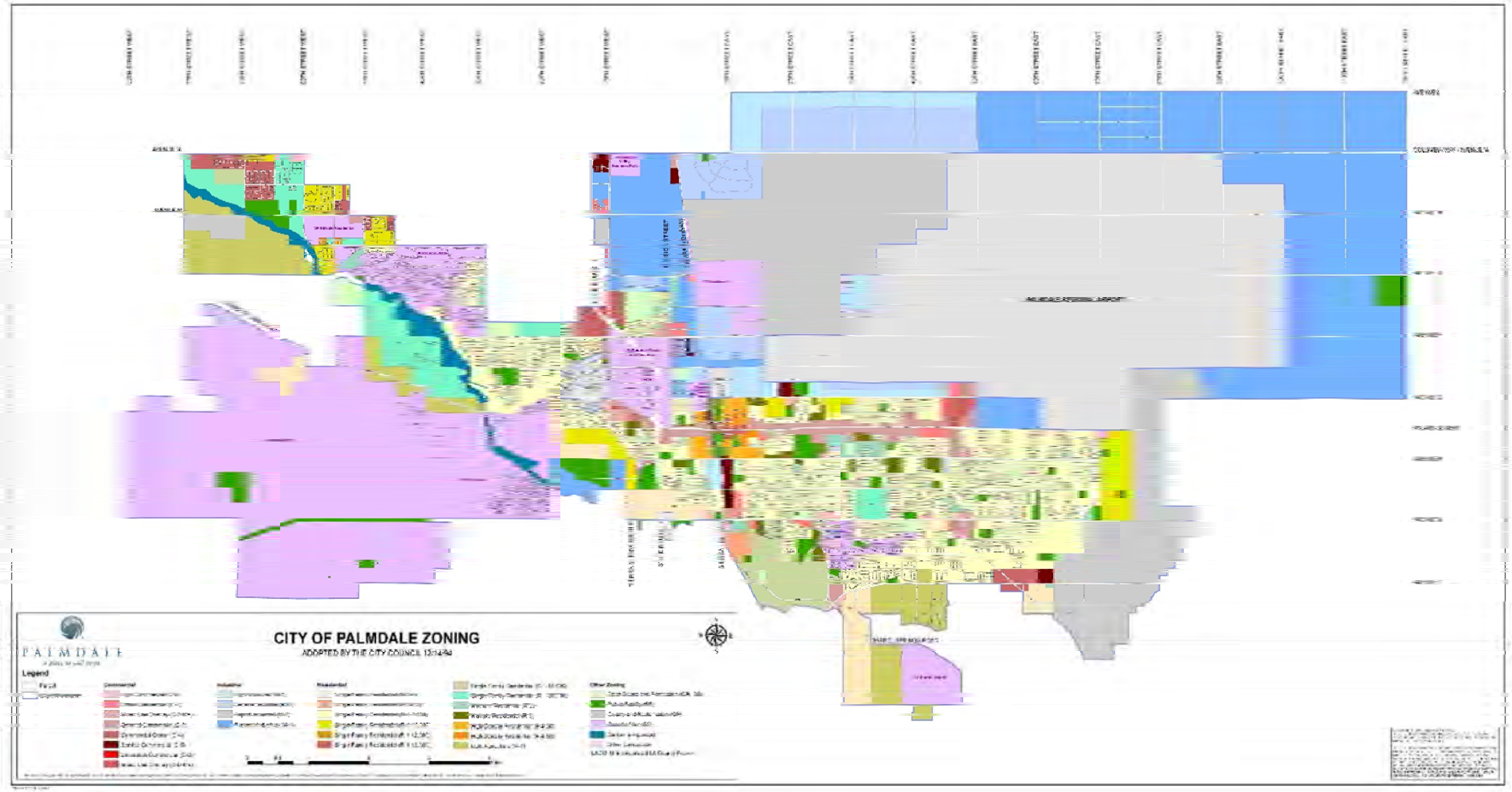
Santa Clarita is the first in the state to offer film companies a local film incentive program. The city also has AMS Fulfillment, a fulfillment company that warehouses and distributes products for companies that choose not to own their own warehouses. AMS is designated a Foreign Trade Zone (FTZ) that helps the region's economic development by allowing companies to import or export materials or goods directly into or from the FTZ duty-free.

[11] *Source: http://www.latimes.com/nation/la-na-air-force-contract-stealth-bomber-20151027-story.html*



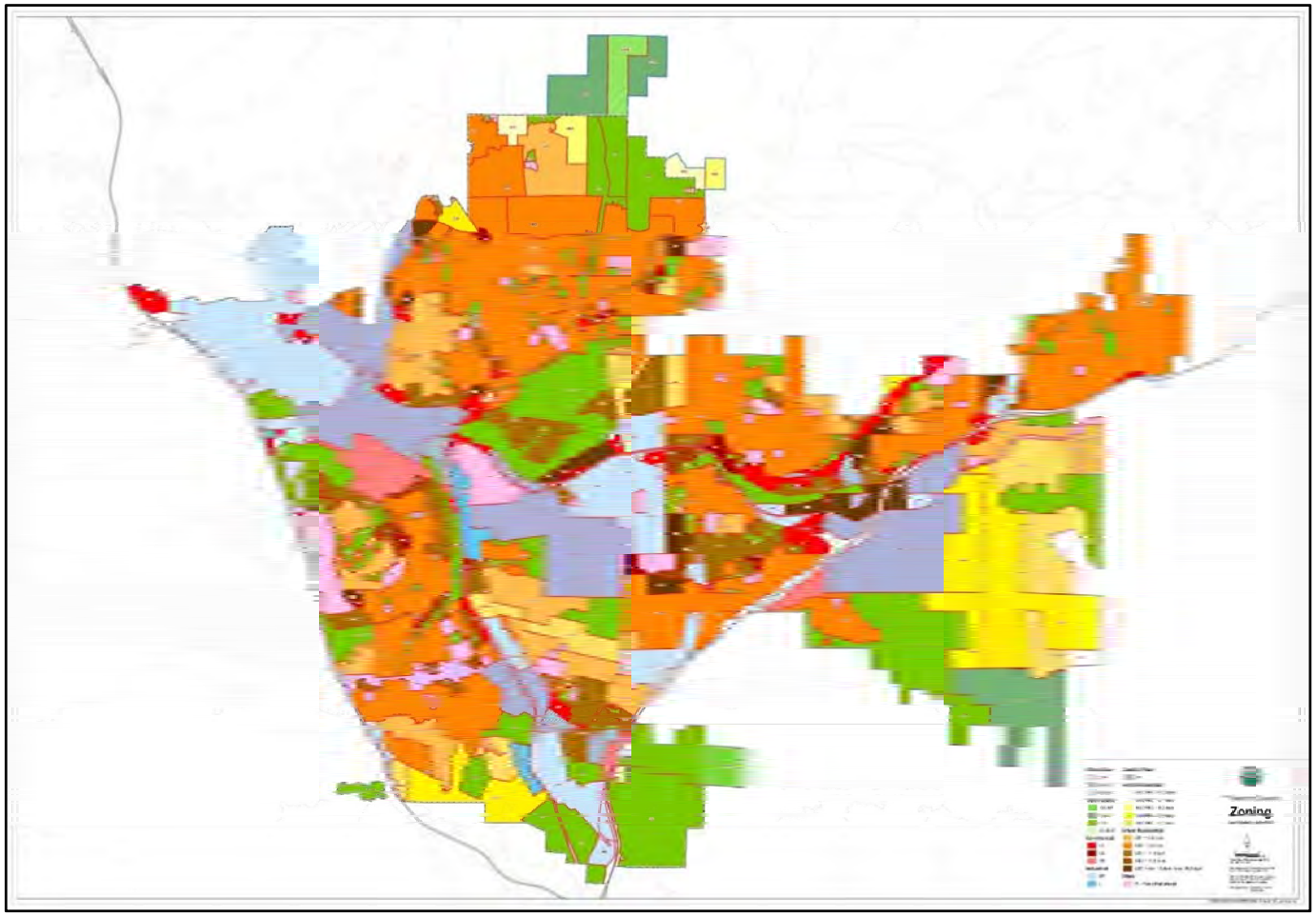
Source: City of Lancaster
Adopted by 7/14/2009

Figure 2-25: City of Lancaster – Land Use Map



Source: City of Palmdale
Adopted by the City Council 12/14/1994

Figure 2-26: City of Palmdale – Land Use Map



Source: City of Santa Clarita, Adopted by 9/2015

Figure 2-27: City of Santa Clarita – Land Use Map

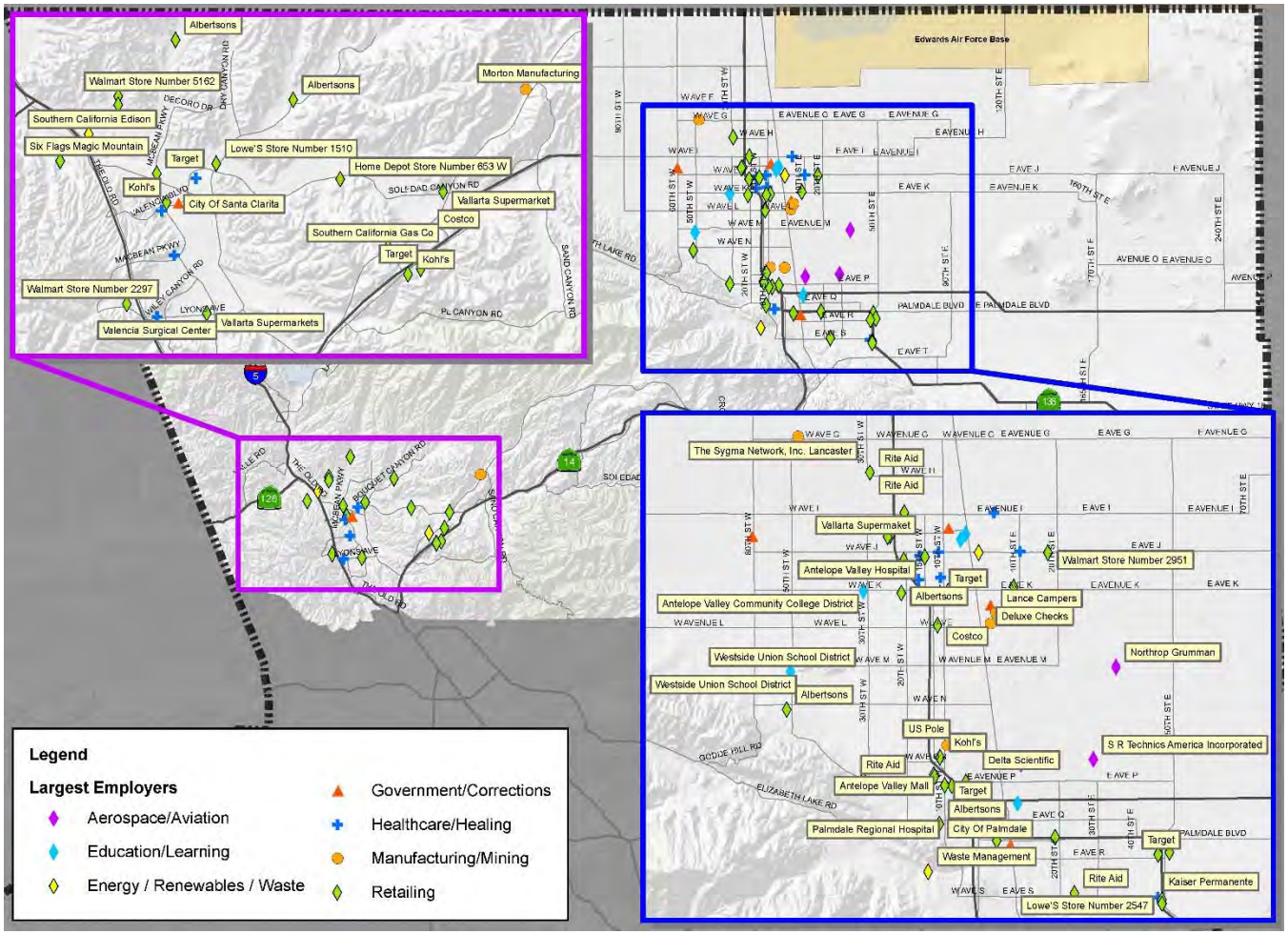


Figure 2-28: Major Trip Generators

2.11.3. Shopping Centers

The Westfield Valencia Town Center, at 24201 Valencia Boulevard in Santa Clarita (Valencia), is a major shopping center and includes a two-story indoor shopping mall and two outdoor shopping districts with a combined 150 stores and over 15 restaurants. This shopping center also has a year-round calendar of special events. The most proximate access to the Town Center is via the I-5/Valencia Boulevard or I-5/Magic Mountain Parkway local interchanges.

Old Town Newhall is a 271-acre mixed use revitalization community that offers visitors and businesses experiences in the arts scene with two performance theatres, retail stores, restaurants, and nightlife venues. It is located in the City of Santa Clarita, east of I-5 off Lyons Avenue, and west of SR-14 off Newhall Avenue. Over the last decade, public and private investments have revitalized the area to include the following the following:

- A new 30,000 square foot LEED certified library
- Multiple streetscape and pedestrian-oriented improvements
- A Veteran's Historical Plaza that hosts annual special events
- A five-acre community park (Creekview Park)
- The Newhall Community Center that hosts an average of 2,500 community members annually and features a full gymnasium for a variety of year-round family programs
- The Newhall Metrolink Station that serves 250 train riders and 530 public transit riders each weekday and provides parking for Old Town Newhall, and railroad improvements to increase pedestrian and motorist's safety.

Bridgeport Marketplace is located at one of Santa Clarita Valley's busiest intersection – Newhall Ranch Road and McBean Parkway. Of the original 27.8-acre parcel available for development, five acres were dedicated to the City of Valencia for a park and an additional 7.3 acres were sold. The remaining 15.5 acres features a 127,000-square foot neighborhood shopping center anchored by national pharmacy and sit-down restaurant. Tranquil views of the lake nearby, great dining and unique shops add to the allure of this upscale center.

Bouquet Center is located near the intersection of Newhall Ranch Road and Bouquet Canyon Road in Santa Clarita. This approximately 149,000-square foot neighborhood shopping center comprises of a national pharmacy, a department store and a supermarket.

Valencia Crossroads is located across the street from Westfield Valencia Town Center Regional Mall near the intersection of McBean Parkway and Valencia Boulevard in Santa Clarita. The retailers include department store, grocery store, bank, restaurants and coffee shop.

Saugus Speedway, an open air swap meet, at 22500 Soledad Canyon Road in Santa Clarita (Saugus), is east of I-5 off Valencia Boulevard or Magic Mountain Parkway and west of SR-14 off Golden Valley Road or Sand Canyon Road. It was originally built as a rodeo arena, evolved into an auto racing venue, and now is home to a Sunday open air marketplace that has been in operation since 1962. The Saugus Swap Meet features more than 400 vendors, with fresh baked food and snacks, as well as live entertainment. It also opens Tuesdays as a smaller Flea Market, featuring more 100 vendors. It is located next to the Santa Clarita Metrolink Station.

Antelope Valley Mall, at 1233 Rancho Vista Boulevard in Palmdale, is an enclosed shopping mall with about 135 stores and 20 dining options. It has a total retail floor area of approximately one million square feet and 10,000 parking spaces. In 2007, the mall went through an extensive renovation that included a new 16-screen movie theater along with a new Hilton Garden Inn at West Avenue O-8 and Avenue Mall Driveway.

Palmdale International Shopping Mall, at 2520 E. Palmdale Boulevard in Palmdale, is an indoor swap meet featuring more than 60 specialty stores that include apparel, jewelry, specialty shops, food, and a banquet hall catering to business meetings as well as special events.

Downtown Lancaster is located along Lancaster Boulevard between 10th Street West and Sierra Highway. In 2010, Lancaster Boulevard was renovated through a complete streetscape redesign. It has various dining, entertainment and shopping options, and it serves as a center of community activity, with regular special events such as the farmers market on Thursdays.

2.11.4. Industrial/Goods Movement

Major goods movement businesses include certain economic sectors such as manufacturing, construction, wholesale and retail trade, transportation and warehousing, agriculture, and other supply-chain related industries. Additionally, both Santa Clarita and Palmdale[12] have Foreign Trade Zones that help the regions act as U.S. ports, benefiting from both the import and export movement of goods. The following businesses can produce significant goods movement trips within the North County area:

- Rite Aid Distribution Center in the City of Lancaster consists of a 910,000 square foot distribution facility, 70,000 square feet of offices, and a data center to monitor inventory distribution to the Western Coast Rite Aid stores. This facility has more than 700 employees.
- Michaels Store Distribution Center is located in the City of Lancaster, with more than 250 employees. It is one of four primary distribution centers and serves approximately 150 stores in the Western United States. The Southern California distribution center has more than 430,000 square feet of warehouse for arts and crafts supplies.

[12] *Source: http://www.cityofpalmdale.org/Businesses/Business-Advantages/FTZ-Advantages*

- Delta Scientific Corporation has a production center in Palmdale that includes more than 260,000 square feet of production area, with more than 150 employees. It manufactures products and barricade systems that promote safety and security for pedestrians and properties for customers around the globe.
- Anderson-Barrows Metals Corporation is located in the City of Palmdale with 350 employees. It manufactures plumbing and Heating Ventilation Air Conditioning (HVAC) supplies.
- U.S. Pole Lighting Company is located in the City of Palmdale, employing more than 300 staff. It manufactures outdoor light equipment with more than 400 products. Brands of lighting include Sun Valley Lighting and U.S. Architectural Lighting.
- Lance Camper Manufacturing Corporation has a 141,000 square foot, 22-acre campus, production facility that manufactures truck campers. It is located in the City of Lancaster with 300 employees.
- Deluxe Corporation, located in the City of Lancaster, employs nearly 400 people and operates a 64,000 square foot manufacturing facility and state-of-the-art customer care center that ranks in the top three percent in the nation for call center performance.
- SYGMA is a wholly-owned subsidiary of SYSCO Corporation that supplies restaurants with myriad of things from fresh beef and produce to silverware and cleaning supplies. It is located in the City of Lancaster with over 250 employees.
- Rio Tinto Minerals operates a global mining and refining operation that is comprised of mines, refineries, shipping facilities and a network of warehouses and stock points around the world. The Boron Operations east of Lancaster is the company's primary borate mine and refinery. It is one of the major employers in the Antelope Valley with over 750 employees.
- Morton Manufacturing opened a new 88,000 square foot facility in the Lancaster Business Park in November 2013. The company expects to bring a total of 350 jobs to the Antelope Valley, 220 of which are existing employees with 130 new positions for local workers. Morton Manufacturing specializes in the production of nickel-alloy bolts for gas-turbine aircraft engines.
- Build Your Dreams (BYD) located in the City of Lancaster employs nearly 150 people and operates an electric bus manufacturing facility.

2.12. Special Trip Generators

Other existing trip generators include colleges and universities, hospitals, and special event facilities. Universities are unique in that employees and students do not arrive at the campus at the same time. Hospitals are open 24 hours a day, seven days a week, with no apparent peak period, while special event facilities tend to generate weekend and summer traffic. These unique characteristics have a major impact on the transportation system. The following sections list and discuss some of these major trip generators for, and immediately adjacent to, the North County area.

2.12.1. Colleges and Universities

Santa Clarita Brandman University at 26455 Rockwell Canyon Road, Room Ucen 204C is part of the Chapman University System offering degrees through on-campus and online programs in business, arts and sciences, health, education and professional development. It has more than 6,000 enrollees per session, with courses offered in eight-week year-round sessions. This campus is located just east of I-5 between Valencia Boulevard and McBean Parkway.

California Institute of the Arts (CalArts) is a private university located at 24700 McBean Parkway, immediately east of I-5. It was founded and created by Walt Disney and offers Bachelor of Arts (BA) and Master of Arts (MA) degrees in both visual and performing arts. The Herb Alpert School of Music was accredited in 2009 to grant a Doctor of Musical Arts degree. It has an enrollment of almost 1,500 undergraduate and graduate students.

The Master's College is a non-denominational Christian liberal arts education institution offering 13 major fields of study, with 58 distinctive emphases. It is located at 21726 Placerita Canyon Road in the City of Santa Clarita. It has an enrollment of approximately 1,200 undergraduate and postgraduate students. Students can earn BA degrees as well as two MA programs, a California Teaching Credential program, and a growing online program.

College of the Canyons is a public, two-year community college offering Associate of Arts (AA) and Associate of Science (AS) degrees in 69 academic programs, as well as credentials in 82 certificate programs. It is located on 153.4 acres at 26455 Rockwell Canyon Road, immediately east of I-5 between McBean Parkway and Valencia Boulevard. This campus includes a 926-seat performing arts center offering academic, community, and professional productions. In 2007, the college opened its Canyon Country Campus on a 70-acre site at 17200 Sierra Highway. The combined enrollment for the two campuses, including online, total more than 31,000 students.

Charter College Canyon Country is a private post-secondary, career-focused education system located at 27125 Sierra Highway. It offers diplomas in 20 programs in healthcare, business, the legal field, the trades, and dental. It also offers a Master's in Business Administration (MBA) program through Charter College Anchorage as an online program.

Antelope Valley College is a two-year, community college located at 3401 West Avenue K in Lancaster. Instruction is offered at multiple sites, including Palmdale and Lancaster as well as through online and instructional television courses. The college offers AA and AS degrees in 71 fields, as well as certificate programs in 50 vocational areas. It has an enrollment of more than 15,000 students. The main campus in Lancaster hosts a satellite location of California State University -Bakersfield where students can obtain Bachelors and Master degrees in select subjects.

University of Antelope Valley is a private university located at 44055 Sierra Highway in Lancaster. It offers Associate, Bachelor, and Master degrees in 29 programs and certificate programs with more than 920 enrolled students. It also has 53 on-campus dormitories.

DeVry University Palmdale Center is located at 39115 Trade Center Drive #100 in Palmdale just west of SR-14. This university offers undergraduate and graduate degree programs in Colleges of Business Administration, Engineering and Information Sciences, Health Sciences, Liberal Arts and Sciences, and Media Arts and Technology. Once enrolled at this center, students can take courses at the Alhambra Center, Anaheim, and the Sherman Oaks Campuses, or online.

West Coast Baptist College is located at 4020 East Lancaster Boulevard in Lancaster. This college offers graduate and undergraduate degree programs in Church Ministries, Church Education, Missions, and Music Departments.

2.12.2. Hospitals

Antelope Valley Hospital (AVH) is a 420-bed acute care public hospital located at 1600 West Avenue J, east of SR-14 in Lancaster. It is Antelope Valley's only full-service hospital and the only hospital to provide obstetrical services in the area. Its Maternal Child Health Department includes Neonatal Intensive Care Unit, Continuing Care Nursery, Labor & Delivery, Pediatrics and Newborn Nursery services. This hospital employs more than 2,000 staff. In 2010, AVH was declared one of the 14 trauma centers in Los Angeles County.

High Desert Regional Health Center is the hub facility in the High Desert Health System, a network of County-run health centers serving residents in the Antelope Valley. It provides primary and specialty care services ranging from pediatrics and adult internal medicine to cardiology and urology in three different clinics. It is located at 335 East Avenue I in Lancaster. The Center also offers Urgent Care services that operate daily between 8:00 AM and midnight.

Palmdale Regional Medical Center is a private hospital located at 38600 Medical Center Drive in Palmdale. The hospital complex is 34.17 acres and includes a 320,000 square-foot hospital, a 60,000 square-foot medical office tower called the Palmdale Medical Plaza, and apartment housing for those who need assisted living. This is an acute care facility offering 157 licensed beds with plans to expand to 239 beds. This hospital also has a Joint & Spine Surgical Center, an Emergency Department with 35 beds and a helipad, Cardiac Services, and other specialties.

Henry Mayo Newhall Memorial Hospital is located at 23845 McBean Parkway, east of I-5 in Santa Clarita (Valencia). It is a 238-bed, not-for-profit community hospital and trauma center. This hospital offers services in acute rehabilitation, stroke, behavioral health, cancer, outpatient, maternity, spine, palliative, infusion, and neonatal intensive care. It is a Level II Trauma Center with an Emergency Department that is open 24 hours a day, seven days a week. This hospital is also certified as an Emergency Department

Approved for Pediatrics (EDAP) and is a designated paramedic base station for Los Angeles County Paramedics. It added a helipad and a new parking structure in 2011 as part of its first major component to its 15-year expansion plan.

Providence Holy Cross Health Center Santa Clarita is located at 26357 McBean Parkway, east of I-5 in Santa Clarita (Valencia). This is an outpatient health center providing radiation therapy and chemotherapy treatments, imaging services, outpatient surgery, and rehabilitation and laboratory services. In addition to serving as a primary care facility, this hospital also offers urgent care that is open 7 days a week.

Valencia Surgical Center is located at 24355 Lyons Avenue #120, just east of I-5. It is an outpatient center offering services in arthroscopic surgery, cosmetic and reconstructive surgery, ear, nose and throat surgery, general surgery, gynecological surgery, orthopedic surgery, pain management, periodontal surgery, plastic surgery, and podiatric surgery.

Kaiser Permanente has four facilities in the North County Area, two in Lancaster, one in Palmdale, and two in Santa Clarita. The Lancaster facilities are located at 43112 15th Street West just west of SR-14, and 615 West Avenue L. These outpatient facilities offer urgent care that is open 7 days a week, primary care, specialty care (not offered at the 15th Street location), laboratory, pharmacy, and vision services. The Palmdale facility is located at 4502 East Avenue S just west of SR-138. This is an outpatient facility, primary care facility, specialty care facility, laboratory and pharmacy. The first facility in Santa Clarita is located at Tourney Road just east of I-5. This is an outpatient facility with the following services: urgent care open 7 days a week, primary care, specialty care, laboratory, pharmacy and vision services. The second facility in Santa Clarita is located at Carl Boyer Drive near Centre Pointe Parkway. This is an outpatient facility with a primary care facility and laboratory.

2.12.3. Special Event Facilities

Six Flags Magic Mountain is a 262-acre theme park located in Valencia off I-5 at Magic Mountain Parkway. It opened in May 1971, has a total of 29 rides, and an estimated 2.9 million visitors ranking it fifth in attendance among seasonal amusement parks in North America. Six Flags Magic Mountain also hosts year-round events including Spring Break, Winter Break and Fright Fest.

Hurricane Harbor is a water park, located adjacent to Six Flags Magic Mountain. It features more than 23 slides and activities. The parks are open seasonally with Six Flags Magic Mountain open extended periods during the holiday season.

Antelope Valley Fairgrounds is located at West Avenue H in Lancaster, just west of SR-138. Antelope Valley Fairgrounds hosts several events throughout the year. Major events hosted are the Annual Antelope Valley Fair & Alfalfa Festival, Miss Antelope Valley Pageant, California Circuit Finals Rodeo, Bridal Show and Home Show & Emergency Expo.

Dry Town Water Park is a water park located in Palmdale at the intersection of 40th Street East and East Avenue S. The park has six attractions including water slides and various swimming pools. The park is operated by City of Palmdale and stays open each year between Memorial Day in May and Labor Day in September.

The Palmdale Amphitheater is located at 2723 Rancho Vista Boulevard in Palmdale. It hosts various concerts and community based programs. During the summer season, the amphitheater hosts Friday evening family movie nights and Saturday evening concerts.

William J Fox Airfield hosts the annual Los Angeles County Air Show, which started in 2014. The event attracted over 130,000 people and 40,000 vehicles in 2015.[13]

[13] *Source: http://theavtimes.com/2015/03/23/la-county-air-show-organizers-thrilled-with-attendance-community-outreach/*

Chapter 3 - UPDATES SINCE 2004 NCCHCS

3.1. Highway Corridors NCCHCS

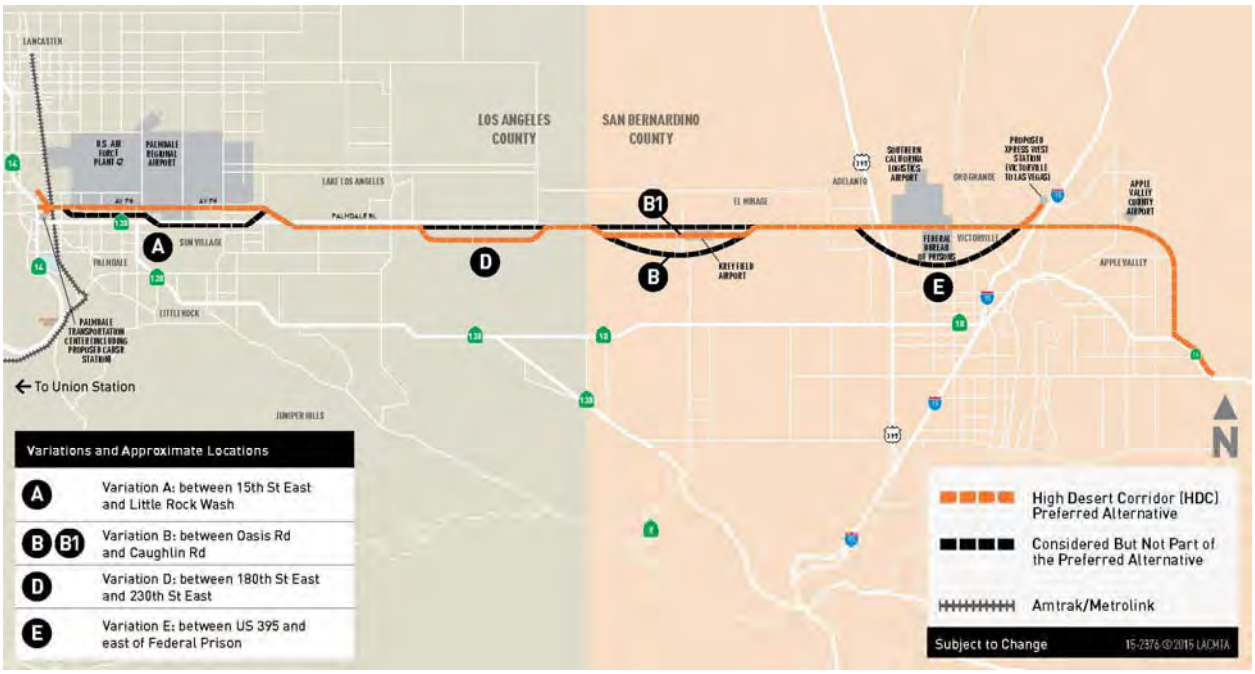
3.1.1. High Desert Corridor

The High Desert Corridor (HDC) project proposes a new multimodal link between SR-14 in Los Angeles County and SR-18 in San Bernardino County. The HDC is a proposed 63-mile long east-west facility, which would connect the cities of Palmdale, Lancaster, Adelanto, Victorville and the Town of Apple Valley. Caltrans and Metro initiated the HDC Environmental Impact Statement/Report (EIS/EIR) in September 2010. Five alternatives, and four physical variations, as shown in **Figure 3-1,** were studied as part of the EIS/EIR. The alternatives also include two options for a high-speed rail component, a bikeway and provision for a green energy generation and transmission component., and are described as follows:

1. **No-Build Alternative**– This Alternative represents the baseline (without HDC) against which the other alternatives are compared.
2. **Freeway/Expressway Alternative (Avenue P-8, I-15 and SR-18)** - This Alternative would function as a combination of a controlled-access freeway and an expressway.
3. **Freeway/Tollway Alternative (Avenue P-8, I-15 and SR-18)** - This Alternative is the same as the Freeway/Expressway Alternative but would include a section operating as a tollway proposed between 100th St East and US-395.
4. **Freeway/Expressway Alternative with High Speed Rail Feeder Service** - This Alternative is the same as the Freeway/Expressway Alternative, with the addition of a proposed high speed rail (HSR) feeder service that would connect the proposed California High Speed Rail station in Palmdale to the XpressWest rail station in Victorville.
5. **Freeway/Tollway Alternative with High Speed Rail Feeder Service** - This Alternative is the same as the Freeway/Tollway Alternative with the addition of a HSR feeder service that would connect the proposed California High Speed Rail station in Palmdale and the XpressWest rail station in Victorville. This alternative has been identified as the "Preferred Alternative".[14]

In July 2015 a Preferred Alternative was selected for further evaluation to be presented as part of the final EIS/EIR, expected to be approved in Spring 2016.

[14] *Source: http://media.metro.net/projects_studies/hdc/images/factsheet_hdc_alternatives_2015-08.pdf*



Source: Metro (Spring 2014)

Figure 3-1: High Desert Corridor Alternative Alignments

3.1.2. Status of Short-Term Strategies

The 2004 North County Combined Highway Corridors Study Report identified short-range improvements to be implemented by the year 2010. These improvements, shown in **Figure 3-2**, focused on right-of-way protection and implementation of key high priority early actions that would address the most critical near-term bottlenecks as well as safety, operational, and connectivity needs.

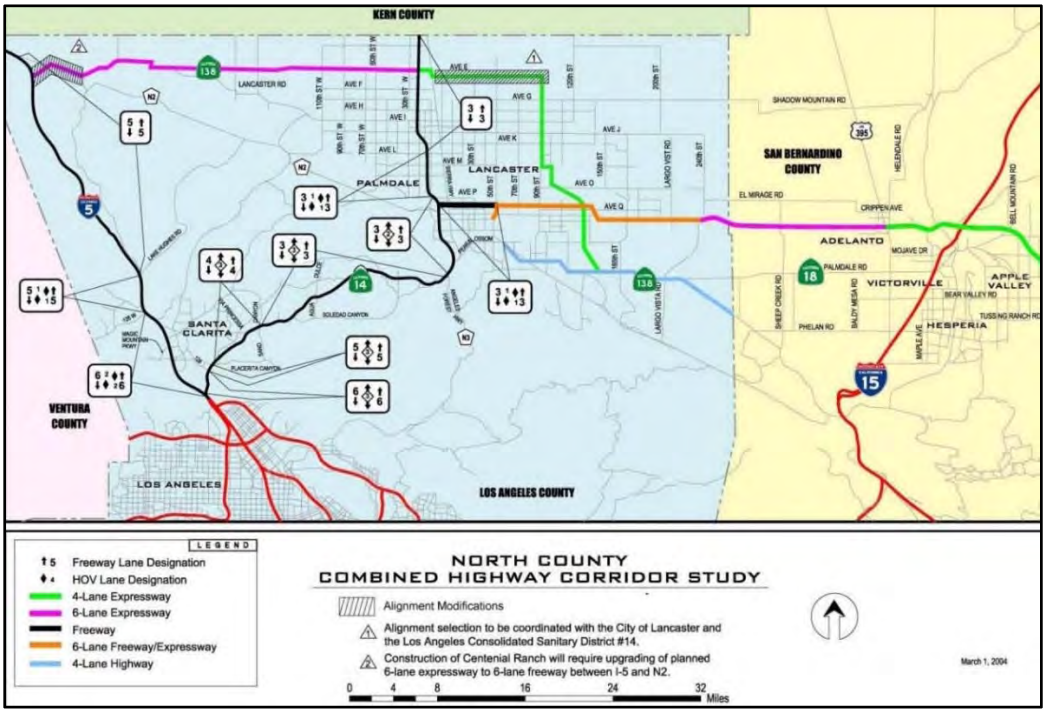


Figure 3-2: North County Corridors Plan, North County Combined Highway Corridors Study, 2004

3.1.2.1. Interstate 5

Along the I-5 freeway, the short-term strategies included adding HOV and truck lanes. **Table 3-1** provides updated status of short-term strategies. The HOV lanes from SR-14 to SR-126 West, truck lanes and transit improvements have been completed.

Table 3-1: Status of Short-Term Strategies along I-5

Preferred Strategy	Strategy Status	Specific Projects	Project Status
HOV lanes from SR-14 to SR-126 West[15]	Final Design to Commence in early 2016	Add HOV lane from SR-14 to SR-126 (both directions)	Completed
Truck lanes from SR-14 to Calgrove Blvd[13]	Under construction	Truck lanes from SR-14 to Pico Cyn	Completed
Transit Improvements – Existing peak hour express bus service would triple and Metrolink commuter rail capacity would double	Bus service enhancements is not completed	Improve bus and Metrolink service	Metrolink service enhancement is completed

[15] *Included in the Metro LRTP 2009, http://media.metro.net/projects_studies/hov/images/hov_map.pdf*

3.1.2.2. State Route 14

Along the SR-14 freeway, the short-term strategies included creating reversible HOV lanes and adding capacity between I-5 and San Fernando Road. **Table 3-2** provides the updated status of short-term strategies.

Table 3-2: Status of Short-Term Strategies along SR-14

Preferred Strategy	Strategy Status	Specific Projects	Project Status
One continuous HOV lane and three MF lanes in each direction from I-5 to Ave P[16]	One HOV lane completed and MF lanes vary between two and three in each direction	SR-14: Pearblossom Hwy to Ave P-8 (widen from 2MF to 2MF+1HOV)	Not Completed
		I-5/SR-14 Direct HOV Connector	Project completed and opened in Jan 2013
		SR-14 HOV lanes part time operations (mixed-flow allowed during off-peak periods), started in 2001	HOV part time operations has been continuous since inception
Five MF lanes in each direction + 3 reversible HOV lanes from I-5 to San Fernando Rd[14]	Not completed	I-5 to San Fernando Rd – Add 2 HOV and 1 truck for a total of 3 consistent reversible HOV lanes	Not completed
Three MF lanes and three reversible HOV lanes from San Fernando Rd to Pearblossom, at which point only two of the reversible HOV lanes continue from Pearblossom to Ave P[14]	Not completed	San Fernando Rd to Placerita Canyon – Add one mixed-flow lane and two HOV and one truck lanes for a total of three consistent reversible HOV lanes	Not completed
		Placerita Canyon to Sand Canyon – Add one mixed-flow lane and two HOV for a total of three consistent reversible HOV lanes	Not completed
		Sand Canyon to Avenue P-8 – Fitting the gap, making it a consistent three lane cross section in each direction plus three consistent reversible HOV lanes on SR-14	Not completed
		Pearblossom to Avenue P – Add one mixed-flow lane and two HOV for a total of three consistent reversible HOV lanes	Not completed
ITS improvements: CCTVs, detectors, ramp metering	Being implemented	North County Traffic Forum ITS Expansion Phase I: deployment of signal synchronization to arterial corridors, ATMS and comms to support system elements along the surface arterials	City of Palmdale requested for contract approval for A&E services agreement with Antelope Valley Engineering on 7/18/12
		North County Traffic Forum ITS Expansion Phase II & III: installation of fiber optics lines, traffic signals, signal modification, and installation of CCTV cameras	Phase II & III RFQ/P advertised in May 2014

[16] *Included in the Metro LRTP 2009*

Preferred Strategy	Strategy Status	Specific Projects	Project Status
		North County Traffic Forum ITS Expansion Phase IV: installation of fiber optics lines, traffic controllers and comm. Equipment to connect signals to County's IEN system, and CCTV cameras	Contract advertised 4/10/14; estimated construction start July 2014 per Metro update
Metrolink train departures in the morning peak hour would increase from two to three, and the number of commuter rail cars would more than double (from two departures to three departures, from eight trains to 18 trains)[17]	Completed; currently three peak hour departures per day	SR-14 Corridor Metrolink Service - Expansion of Metrolink services and capacity on existing trains	Total of three departures in the AM peak hour, including an express service (total of 30 weekday train trips, 12 trains weekend train trips); Sunday service added in Sept 2007, weekend service expanded to six trains as of August 2013
Express bus service would more than triple (nine to 31) [15]	Express buses currently 23 trips per peak period	Improve bus transit services along SR-14 corridor	Nine express buses in 2004 expanded to 23 express buses in 2014
		I-5/SR-14 Express bus	

Note: "Not Completed" status implies that the projects have been adopted, programmed and in progress but just not completed yet.

3.1.2.3. State Route 138 (East-West Routes)

Along the SR-138, the short-term strategies included completion of existing widening of SR-138 and construction of High Desert Corridor. **Table 3-3** provides updated status of short-term strategies. The current status of the HDC environmental document, and the selection of the Preferred Alternative, was discussed in Section 3.1.1.

[17] *Included in the Metro LRTP 2009*

Table 3-3: Status of Short-Term Strategies along SR-138

Preferred Strategy	Strategy Status	Specific Projects	Project Status
Widening of existing SR-138 to 4 lanes from Pearblossom Hwy to SB County line[18]	Partly constructed. Potential Future Project	Partly constructed. Potential Future Project	Partly constructed. Potential Future Project
Construction of four-lane expressway along High Desert Corridor from US-395 to SR-18[16]	Not completed	None	Not completed, Study Underway
Preserving ROW for future High Desert Corridor freeway/ expressway	Not completed	None	Not completed, Study Underway, Preferred alignment identified in environmental documents
Transit Improvement: Increase of fixed route bus service by 50%	Not completed	None	Not completed

Note: "Not Completed" status implies that the projects have been adopted, programmed and in progress but just not completed yet.

3.1.3. Status of Long-Term Strategies

The 2004 North County Combined Highway Corridors Study Report identified long-range improvements to be implemented by the year 2025. These improvements focused 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.

3.1.3.1. Interstate 5

Along the I-5 freeway, the long-term strategies included adding of HOV lane, truck lane and improving transit frequencies. **Table 3-4** provides updated status of long-term strategies. The HOV lane along I-5 is not completed, but the truck lanes from SR-14 to Pico Canyon has been completed.

Table 3-4: Status of Long-Term Strategies along I-5

Preferred Strategy	Strategy Status	Specific Projects	Project Status
Add two HOV plus two Truck lanes in each direction from SR-14 to SR-126[16]	Not completed	Truck lanes from SR-14 to Pico Cyn	Completed
Add one HOV plus one Truck lane in each direction from SR-126 to Lake Hughes Rd[16]	Not completed	None	Not completed
Add one Truck lane from Lake Hughes Rd to Kern County line[16]	Not completed	None	Not completed
Transit Improvements - Existing peak bus departures would increase four-fold,	Bus service enhancements is not completed	City of Santa Clarita Transit	Metrolink service enhancement is completed

[18] *Included in the Metro LRTP 2009*

Preferred Strategy	Strategy Status	Specific Projects	Project Status
Metrolink departures would double, number of commuter rail cars would triple			

Note: "Not Completed" status implies that the projects have been adopted, programmed and in progress but just not completed yet.

3.1.3.2. State Route 14

Along the SR-14 freeway, the long-term strategies included creating reversible HOV lanes, adding capacity and transit improvements. **Table 3-5** provides updated status of long-term strategies.

Table 3-5: Status of Long-Term Strategies along SR-14

Preferred Strategy	Strategy Status	Specific Projects	Project Status
Add three reversible HOV lanes to the existing four to six MF lanes between I-5 and Pearblossom - three reversible lanes, designated for peak direction carpool and transit use[19]	Not completed	I-5 to San Fernando Rd – Add two HOV and one truck for a total of three consistent reversible HOV lanes	Not Feasible
		San Fernando Rd to Placerita Canyon – Add one mixed-flow lane and two HOV and one truck lane for a total of three consistent reversible HOV lanes	Not Feasible
		Placerita Canyon to Sand Canyon – Add one mixed-flow lane and two HOV for a total of three consistent reversible HOV lanes	Not Feasible
Add two reversible HOV lanes to the existing three to four lanes between Pearblossom and Ave P[17]	Not completed	Sand Canyon to Avenue P-8 – Fitting the gap, making it a consistent three lane cross section in each direction plus three consistent reversible HOV lanes on SR-14	Not completed
		Pearblossom to Avenue P – Add one mixed-flow lane and two HOV for a total of three consistent reversible HOV lanes	Not completed
Add one MF lane between San Fernando Rd and Sand Canyon[17]	Not completed	Add one MF lane from I-5 to Kern Co Line (both directions)	Not completed
North of Ave P, add one new lane for HOV use to Ave L and for MF use	Not completed	HOV Lane SR-14: Ave P-8 to Ave L (Ave P-8 to Ave M (widen from 3MF to three MF plus one HOV); Ave M to	Not completed

[19] *Included in the Metro LRTP 2009*

Preferred Strategy	Strategy Status	Specific Projects	Project Status
from Ave L to Kern County Line[20]		Ave L (widen from two MF to two MF plus one HOV))	
		Avenue P to Avenue L – Add one mixed-flow lane and one HOV lane	Not completed
Add a truck lane from I-5 to Placerita Canyon [17]	Not completed	I-5/SR-14 Interchange – Redo/restripe the transition from SB SR-14 to SB I-5 to allow a continuous two-lane truck route and separate SR-14 connectors to I-5 with a physical barrier to prevent weaving and reduce queuing	Not completed
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	Strategy being implemented with Metrolink and express bus service increases	SR-14 Corridor Metrolink Service - Expansion of Metrolink services and capacity on existing trains	Total of three departures in the AM peak hour, including an express service (total of 30 trains on weekdays, 12 trains on weekends); Sunday service added in Sept 2007, weekend service expanded to six trains as of August 2013[21]
		I-5/SR-14 Metrolink - 4 trains/24 cars	
		Improve bus transit services along SR-14 corridor	Nine express buses in 2004 expanded to 20 express buses in 2014
		I-5/SR-14 Express bus	

Note: "Not Completed" status implies that the projects have been adopted, programmed and in progress but just not completed yet.

3.1.3.3. State Route 138

Along the SR-138 Corridor, the long-term strategies included construction of High Desert Corridor and expansion of transit service. **Table 3-6** provides updated status of long term strategies.

Table 3-6: Status of Long-Term Strategies along SR-138

Preferred Strategy	Strategy Status	Specific Projects	Project Status
Widening of existing SR-138 to four lanes from Pearblossom Hwy to SB County line	Partially complete	None	Partially complete
Construction of eight-lane freeway along High Desert Corridor from SR-14 to 240th St East & a 4/6-lane	Not completed, Study Underway	Interchange upgrades at SR-14 with HDC in the City of Lancaster (Ave G, Ave H, Ave I, Ave L)	Not completed, Study Underway

[20] *Included in the Metro LRTP 2009*
[21] *http://www.metrolinktrains.com/schedules/line/name/Antelope%20Valley/service_id/1142.html*

Preferred Strategy	Strategy Status	Specific Projects	Project Status
expressway from 240th St East to I-15[22]			
Between I-5 and SR-14, construction of High Desert Corridor as six-lane freeway or expressway along the current SR-138 alignment	Not completed, Study Underway	Interchange upgrades at SR-14 with HDC in the City of Lancaster (Ave G, Ave H, Ave I, Ave L)	Not completed, Study Underway
Construction of North-South High Desert Corridor expressway. Expressway would start at SR-14/Ave D on the north head south to Ave E at Old Sierra Hwy, head south along 90th St East, head to intersect with East-West HDC at 126th East and continue south to the existing SR-138 near 150th St East	NCMITS Study Further	None	Not completed, Study Underway
Expansion of transit service by 75% over currently programmed conditions	Not completed	None	Not completed

Note: "Not Completed" status implies that the projects have been adopted, programmed and in progress but just not completed yet.

3.2. Other Projects

In addition to the projects listed in NCCHCS, there are other planned (funded and unfunded) projects within the study area. Various sources were consulted to compile this information, including the Metro Long Range Transportation Plan 2009, SCAG RTP 2012, 2014 SHOPP, 2014 STIP and Cities of Palmdale and Lancaster CIP. **Table 3-7** provides details on the status of each of these planned projects.

Table 3-7: Other Projects not in NCHCCS

Corridor	Specific Projects	Project Status	Source(s)/Comments
I-5	SR-126 Interchange Improvement	Not completed	In 2009 LRP Unfunded Subregional Priorities
	Add one MF lane from SR-14 to SR-126	Not completed	In 2009 LRP Unfunded Subregional Priorities
	Calgrove Ave to SR-126 W, Add two truck and two HOV lanes	Not completed	In 2009 LRP Unfunded Subregional Priorities
	SR-126 W to Lake Hughes Rd, add one truck and one HOV lane	Not completed	In 2009 LRP Unfunded Subregional Priorities
	Lake Hughes Rd to Kern County Line, add one truck lane	Not completed	In 2009 LRP Unfunded Subregional Priorities

[22] *Included in the Metro LRTP 2009*

Corridor	Specific Projects	Project Status	Source(s)/Comments
SR-14	SR-14 PM 30.9/44.0 Near Santa Clarita - south of Soledad Road to Escondido Road - slope stabilization	Project completed	2004 SHOPP Project List
	In the city of Los Angeles, at various locations on Routes 2, 5, 14, 134 and 170; also in Ventura County at various locations on Routes 33, 101 and 126. Gore area clean-up and upgrades. (Project also includes an additional $2 million of OTS funds)	Status unknown	2008 SHOPP Project List
	Express service added on the Antelope Valley Line as part of its pilot programs in 2011	One Express departure during the SB AM peak period, one Express departure during the NB PM peak period	"*Metrolink Riders Now Have Faster Commutes",* 5/9/11 by Darsha Philips; abc7.com/archive/8120068/
	SR-14 PM 29.3/31.0 In Sylmar and Santa Clarita, from Golden Valley to Via Princessa Way. Replace electrical system destroyed by fire.	Caltrans contract 07-2X3704, advertised in May 2011, completed	2010 SHOPP Project List
	SR-14 PM 60.0/69.3 In Palmdale and Lancaster from north of Palmdale Blvd to north of Ave I. Install metal beam guardrail.	Caltrans recommended CTC SHOPP allocations for project on Dec 14-15, 2011; completed	2010 SHOPP Project List
	Expansion of FSP throughout the SR-14 corridor	Metro authorized Beats 24 and 41 for SR-14 FSP on October 21, 2010 starting from 2/1/11 through 12/31/13; Metro FSP program operational changes include system expansion in 1990 and 2005; Big Rig Service Patrol implementation in 2005, and implementation of the "super-beat" concept in 2007.	In 2009 LRP Unfunded Subregional Priorities; Metro Operations Committee 10/21/10 - Subject: Metro Freeway Service Patrol, Action: Authorize the Award and Modification of Contracts, and Operational Restructuring - http://media.metro.net/board/Items/2010/10_october/20101021OPItem9.pdf
	Metrolink Antelope Valley Line sealed corridor, Lancaster-LA; VOTED 8/2010 & 11/2010	Project inaugurated on 11/15/12	2012 STIP; $2 mil/$12 mil construction; 2010 STIP $14 mil construction; 2008 STIP $14 mil construction in yr 2010/2011
	Positive Train Control (PTC) implementation	Completed six-county regional communication network improvement program; completed all Wayside Interface Units and PTC ratios; near completion of PTC hardware on all locomotives; construction of new Train Control and Operations Support Facility (TCOSF) completed in fall of	http://www.metrolinktrains.com/agency/page/title/ptc[23]

[23] *http://www.latimes.com/local/lanow/la-me-ln-positive-train-control-20150624-story.html*

Corridor	Specific Projects	Project Status	Source(s)/Comments
		2014; entire system is PTC operational since early to mid-2015	
	SR-14 R32.1/R59.2 In and near Santa Clarita and Palmdale, from Santa Clarita River Bridge to Rayburn Road, upgrade curb ramps and sidewalks to ADA standards; $3.258 million Capital+Support Program Year 2016/2017	Caltrans EA 29100; 2014 SCAG SHOPP Lump Sum by Category and Fund Type list, 4/7/14	2014 SHOPP Project List
	VAR Routes: In LA and Ventura Counties in various cities and spot locations on various routes. Install and upgrade HAR systems and signs; $9.018 million Cap+Support, Prog Yr 2017/2018	Caltrans EA 24070; 2014 SCAG SHOPP Lump Sum by Category and Fund Type list, 4/7/14	2014 SHOPP Project List
	Rte 14 Corridor Master Plan Bicycle and Pedestrian projects	Los Angeles County Bicycle Master Plan; in 2014 STIP with environmental & planning component funding	2014 STIP, $300K Env&Pln component; 2012 STIP; 2010 STIP New Voted
	Rt 14 Lamont Odett Vista Point Enhancements	Caltrans recommended CTC STIP funding allocation for project on 1/29/14	2014 STIP, $3.435 million construction/E&P/PS&E; 2010 New Voted
	Golden Valley Rd – Widen Overcrossing at Golden Valley Rd	City of Santa Clarita Public Works Project Number S3028, design/plan review completed in 2011; $9.27 million total project cost (in 2012-2013 $)	In 2009 LRP Unfunded Subregional Priorities
	Sand Canyon Rd/Avenue P – Add a mixed-flow lane on SR-14 at San Canyon Rd and Avenue P	Not completed	In 2009 LRP Unfunded Subregional Priorities
	Avenue L to Kern Co Line – Add one mixed-flow lane	Not completed	In 2009 LRP Unfunded Subregional Priorities
	Avenue G/SR-14 – Construct interchanges with High Desert Corridor at the subregional level by the City of Lancaster at Avenue G and SR-14	Not completed, Study Underway	In 2009 LRP Unfunded Subregional Priorities
	Avenue H/SR-14 Interchange – Construct interchanges with High Desert Corridor at the subregional	Completed (based on information provided by City of Lancaster)	In 2009 LRP Unfunded Subregional Priorities, City of Lancaster

Corridor	Specific Projects	Project Status	Source(s)/Comments
	level by the City of Lancaster at Avenue H and SR-14		
	Avenue I/SR-14 Interchange – Construct interchanges with High Desert Corridor at the sub-regional level by the City of Lancaster at Avenue I and SR-14	Completed (based on information provided by City of Lancaster)	In 2009 LRP Unfunded Subregional Priorities, City of Lancaster
	Avenue K/SR-14 Interchange - Interchange upgrade	Study underway (based on information provided by City of Lancaster)	City of Lancaster's 2013-14 Proposed Project list
	Avenue J-8/SR-14 Interchange - Interchange upgrade	Not completed, Potential Future Project	City of Lancaster
	Avenue K-8/SR-14 Interchange - Interchange upgrade	Not completed, Potential Future Project	City of Lancaster
	Avenue L/SR-14 Interchange – Construct interchanges with High Desert Corridor at the sub-regional level by the City of Lancaster at Avenue L and SR-14	Not completed	In 2009 LRP Unfunded Subregional Priorities
	Avenue M/SR-14 interchange upgrade	Study underway (based on information provided by City of Lancaster)	City of Lancaster's 2013-14 Proposed Project list
	Avenue N/SR-14 interchange upgrade	Not completed, Potential Future Project	In 2009 LRP Unfunded Subregional Priorities, City of Palmdale
	Avenue S/SR-14 interchange upgrade	Not completed, Potential Future Project	In 2009 LRP Unfunded Subregional Priorities, City of Palmdale
	10th St West/SR-14 interchange upgrade	PSR Study underway	In 2009 LRP Unfunded Subregional Priorities, City of Palmdale
	I-5/SR-14 Park-and-ride	Not completed	In 2009 LRP North LA County Unfunded Subregional Priorities Transit
	SR-14 Corridor – Add and/or expand park-and-ride facilities	Not completed	In 2009 LRP North LA County Unfunded Subregional Priorities TSM/TDM
SR-138	Add two lanes from I-5 to SR-14	Not completed	In 2009 LRP Unfunded Subregional Priorities
	Widening, Segment 6	Not completed	2014 STIP, $25.7 million construction/E&P/PS&E/ROW
	Widening, Segment 9	Not completed	2014 STIP, $12.6 million construction/E&P/PS&E/ROW
	Widening, Segment 13	Not completed	2014 STIP, $43.9 million construction/E&P/PS&E/ROW
	Additional local bus routes serving the Castaic Lake area and SR-126	Not completed	In 2009 LRP Unfunded Subregional Priorities

Corridor	Specific Projects	Project Status	Source(s)/Comments
Other Transit Projects	Increase Shuttle service from Metrolink Stations to employment destinations (Newhall, Santa Clarita, Via Princessa, Vincent Grade, Lancaster)	Not completed	In 2009 LRP Unfunded Subregional Priorities
	Initiate fixed-route transit service between Santa Clarita and San Fernando Valleys	Not completed	In 2009 LRP Unfunded Subregional Priorities
	Increase frequency on existing Santa Clarita Transit routes: 794, 798, 799 (Express Bus)	Not completed	In 2009 LRP Unfunded Subregional Priorities

3.3. High Speed Rail

3.3.1. California High Speed Rail

California High Speed Rail is a proposed high-speed passenger rail service for intercity travel in California, which would connect the major metropolitan areas of the state from Sacramento, Oakland, San Francisco, and San Jose in Northern California, through Stockton, Modesto, Merced, Fresno and Bakersfield in Central California to Palmdale, Los Angeles, Orange County and San Diego in Southern California. The proposed system, when completed, will extend 800 miles and include up to 24 stations.

Bakersfield to Palmdale: This is a 95-mile route connecting Bakersfield to Antelope Valley. Two stations proposed in this segment of the CHSR line are Bakersfield and Palmdale. As of October 2015, the Supplemental Alternatives Analysis (SAA) is ongoing.

Palmdale to Burbank: This is a 45-mile route connecting Palmdale to Burbank. This segment of the CHSR line begins at the Palmdale Transportation Center Station and ends at the Burbank Airport Station. As of October 2015, the SAA is ongoing. The proposed location of Palmdale Station is the Palmdale Transportation Center, which would provide connectivity with Metrolink and the proposed *High Desert Corridor*. The latest SAA proposed design modifications to the alignment alternatives in the SR14 Corridor in the vicinity of the City of Palmdale and the Community of Acton, as well as introducing additional alignments that generally follow the proposed East Corridor across the San Gabriel Mountains. **Figure 3-3** shows the proposed CHSR station at Palmdale Transportation Center and CHSR alignment in and in the vicinity of Palmdale.

Figure 3-3: Proposed California High Speed Rail Alignment in Palmdale

Burbank to Los Angeles: This is a 12-mile route connecting Burbank to Downtown Los Angeles. This segment of the CHSR line begins at Burbank Airport Station and ends at LA Union Station, connecting two key multimodal transportation hubs. This corridor will generally follow existing railroad right-of-way, adjacent to the Los Angeles River, through the cities of Burbank, Glendale, and Los Angeles.

3.3.2. XpressWest

The XpressWest is a proposed 185-mile rail connecting Victorville in San Bernardino County with the City of Las Vegas in Nevada. The three proposed stations are Las Vegas, Barstow, and Victorville. **Figure 3-4** shows the proposed Xpress West route between Victorville and Las Vegas. The XpressWest would potentially extend its services to Palmdale, and offer a possible connection with the CHSR as a future phase of the project.

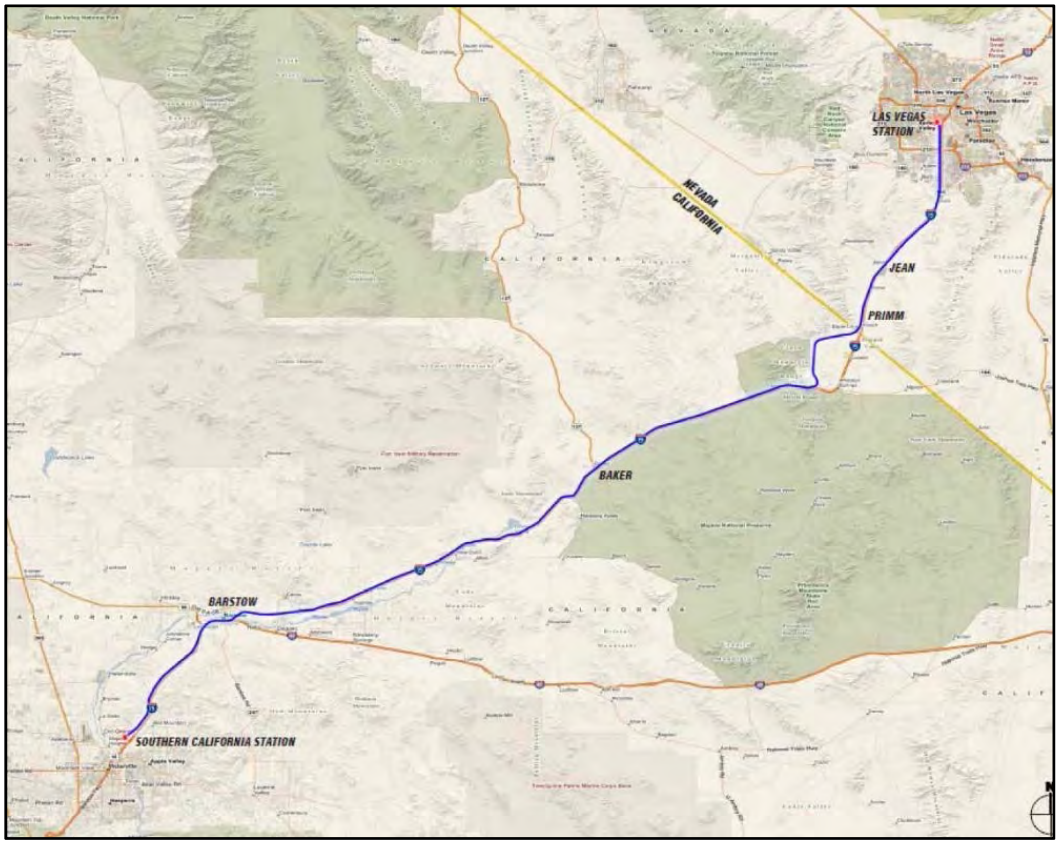


Figure 3-4: Proposed Xpress West Route between Victorville and Las Vegas

3.4. Metrolink Antelope Valley Line

In 2012, LA Metro completed the Antelope Valley Line Infrastructure Improvement Strategic Plan (AVLIISP) to identify potential improvements that would reduce Metrolink's travel time service reliability, and safety along the corridor. The study also considered the need for additional capacity in the future to accommodate freight demand and high-speed rail service. The CHSRA 2012 Business Plan discusses blended service where high-speed trains are proposed to use a section of this corridor (LAUS to Sylmar).

The study identified physical and operational constraints that limit the ability of Metrolink to reduce travel time in the corridor, which is approximately two hours end-to-end. They are:

- Curves in the right-of-way that prevent higher operating speeds;
- Inadequate right-of-way which limits the ability to straighten curved tracks or add passing tracks without purchasing additional right-of-way;
- Single-track sections that limit operational flexibility;
- Significant constraints in the signaling system that cause delays;
- Station facility constraints that result in longer train dwell times at specific stations; and

- Numerous vehicle and pedestrian at-grade crossings that prevent operations at higher speeds.

The potential to increase the maximum allowable speed to 110 mph was deemed impractical due to the topography and right-of-way constraints. While there are infrastructure improvements that could increase average speed and improve the operations, efficiency, and service level in the corridor, relying on infrastructure improvements alone would not result in substantial travel time savings. Operational modeling was conducted in parallel with the study, which confirmed the study findings that overall system capacity needs to be addressed to improve travel times by reducing delays in the Antelope Valley Line corridor. These capacity improvements will allow Metrolink to operate express and limited stop service, which can significantly improve travel times in the corridor. Metrolink has track agreements with Union Pacific to run the Metrolink Antelope Valley Line in the Los Angeles and Antelope Valley areas.

The study recommended two tiers of improvements — the first included near-term projects, such as track realignment, double-tracking, and station platform expansion that could result in immediate operational improvements. The second tier included more substantial infrastructure improvements, such as track improvements, and bridge and tunnel projects, that would take longer (10 - 20 years) and be more costly to implement.

3.5. Transportation Needs Assessment based on NCCHCS Update

This section summarizes the North County area's short-term and long-term transportation needs. The identified needs are based on the 2004 North County Combined Highway Corridors Study Report, existing conditions discussed in Chapters 2 and Chapter 3 of this report, the Metro's Mobility Matrix studies, and are also based on forecast needs through 2035 (a time frame that includes significant growth in the North LA County subregion). The summary of needs includes:

1. Highway and bridge Condition (as discussed in Chapter 2):
    a. Highway pavement and bridges need repair/rehabilitation
2. North-South travel needs and limited freeway capacity on I-5 and SR-14 (as discussed in Chapter 2 and Chapter 7):
    a. The need for additional or expanded north-south freeways connecting jobs and houses in greater Los Angeles
    b. 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.
    c. Existing roadway capacity of I-5 and SR-14 cannot handle anticipated future demand
3. East-West travel needs (as discussed in Chapter 2, Chapter 7, and Chapter 8):
    a. New facilities and upgraded connections are required to meet future demand and to provide for transitions between the primary north-south corridors.
    b. SR-138 cannot keep pace with future demand

   c. Would improve and generate goods movement opportunities from Inland Empire to the Antelope Valley
   d. The High Desert Corridor now has a preferred alignment and multi-modal components identified through its environmental review process
4. Regional mobility for economic vitality: moving people and goods (as discussed in Chapter 4, Chapter 7, and Chapter 8)
   a. Plans for the area must also help ensure that Southern California has the trucking infrastructure required to remain economically competitive at the global level.
   b. Growing Truck Volumes on SR-138 requires to enhance truck movement while minimizing impacts on local communities
   c. The Antelope Valley has potential for multimodal freight distribution and movement of international trade from the ports
   d. Need for expansion of existing freight rail to help facilitate regional goods movement and justify Antelope Valley freight terminals
5. Need for new transit connections and services (addressed in Chapter 5, Chapter 7, and Chapter 8)
   a. Expanding North County transit's ability to reduce the strain on roadways
   b. Better transit connectivity between North County and central and western Los Angeles County
   c. Need for convenient transit connections to Kern County, Ventura County, and the Victor Valley
   d. Connections from Lancaster to various future transit centers/systems in Palmdale.
6. Regional multimodal access to airport (addressed in Chapter 6, , Chapter 7, and Chapter 8)
   a. 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.
   b. More rail connections to facilitate freight at Fox Field airport in Lancaster and Palmdale Airport
7. Operational complexities and safety challenges (addressed in Chapter 7 and Chapter 8)
   a. SR-138 corridor has obsolete and inadequate roadways with growing traffic and truck demand.
   b. Safety remains a high priority on all corridors within the North County Study Area to reduce accident rates and fatalities.
8. Lack of system redundancy (addressed in Chapter 7 and Chapter 8)
   a. Primary study area transportation Corridors (I-5, SR-14, and SR-138) are vulnerable to shut down because of accidents, inclement weather, earthquakes, landslides, and wildfires.
   b. To cope with emergencies, multiple facilities and alternative modes of travel are needed for the area.

Chapter 4 – FEASIBILITY OF THE ANTELOPE VALLYE INLAND MULTIMODAL FREIGHT TRANSFER FACILITY (THE AV INLAND PORT)

This chapter contains a summary of the feasibility of the Antelope Valley Inland Multimodal Freight Transfer Facility or (the AV Inland Port) which is one of the components of the 2015 North County Multimodal Integrated Transportation Study (NCMITS).

4.1. Introduction

4.1.1. Study Purpose

This report is a sub-study of the North County Multimodal Integrated Transportation Report (NCMITS) titled, the Antelope Valley Inland Multimodal Freight Transfer Facility (i.e., AV Inland Port). The scope of work as paraphrased in the Los Angeles County Metropolitan Transportation Authority (Metro) Task Order is to:

- Assess potential opportunities and constraints for locating multimodal freight transfer facilities and potentially an inland port in the Antelope Valley (AV)
- Select a preferred location for an Antelope Valley inland port (this task was later revised to identify multiple locations)
- Identify and assess inland port locational factors and broadly review non-site factors (i.e., markets, workforce, development policies, etc.)
- As possible, provide recommendations to overcoming barriers to making such a facility feasible
- As relevant, identify development linkages between an inland port and the Palmdale and Lancaster Fox Field Airports

The overall goal of the above work tasks in pursuing an inland port facility is to:

- Create a long-term Vision for the Antelope Valley that helps attain economic development (ED) goals
- Formulate ED strategies that create and retain jobs and attract new businesses in the Antelope Valley
- Pursue strategies that initially target and grow local/regional goods movement serving markets that can lead to attraction of international trade markets
- Take advantage and utilize existing and planned multimodal transportation systems
- Create plans that take advantage of available affordable land (strategic land use planning, ED marketing, land value capture, etc.)
- Take advantage of existing Antelope Valley assets and economic advantages such as: industries (aerospace), local workforce, projected North LA County population and job growth, etc.
- Enhance local development competitiveness by incorporating long-term sustainable community development policies

As discussed in this report, freight movement in Southern California consists of three major and distinct markets: regional and local distribution, domestic and national distribution, and international trade. As an initial step toward attracting international trade, it is recommended that AV communities pursue strategies that seek initially to build and capture local and regional goods movement markets. As such local/regional goods movement related markets grow in the AV and North LA County areas, they in turn can generate demand for multimodal freight distribution, terminals, warehousing, and related logistics-based facilities. As these local/regional/interstate markets and associated multi modal freight distribution facilities expand, so does the potential for attracting international trade and, at some point, possibly and inland port.

4.1.2. Inland Ports, Goods Movement, and Freight Distribution

Inland Ports Definition

An Inland Port is generally defined as a site or facilities located away from the coastal borders (in this case, the Ports of Los Angeles and Long Beach) that carry out functions similar to those of marine ports. Inland ports process international trade goods, enabled by multimodal transportation systems instead of ship-borne systems. Such sites may accommodate goods that are warehoused, processed, distributed and/or altered to add value as they move through the supply chain. Qualified sites must also demonstrate adequate demand from international shippers as well as demand from local and national markets that would supplement such inland port goods movement. The site, facilities, and markets should offer locational advantages and cost efficiencies (value-added qualities). It should contain existing freight terminals, multimodal transportation facilities, infrastructure, and related supportive services. A successful inland port will have been developed pursuant to a master plan with supportive land use regulations, have an inland port marketing strategy, have funding sources for freight terminals and required infrastructure expenses, a local workforce, and ideally be managed by a unified regional multi-agency joint powers authority.

Goods Movement Markets

Goods movement in Southern California consists of three major and distinct freight markets as listed below:

- Regional and local distribution
    - As the North LA County region develops pursuant to SCAG growth projections, it can grow its own local and regional goods movement markets.
- Domestic trade and national distribution
    - The Los Angeles Metropolitan Statistical Area (MSA) is one of the leading manufacturing centers in the country and is home to numerous wholesale trade establishments and trucking firms. These establishments generate a very large demand for non-international trade and related goods distribution. If AV industrial markets develop with domestic-

serving manufacturing and wholesale trade establishments it can induce development of logistics and freight distribution facilities to service national goods distribution.

- International trade
    - As indicated, local/regional and domestic goods movement markets, multimodal transportation, and associated freight distribution facilities must first be in place to attract international trade. It is therefore recommended that the AV communities consider development of these markets and facilities (possibly truck-based) initially, which can later pave the way for international trade.

Goods Movement

The Southern California region has developed an extensive infrastructure of international gateway facilities, interstate multimodal corridors, and a metropolitan roadway and distribution network to support its various freight transportation markets. For example, the region contains a major air cargo center - which is home to two international and six commercial airports. The region is also home to international deep-water port facilities that comprise the Los Angeles Customs Region. The Ports of Los Angeles and Long Beach, respectively the first and second largest container port facilities in the United States, together form the third largest container port complex in the world.

In addition, an extensive network of multimodal facilities has developed to link the large cargo volumes of both domestic and international trade moving between Southern California and the rest of the nation. The regional air cargo system also serves the domestic trade system. Southern California is a major rail hub with both Western Class I railroads operating on mainlines that connect the region to the national rail network. The region includes six rail-truck intermodal facilities, which rank among the highest truck volume corridors in the Western U.S.

Freight transportation has helped facilitate the enormous historical economic success of Southern California. The challenge is how to accommodate future economic and goods growth movement in the context of heavily congested transportation facilities, regulatory constraints, increasing concerns about transportation safety and security, growing land use conflicts and constraints, and the complexity of regional governance and institutional relationships.

Fueled by the continuing economic growth of the region and the increasing importance of international trade in the national economy, goods movement traffic in Southern California by all modes is projected to increase by more than 80 percent between 1995 and 2020, according to studies conducted for Southern California Association of Governments (SCAG). Population growth will exacerbate congestion trends and increased land use competition, while creating even larger internal and domestic freight markets. Congestion is a critical problem on the highways, air, and rail systems. Port facilities also face significant internal capacity constraints, hampering the region's ability to handle greater future international freight

movements. Air quality management is also another significant issue facing transportation planners in Southern California.

Southern California faces land use-related problems with regard to sprawl and spiraling land prices which have significant consequences for freight facilities in the region. Ports, airports, intermodal terminals, and truck terminals frequently abut built-out industrial, residential, and commercial areas, creating land-use conflicts and limiting the ability to expand existing facilities. Truck operators face increasing parking and traffic route restrictions in cities throughout Southern California.

Distribution centers utilize cheap suburban land to relocate and expand their facilities. Housing developers are generally building in the same areas to provide homes to the region's growing population. Over time, the pattern of conflict experienced in today's developed sections of the metropolitan area will be repeated in more remote areas. Community pressure eventually mounts for distribution centers to relocate and expand further out of the region.

Critical Inland Port Requirements

The following key attributes necessary for establishment of an inland port should either be present or have considerable potential to be developed over time. The physical facilities for an inland port consist of accessible, relatively flat sites that are conveniently located for existing and/or planned multimodal transportation services and may include pre-existing freight terminal facilities. To be adequately implemented, the railroad transportation mode must be adequately incentivized to justify "short haul" railroad shuttles from the ports to and from the AV and inducements for railroad capacity expansion. The site should also provide clear value propositions for international shippers over other areas (development advantages, cost-savings, cost-efficiencies, etc.). Such sites should also have established at least a baseline level of local and national goods movement markets that are being served to complement potential future international trade. These sites should have the potential to accommodate international trade that could be warehoused, processed, and distributed at the site as goods move through the supply chain. These sites should contain locational advantages, adequate infrastructure, and supportive land uses (housing and commercial) to complement an inland port development. In addition, exogenous or non-site factors that must be present include adequate regional markets, increasing limits on existing coastal ports to expand their facilities on-site, closer-in sites being built-out to their maximum and in process of becoming no longer competitive, adequate railroad economic incentives, supportive local government jurisdictions, among others.

Implications for AV Inland Port

As explained, critical site support factors, freight distribution terminals and facilities, and clear value propositions must first be in place in order to attract international shippers and justify an inland port. Conditions necessary for freight distribution and inland ports develop in stages over long periods of time. For example, as industrial development grows, developers seek land for large industrial facilities and are

ultimately forced to look to outlying underdeveloped markets such as the North Los Angeles County. Their tenants in turn follow, pursuing lower lease rates and the lower labor costs brought on by workers who want to reduce or stop long work commutes. This process will occur as lack of space and rising lease rates in today's "hot zones" ultimately forces developers and clientele to migrate to the next available outlying land areas.

However, in order to take advantage of this development process, AV communities can build on their strengths and pursue planning and development policies related to industrial and manufacturing markets, which can create the conditions and critical mass needed to attract freight or good movement uses.

As indicated, there are three distinct goods movement markets in Southern California. As an initial step, AV communities must initially pursue and grow local and regional-serving goods-movement markets. These markets can be serviced by trucks and hence do not necessarily require rail. More goods-movement related businesses in turn create demand for more freight transfer, warehousing, and related logistics services and facilities. As local/regional trade markets grow, multimodal transportation systems may become more viable; and as freight transfer facilities increase, so can the potential for attracting international trade. As markets grow, the economics of short haul rail shuttles from the ports could become more attractive, albeit subsidies may still be required as discussed later in this report.

AV communities can therefore plan, create favorable development conditions, and pursue ED strategies that grow goods movement markets, attract and retain key industries, create jobs, take advantage and utilize existing and planned multimodal transportation systems, and take advantage of other AV assets and advantages.

4.1.3. Refined Study Goals

Therefore, based on the above opportunities, site requirements, and other critical inland port factors - the following Study Goals were established with the NCMIT Transportation Advisory Committee (TAC).

- Design a master-planned development Vision that aims to create the environment needed to attract goods movement markets and potentially an inland port over time.

- Formulate economic development strategies – ideally driven by industrial development and freight distribution elements that help create the conditions and markets needed to attracting an inland port.
- Create plans that take advantage of existing and planned multimodal transportation systems needed to eventually attract inland port related uses.
- Create development plans that include related community development support elements such as integrated live/work and workforce housing, TOD (transit-oriented development), and support commercial services within walkable/bikeable distances.

- Create concept plans that take advantage of Antelope Valley's locational advantages, site assets, and public improvements needed to support freight distribution.
- Create plans that take advantage of existing and projected population and employment growth planned that can help justify the pre-conditions needed for attracting an inland port.
- Create development plans that when actualized can help make a strong case for public funding needed for freight distribution and terminal facilities necessary to attract international trade.
- Propose a regional unified governing entity to undertake planning, development, and management of freight distribution facilities and potentially an inland port.
- Create plans that incorporate sustainable development policies into all aspects that could make the AV a more competitive development environment and possibly lead to grant funding advantages. More growth in the AV could attract more goods movement-related businesses. More goods-movement related businesses support the demand for freight transfer, warehousing, and related logistics based facilities and services. As trade markets grow and freight transfer facilities increase, so does the potential for an inland port.

4.1.4. Methodology

The study process included extensive research of:

- Published materials
- AV field site visit reconnaissance
- Baseline data collection
- Air photo analysis
- Graphic contextual mapping
- Preliminary exploratory sketch map studies and site area analyses
- Presentations and consultations with LA Metro staff, SCAG Goods Movement/Logistics Division staff, LAWA Environmental Planning and Real Estate staff, Palmdale and Lancaster City Planning and Engineering staff, LA County Regional Planning staff, Union Pacific Railroad officials (UPRR), meetings with the NCMITS TAC, and presentation to the North County Transportation Coalition (NCTC)

4.2. Antelope Valley Study Area Baseline Conditions Highlights

This report section contains highlights of the AV Study Area baseline conditions data inventory. The complete set of 23 data tables is contained in the Appendix section 4.2. This data was used to understand point-of-departure conditions relevant to growth and economic development in the AV. The information is presented in aggregate for a 60-minute drive-time polygon study zone and also for Los Angeles County for comparative purposes (see **Figure 4-1**). This data was also used to formulate economic development strategies, development of the Vision concept, and related conceptual community development plans.

Data was acquired from Synergos Technologies (a private data vendor) 2014 vintage and from the SCAG InfoUSA business database.

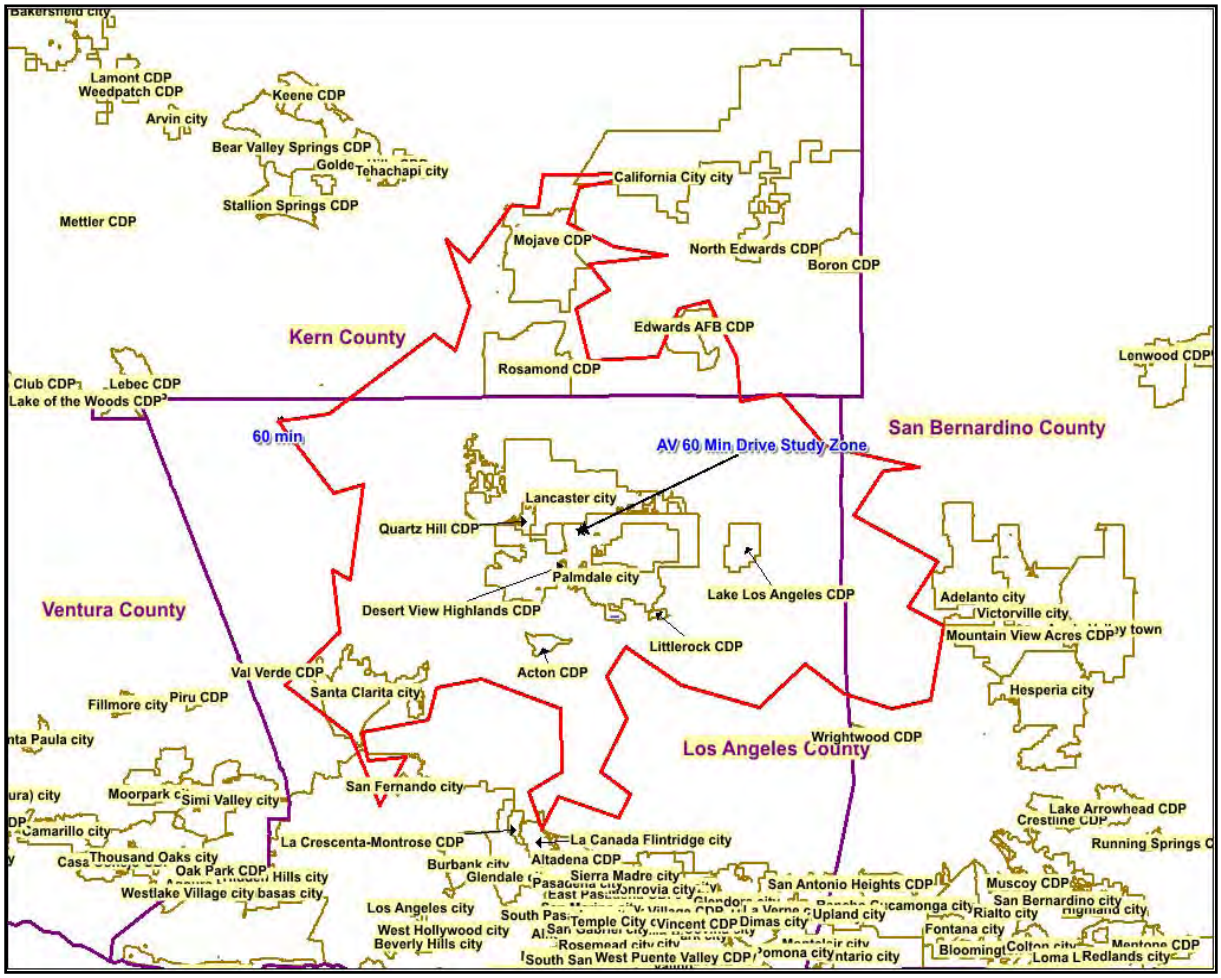


Figure 4-1: Data Collection Drive-Time Polygon

4.2.1. Demographics

The demographic data tables contained in Appendix C contain the following population and housing data:

- Population by Race and Ethnicity
- Age Ranges
- Educational Attainment
- Housing Units by Vehicles Available
- Housing Units by Tenure
- Estimated Owner-Occupied Housing Units by Value
- Housing Units In Structure
- Period of Military Service
- Daytime Workplace Population

4.2.2. SCAG Growth Projections

Long-term population forecasts are integral to understanding future potential demand for goods movement related markets. North County community's percentage of the total LA County population will grow 7% in 2010 to nearly 11% by 2035 (from 720,000 in 2010 to 1,300,000 in 2035). **Figure 4-2** illustrates SCAG's population forecasts for cities in the North County from 2005 to 2035. Data derived in the most current TAZ format from the SCAG Adopted 2008 RTP Growth Forecast, by City.

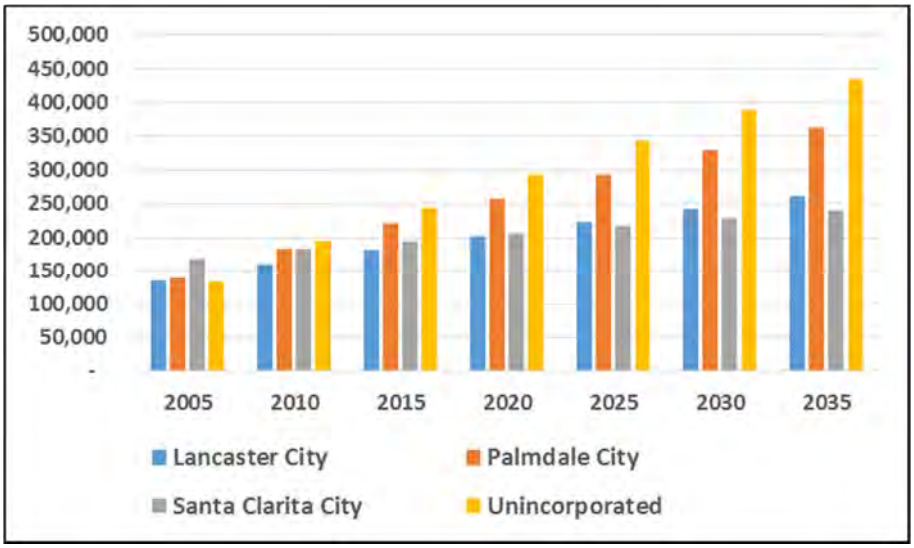


Figure 4-2: SCAG Population Forecasts - North County 2005-2035

As with population, employment growth is a key indicator with regard to the strength of future economic development. North LA County employment is forecast by SCAG to grow by over 50% from 2010 to 2035 as compared with the entire LA County, which will grow by only 11% during this same period. When combined with all other factors such as planned transportation systems and existing assets such as

airports – the North LA County area is situated in a prime position to attract industrial uses and goods movement related markets. More goods movement-related businesses support the demand for freight terminals, warehousing, and related logistics based facilities. As goods movement related markets grow and freight transfer facilities increase, so can the potential for an inland port.

Figure 4-3, **4-4**, **4-5**, **4-6** and **4-7** illustrate SCAG population density by TAZ, SCAG employment forecast, SCAG employment by TAZ (2035), SCAG housing forecasts from 2010-2035, and SCAG household forecast by TAZ (2035), respectively (source "SCAG Adopted 2008 RTP Growth Forecast").

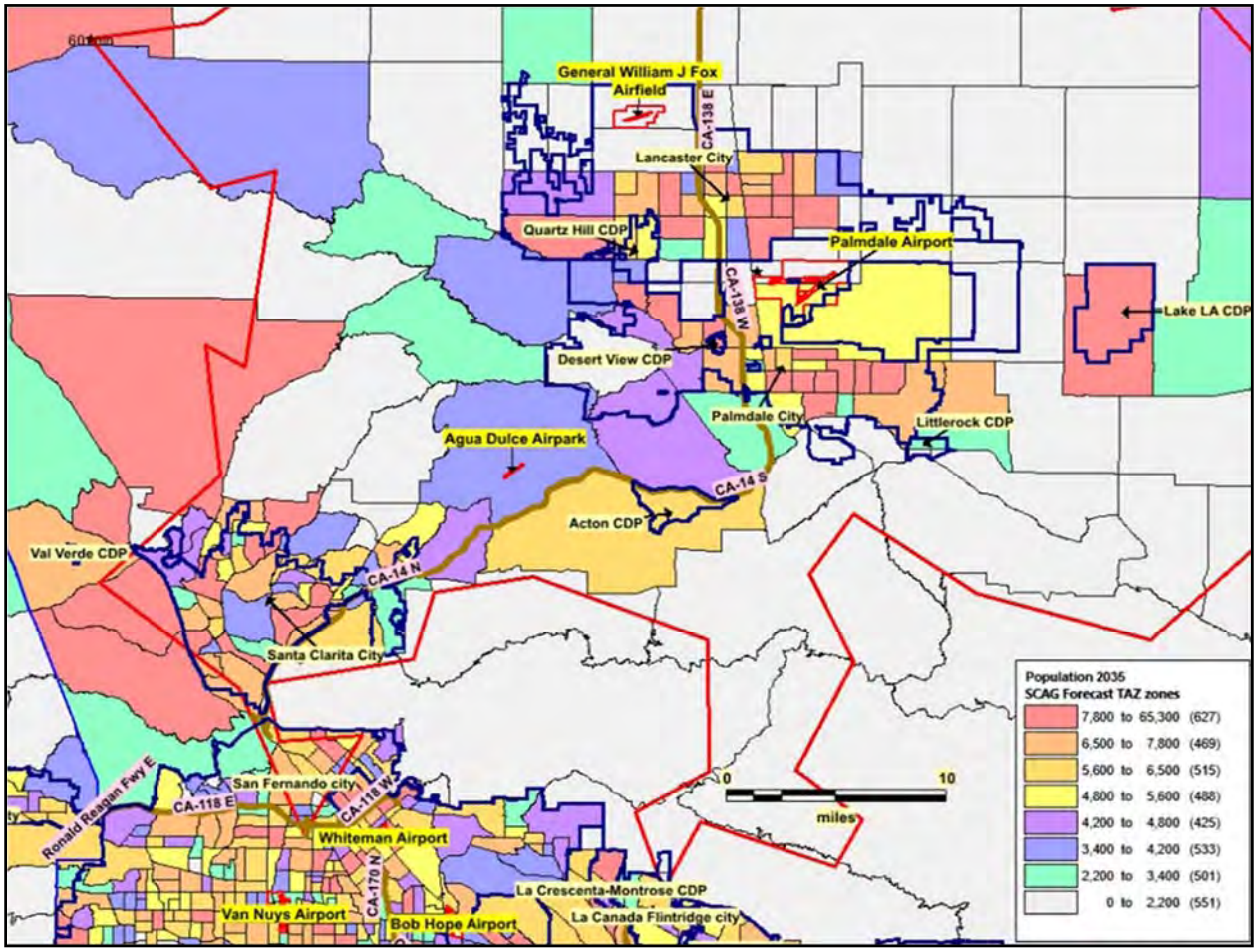


Figure 4-3: SCAG Population Density by TAZ Zones - North County 2035

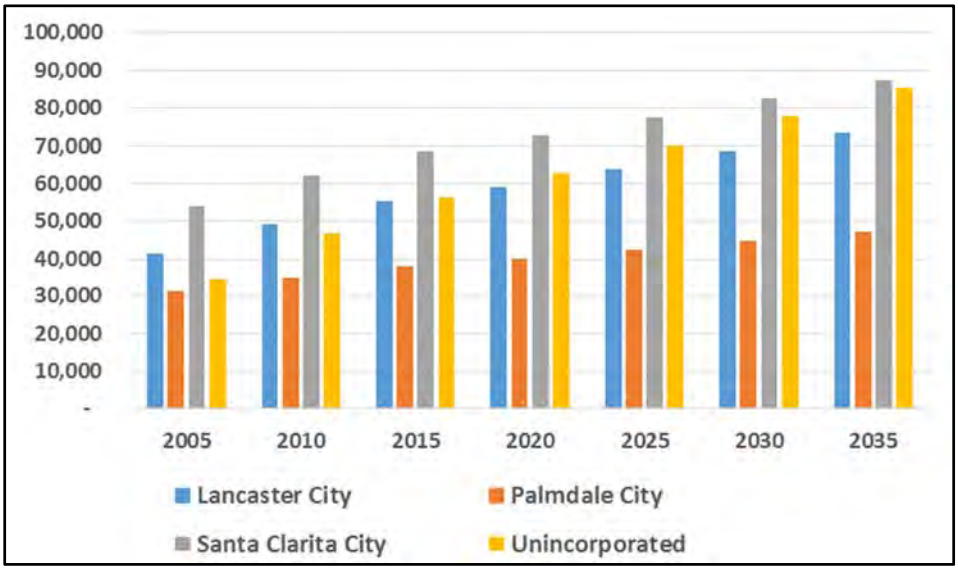


Figure 4-4: SCAG Employment Forecast - North County 2005-2035

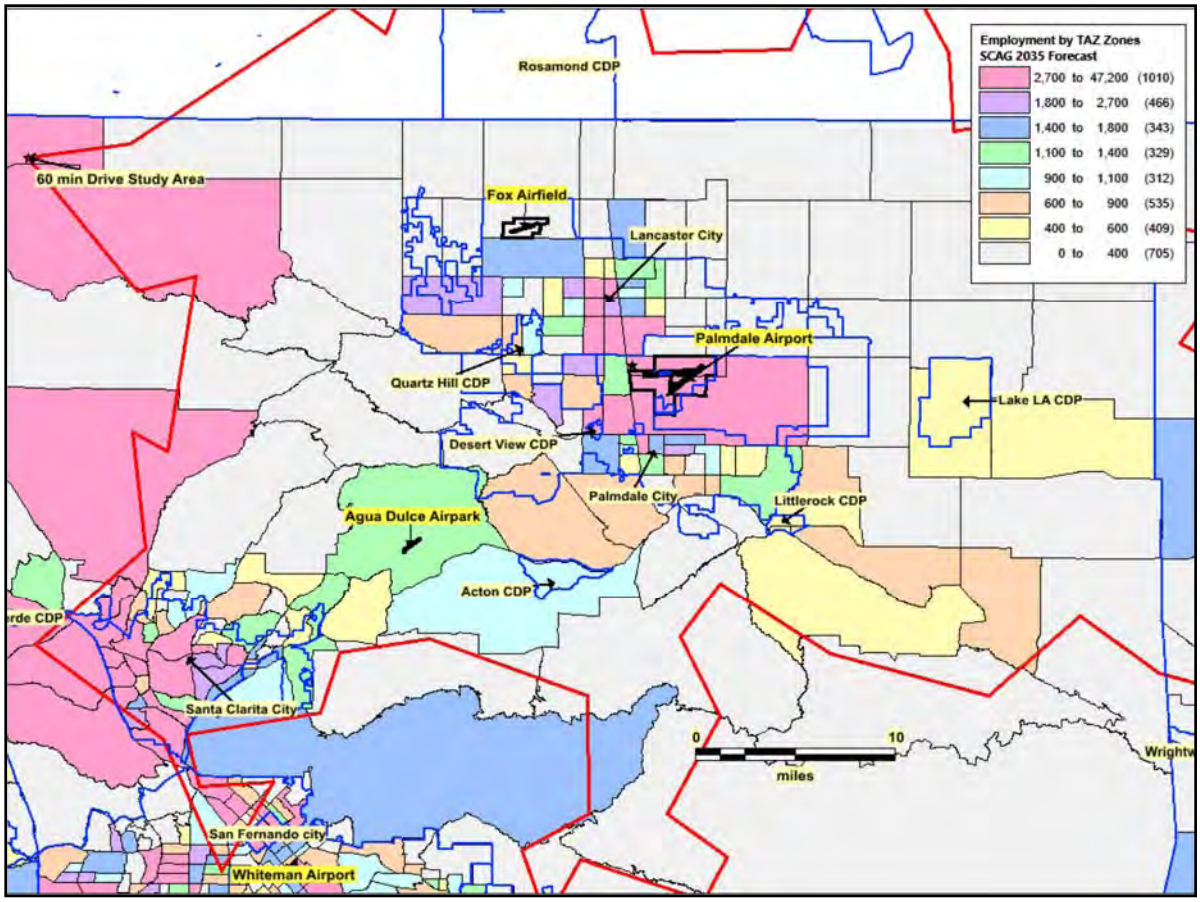


Figure 4-5: SCAG Employment by TAZ Zone 2035

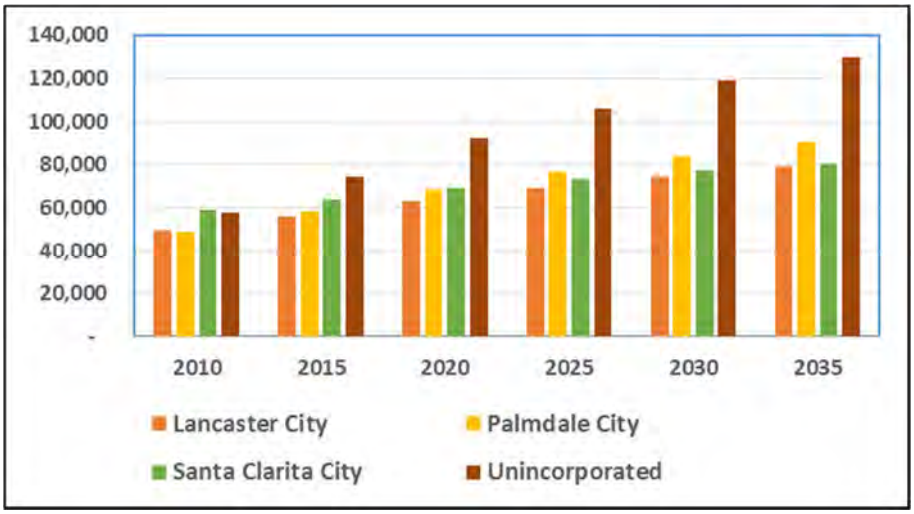


Figure 4-6: SCAG Housing Forecasts - North County 2010-2035

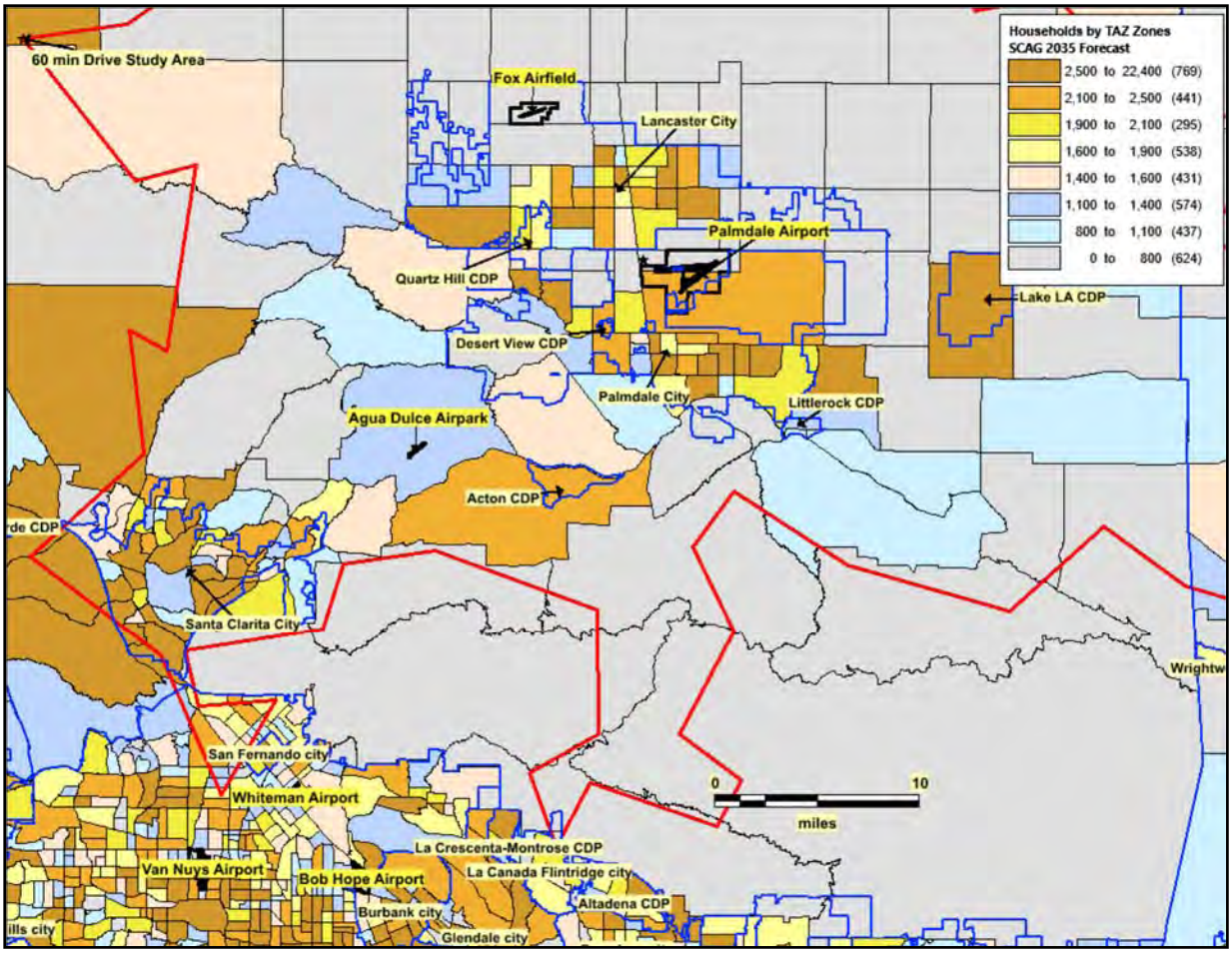


Figure 4-7: SCAG Households Forecast by TAZ Zone 2035

4.2.3. Resident Labor Force

The resident labor force data tables in Appendix C contain the following information.

- **Estimated Population by Labor Force** – 62% of the drive time study area population is in the labor force. The 2014 1st quarter figures show an unemployment rate of 6% slightly lower than for LA County.
- **Estimated Families by Number of Workers in Family** – figures are comparable to LA County
- **Means of Transportation to Work** – 91% travel by car, truck, or van versus 83% in LA County
- **Employed Population Age 16+ by Industry** – the study area contains numerous resident workers employed in goods movement-related industries including:
  - 36,000 in manufacturing
  - 44,000 in wholesale and retail trade
  - 16,000 transportation and warehousing and utilities workers.

  Employees within these industries provide a base from which to build this sector.
- **Employed Population Age 16+ by Occupation –** there are 34,000 resident workers employed in the production, transportation, and materials moving occupations. These occupations are related to goods movement industries and provides a base from which to build this sector.

Figure 4-8 shows 21% of study area resident workers travel more than 60 minutes to work as compared with LA County workers at 12% - and 33% travel 45 minutes or longer.

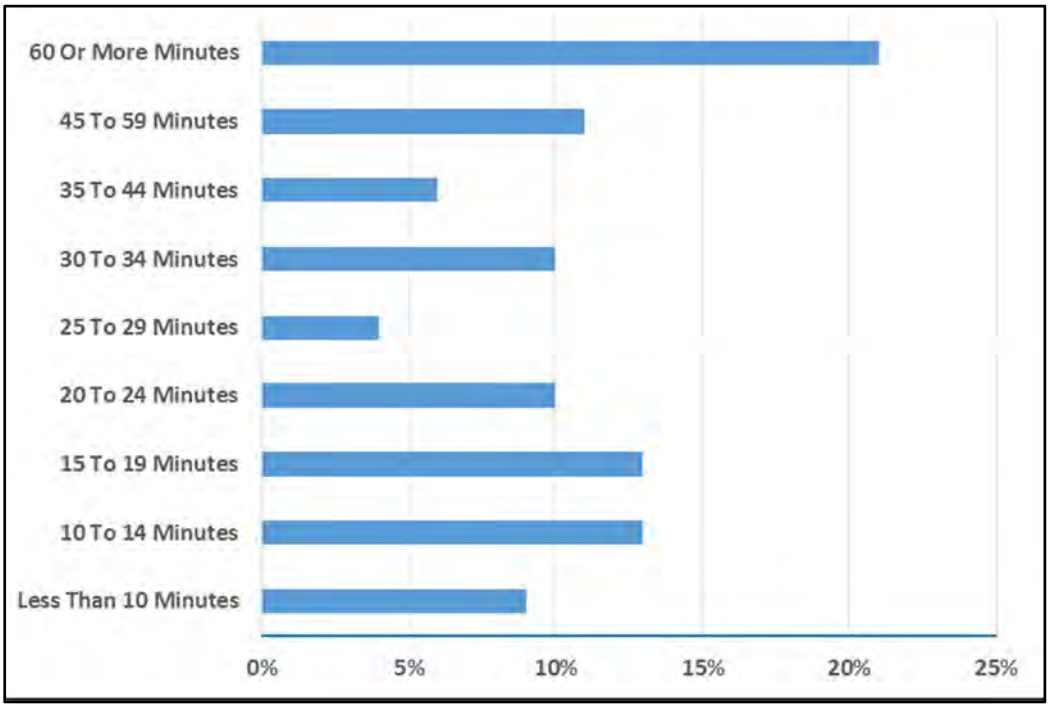


Figure 4-8: Travel Time to Work (From 60-Minute Drive Time Zone)

4.2.4. Economic Base

The data tables in Appendix C contain detailed information with regard to existing businesses, employees, and workplace daytime occupations in the Study Area as compared with LA County. Daytime employees consist of people who work in the drive time study area, but may not necessarily live within this area. These establishments/employee tables are shown at the two and four-digit NAICS industry code level in **Table 4-1**.

The economic base located within the drive-time study area (**Figure 4-1** Drive Time map) consists of 11,676 establishments and about 216,000 employees. The data also shows that there are a number of workers within industries related to goods movement markets. These include 14,000 in manufacturing, 3,900 in transportation and storage, and 10,600 daytime employees in the wholesale sectors. AV economic development strategies can build upon this existing industry base together with the abundance of land, good transportatation systems, supportive polices, and planned infrastructure.

Table 4-1: Establishments by 2-Digit NAICS Industry Codes

Establishments by Industry and Employees AV 60-Min Drive Area (As shown in Figure 1 Drive Time Map) and LA County							
		Establishments			Employees		
NAICS Industry Titles	NAICS Code	LA Co	60 Min Drive Polygon	% of LA Co	LA Co	60 Min Drive Polygon	% of LA Co
Retail Trade	44	44,578	1,892	4%	722,101	35,630	5%
Health Care and Social Assistance	62	42,092	1,870	4%	701,732	32,319	5%
Manufacturing	31	14,106	518	4%	457,741	21,275	5%
Educational Services	61	7,068	363	5%	350,905	17,944	5%
Accommodation and Food Services	72	15,504	762	5%	318,135	15,075	5%
Other Services (except Public Administration)	81	28,783	1,400	5%	275,219	13,660	5%
Professional, Scientific, and Technical Services	54	34,826	986	3%	429,275	11,717	3%
Construction	23	11,923	872	7%	175,764	11,689	7%
Public Administration	92	3,864	237	6%	186,873	11,104	6%
Arts, Entertainment, and Recreation	71	6,276	274	4%	124,795	9,104	7%
Admin and Support Waste Mgt. Remediation	56	8,933	464	5%	228,933	8,679	4%
Finance and Insurance	52	15,419	663	4%	190,732	7,369	4%
Military	93	10	5	50%	5,652	4,719	83%
Real Estate and Rental and Leasing	53	11,291	583	5%	105,395	3,953	4%
Information	51	6,739	230	3%	155,469	3,667	2%
Transportation and Storage	48	3,854	137	4%	138,165	3,129	2%
Wholesale Trade	42	10,556	307	3%	97,285	3,051	3%
Utilities	22	245	24	10%	10,660	704	7%
Agriculture, Forestry, Fishing and Hunting	11	590	75	13%	5,414	498	9%
Mining	21	151	8	5%	5,953	344	6%
Management of Companies and Enterprises	55	220	6	3%	13,128	203	2%
Totals		**267,028**	**11,676**	**4%**	**4,699,326**	**215,833**	**5%**
Note: Sorted by Employee numbers within 60 Min Drive Zone- High to Low							

NAICS: North American Industry Classification System - the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy.

Workplace Occupations by SOC Code and Description

Table 4-2 presents the top 20 occupations listed by the Standard Occupations Code (SOC) within the data collection Study Area and as related to LA County. The shaded areas highlight potential transportation, freight or distribution-related business and associated employment. There are 5,600 employees in Materials Moving; 5,200 in materials recording, scheduling, dispatching, and distribution; and 4,700 in Motor Vehicle Operators related occupations. These are occupations upon which the AV can build and expand with regard to goods movement related industries.

Table 4-2: Workplace Occupations by SOC Code

Workplace Occupations by SOC Code and Description AV 60-Minute Drive Time Study Area (as Shown in Figure 1 Map)		Study Area				
		Av 60 Min Drive Zone		LA County		
Workplace Occupation Description	SOC Code	Employees	Percent Study A	Employees	Percent LA Co	AV as % LA Co
Retail sales workers	412	19,646	9.09%	406,679	8.64%	5%
Food and beverage serving workers	353	8,103	3.75%	163,475	3.47%	5%
Information and record clerks	434	7,968	3.69%	195,479	4.15%	4%
Health diagnosing and treating practitioners	291	7,612	3.52%	162,704	3.46%	5%
Primary, secondary, and special education teachers	252	7,413	3.43%	104,364	2.22%	7%
Other office and administrative support workers	439	7,360	3.41%	182,863	3.89%	4%
Construction trades and related workers	472	7,325	3.39%	116,374	2.47%	6%
Secretaries and administrative assistants	436	7,194	3.33%	188,325	4.00%	4%
Material moving occupations	537	5,624	2.60%	138,384	2.94%	4%
Building cleaning and pest control workers	372	5,560	2.57%	107,066	2.28%	5%
Material recording, scheduling, dispatching, and distributing occupations	435	5,237	2.42%	116,229	2.47%	5%
Financial clerks	433	5,182	2.40%	130,912	2.78%	4%
Health technologists and technicians	292	4,825	2.23%	98,661	2.10%	5%
Military	93	4,719	2.18%	5,652	0.12%	83%
Motor vehicle operators	533	4,683	2.17%	115,918	2.46%	4%
Top executives	111	4,245	1.96%	100,424	2.13%	4%
Cooks and food preparation workers	352	4,237	1.96%	83,130	1.77%	5%
Counselors, social workers, and other community and social service specialists	211	3,789	1.75%	87,926	1.87%	4%
Business operations specialists	131	3,745	1.73%	92,595	1.97%	4%
Other management occupations	119	3,740	1.73%	80,976	1.72%	5%

4.3. Opportunities and Constraints

This section presents a summary of site and non-site opportunities and constraints related to attainment of overall economic and community development study goals. These overall study goals encompass the sub-goals of attracting freight distribution, goods movement related businesses, and possibly international trade facilitated by an inland port.

As previously indicated, critical site and non-site factors for development and operation of an inland port do not presently exist in the Antelope Valley. For example, one critical element is rail service, and the 2008 SCAG Tioga/Iteris Study concluded for the Antelope Valley that "while an inland port/rail shuttle service had intrinsic merit and would benefit the region, the concept also faced daunting implementation barriers while ranking low on the list of regional priorities at that time". In spite of these factors, there is opportunity for growth and economic development. It is also important to note that domestic markets actually represent the majority of goods movement activities in the nation. In other words, although attracting international trade is very difficult, taking advantage of existing markets and growing local goods movement markets in the AV and North County is quite viable.

As an initial step, the AV can plan for and attract industrial/warehousing uses that may incorporate local/regional/interstate goods movement related business sectors. As goods movement-related industry sectors expand, they increase the demand for freight terminals and related logistics-based facilities and services. As goods movement-related markets expand and freight transfer facilities and terminals develop, they in turn create an environment that can generate interest by international markets. If and when critical inland port conditions are met, interest by the international trade community could eventually lead to development of an inland port in the AV.

This section therefore generally assesses the conditions required to develop domestic freight distribution and goods movement-related businesses, many of which are similar to those required for attracting international trade.

4.3.1. The AV Study Areas

The following bullets list the final study areas, also referred to as Opportunity Areas or Sites. **Figure 4-9** depicts the initial four Opportunity Areas, which were later modified and expanded (as shown in the Report Section 4.5). This map also shows selected existing and proposed transportation infrastructure located within the AV study region. The entire planning area is also referred to in this report as the **"**AV Unified Economic Development District." The concept of a "unified district" is further detailed in *Section 4.7 Summary and Implementation and Recommendations*. Essentially, if the AV desires to eventually attract international trade, it will require an approach and governing entity that includes major AV jurisdictions as well as other relevant agencies since freight transportation systems would transcend multiple jurisdictional boundaries between the existing ports and the AV. This endeavor will also require cooperation and consensus with regard to financial resources and regional planning efforts.

- Opportunity Site 1: At Fox Field (northside and southside primarily within the City of Lancaster except for the Fox Field Airport property which is located in an unincorporated area of LA County)
- Opportunity Site 2: Adjacent to Palmdale Airport (westside of Sierra Highway and fragmented areas interspersed with existing development in Palmdale, Lancaster with a smaller area in LA County)
- Opportunity Site 3: At Palmdale Airport (northside east of Sierra Highway in the City of Palmdale)
- Opportunity Site 4: At Palmdale Airport (southside and eastside in LA County; smaller south portion in the City of Palmdale)

Various factors were used in delineating the four "Opportunity Study Areas" including:

- Proximity to airports
- Availability of vacant or developable land
- Proximity to complimentary existing land uses, such as industrial, research and development; supportive commercial; residential workforce housing; and institutional and community facilities
- Proximity to transportation systems (existing and proposed)
- Clearance from APZ (Accident Potential Zone) and various aviation restrictions ,such as noise
- Consistent with current land use and zoning regulations as well as local jurisdiction willingness to consider adopted General Plan adjustments or amendments
- Availability of vacant and/or under-developed assembled sites (i.e., Los Angeles World Airports – LAWA assemblage)

Figure 4-9 presents the Initial Study Areas located within the various AV communities. It also shows selected existing and proposed transportation infrastructure based on available data as of March 2015. These areas were later refined as shown in Section 4.5 of this report.

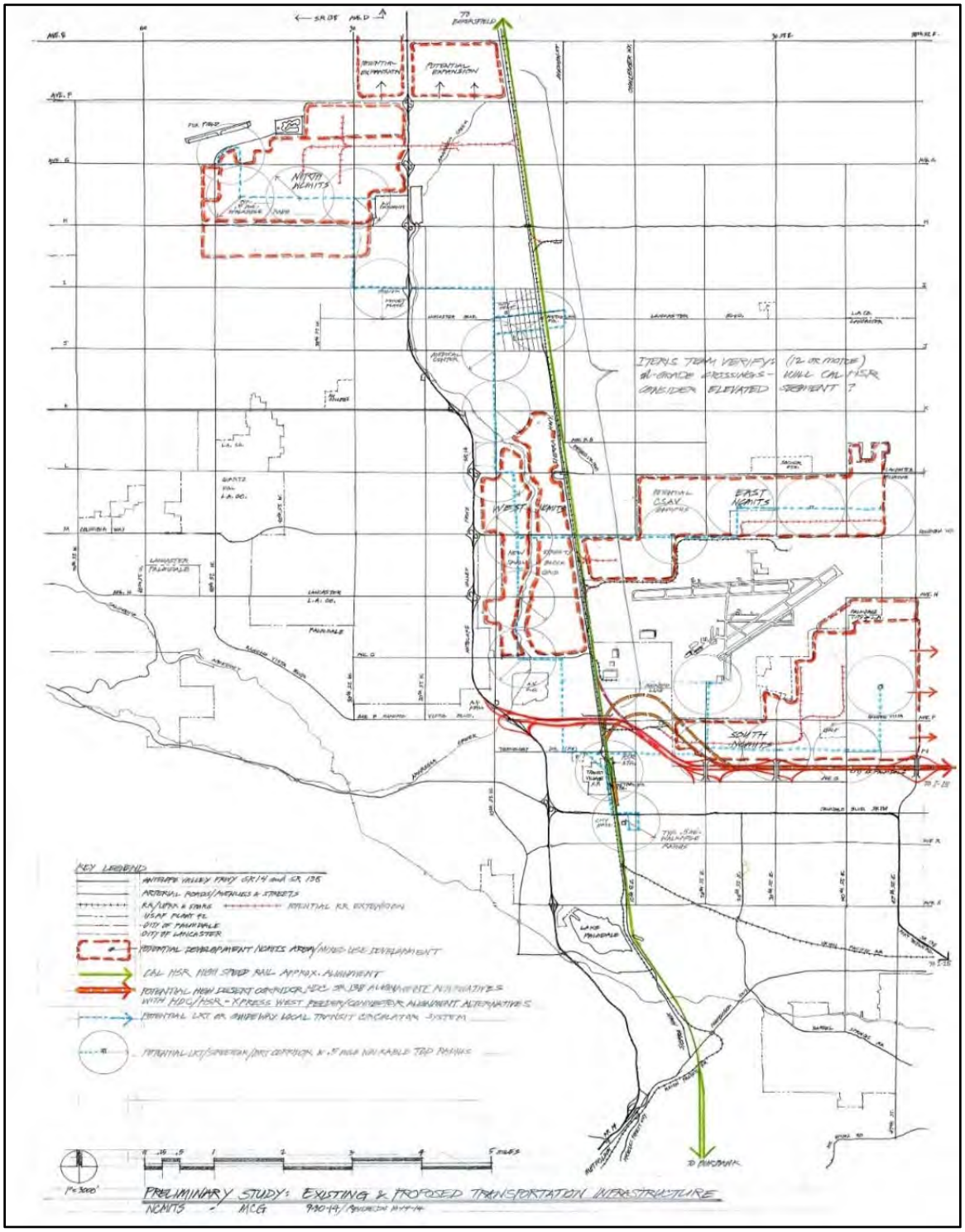


Figure 4-9: Preliminary Study Areas & Existing& Proposed Transportation Infrastructure

4.3.2. Site and Urban Planning Opportunities and Constraints

This section depicts the study areas, and it outlines key site and planning opportunities. Four sectors within the AV containing nearly 100% undeveloped land were delineated for evaluation. As required by the Study Scope, these areas were situated adjacent or proximate to Fox Field and Palmdale Airports within all three study area jurisdictions (Lancaster, Palmdale, and LA County).

Site and Planning Opportunities

The final combined Study Areas total approximately 19,434 gross acres distributed among the three major jurisdictions (cities of Palmdale and Lancaster and LA County). These "Study or Opportunity" Areas and associated strategies and plans include the following economic and community development opportunities:

- Land area for extensive industrial development and ancillary support uses for freight distribution and terminals facilities
- Land area for associated support commercial uses and public facilities
- Suggested industrial land uses that, when developed, will create jobs
- Land area for integrated live/work sustainable, smart growth communities that include workforce housing of varied type, density and affordability
- A site for a potential AV Cal State University that can create synergistic town-gown benefits for students, faculties, and businesses that may partner and interact with the college
- Proposed transit corridors (LRT, Streetcar, BRT) to link the four Study Sites with Metrolink, CA HSR, Fox Field and Palmdale Airports, the proposed SR138 High Desert Corridor (HDC), Downtown Lancaster, Downtown Palmdale and potential CSUAV campus resulting in a unified AV development district
- Provides for air cargo depots at both airports – development of which will depend upon the extent of ultimate air travel and terminal air cargo facilities
- Preserves Amargosa Creek and other Wash areas, as open space "eco" corridors, are amenity elements for hiking, biking, jogging trails, preservation of indigenous nature resources within a native High Desert vegetation belt for aesthetic and flood protection benefit
- Advocates that the Palmdale Transportation Center station become a shared terminal for Metrolink, CA HSR, potential SR138 HDC, High Speed Rail (HSR) and connecting local transit corridor and bus transit services in a new "iconic" landmark structure

The following diagram **Figure 4-10** graphically presents various opportunities and constraints used in formulation of the final "AV Unified Economic Development Vision Plan".

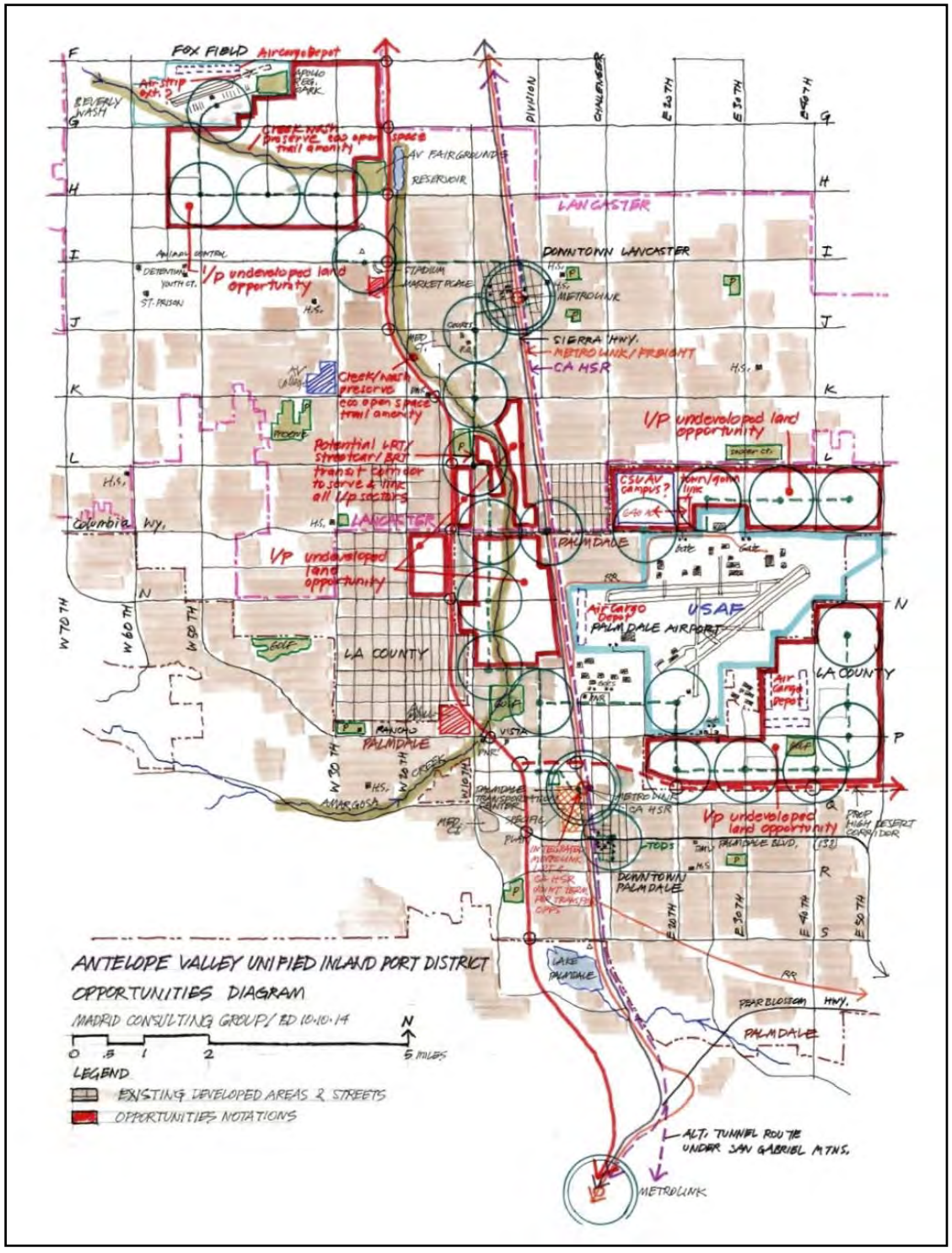


Figure 4-10: Study Area Planning Opportunities

Site and Planning Constraints

- The alignment of the existing east-west Palmdale Airport runway Accident Potential Zone and noise impact corridor presents limits on development of a portion of Study Area 2 to the west of Sierra Highway.
- Taxiway access must be obtained through the USAF Plant #42 security zone, which will be necessary for cargo planes to taxi to potential cargo depots, rail cargo extensions, truck access to depots within Study Area 4 on the east side, as well as a proposed transit line to serve the future re-activation of the Palmdale Airport passenger terminal.
- Rail freight extensions would be required into Study Area 3 north side, and the LAWA/LA County Study Area 4 on the eastside of Palmdale Airport.
- Coordination and partnerships with rail companies would be required with regard to future extended service.
- Rail cargo service extending west to serve Study Areas 1 and 2 from the Sierra Highway corridor was examined and determined to be cost-prohibitive.
- Existing Los Angeles County Sanitation District Facilities located north-east and east of Palmdale Airport are fixed as given assets, unlikely to relocate.
- At-grade or elevated vertical alignment of proposed SR138 HDC could have adverse effect (noise, air pollution) on workforce housing adjunct to the LA County sector south of Palmdale Airport as well as City of Palmdale neighborhood areas to the south of the HDC corridor.
- At-grade alignments (side by side) for Sierra Highway, Metrolink and CA HSR, plus any future freight rail lines to handle expanded service, may pose severe problems for roadway crossings and extension of rail service to the east and west sides into adjacent possible development areas.
- Coordination with Plant 42 officials will be required with respect to issues such as noise, air, ambient light, and impacts from operation of vehicles/trucks, and rail service.
- Coordination with “sensitive receptors” in the Antelope Valley area.
- Constraints related to coordination with the design of the HDC if built – i.e., grade separation tunneling, overpass, structures, platform length, operations, jurisdictional boundaries, property lines, etc.

The following **Figure 4-11** presents the site and planning constraints.

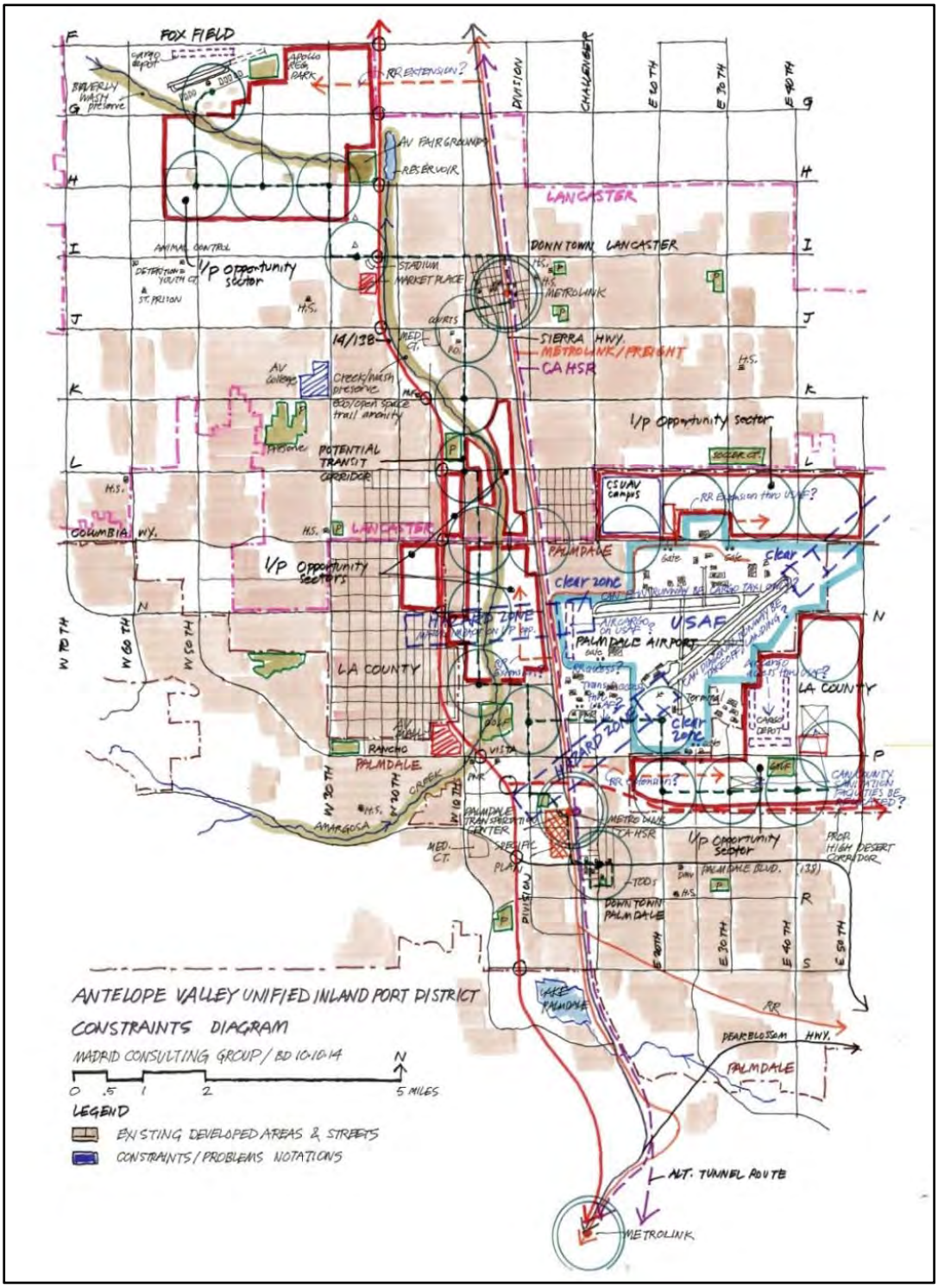


Figure 4-11: Site and Planning Constraints

4.3.3. Site Concept Vision

Table 4-3 shows the acreage for each of the four opportunity areas.

Table 4-3: Opportunity Areas Acreage

Study Area	Description	Acres
1	Fox Field	7,400
2	West-side Sierra Highway	2,024
3	North-side Palmdale Airport	3,150
4	East-side LAWA/LA County	6,860
	Total AV Opportunity Area Acreage	**19,343**

The following summarizes key elements of the proposed AV Concept Vision Diagram shown in **Figure 4-12**. The term diagram is used to convey a lesser sense of exactness as compared to a full-fledged plan which was beyond the scope of this study.

- Industrial areas that are master planned and developed with integrated live/work sustainable communities and linked by proposed public transit corridors to create a unified regional economic "engine".
- Provision for air cargo operations at both Fox Field (per Los Angeles County Long Range Plan) and Palmdale Airports depending on the extent of future operations, type of air travel, ultimate development of terminal facilities, and extent of ground access.
- Provides for both truck and potentially rail cargo service where possible (only Study Areas 3 and 4 have access to both).
- Provides for a Cal State University facility in the Antelope Valley which can be situated to border both the cities of Palmdale and Lancaster. This concept was based upon published studies desiring such a facility in this area. The Vision Concept plan suggests a location for such a facility that would be integrally linked with industry. Such linkages could create synergy and "spin off" research activity in areas such as logistics, aeronautics, avionics, technology, and other product development.
- Integrates Amargosa Creek and other wash areas corridors into the various Opportunity Areas as preserved natural "eco" corridors. These areas would feature High Desert plant palettes and recreational trails for hiking, biking, and storm water control and management.
- All Opportunity Areas include workforce housing, local commercial support, educational/recreational facilities, and community services as required. Access and connectivity would be provided for pedestrian and bikeways into adjacent employment areas for convenience and to meet healthy community planning goals.
- Large commercial sites are allocated for ancillary "spin off" ventures and businesses generated by industrial and freight distribution related activities.

The following diagram, **Figure 4-12**, presents the Preliminary Concept Vision Diagram showing potential land uses such as industrial, workforce housing, a potential local-serving LRT transit system, and support commercial.

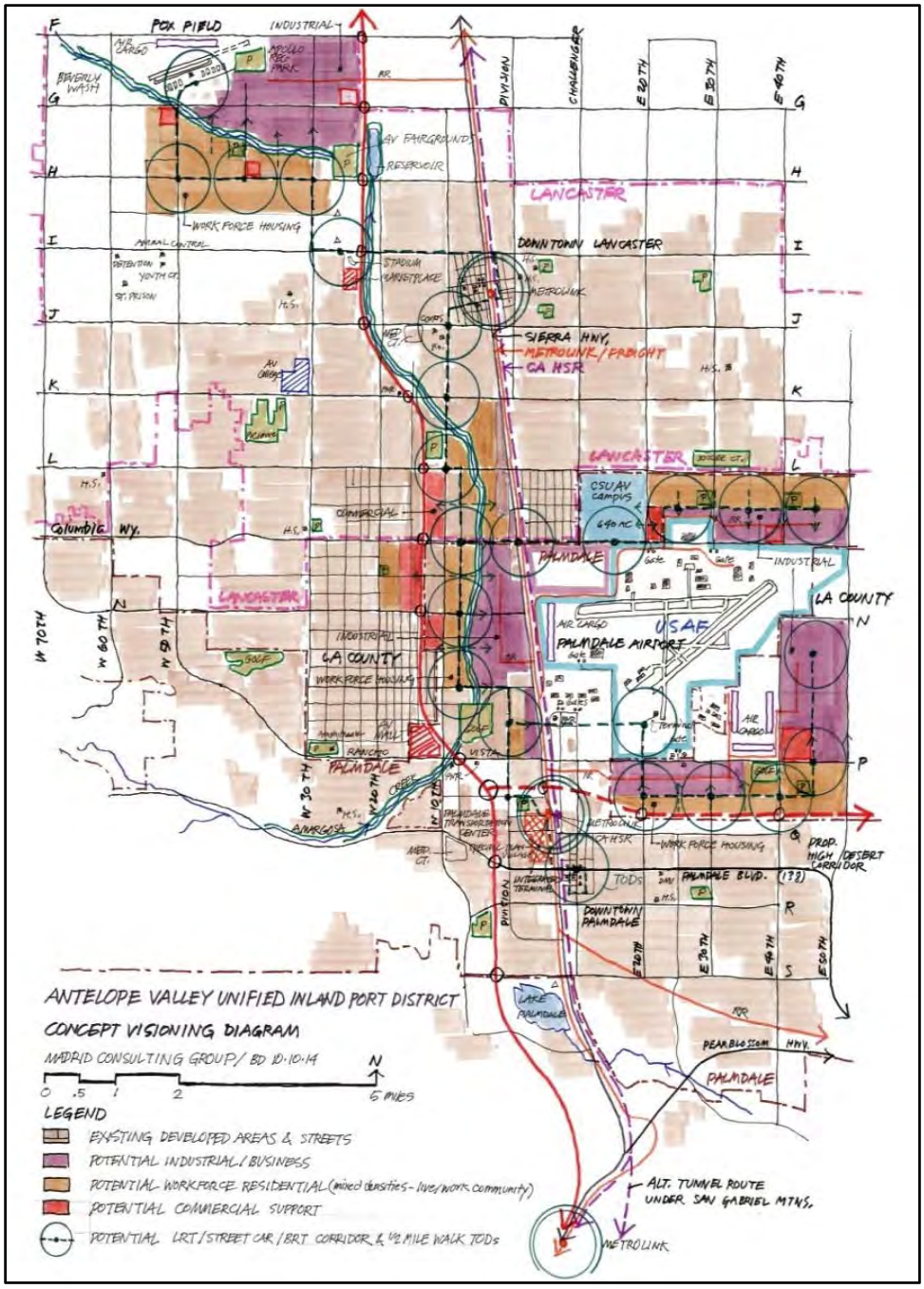


Figure 4-12: Preliminary Site Concept Vision

4.3.4. Site Planning Policies

Smart Growth and supportive land use development policies attract more desirable growth. More overall development and growth can encourage demand for local/regional goods movement-related businesses. More goods-movement related businesses in turn supports demand for freight distribution, terminal facilities, warehousing, and related logistics based facilities and services. More logistics related businesses create the demand for more and enhanced multimodal freight movement facilities. As these domestic local/regional and inter-state markets grow and freight distribution facilities expand, so does the potential for attracting international trade and possibly inland port facilities.

The following list summarizes key Smart Growth and supportive land use planning policies that can support AV's economic development goals:

- A Vision Plan with a master planning framework that contains complimentary land use and transportation facilities
- A Vision Plan that takes advantage of existing and planned transportation service systems and facilities
- A land use layout that accommodates industrial, warehousing, freight-related uses, and workforce community development, in a phased process
- A Vision concept that incorporates "anti-sprawl" compact development and sustainable urban planning and design principles, including denser compact mixed uses within walkable/bikeable radii of transit stations/stops, i.e. Transit Oriented Development (TOD).
- Land use concepts that include adjacent workforce housing neighborhoods
- Land uses that help produce jobs/housing balance – reducing commuter VMT (Vehicle Miles Travelled)
- A Vison Plan with a unified master plan that helps attain multi-jurisdictional goals, such as regional jobs for AV residents, transportation systems that enhance the entire AV, and regional economic synergy
- Vision concepts that create synergy with existing targeted uses and industry clusters (i.e., aerospace)

4.3.5. Economic Development (ED) Opportunities & Constraints

This section summarizes major opportunities and constraints for the AV and study areas with regard to attaining its broader economic development goals. These ED key goals include creating targeted economic development strategies (i.e., job creating industrial development), taking advantage of existing and planned multimodal transportation systems, existing industries, projected growth advantages, and creating sustainable community development environments. Implementation of these goals can encourage growth in the AV that could attract more local/regional goods movement-related businesses. More goods movement-related businesses support the demand for freight distribution, terminal facilities,

warehousing, and related logistics-based facilities. More logistics-related businesses can create the demand for more and enhanced multimodal freight movement facilities and services. As local/regional goods movement-related markets grow and multimodal freight distribution facilities increase, so can the potential for attracting international trade and inland port facilities.

Economic Opportunities

Selected economic attributes and advantages that can help AV communities attain their goals are summarized below:

- High Desert Corridor (east/west goods movement and mobility linkages – possible indirect linkage with international trade from the coastal ports via connection with Victorville/Cajon Pass). As goods movement trade increases from the Inland Empire, demand for freight distribution and terminal facilities is heightened in the AV. Increased freight distribution/terminals create demand for related and supportive community development. All growth results in more economic and fiscal benefits for the AV communities.
- High Speed Rail (CAHSR) helps support overall economic growth by providing improved regional and statewide access, mobility, and connectivity. These systems help reduce transportation costs, broaden employment markets, encourages growth around station stops (TOD), help create economic synergy, and provide fiscal benefits among others. As growth occurs in the AV, it can include industrial and warehousing development – which, as indicated, can lead to enhanced demand for goods movement businesses to serve growing local and regional markets. Growth in the AV can also lead to freight distribution/ terminal facilities – which can lead to international trade.
- CAHSR also helps jurisdictions conform to General Plans supporting their jobs/housing balance; by helping stimulate business growth, the demand for housing grows, thus serving to help the AV jobs/housing balance).
- North County is projected to exceed the overall Los Angeles County population and job growth as discussed in section 4.2.2 (i.e., 50% employment growth rate during 2010 to 2035 as compared with 11% for the entire LA County).
- Existing rail facilities and potential expansion capability – although such expansion may require public financial assistance.
- Port expansion issues – growing international trade, congestion at ports, environmental issues, etc. creates demand over time for off-site freight distribution/terminal facilities. As closer-in sites are no longer available, the potential for such facilities increases for the AV.
- Existing airport facilities and future plans for local control of the Palmdale Airport, enhances the multimodal air cargo potential and increased air travel encourages local economic growth. Increased growth can include the demand for more industrial and warehousing uses.

- Land availability – competitive pricing – AV is one of the last places in LA County that can absorb major projected population and economic growth.
- Workforce and affordable housing (to reduce daily outbound commute to work and VMT). The AV presently contains a workforce that could help meet the needs of future regional growth, while reducing the impacts of the extensive commuting.
- Existing and new markets (i.e., military, aerospace, unmanned aircraft, etc.). The AV has the potential to expand existing industry clusters as shown in section 4.6. It also has the potential to pursue new markets such as unmanned aerial vehicles (UAVs), given its airport facilities and aviation industry base and history.
- Existing regional freight and goods movement corridors: improvements to access, interconnections, and service gaps can enhance the desirability of the AV for goods movement-related businesses.
- Positive local support, adopted land use and development plans, Foreign Trade Zone can enhance the desirability of the AV as a goods movement related center.
- Potential for a unified Joint Powers Authority implementation strategy. With existing models to emulate, such as AV Transit Authority and HDC Authority, the AV can better move forward with regard to regional governance required for an inland port.
- Potential for "land value capture" with early planning (enhanced infrastructure financing districts, similar to redevelopment tax increment) and other possible funding initiatives. Research shows that major future transportation systems, such as the CAHSR and HDC, can generate land value increments that can be captured to help finance such systems.

The following AV Development District Network Diagram shown in **Figure 4-13** graphically depicts the economic advantages, infrastructure, and other local assets that together create synergy, which helps propel the Antelope Valley economy to attain its goals outlined in 4.1.3.

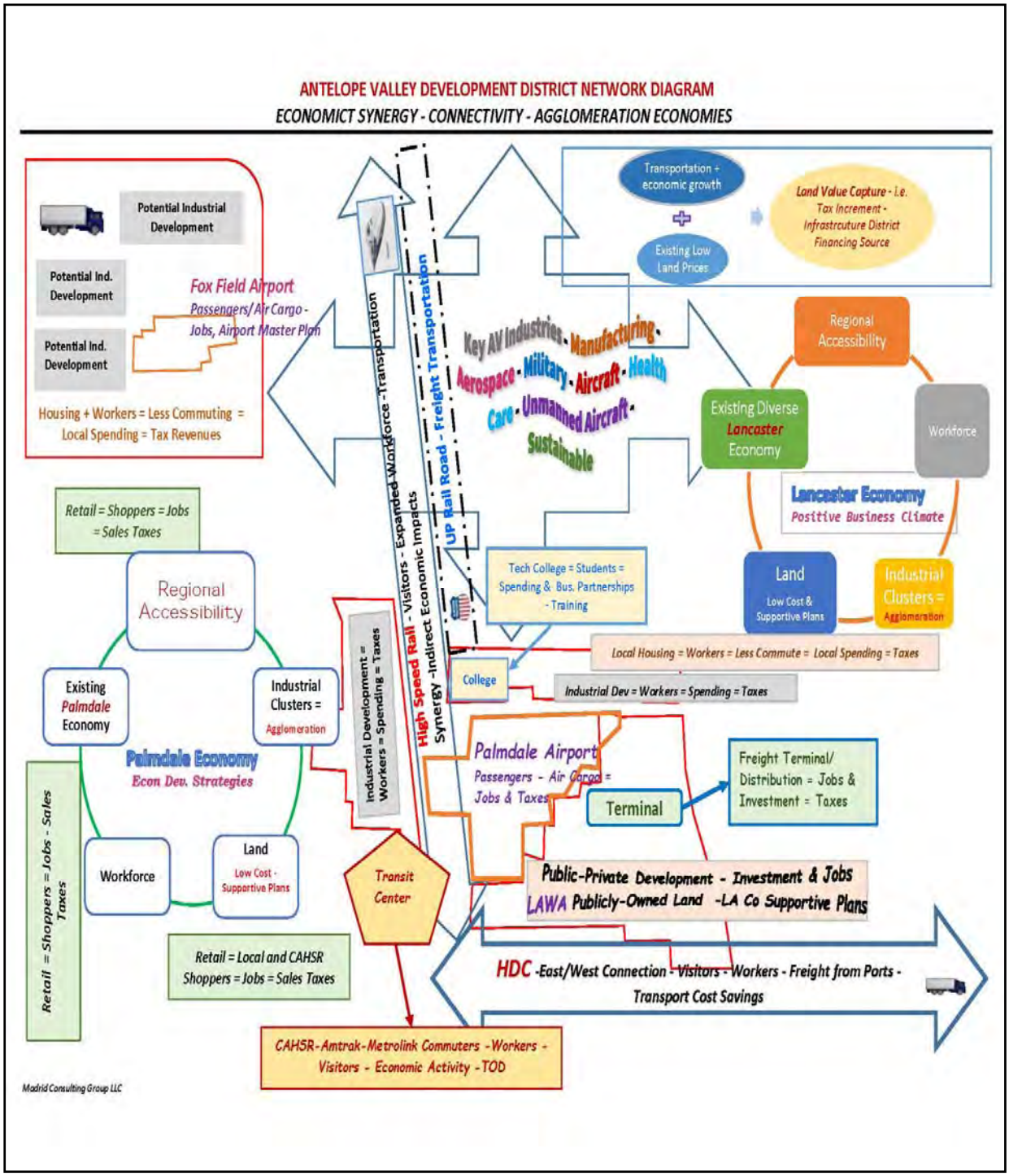


Figure 4-13: AV Development District Network Diagram - Economic Synergies

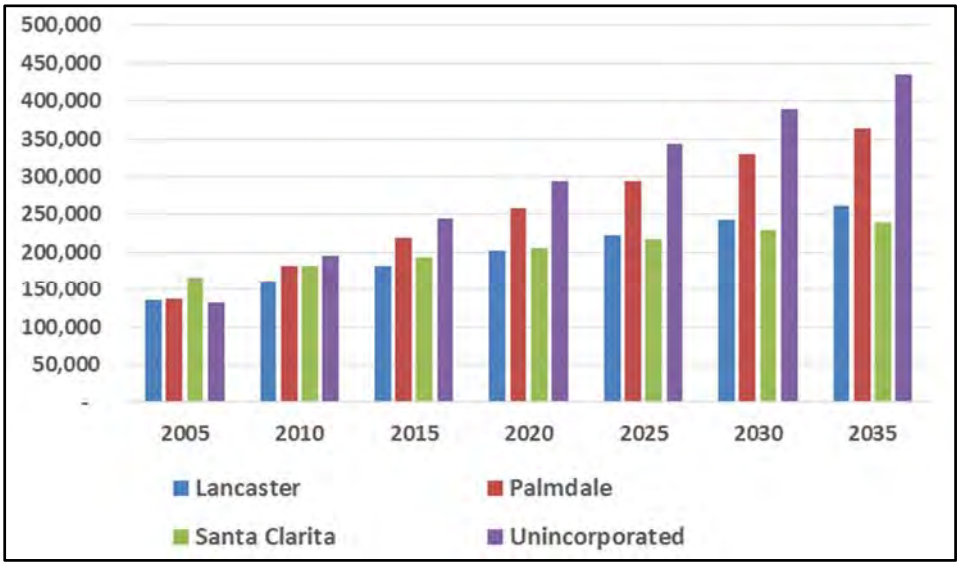


Figure 4-14: SCAG Population Forecasts 2035 – Opportunities

SCAG North County Employment Projections – Opportunities

Southern California Association of Governments (SCAG) growth projections have estimated the number of employees over the next 20 years for the North Los Angeles County (see **Table 4-4** below). These SCAG growth projections were adopted in April 2012 with input from the local jurisdictions during 2008 to 2011. SCAG does incorporate major long-range development projects with regional significance into the projections. However, such major projects as proposed for the AV require funding and locational decisions involving major growth and capital investment factors from the CAHSR; HDC; the cities of Palmdale and Lancaster; County of Los Angeles; Caltrans; Metro; and others. Many of these public projects and polices were not finalized during the time SCAG growth projections data was collected which, if available, may have enhanced these projections. Also during this period, the national Great Recession was occurring which may have also dampened the long-term SCAG outlook for this area. Therefore, it is very likely that these SCAG projections could be greater than figures shown below in **Table 4-4**.

Table 4-4: SCAG North County Employment Projections – Opportunities

Jurisdiction	2015	2035	Increase in total jobs
City of Lancaster	55,390	73,463	18,073
City of Palmdale	38,103	47,108	9,005
City of Santa Clarita	68,605	87,474	18,869
Unincorporated Areas	56,539	85,289	28,750
Totals	218,637	293,334	74,697

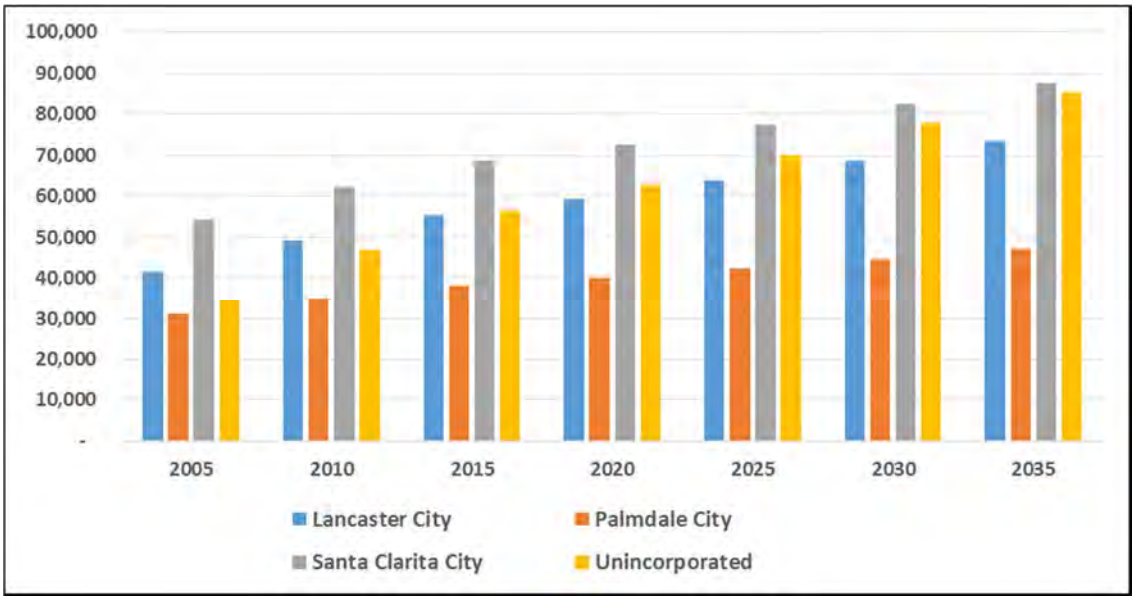


Figure 4-15: SCAG North County Employment Forecast 2005-2035- Opportunities

California EDD Jobs Projections by Industry Sector- Opportunities

The California Employment Development Department (EDD) produces 10-year projections of employment, by county, every two years. These projections estimate the changes in industry and occupational employment over time resulting from industry growth, technological change, and other such factors. Selected growth projections by industry sector are shown in **Figure 4-16**, and used in the economic impact case studies presented in this report. EDD's 2012-2022 projections for Los Angeles County are: manufacturing to decrease by 14%, and the following sectors to grow: Wholesale Trade of 12.7%, Transportation and Warehousing 10.7%, Professional and Business Services 18.6%, and Administrative and Support and Waste Management and Remediation Services 16.9%.

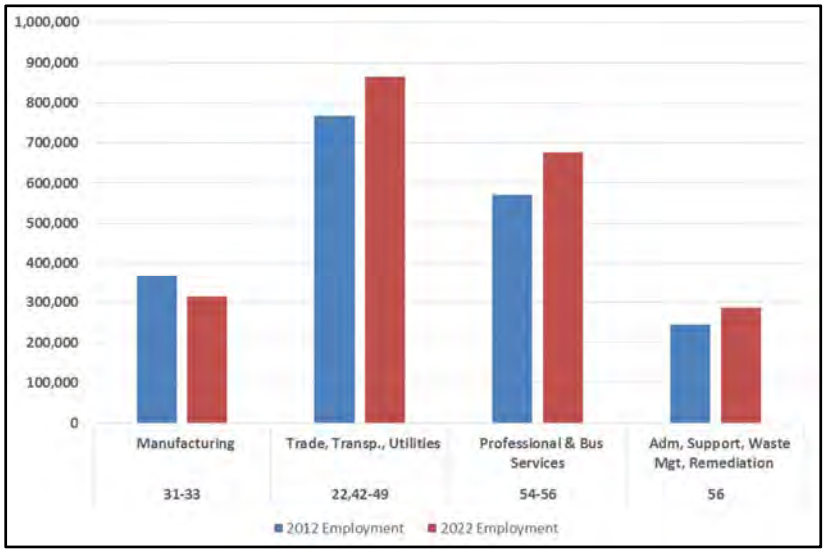


Figure 4-16: EDD Selected Industry Employment Projections 2012-2022

SCAG Comprehensive Regional Goods Movement Plan Report- Opportunities

The SCAG Strategy Report projects that the North County portion of LA County will see approximately 10 million square feet of industrial/warehouse demand by 2024. The report states that the overwhelming bulk of the County's remaining industrial/warehousing sites are in Palmdale, Lancaster, and Santa Clarita. These areas contain 78.9% of the industrially zoned land available in Los Angeles County. The 42.7 million square feet of facilities that could be built in this area represent 23.1% of the region's potential capacity.

We can assume that this growth within major portions of North LA County and unincorporated areas of LA County will be absorbed within the cities of Lancaster and Palmdale. It is also reasonable to assume that a significant percentage of this growth demand should accrue to the LAWA Opportunity Site #4, given its many development advantages. These site advantages include a publicly-owned site area (that requires acquisition or condemnation), adjacency to the planned HDC, the Plant 42/Palmdale Airport transfer to the City advantages, as well as existing and planned CAHSR and enhanced highways and roads in the vicinity.

High Desert Corridor Project (HDC) – Opportunities

The planned SR 138 HDC Project entails construction of a new multimodal link between SR-18 in San Bernardino County and SR-14 in Los Angeles County. It would connect some of the fastest growing residential, commercial, and industrial areas in southern California, including Palmdale, Lancaster, Adelanto, Victorville, Hesperia, and Apple Valley. One option for this project is implementation in three segments: the Antelope Valley segment, the High Desert segment, and the Victor Valley segment based on commitments from the Federal and State governments and private sector. This major transportation linkage between these communities further enhances the advantages, prospects and growth projections

for industrial/warehouse development in the Antelope Valley. In July 2015, a Preferred Alternative was selected for further evaluation in the EIS/EIR. The HDR could provide the following benefits in support the AV Economic Development Goals (as summarized from the EIS):

- Support in achieving local general plan goals to attract investments and jobs (which support the job/housing balance
- Improved east/west mobility which brings direct and indirect economic impacts
- Improve regional goods movement (which could include international trade from the ports to the Inland Empire to the AV)
- If developed, the HDC system with the HSR option would have the potential to connect the San Francisco, Central Valley, Los Angeles, Las Vegas, and San Diego regions through direct intermodal connection with the CA HSR system. It would also provide improved access and linkages between various residential communities, businesses, and facilities, and would assist in achieving local General Plan goals to attract investments to improve the AV jobs/housing balance. Additionally, the HSR option would help achieve smart growth required by AB32 and SB 375 in that it could foster TOD with higher-density mixed-use developments near the proposed rail stations in Palmdale and Victorville. The HSR option would improve travel safety and reliability and would contribute to a reduction in GHG emissions that could produce added beneficial economic impacts. The High-Speed Rail system will provide greatly improved connectivity between California's major economic regions while reducing congestion in ports, on freight rail lines, and along the regional highway system. As a result, California's economy will become more efficient and competitive as goods move more freely, and less time is wasted in traffic congestion on roadways and at airports. The increased economic activity associated with development and implementation of the high-speed rail system could indirectly generate up to 400,000 additional long-term, permanent jobs statewide (CAHSR Authority Brochure January 2013).

In summary as graphically depicted in the AV Development District Network Diagram (Figure 13) – the combined interface of economic synergies created by the various AV assets, advantages, and attributes can lead to long-term economic growth. Implementation of a strategic plan that includes community linkages, connectivity and access created by the existing and planned multimodal transportation systems, joined with markets, planned land use, workforce development, supportive policies and other advantages, all working to support more goods movement-related markets, will help attain overall economic development goals.

Opportunities from Current Establishments and Jobs

Table 4-1 presented a listing of 11,676 establishments and 216,000 employees witin the drive-time study area. Combined with an abundance of land, good transportatation systems, supportive polices, and key planned infrastructure,there is a significant economic base upon which to build and expand. As indicated,

SCAG projects a growth of 75,000 jobs in North LA County over the next 20 years (2015-2035). Goods movement-related industries in the drive time study area include 518 manufacturing establishments and 32,000 employees, 137 transportation and storage establishments with 3,100 empoyees, and 307 wholesale trade establishments with 3,000 employees.

Economic Constraints

- **Readiness, needed upgrades, adequate capacity, lack of or scarce funding for multimodal transportation systems.** A necessary critical element for establishment of an inland port, or even logistics-based freight operations requires at least adequate rail, trucking services, and transportation systems. While there are plans to enhance and expand transportation systems, these are contingent upon major funding decisions, environmental, community and other approval and implementation processes. Development of the CAHSR could contribute to overall economic growth in the AV, which in turn could lead to expedited demand for local/regional goods movement services and facilities; however, it is not critical for such freight expansion.
- **Lack of existing international trade markets.** As discussed, the AV sites must demonstrate adequate existing demand from international shippers as well as demand from local and national markets that would supplement international markets. In addition, the site must offer advantages and cost efficiencies (value-added qualities).
- **Impacts of trucks and increased congestion.** The initial stages of a freight distribution center would be serviced by trucks primarily. As goods movement markets grow, so do the environmental impacts of trucks.
- **Competition from closer-in or established metropolitan/inland empire area sites for a new industrial warehouse/distribution facilities.** As shippers exhaust the port areas, they will seek freight terminal/distribution sites that are closer in; the AV must wait until these closer-in or established sites are exhausted.
- **Infrastructure costs and competition for public funding.** Development of an inland port would require costs and likely subsidies for terminal facilities, short-haul rail operations, rail expansion facilities, and others. There are limited transportation funds and strong competition for public infrastructure funding. Implementation will require partnerships with state and federal agencies, find new revenues sources that are increasingly user-fee oriented, and development via public-private partnerships (P-3).
- **A most critical factor is adequate rail services, which at present, would require capacity expansion and improvement to the economics of short haul operational economics and possible subsidies.** Discussion with the Union Pacific Rail Road and studies indicate that unsubsidized short-haul rail shuttles in the 50-100 mile range have not been commercially viable or attractive business propositions for the railroads. According to the 2008 SCAG Tioga Inland Port Feasibility Study indicated that there is a significant political barrier to be passed in creating a subsidy plan

for rail freight operations of any kind. There are no current funding programs to subsidize freight operations. Rail passenger services are routinely subsidized, but freight subsidies are rare.

- **Airport belly cargo requires air cargo demand correlated with growth in passenger air travel.** Air cargo at the Palmdale airport would require completion of the transfer to the City of Palmdale, development of the air cargo terminal facilities, growth in air travel, and other factors to be in place. These facilities would likely require public funding assistance and coordination with defense contractors.
- Coordination, resource completion, public perception of goods movement not being a funding priority, dealing with multiple-jurisdictions from coastal Ports to AV.
- Various environmental issues.

4.4. Site Assessment

4.4.1. Introduction

The following report section lists the site and non-site evaluation factors used in the attached Site Evaluation Matrix located in the Appendix C for the four study sites shown in Section 4.5 Figure 4-18. As previously indicated the primary communities (Lancaster/Palmdale/LA County) within the Study Area requested identification of opportunity areas and related economic development strategies within their respective jurisdictions. This section also presents the major advantages and disadvantages of each Study Area and summary conclusions.

Inland Port Requirements

As indicated in the summary, an ideal inland port (IP) site will have the ability to accommodate all facets of the logistics sector - warehousing, processing, distribution and/or value-added attributes. The site should also possess accessible locational characteristics and advantages, appropriate sites for terminal location and utilities infrastructure and facilities, market demand attributes (local, regional, and international), and ancillary and supportive uses and services that create value attributes that will attract international trade. These site factors require existing in-place supportive land use plans, an IP marketing strategy, funding sources for freight terminals and infrastructure, a qualified local workforce, and ideally a unified multi-agency authority to plan, manage, and promote the IP facilities.

Most of these critical site and non-site factors do not exist at present in the Antelope Valley. As indicated, development of these IP conditions and facilities develop over a long period of time pursuant to a master plan and favorable market conditions. Therefore, selection of a preferred IP site at this time is highly speculative and problematic without arbitrarily making numerous hypothetical assumptions regarding whether the required market demand will exist, interest of master developers, the existence of future value-added uses, future logistics services, adequacy of rail connections, future terminals, etc. However, what can be assessed are the existing in-place conditions and the necessary pre-conditions for an IP. These

IP pre-conditions are also similar to those necessary for accommodating domestic and local/regional goods movement businesses.

A primary constraint for the AV area is rail capacity and the inadequate economics of short-haul rail shuttles compared to long-haul mainline trains. Full-fledged IPs must have the willing participation of railroads to transport the shipping containers that dominate international trade from the Ports to the IP market area for subsequent processing prior to end-user distribution. Discussions with the Union Pacific Rail Road and studies both indicate that unsubsidized short-haul rail shuttles in the 50-100 mile range have not been commercially viable or attractive business propositions for the railroads. Moreover, there must be adequate rail capacity for both freight and passenger rail transportation. Rail, therefore, may require subsidies or other forms of financial support to succeed in this new, more competitive environment under existing conditions. However, local/regional goods movement businesses can function and be accommodated via truck cargo systems.

In summary, all four Study Area sites contain significant opportunities for industrial development, warehousing and distribution uses and potential for at least future truck-based freight distribution/terminals. Two study sites, Areas 3 and 4, can potentially offer rail-based freight systems as well as air cargo connections – assuming facilities are fully developed and the economics can work.

As noted above, once the following IP critical factors are in place, the AV may be considered for international trade leading to a possible Inland Port:

- Existing ports being unable to expand on-site and accommodate future international trade demand
- Closer-in and more developed existing IP sites are no longer competitive (i.e., Inland Empire, Gateway communities)
- A unified master plan and joint powers authority is in place to manage, guide development, finance, and operate an IP
- Expanded local and regional-serving or other domestic goods movement markets are in place in the AV to supplement international trade
- The existence of clear value propositions for international shippers is present in the AV (cost-savings, shipping efficiencies, etc.)
- Adequate economic incentives (profitability) are present to induce railroad capacity expansion and operations in the AV
- Freight terminals and related facilities are in place in advance of attracting the interest of international trade

Key Site & Non-Site Selection Factors

The following presents the principal selection factors used in the site assessment matrix located in the Appendix C.

Key Physical Site Related Factors

- Land- cost -expandability –zoning - buffers
- Multimodal transportation and access
- Freight terminal facilities
- Rail road access and participation
- Adequate air cargo facilities
- Modern industrial parks
- Supportive international trade value-added uses
- Port linkages –relationships – logistics services

Key Non-Site Selection Factors

- Adequate domestic markets (local/regional/interstate) that can lead to international trade
- Proximate manufacturing, warehousing, and distribution centers (customers) from which to build critical mass
- North LA County population growth that serves as the demand driver for local/regional goods movement markets
- Local or accessible workforce
- Supportive governing entities, policies and plans
- Public funding sources for transportation and other infrastructure
- Master developer entity
- Unified joint powers IP governing authority

4.4.2. Development Advantages & Disadvantages by Study Area

Area 1- Fox Field

Advantages

- Abundant land-large parcel industrial acreage available for development
- Local access on truck route Avenue "G" and SR14 Freeway plus SR 138 nearby to west Tejon Ranch/I-5
- Air cargo mode at Fox Field airport (modest per LA County Airport Master Plan)
- Although no water presently exists in the Beverly Wash, it is a potential environmental and/or recreational amenity corridor for supportive community development. The wash or dry creek is

located within the 500-year flood zone that, after such an event, would fill and flow after sufficient rain (2008 FEMA Map 06037C0405F). Although unnamed in the FEMA map, the AAA maps name it the Beverly Wash.

- Supportive City of Lancaster (i.e., Specific Plans) and LA County airport master plan for Fox Field
- Workable compatible air flight zones
- Existing warehousing and distribution uses from which to build upon
- Ample available land for supporting work force housing

Disadvantages

- Aircraft operations place restrictions on land use (but are workable to achieve development opportunities)
- Cost feasibility issues to extend main UPRR rail line to the west Study Site 1 - major conflict with HSR and Sierra Highway corridor
- The Study Area is at the furthest edge of the urbanized AV region – closer-in sites may have advantages for early phase residential development
- Multiple smaller parcel ownership – could be land assemblage challenge depending on project size

Area 1 Summary

This Opportunity Area has significant site-related potential for industrial development, warehousing and distribution, and related support community development uses. There is the possibility for truck-based freight terminal/distribution facilities, all else being equal, unless other AV sites develop such facilities first.

Area 2 – Palmdale Airport Westside Lancaster, Palmdale, LA County

Advantages

- Close to truck /auto access on SR14 Freeway and Sierra Highway (truck routes)
- Close to Palmdale Transportation Terminal to the immediate south
- Amargosa Creek - bisecting flood control/eco/recreational corridor opportunity
- Close to existing residential areas in Lancaster and Palmdale for early phase asset
- Supportive General Plans to large extent

Disadvantages

- Fragmented smaller areas between developed parcels creating compatibility issues
- Air flight path limitations; 65 CNEL noise limits area for work force housing as well as APZ/USAF land corridor bisecting area
- Limited area for supporting work force housing

- Limited overall yield of developable open land compared to other study areas
- Amargosa Creek flood plain must be mitigated (eco/recreational amenity corridor opportunity)
- Multitude of small parcels – could be a challenge for land assembly and integrated master planning
- Rail access from mainline not cost feasible – conflicts with CAHSR and Sierra Highway corridor

Area 2 Summary

This study area has significant site-related potential for industrial development, warehousing and distribution, and support community development uses. There is the possibility for truck-based freight terminal/distribution facilities, all else being equal, unless other AV sites develop such facilities first.

Area 3 – Palmdale Airport Northside

Advantages

- Near centroid of existing urbanized Lancaster/Palmdale area with nearby housing for workforce support
- Good centralized site for a potential AV Poly Tech University (on Columbia Way between 10th and 20th) on border of both cities of Palmdale and Lancaster with support housing adjacent in Lancaster
- Possible rail access extension east from Sierra Highway corridor and via potential future new U.P. extension from south
- Situated on truck route at Avenue M

Disadvantages

- No expansion possible to south and west of study site boundaries. The east area is limited by Little Rock Wash Eco Area (E.S.A.) with County Sanitation District Agriculture spreading grounds. There is also limited expansion north up to Avenue K between existing residential areas. It would be divorced from main area and service from possible future local transit system (not currently planned but recommended in this report)
- Residential use is prohibited within a portion of the Runway APZ Corridor
- Workforce housing is limited, given the priority for industrial land use and job production
- Multitude of small parcels inhibiting integrated master planning and creating acquisition challenges
- There is limited industrial land – and if expanded, would reduce land for workforce housing, an important ingredient for smart growth

Area 3 Summary

This study area has significant site-related potential for industrial development, warehousing & distribution, and support community development uses. There is the possibility for truck-based and

multimodal freight terminal/distribution facilities – all else being equal - unless other AV sites develop such facilities first.

Area 4 – Palmdale Airport South & Eastside (LA County/LAWA)

Figure 4-17 and **Table 4-5** were prepared by the LAWA Planning and Real Estate Division showing potential development zones and acceptable uses. This Opportunity Site 4 Vision Plan was designed and evaluated with consideration of these permitted land uses.

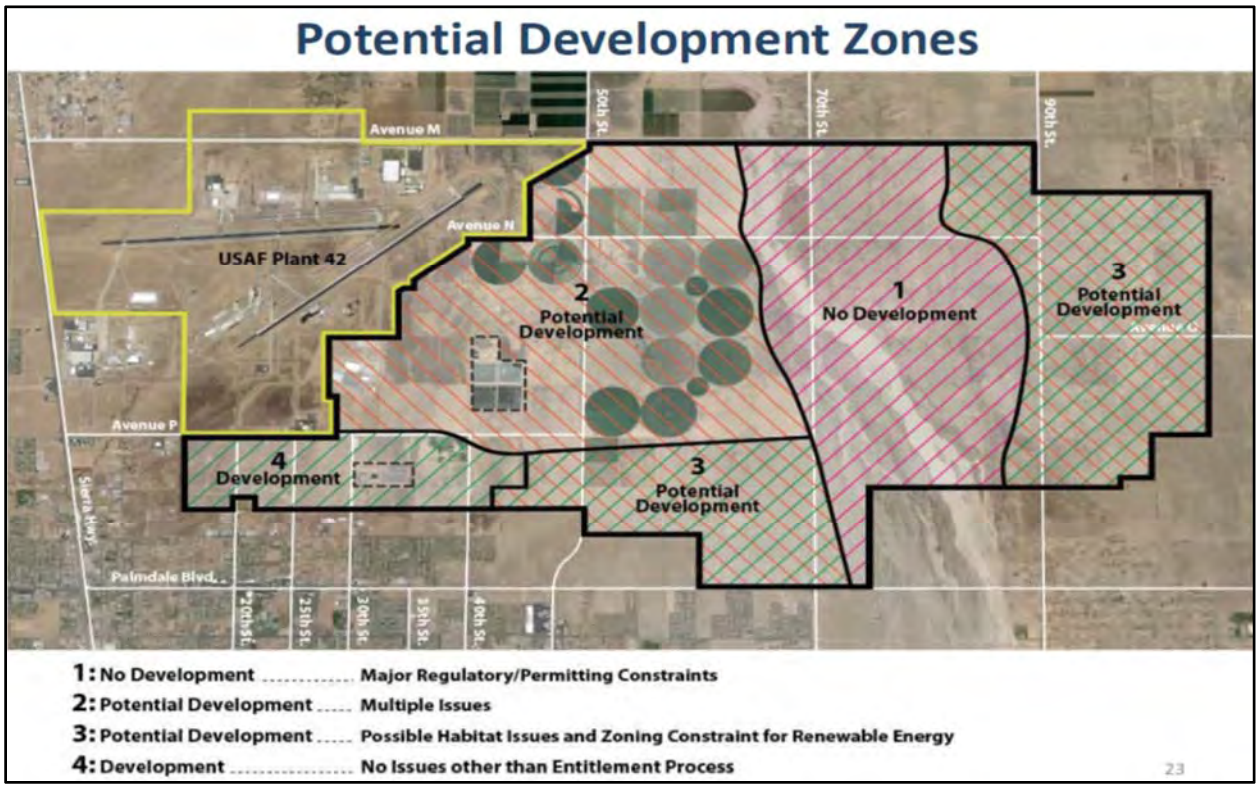


Figure 4-17: LAWA Designated Potential Development Zones

Table 4-5: Potential Uses as Designated by LAWA

Zone	Size (Acres)	% Total	Potential Uses
1	4,800	27%	Mitigation if Needed
2	5,100	28%	Aviation Uses, Airport Related, Industrial, Renewable Energy, Agriculture
3	6,500	37%	Renewable Energy, Agriculture
4	1,350	8%	Airport Related, Commercial, Industrial, Renewable Energy, Agriculture

LAWA Site Development Advantages

- Virtual single land ownership enabling integrated master planning and logical phasing

- Avoids issues of initial funding for land acquisition
- Single ownership can avoid undue land value speculation as may be the case in the other three Study Areas once serious development plans are announced
- Multimodal accessibility potential for goods transportation
- There could possibly be rail in the early phase from the existing spur off north-south Sierra Highway UPRR main line; however, subject to usage availability at the unknown future time of development – and rail economics
- Close to Palmdale Transportation Center
- Potential for early major air cargo mode with taxiway off existing Palmdale Airport runway
- Growth and more activity from planned resumed passenger terminal service at airport directly adjacent to site
- HDC directly serving truck mode along south side, and Rancho Vista Boulevard is also a truck route
- Potential new additional rail service from eastside via new UPRR line branching from existing line on south-east side of Palmdale – subject to economics
- Fairly close to existing housing in City of Palmdale for early phase development support
- Large industrial acreage for new development and job creation

LAWA Site Development Disadvantages

- Limited access (Freeway) ground transport available in early phase (dependent on HDC development timing)
- Existing major electrical transmission lines (on 40th and Avenue N) must be undergrounded if FAA required potential new airport to be feasible
- LAWA may have a need to restrict the length of ground leases to retain land area for a potential new airport
- Desert Xpress HSR proposed alignments (coming out of SR138 HDC R.O.W. median) would restrict (splits) planning the portion of the westerly area (early phase) unless in tunnel
- LA County Sanitation District's need for spreading grounds and wells, but could be accommodated in possible landscaped buffer zones adjacent to major roadways
- Some biological assets (Creosote scrub and Joshua tree) may need to be mitigated within Little Rock Wash E.S.A to east

Area 4 LAWA Summary

This study area has significant advantages and potential for industrial development, warehousing & distribution. Major advantages include existing single public land ownership by LAWA, proximity of the SR 138 HDC with connectivity to the Inland Empire freight centers/users, and ability to extend rail from existing UPRR mainlines. There is also potential for adjacent supportive community development uses on the south portions of the site. The site has major site development potential for multimodal (truck and

rail) freight terminal/distribution facilities. There is also strong potential for air-cargo associated with increases in passenger travel ("airplane belly cargo").

4.5. Conceptual Plans and Strategy

4.5.1. Study Sites – The Regional Planning Vision

As indicated, the initial NCMITS work scope called for the identification of a single, preferred site for an inland port location in the AV near Palmdale or Fox Field Airports. At the request of the cities of Palmdale and Lancaster, the consultants agreed to identify and develop plans several opportunity sites within the AV as shown below in **Figure 4-18**.

As indicated, these opportunity areas are characterized together and treated as a unified regional economic development planning area referred to as the **"AV Unified Economic Development District."** This combined area has the potential for promoting economic benefits to all three Study jurisdictions (Palmdale, Lancaster, and LA County). Based on existing economic and demographic factors, assessment of opportunities and constraints, and individual sites assessment, the following Vision concepts and plans were developed. The concept plans address Study goals by exhibiting:

- How economic development in the AV can be accomplished by creating an efficient urban planning framework for industrial and associated community development
- How support workforce housing and related commercial development can be located to help support overall growth and meet the needs of industrial users and ultimately freight enterprises
- How to better utilize existing Antelope Valley assets such as land, airport facilities, favorable development regulations, and other supportive elements.
- How to incorporate and take advantage of existing and planned multimodal transportation systems.
- How to create the physical environment, and favorable development and business conditions that could attract inland port related uses.

How to unify and connect the AV planning district by land uses, Smart Growth principles, local transit network circulators, and other such means.

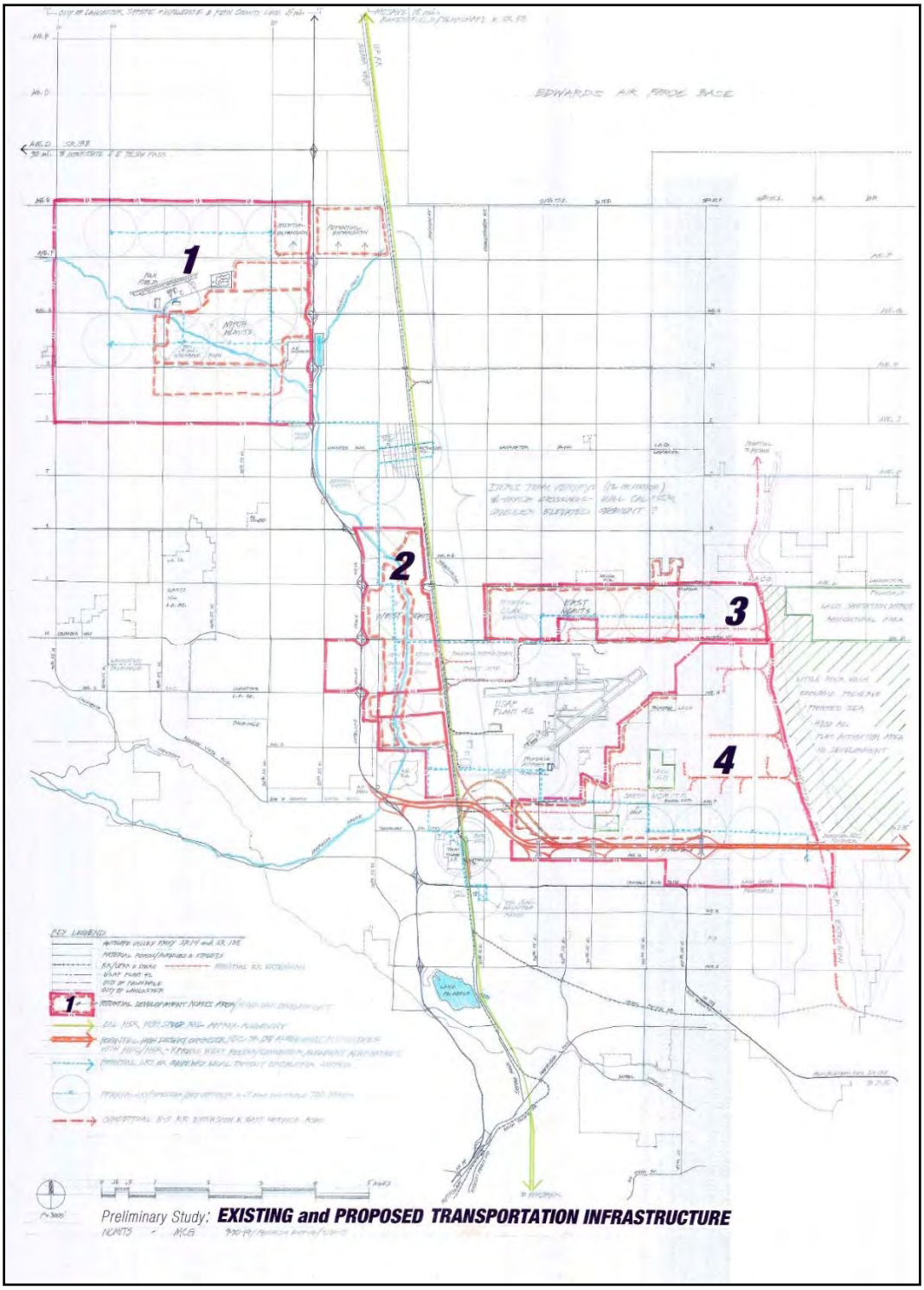


Figure 4-18: Study Areas & Existing & Proposed Transportation Infrastructure

4.5.2. The Concept Vision

The Concept Vision Diagram is a graphic statement of where land uses should be located to best help attain the desired Study Goals. The term graphic diagram is used to convey concept ideas, not full-fledged development plans.

Concept Vision Diagram Elements

- Four mainly undeveloped potential development sectors totaling approximately 19,434 gross acres (final overall Study Area Figure 4-18)
- Well-planned industrial development sites that can accommodate freight distribution/terminals
- A proposed local transit district network (light rail, streetcar or BRT) connecting Downtown Lancaster, Downtown Palmdale, Palmdale Multimodal Transportation Center, and Palmdale Airport with the Industrial Study Areas and proposed workforce housing and related support communities
- A Vison Concept to include integrated live/work sustainable communities
- Air Cargo depot operations at both Fox Field and Palmdale Airports
- A site for a potential AV Polytechnic Cal State University campus. This campus would be integrally linked creating synergistic benefits for education and community "spin off" research, logistics, avionics, technology and product development
- Integrated Amargosa Creek and Beverly Wash drainage corridors into the respective Opportunity Sites as preserved natural "eco" corridors featuring High Desert plant palettes and recreational trails for hiking, biking and jogging, as well as storm water and flood control corridors
- Aviation hazard and noise compatible development reflected in area plans
- Workforce housing provided in all Opportunity Areas with local commercial support, educational/recreational facilities, and community services. Plans include pedestrian and bikeways into adjacent employment areas for convenience and healthy lifestyles
- Large commercial sites provided for ancillary "spin off" ventures and businesses generated by the industrial development, workforce housing, and freight distribution activities
- Integrated sustainable land use and compact mixed-use development patterns for “Smart Growth” workforce housing
- Local and community commercial support centers in all areas
- Designated truck routes serving all four Opportunity Areas

The Concept Visioning Diagram Description

The acreages vary among the four areas, but each should be planned as future industrial development integrated with "Live/Work Villages" to promote "smart growth" sustainable land use models for urbanization in the AV. This type of mixed-use development is also referred to as "Healthy Communities" and advocated by the American Planning Association as a better direction for new and revitalized

communities. Diverse industries generated by the future economic activity may locate among the four study locations at sites best fitting their requirements (e.g., air cargo, truck or rail access for logistical, manufacturing, secondary and value-added support services, etc.).

To serve a regional interdependence and public transportation connectivity among these areas the following systems are advocated. Advanced public transit corridors, such as LRT, advanced electric streetcar or BRT or multimodal combinations, primarily in existing street right of ways, are proposed. These systems would permit internal travel and circulation allowing workers to reside in one and work in another, if not the same location, maximizing benefits to employees and employers. Many communities have found that "tracks in the ground" provide the private development sector more assurance of a commitment to advanced transit (rather than bus) and enhance the incentive for private investment around planned station stops with TOD (Transit Oriented Development) within the walkable half-mile radius as well as along the transit corridor itself.

Varied housing types should be planned in the medium densities (e.g., 15 to 40 DU/Ac with a large percentage of affordable units) to promote more walkable urban neighborhood character as a choice or alternative to the prevailing "auto centric" low density dispersed sprawl as present, thus affording greater feasibility of public transit and reduced use of single occupant vehicles and reduced VMT (Vehicle Miles Traveled). Reduced VMT supports reduced greenhouse gas emissions, improved air quality, sustainable community development and quality of life, in compliance with AB32 and SB375.

The Antelope Valley Transit Authority (AVTA), the LA Metro and Metrolink, are existing regional agencies that can implement public transit corridors. Such an AV public transit system can integrate all four opportunity areas with Downtown Lancaster and the Metrolink/Amtrak stations, the Palmdale Transportation Center and CAHSR, a future passenger terminal at Palmdale Airport, a potential AV Polytechnic University Campus, the subject industrial activity areas, business incubation centers, Downtown Palmdale/Civic Center, other concentrated employment centers, urban activity centers and community support services sites. As discussed in this report, a special purpose agency or Joint Powers Authority could be created to plan and operate an inland port and possibly also operate such a local transit system.

Concept Vision Diagram Benefits

An integrated sustainable smart growth plan should result in:

- Reduced vehicle trips (VMT)
- Reduced greenhouse gas emissions
- Promote pedestrian/bike modes access to jobs, local services and recreation
- Promote healthy walkable environments
- Provide support for commercial and public facilities

- Provide ancillary support uses to AV industrial and freight enterprises
- Provides diverse workforce housing of varied type, density and affordability
- Transit corridors (LRT, Streetcar, BRT) to link all four Inland Port sectors with Metrolink, UPRR, CA HSR, planned SR138 HDC and HSR, Fox Field and Palmdale Airports, Downtown Lancaster, Downtown Palmdale and potential AVCSU campus
- Synergistic economic benefits from a AV Cal State University campus integrated into local industries and the community
- Economic benefits of air cargo depot potential at both airports
- Preservation of Amargosa Creek and Beverly Wash as open space "eco" corridors amenity elements for hiking, biking, jogging trails, indigenous nature awareness within a native High Desert vegetation belt for aesthetic and flood protection benefit
- Improved and centralized transit connections with a Palmdale Transportation Center/Metrolink station terminal that is shared by Metrolink, UPRR, Amtrak, CA HSR, the planned SR138 HDC HSR Desert Xpress with as a new "iconic" landmark structure

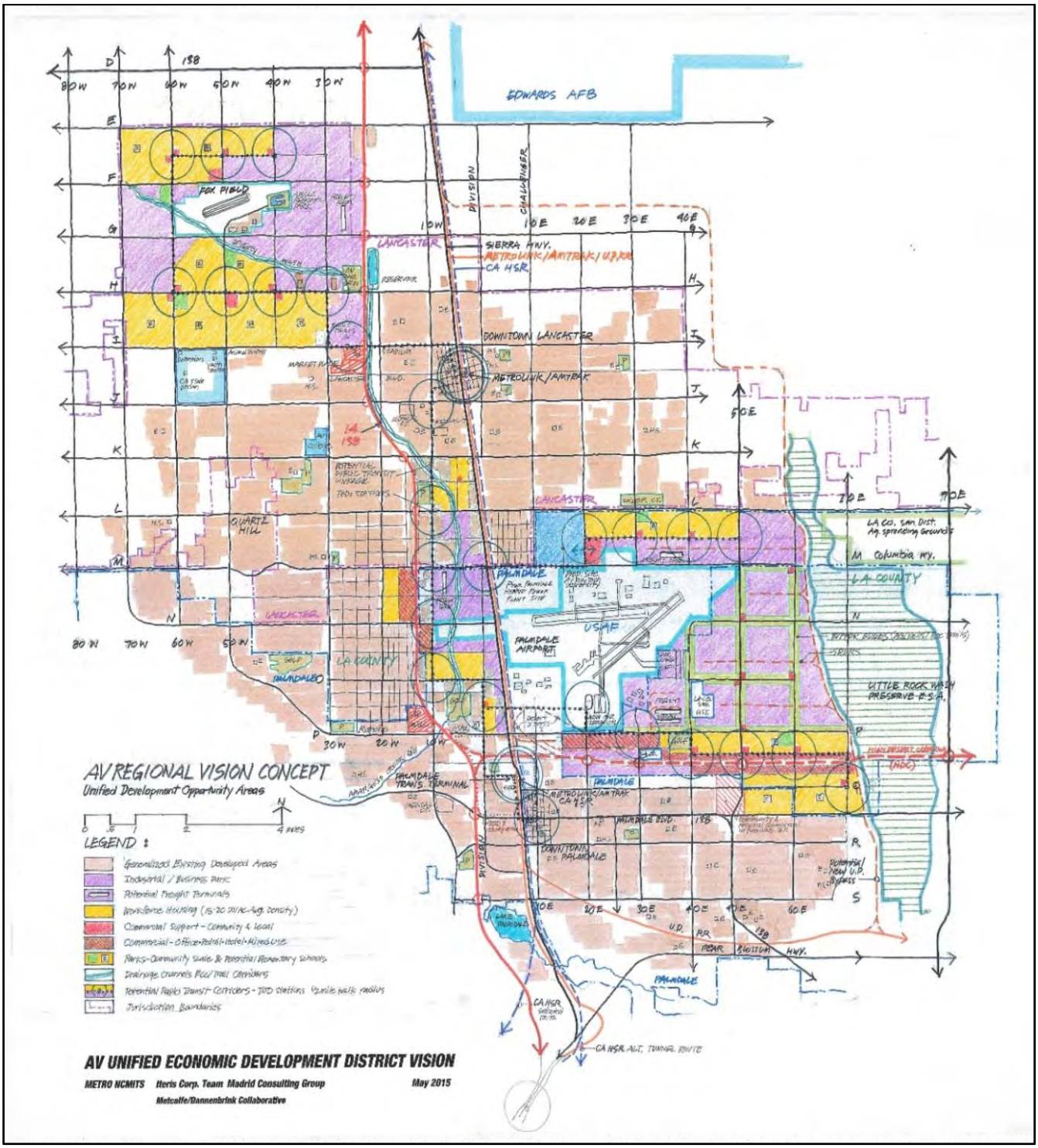


Figure 4-19: AV Unified ED District Concept Vision Diagram

4.5.3. Area 1 Vision Concept – Fox Field

The Vision Concept for opportunity area surrounding Fox Field contains virtually unlimited undeveloped land resource. The boundaries chosen are discretionary staying within the present City of Lancaster boundary. This overall area contains approximately 7,400 gross acres, which can provide many decades of development capacity under the most optimistic growth scenario.

The aviation compatibility zones established by Los Angeles County (owner of airport) do impact the spatial distribution of land use. This advocacy Vision Concept allocates industrial/business park uses to the west and east of the airport (under zones that are not allowable or conducive to residential use), which includes a linear area adjacent to the SR14 Antelope Valley Freeway between Avenue E and Avenue G, which is in LA County. It is proposed that these areas be integrated into the land planning of the larger superblocks to which they are contiguous. These industrial areas would only be served by truck mode, since bringing rail service over all the several north/south transportation infrastructure obstacles is cost-prohibitive and impacts the planning of large areas. The improved Avenue G truck route and primary approach road bisects this area and provides a natural spine to serve the various sub-sectors. Avenue F and Avenue H also have interchanges with the SR14 Freeway. Two existing major distribution warehouses (Michael's and Rite-Aid) are located on the north side of Avenue H, west of Sierra Highway. A truck freight terminal might be located in one of the easterly superblocks between 30th Street West and the SR14 Freeway, limiting the heavy truck traffic to areas east of the airport and closer to the freeway interchanges.

The workforce housing areas advocated for all four Opportunity Areas to promote sustainable Smart Growth. These land uses are distributed into sectors compatible with the aviation compatibility zones on both north and south sides of the airport. These workforce residential areas, at lower to medium density, would have local parks, perhaps a couple of community scale parks in addition to the existing Apollo Park and AV Fairgrounds. Furthermore, there could also be a couple community scale commercial centers, as well as local retail centers focused at potential TOD station sites and primary arterial crossroads. Elementary schools would also be required to serve school-aged children generated by the residential areas. These sub-communities would have a more walkable and urban character with pedestrian and bike trails linking to local recreation and schools and other neighborhood services to reduce the necessity of vehicular use for all needs (reduced VMT).

As the northerly most opportunity area, a proposed local transit network would terminate in this area linking all the opportunity areas together as a unified regional district connecting Downtown Lancaster & Metrolink/Amtrak station, as well as Downtown Palmdale, Palmdale Transportation Center, a potential AV Poly Tech University and Palmdale airport (assuming future resumed passenger service).

The Lancaster General Plan has a Specific Plan overlay covering most of this area. Master Planning would require an integrated approach to a coordinated aviation, ground transportation and land use strategic

plan for this area, with a multiplicity of small parcels, which will require substantial land assembly and multi-parcel consolidation.

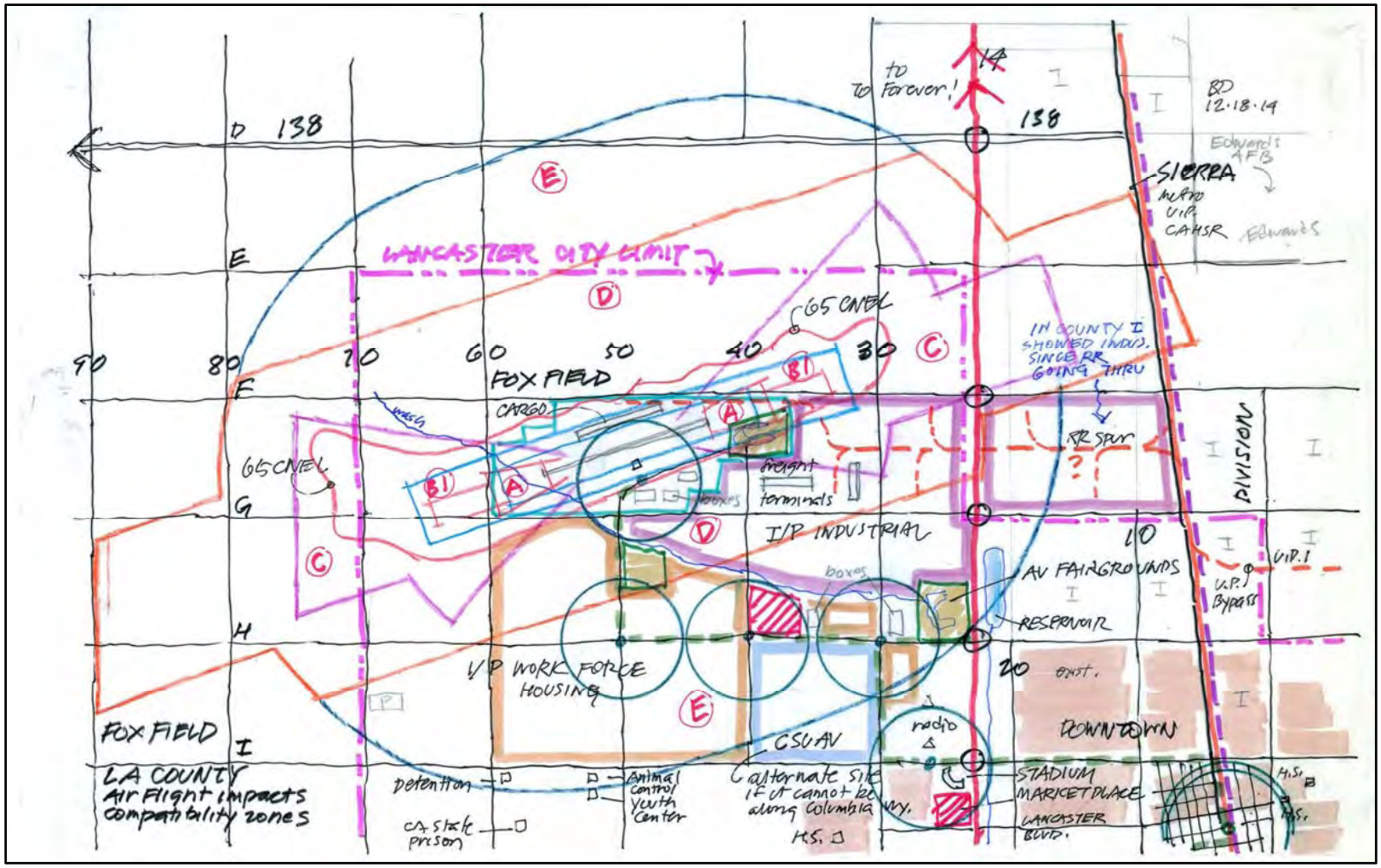


Figure 4-20: Area 1 LACO Air Flight Impacts Compatibility Zones

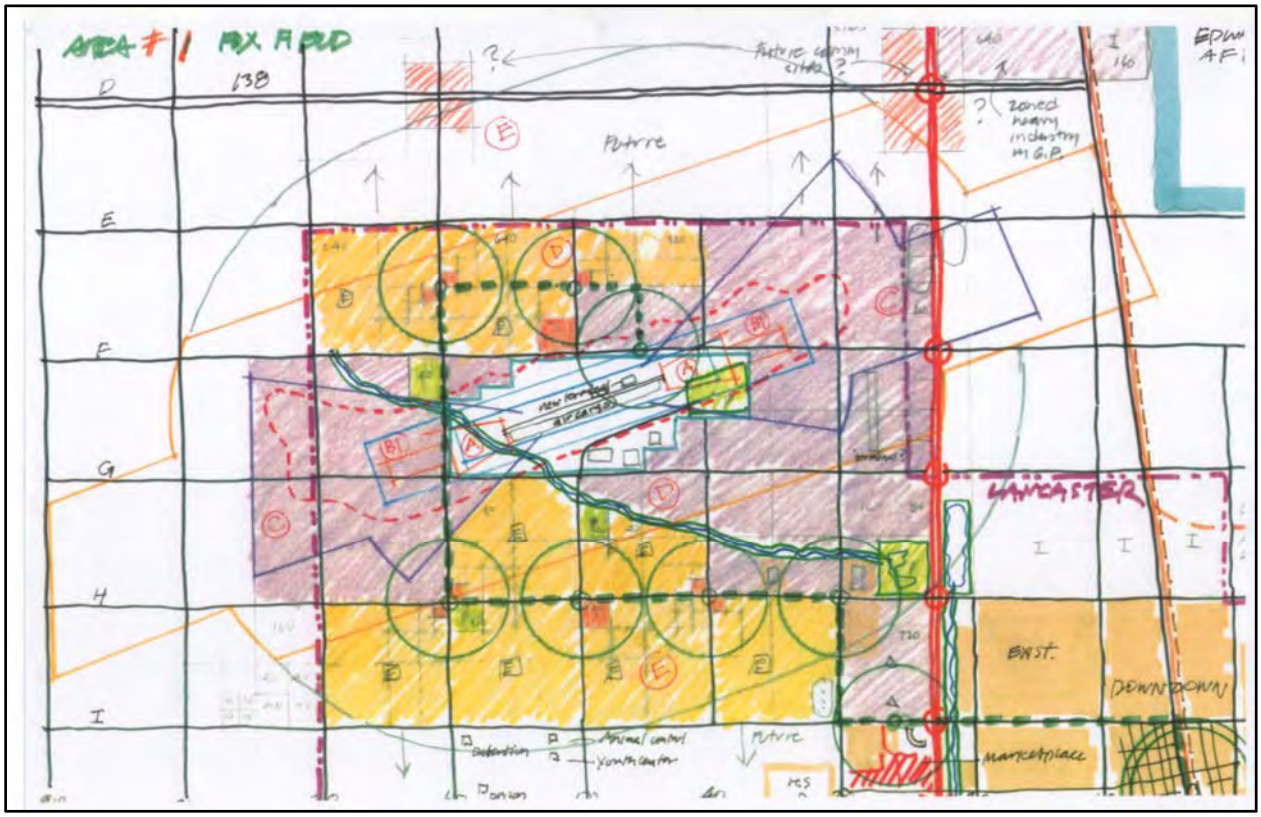


Figure 4-21: Area 1 Fox Field - Sketch Plan

Table 4-6 - Area 1 Fox Field Summary Land Uses

Jurisdiction	Land Uses	Acreage
Lancaster	Industrial	**320 AC**
LA County	Industrial	**4350 AC**
Sub-total		**4,670 AC**
Combined LA Co & Lancaster	Residential	2,580 AC @ 10 DU/AC Average Density=25,820 DU @2.2/DU= (±) 56,809 residents
Combined LA Co & Lancaster	Commercial Local Centers	70 AC
Combined LA Co & Lancaster	Commercial Community Scale	80 AC
Sub-total Commercial		**150 AC**
Area 1 Total Gross Acreage		7,400 AC

Area 1 Fox Field Summation

Opportunity Area (1) has significant potential for industrial development, warehousing and distribution and workforce housing with community support uses. This area includes the potential for truck cargo-based freight terminal/distribution facilities.

4.5.4. Area 2 Vision Concept Palmdale Airport Westside

Opportunity Area 2, in contrast to Area 1, contains undeveloped land areas interspersed with pockets of existing development located within Lancaster, Palmdale, and LA County boundaries. While this pattern of opportunity is more fragmented, nevertheless, some of this available open land area would be substantial within many developed cities. It is furthermore bisected by CNEL Noise and APZ airport overflight hazard restrictions from the USAF Plant 42 east-west runway 7/25, including a corridor of USAF land between Sierra Highway and 10th Street West, separating a portion of the City of Palmdale section. This area lies within the north/south corridor between the SR14 Freeway and Sierra Highway and the main north/south rail lines providing rail accessibility within the AV and the region. The SR14 Freeway, Avenue M and Sierra Highway are designated truck routes. The area contains approximately 2,024 gross acres.

Lancaster Portion north of Avenue M:

Most of the undeveloped area should be developed as industrial per the City of Lancaster General Plan. However, it is proposed that a portion of the area be developed with workforce housing at medium density, for live-work opportunity, in the areas north of Avenue L. This housing would also probably require an elementary school and local park space.

Palmdale Portion south of Ave. M down to Rancho Vista (Ave. P):

The area north of the USAF noise/hazard corridor is suitable as an industrial/business park per the City of Palmdale General Plan. A truck terminal might be added in the large area on southside of Avenue M between 10th Street west and Amargosa Creek near the interchange with SR14 Freeway. The balance of the area south of the USAF corridor should be industrial use, with the exception of some workforce housing areas north of Avenue Q on both sides of Amargosa Creek and another area north of Avenue P to gain some workforce housing at medium density, including a local park and possibly an elementary school. The area bounded by 10th Street and SR14 Freeway south of Avenue N could be well suited to mixed-use commercial office and retail.

LA County Portion:

An undeveloped area bounded by Avenue M and Avenue N, 20th Street west and SR14 Freeway could have mixed commercial office and retail on the eastern half with freeway exposure and more medium density workforce housing to serve this opportunity on the western half.

The proposed local transit corridor is suggested to run within the 10th Street west ROW south to Avenue Q, then east to Division Street and extend on to the Palmdale Transportation Center and terminate in the Downtown Palmdale Civic Center area. An east-west line is proposed to extend from a TOD on Division

Street midway between Avenue Q and Avenue P. Alignments are only preliminary “vison first cut” schemes since more specific alignment suggestions are beyond the scope of this study.

The multitude of small parcels would offer a challenge to land assembly, integrated planning and development. Considerable multi-parcel consolidation would be necessary.

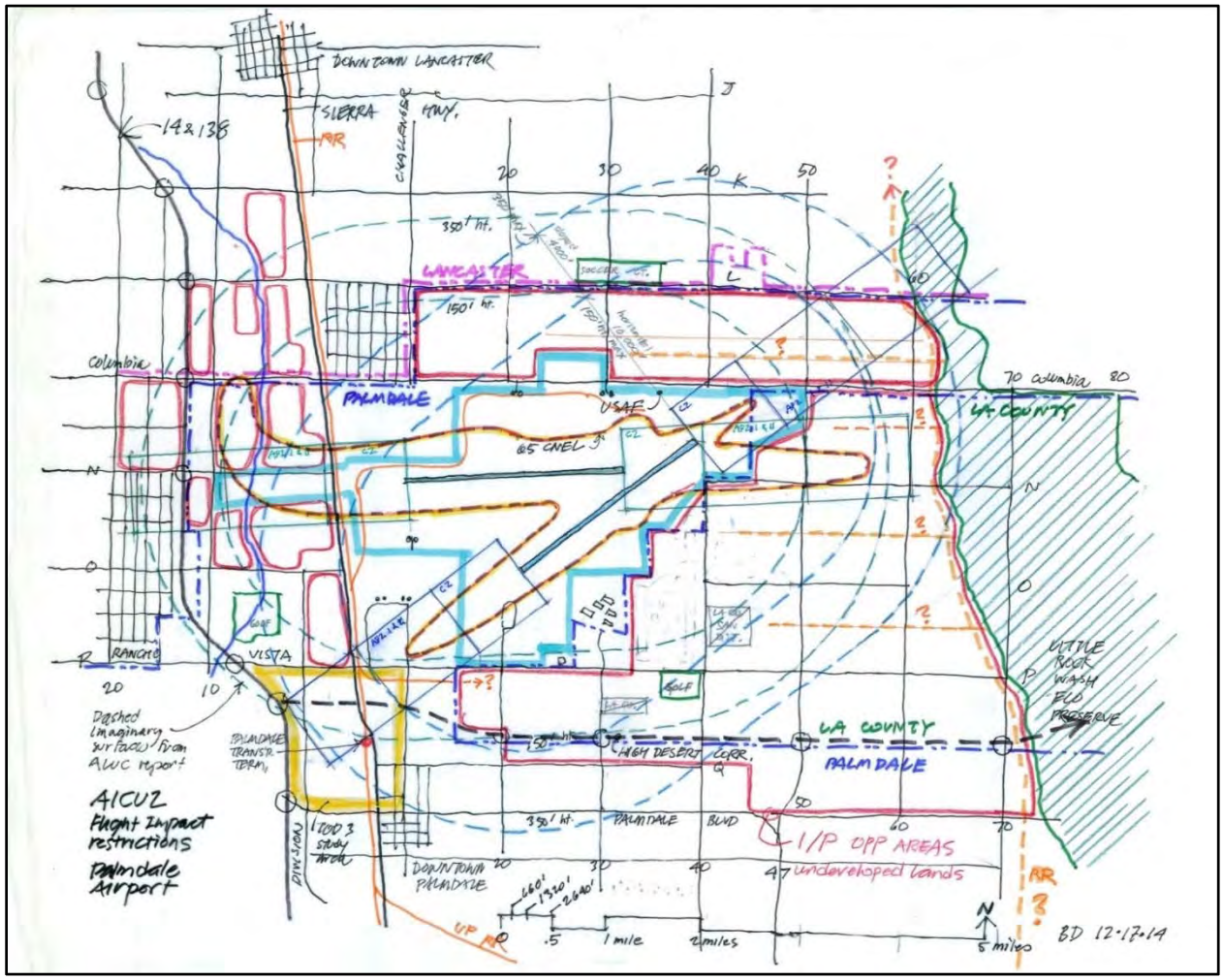


Figure 4-22: Areas 2, 3, & 4 - Palmdale Airport Flight Impact Restriction

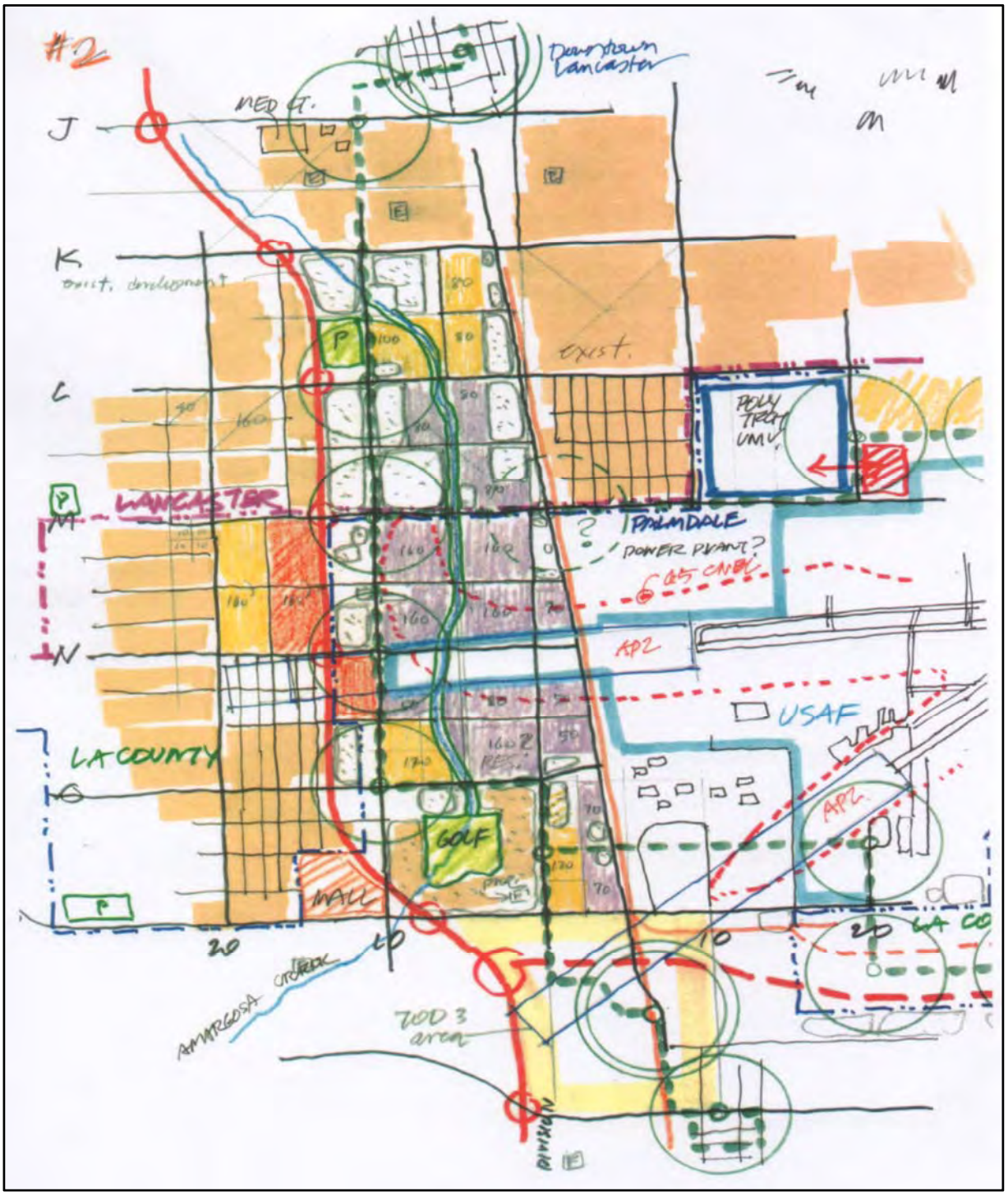


Figure 4-23: Area 2 - Palmdale Airport Westside Sketch Plan

Table 4-7: Area 2 Summary Land Uses (Gross Estimated Acres)

Jurisdiction	Land Uses	Acreage
Lancaster:	Industrial	240 AC
Lancaster	Residential	150 AC @ 20 du/ac= 3,000 du @ 2.2 = (±) 6,644 Residents
		15 du/ac= 2,265 du @ 2.2 = (±) 4,983 Residents
Sub-total Lancaster		**391 AC**
Palmdale	Industrial	1,030 AC
Palmdale	Residential	266 AC @ 20 DU/AC= 5,320 du @ 2.2/du = (±)11,704 Residents
Palmdale	Commercial	80 ac (70 AC Office; 10 AC Local Retail)
Sub-total Palmdale		**1,376 AC**
LA County	**Residential**	97 AC @ 20du/ac= 1,940 DU@2.2/du= (±) 4,228 Residents
LA County	**Commercial**	160 AC
Sub-total LA County		**257 AC**
Area 2 Total Gross Acreage:		**2,024**

Area 2 Summation

Opportunity Area (2) has significant potential for industrial development, warehousing & distribution and workforce housing with community support uses. There is the possibility for truck based freight terminal/distribution facilities.

4.5.5. Area 3 Vision Concept – Palmdale Airport Northside

This linear area contains approximately 3,150 gross acres of undeveloped land. It is proposed that a site be allocated for a proposed Cal State Antelope Valley Polytechnic University at the western end between 10th St. East and 20th S. East. This location would be centrally situated near the urbanized Lancaster/Palmdale area straddling the City boundary. This site is also near the major connecting roads of Sierra Highway and SR14 Freeway and would connect nearby existing housing for faculty and students until workforce housing is built. It is also proposed that a community commercial center contiguous to the campus be provided as the important "town-gown" commercial village relationship for off campus needs.

Industrial use is proposed along the Ave. M truck route with potential rail spur service from a potential future Union Pacific RR extension from the south along the west side of the Little Rock Wash Eco Preserve. A portion of the APZ corridor from runway 4-22 (diagonal) overlaps the industrial area but permits most industrial uses. A truck terminal could be sited in this area between 30th St. East and 40th St. East closest to Sierra Highway and SR14 Freeway.

Workforce housing at medium density for live/work opportunity and a more walkable & bikeable urban character, is proposed in the northerly half of these sectors between 20th St. East and 50th St. East, which would contain local parks. Support retail sites at TOD stations on a branch local transit corridor extending

east from the north/south corridor along 10th St. West is also proposed. An elementary school will likely be required for school age children generated by the workforce housing.

The multitude of small parcels however creates a land assembly challenge to attaining integrated planning and development.

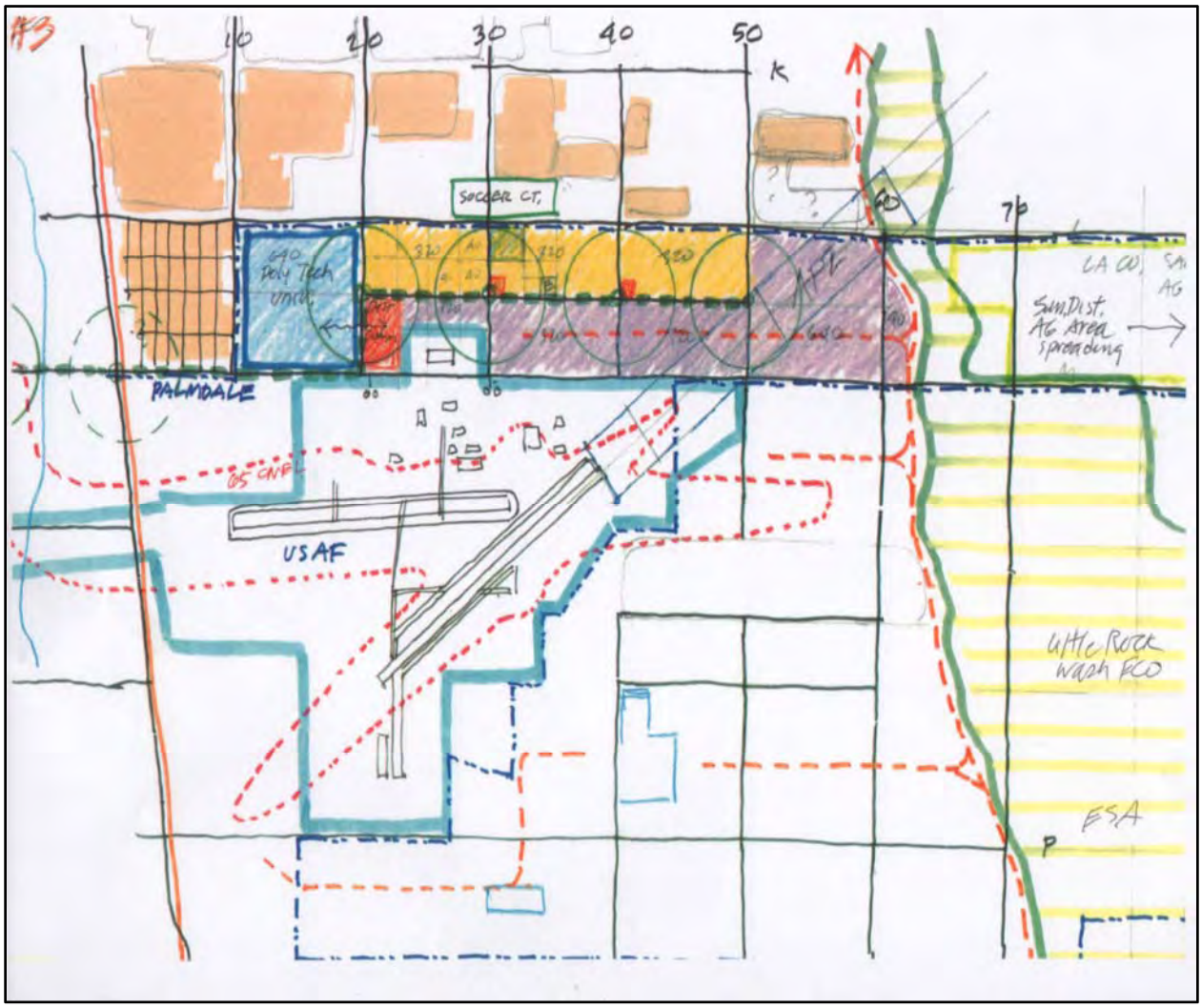


Figure 4-24: Palmdale Airport North Sketch Plan

Table 4-8: Establishments by 2-Digit NAICS Industry Codes

Jurisdiction	Land Uses	Acreage
Palmdale	**Industrial**	**1,490 AC**
	Residential	920 AC @ 20du/ac= 18,900 DU@ 2.2/du=(±) 40,480 Residents
		@ 15du/ac= 13,800 DU @ 2.2 du/ac=(±) 30,360 Residents
	Commercial	
	Community Center	80 AC
	Local Retail	20 AC
Sub-total Commercial		**100 AC**
	Poly Tech University	**640 AC**
Area 3 Total Gross Acreage		3,150 AC

Area 3 Summation

Opportunity Area 3 has significant potential for industrial development, warehousing & distribution and workforce housing with community and major institutional support uses. There is the possibility for truck and rail based freight terminal/distribution facilities.

4.5.6. Area 4 Vision Concept LA County (LAWA Property & City of Palmdale)

This opportunity area contains approximately 6,860 gross acres. The undeveloped land area resource adjacent to the Palmdale Airport is limited on the east by the Little Rock Wash Ecological Preserve. It also contains two sites for the existing LA County Sanitation District treatment facilities. The site is unique among the four opportunity areas in that it can provide all three modes of goods movement (air cargo, rail and truck), and it is virtually all owned by a single entity, LAWA (Los Angeles World Airports), affording the ability for integrated planning, avoids acquisition challenges, and allows coherent development phasing.

The bulk of the industrial/business park use is proposed north of Rancho Vista Boulevard (Avenue P) between the airport and the Little Rock Wash Eco Preserve. An additional corridor of industrial uses is proposed flanking the future High Desert Corridor (HDC) SR138 Freeway in the westerly portion where early planning and development could begin. Rancho Vista and HDC (with interchanges at 20th, 30th and 50th Streets) are truck routes. To facilitate the LA County Sanitation District's need for spreading grounds of the effluent, landscaped buffer zones (±300' width) along the major arterials can provide land for spreading with agriculture and landscape nurseries, runoff retention basins, with native vegetation and recreational trails. Flowering vines on security fencing could produce enhanced buffer edges to these industrial superblocks with primary access from internal collector street systems customized (built-to-suit) to serve varying site sizes throughout these blocks. An air cargo depot can be developed with taxiway access directly off the existing taxiways. Freight terminals can be sited north of Rancho Vista Boulevard

west of 40th Street east, where they can be served by both truck and rail extension from the existing north-south line along Sierra Highway. A new rail line can be extended north from the Union Pacific line at the south side of Palmdale running along the west edge of the Little Rock Wash Eco Preserve with spurs extending west into the various industrial superblocks as needed.

Workforce housing at medium density is advocated south of Rancho Vista Boulevard and the HDC buffered (residential set-back 500 feet minimum for air quality and health purposes) by mixed commercial-office, retail corridors along the north side of the HDC Freeway. The Team proposes an additional area situated within the City of Palmdale boundary north of Palmdale Boulevard to support the live/work prospects. These residential sectors with urban character and pedestrian/bike ways would have local recreation resources, perhaps a community-scale park co-located with an elementary school and local retail at TOD stations along an east-west local transit line extending off the north-south main corridor. The main north-south corridor is 50th Street East designated Expressway in the City of Palmdale Master Transportation Plan, 2015. The transit system would also serve a new airport passenger terminal at Palmdale Airport. The advocated transit system would serve a potential commercial zone along Rancho Vista for hotels, restaurants, office and business park uses stimulated by the resumption of passenger activity and as the "gateway" into this opportunity zone coming from the west as well as from the HDC. A regional commercial center plus additional community scale commercial is proposed in the City of Palmdale General Plan at 50th Street East and Palmdale Boulevard to the south, which will provide additional services to this industrial and residential area.

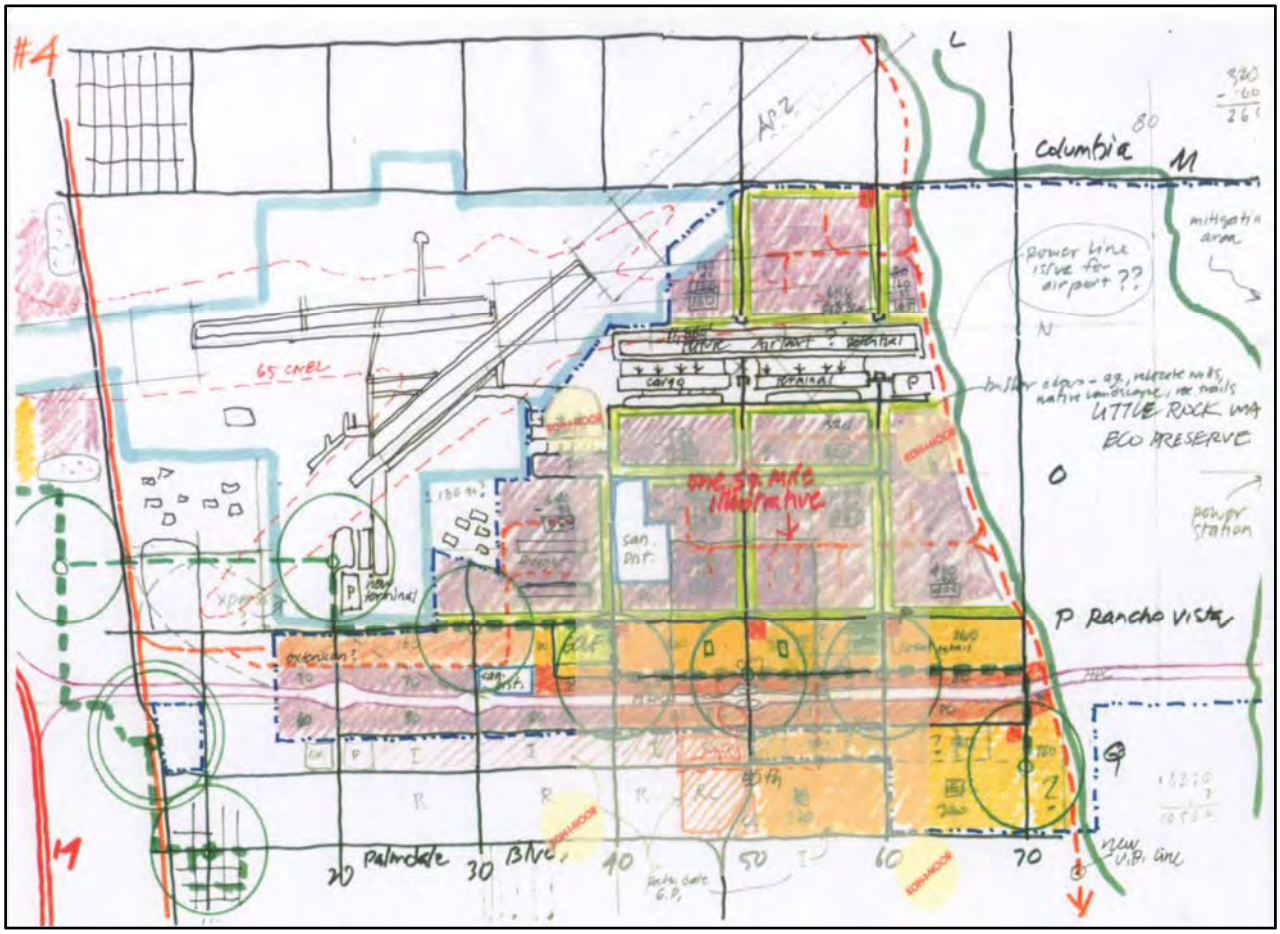


Figure 4-25: Area 4: Palmdale Airport South & Eastside (LA CO/LAWA)

Table 4-9: Establishments by 2-Digit NAICS Industry Codes

Jurisdiction	Land Uses	Acreage
LA County	Industrial	**3,965 AC**
	Air Cargo Depot	**206 AC**
	Kinkisharyo (previous SR Technics site)	**180 AC**
	Sub-total Industrial	**4,865 AC**
LA County	Residential	906 AC @20du/ac=18,120 DU@2.2/du = (±) 39,864 Residents
Palmdale	Residential	195 AC @15du/ac= 2,925DU@2.2/du= (±) 6,435 Residents
	Commercial	
LA County	Office, Hotel, Restaurant, other support retail	795 AC
	Local Retail	100 AC
	Sub-total Commercial	**895 AC**
Area 4 Total Gross Acreage		**6,860**

Area 4 Summation

Opportunity Area 4 has significant advantages and potential for industrial development, warehouses and distribution; it also has supportive workforce housing community development uses on the south side of the area. In addition, it has major potential for development of multimodal (truck and rail) freight terminal/distribution facilities. There is a strong potential for air cargo as well.

4.5.7. Area 4 LA County/LAWA Conceptual Master Plan

The following conceptual master plan has been prepared for Site 4 LA County/LAWA Opportunity Area for purposes of illustration. The following list includes the key elements specific to this conceptual plan:

- Integrated Specific Plan - single ownership development – incorporates land use buffer zones
- Multimodal goods movement industrial development: air cargo, rail, truck
- Logical development phasing progresses West to East
- Potential for RR spur extension from existing N-S main line on West – subject to further usage and capacity availability analysis which was beyond the scope of this study
- RR connection from potential new eastside along Little Rock Wash E.S.A.
- Possible air cargo depot served by proposed taxiway extension from the diagonal runway 4/22
- Possible freight terminals @ Rancho Vista & 40th E. in early phase
- Access from four interchanges on HDC (20th E., 30th E., 50th E. and 70th E.)
- 50th E. Expressway north-south principal “spine” for industrial

- Internal collector streets serving industrial and office parks
- Mixed-use commercial – capture future air passengers and serve as residential buffer
- Various workforce housing types – close to jobs
- Proposed local transit circulator connections to regional network

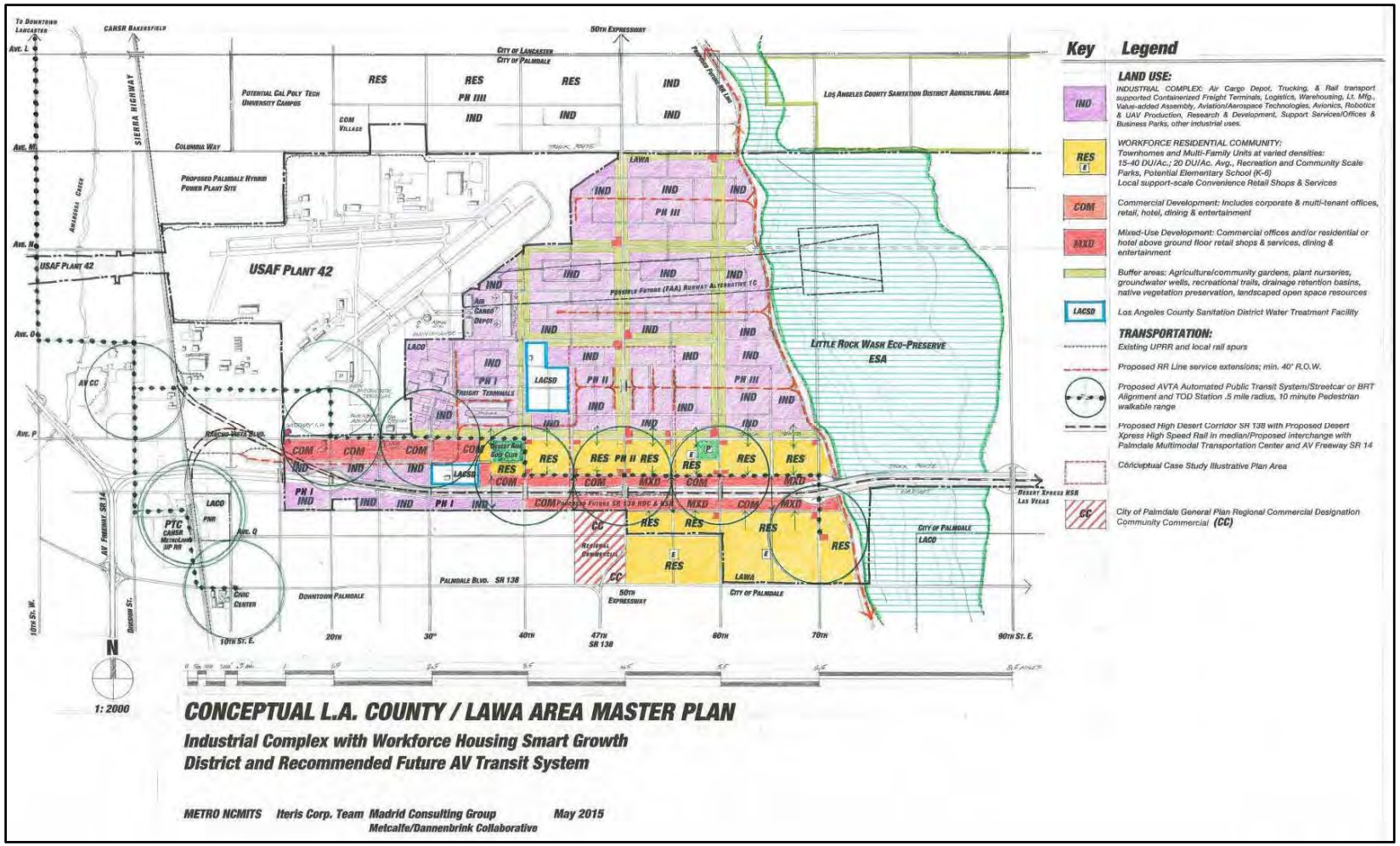


Figure 4-26: Area 4 Conceptual LA County LAWA Master Plan

4.5.8. Area 4 Conceptual Case Study – Industrial/Workforce Housing Illustrative Plan

The following illustrative plan can be viewed as essentially generic and applicable to all four Opportunity Areas. The plan has been prepared for Site 4 LA County/LAWA Opportunity Area for purposes of illustration. The following are the key elements of the plan:

- A "view window" Case Study portion of integrated industrial/workforce housing
- Industrial north of Rancho Vista (Avenue P)
  - Served from internal collector streets
  - Varied site sizes and uses
  - Containerized RR and truck service intensive
  - Office/Business Park uses integrated as part of mix
  - Planned development range from 3 million up to 7 million GSF or more
- Buffer zones along arterials
- Workforce housing South of Rancho Vista Boulevard
  - “Fine grain” mix of varied housing types/townhomes, multi-family apartments (15-40 du/ac-20 du/ac average)
  - Smart Growth/Compact Development Urban Character
  - Small neighborhood parks & H.O.A. recreation centers
- Residential collector streets link to adjacent neighborhoods and arterials with Ped/bikeways
- Transit (Complete) Street bordering housing and mixed use commercial
- Ped/Bike: linkage to employment and service areas by off-street easement
- TOD station at 50th Street E. Expressway and Local Transit (Complete) Street

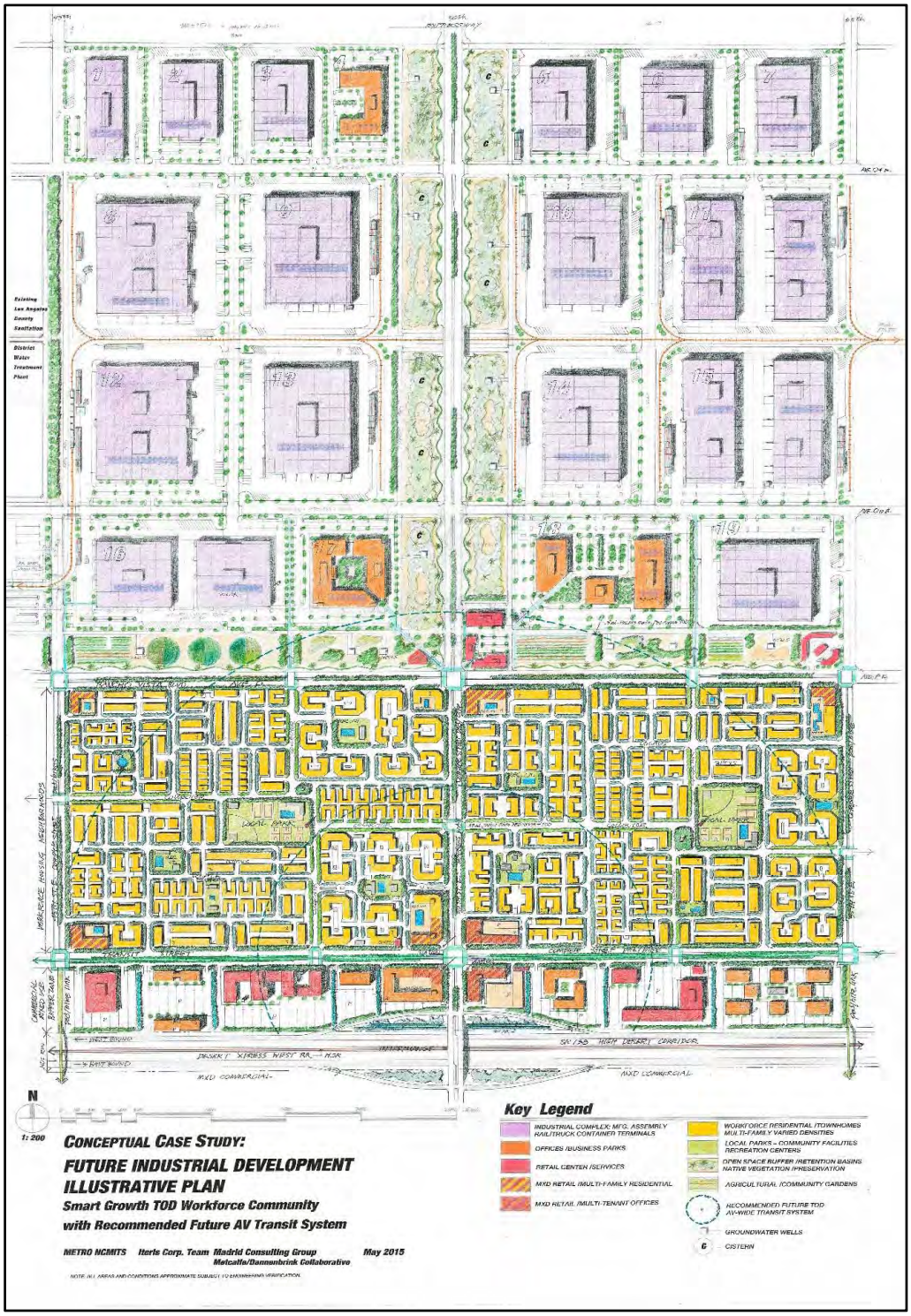


Figure 4-27: Area 4 Future Industrial Development & Workforce Housing Plan

Area 4 - 3D Aerial View TOD Axonometric Illustration

The following graphic has application to all four Opportunity Areas. It has been prepared for Site 4 LA County/LAWA Opportunity Area for purposes of illustration. The following are the key elements of the plan:

- 3D vision of potential development at TOD station (50th and Local Transit Street)
- Mixed-use higher density corners (40-50 du/ac):
  - Defined street edges
  - Street-front Retail ground floor to animate sidewalks
  - Office or apartments upper floors
  - Podium or structured parking (possible Park and Ride/PNR sharing)
  - Bike Rental Stations and Childcare Centers serve transit ridership
- Rooftop uses:
  - Gardens (mitigate heat gain)
  - Communal gathering places shelters
  - Solar collectors
- Complete Streets:
  - TOD Pedestrian amenities-shade, benches, active facades, shops, cafes, building entries
  - Streetscape design - street trees, pedestrian plazas, furnishing and fixtures
  - Bike lanes and potential full-service Bike Station
- Local transit shelters (color coordinated with transit vehicles)/solar on roofs
  - Flags, banners, special lighting to punctuate place-making locations in cityscape

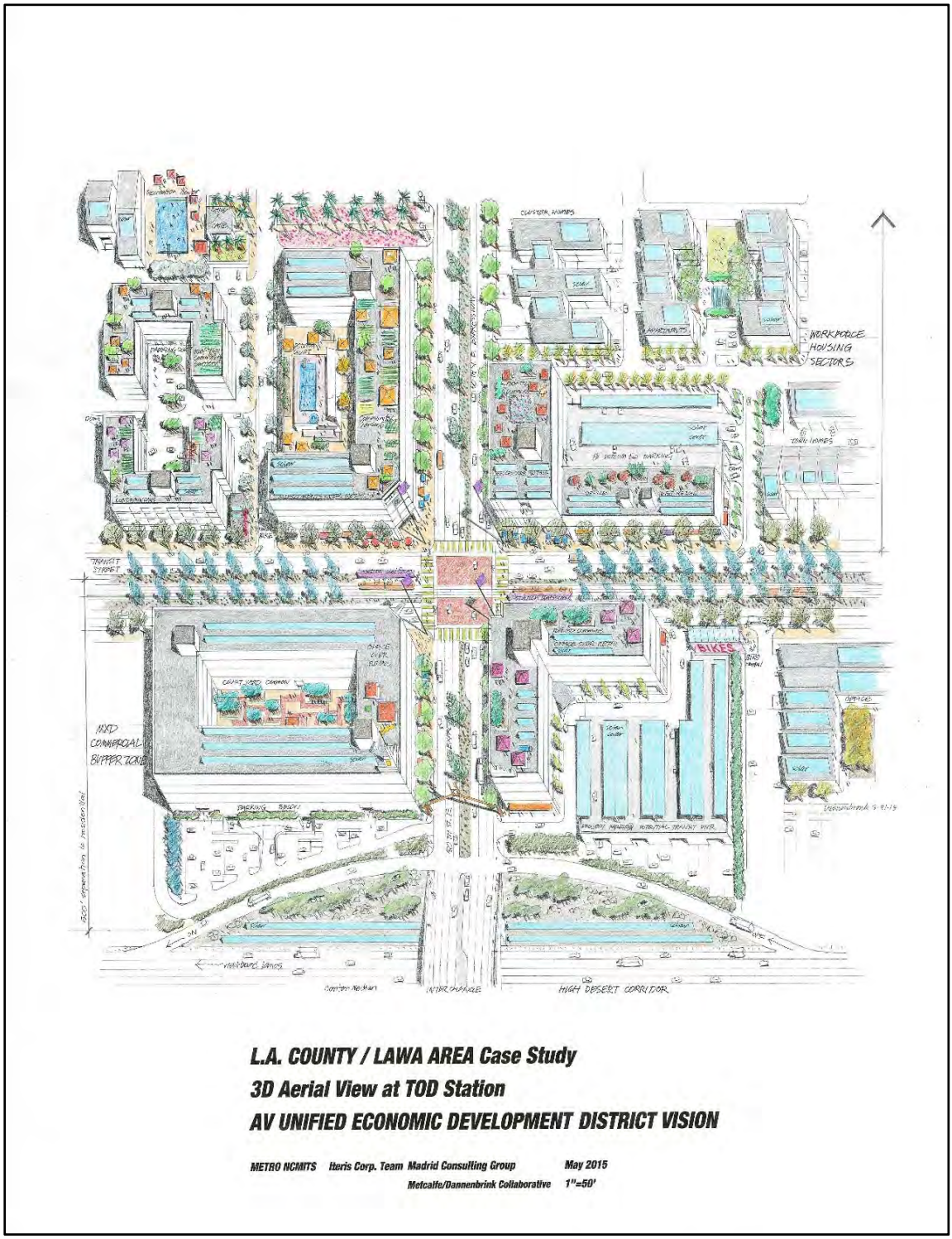


Figure 4-28: Area 4 - 3D Aerial View TOD Axonometric Illustration

Figure 4-29: Generic Birdseye View TOD Intersection - Workforce Community

Example of proposed mixed use (retail ground office or housing above) higher intensity at transit stops to generate passengers in the TOD.

Figure 4-30: Workforce Community Mixed-use TOD: Typical Generic On-Street View

Example of proposed mixed uses at transit stops with defined streetscapes, pedestrian streetscape amenities, bike lanes, retail, restaurants, cafes and such establishments to activate street life.

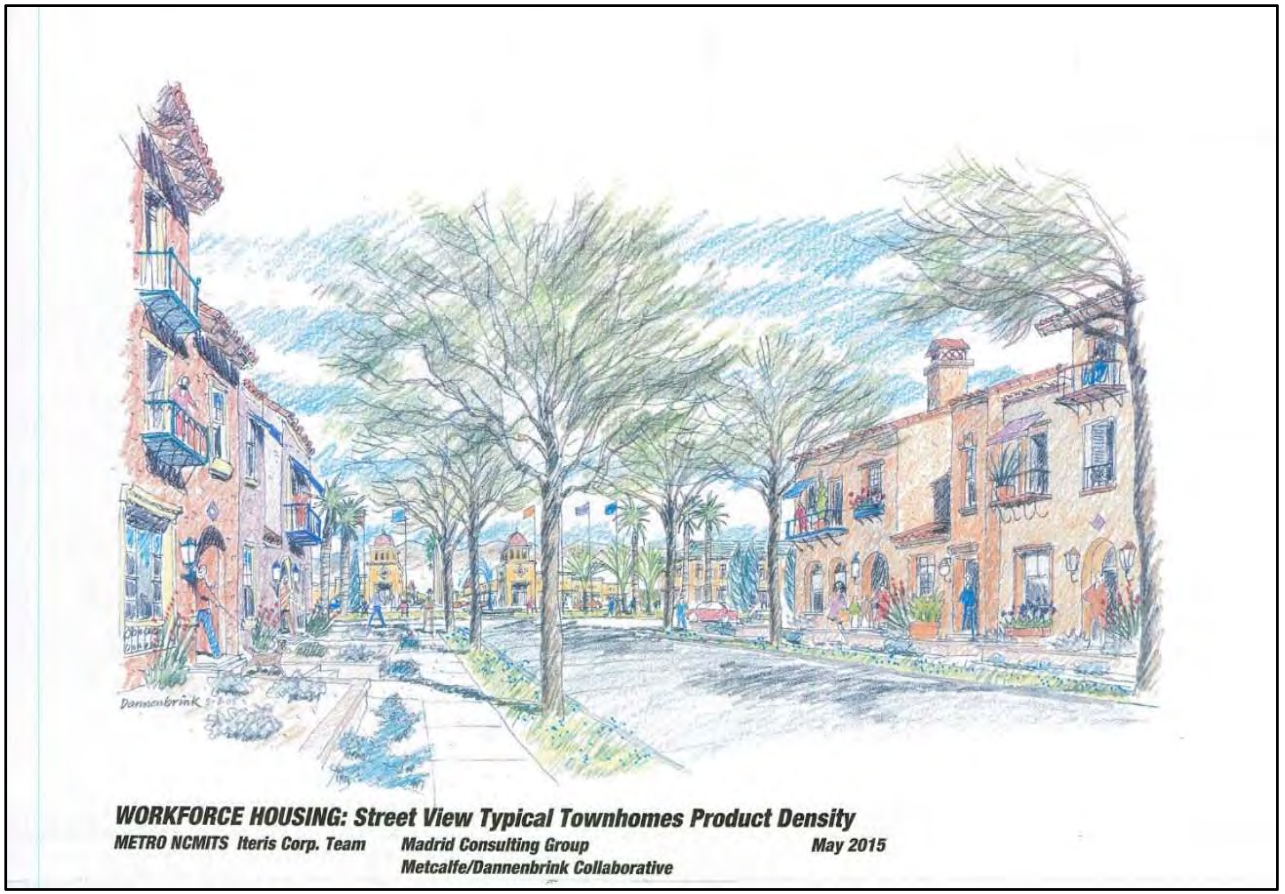


Figure 4-31: Workforce Housing: Street View Typical Townhouse Product Density

Examples of local urban residential street edge character definition with housing entry continuity for enhanced pedestrian and biking amenity.

Figure 4-32: Workforce Housing: Off-Street View with Typical Local Open Space

Example of a small local recreation space within a medium density housing development with sustainable drought tolerant landscaping.

Figure 4-33: Amargosa Creek: Eco-Flood Control Corridor/Recreational Trails

Example of potential treatment of drainage washes as combined flood control/recreational trail "eco" corridors with native landscape to provide linkages of large sections of the cities.

4.6. Economic Impact Analysis – Selected Case Studies

4.6.1. Economic Impact Introduction

This MultiModal Freight Transfer Facilities Study is principally driven by the AV community's desire to enhance local economic development, better utilize existing infrastructure and transportation facilities, and take advantage of other existing and planned local assets. A major task of the Study was to identify potential sites that could accommodate such freight distribution and industrial development as well as provide for the associated workforce housing and related supportive community elements. In other chapters, four major opportunity sites within the AV study area region were identified that could accommodate such industrial uses and supporting community development. The purpose of this task therefore is to estimate the direct and indirect economic and fiscal impacts of selected hypothetical developments if they were to be built within the AV Study Areas. The detailed economic analysis are contained in Appendix 4.6.

Understanding the economic effects of these hypothetical real estate development projects can help decision-makers with planning and implementation of land use and economic development strategies, programs, and projects such as:

- Allocation of resources among competing projects
- Assessment of investment policies
- Data with which to better assess business attraction and retention strategies
- Putting "hard numbers" to policy strategies to test their efficacy
- Identifying a possible source of project financing from these new fiscal revenues

4.6.2. Economic Impact Analysis Methodology

Economic Impact Analysis (EIA)

Economic Impact Analysis (EIA) examines the effect (change) of an event such as an industrial/commercial real estate development on the economy in a specified area. Such studies usually measure changes in business revenue, business profits, personal wages, and job creation. In this case, we are examining certain economic and fiscal impacts of selected industrial sectors within hypothetical industrial/office development projects, which could be developed within the AV Study Areas. Conceptual development plans of how and where these developments could occur are presented in other chapters (**Figures 4-26, 4-27, & 4-28**).

The EIA analysis is undertaken with the IMPLAN economic impact assessment software system provided by the Minnesota IMPLAN Group. The software combines a set of extensive databases containing economic factors, multipliers and demographic statistics within a highly refined modeling software. The model utilizes data sources such as the U.S. Bureau of Labor Statistics, the U.S. Census Bureau and the Bureau of Economic Analysis of the U.S. Department of Commerce. Data is regionalized, so it reflects and

incorporates local conditions such as prevailing wages rates, expenditure patterns, and resource availability and costs.

Impact Phases and Study Geography

The analysis presented herein includes the expenditures made and outputs produced during the construction phase as well as the ongoing operations phase. To conduct the impact analysis, the geography of a particular economy must first be defined. In this case, the economy to be studied is Los Angeles County, based on the assumption that most of the suppliers and workers are located within the county borders since these actual inputs are unknown until the actual development is constructed.

Impact Outputs Definitions

The output metrics used to express the value of the economic impacts include total employment, labor income and the value of total economic output within the study area. The employment output includes full-time, part-time, permanent, and seasonal employees, as well as the self-employed. These are measured on a job-count basis (absolute number of employees, not FTE) regardless of the number of hours worked. Labor Income includes all income received by both payroll employees and the self-employed, including wages and benefits such as health insurance and pension plan contributions. Economic Output is the total value of the goods and services produced. For most industries, this is simply the aggregate revenue generated through sales; for others, in particular retail industries, output is the added value of the services supplied. Unless noted otherwise, estimates for labor income and economic output are expressed in 2012 dollars, the latest data available at the time of Study initiation.

4.6.3. Source of Impacts

Economic impact analyses can also be estimated based on the sources of the impacts. Each impact can be deconstructed into different components, depending on the effect that caused the impact. *Direct effects* for example are the results of the money initially spent in the study region by the business being studied. This includes money spent for construction, salaries, supplies, raw materials, and operating expenses. The direct effects from the initial spending create additional activity in the local economy. *Indirect effects* are the results of business-to-business transactions indirectly caused by the direct effects. Businesses initially benefiting from the direct effects will subsequently increase spending at other local businesses. The indirect effect is a measure of this increase in business-to-business activity (not including the initial round of spending, which is included in the direct effects). *Induced effects* are the results of increased personal income caused by the direct and indirect effects. Businesses experiencing increased revenue from the direct and indirect effects will subsequently increase payroll expenditures (by hiring more employees, increasing payroll hours, raising salaries, etc.). Households will, in turn, increase spending at local businesses. The induced effect is a measure of this increase in household-to-business activity.

4.6.4. Case Study Areas

This section summarizes nine examples of prototypical industrial and office-park developments; *most of which could be developed in any of the four Study Areas.* A required input to the IMPLAN Impact model is a delineation of a specified industry sector at the four-digit NAICS code level (North American Industrial Classification System). Each of the following case study scenarios have, therefore, been assigned an industry sector at the four-digit NAICS code level for purposes of analysis.

4.6.5. Drivers & Demand Context – Industrial/Warehouse Development

The following overall employment and industrial/warehousing growth projections were utilized as baseline factors in the formulation of the economic impact analysis. The assigned industry sectors by NAICS codes used in the analysis are assumptions based on the expansion and growth of existing AV industries. The square footage and amount of development shown in these case studies are assumed to be attainable based on forward-looking market and economic assumptions that could occur over a 10-30 year development period.

The Antelope Valley is an extensive economic region encompassing over 3,000 square miles that includes five incorporated cities and portions of Los Angeles and Kern Counties. For purposes of this Study, we have focused exclusively on the Los Angeles County portions of the AV. The Antelope Valley provides an environment conducive to economic growth and offers a business-friendly climate. These advantages were outlined in Section 4.3.5.1 Economic Opportunities and depicted in the AV Development District Network Diagram **Figure 4-13**.

4.6.6. Case Study Results Summary

Table 4-10 summarizes the results of the economic impact analysis detailed in the Appendix C item 4.6. The detailed analysis concludes that if these nine hypothetical projects within the designated industries were developed, totaling 3.3 million square feet, approximately 7,600 jobs would be created, equal to a 10% increase in the number of all 2014 jobs located in the cities of Palmdale and Lancaster.

Table 4-10: Case Study Jobs Impacts Summary

Case Studies - Examples of Industrial and Office Developments – Job Impacts

Building Type and/or Uses	NAICS Ind. Code	NAICS Description	Floor Area GSF	Total New Employees
Lt. Mfg.. Prod.	3231	Printing & related	500,940	1,082
Lt. Mfg.. Prod.	3329	Other Fabricated metal prod	246,375	532
Lt. Mfg.. Prod.	3345	Navigation Measuring	451,282	970
Lt. Mfg.. Prod.	3364	Aircraft Manufacturing & related	246,375	532
Lt. Mfg. Prod.	4841	Truck Terminal	339,500	795
Lt. Mfg.. Prod.	3391	Medical supplies Equip	507,500	1,096
Lt. Mfg.. Prod.	4251	Wholesale Elect markets	624,824	1,350
Multi-tenant Office	5415	Computer Systems Design	172,497	520
Multi-tenant Office	5417	Scientific Research and Development Services	245,000	738
Totals			3,334,293	7,615
Avg. Jobs PSF				438
Total existing combined jobs Lancaster and Palmdale (2014)				78,328
Percent Increase				10%

Table 4-11 presents the same nine hypothetical projects and the estimated development costs and floor areas. The IMPLAN software output shows the estimated state and local taxes that would be generated by these potential developments. For purposes of illustration only, the examples assume an overall tax rate of 7.5%; however; this amount could be higher within certain jurisdictions.

Table 4-11: Case Study Tax Impacts Summary

Case Studies - Examples of Industrial and Office Developments – Tax Impacts

Building Type and/or Uses	NAICS Description	Floor Area GSF	Total Dev. Cost	State & Local Sales taxes	State & Local Property Taxes
Lt. Mfg. Prod.	Printing & related	500,940	31,144,000	$2,937,418	$2,593,592
Lt. Mfg. Prod.	Other Fabricated metal prod	246,375	$55,501,000	$5,919,600	$5,226,708
Lt. Mfg.. Prod.	Navigation Measuring	451,282	$60,000,000	$12,433,244	$10,977,928
Lt. Mfg. Prod.	Aircraft Manf. & related	246,375	$29,500,000	$9,540,550	$8,423,825
Lt. Mfg. Prod.	Truck Terminal	339,500	$40,588,000	$2,057,964	$1,817,079
Lt. Mfg.. Prod.	Medical supplies Equip	507,500	60,663,000	$5,191,375	$4,583,723
Lt. Mfg. Prod.	Wholesale Elect markets	624,824	76,144,000	$43,400,824	$38,320,743
Multi-tenant Office	Computer Systems Design	172,497	$35,608,000	$1,769,000	$1,563,000
Multi-tenant Office	Scientific Research and Development Services	245,000	$49,286,000	$2,556,088	$2,256,897
Totals		3,334,293	438,434,000	85,806,063	75,763,495
Overall Sales Tax Distribution	7.50%	Share to Jurisdictions			
State	6.50%	86.7%		$74,365,255	
Local Jurisdictions (place of sale)	0.75%	10.0%		$8,580,606	
Local Transportation Fund	0.25%	3.3%		$2,860,202	

4.7. Summary and Implementation Recommendations

This report section presents a brief report summary and implementation recommendations in pursuit of the Study Goals.

4.7.1. Summary

Goods movement traffic in Southern California by all modes is projected to increase significantly, which is fueled by the continuing economic growth of the region and the increasing importance of international trade in the national economy. In addition, population growth will exacerbate congestion trends and increased land use competition, while creating even larger internal and domestic freight markets. Port facilities also face significant internal capacity constraints, hampering the region's ability to handle greater, future international freight movements. Air quality management is also another significant issue facing transportation planners in Southern California. Southern California also faces land use-related problems with regard to sprawl and spiraling land prices which have significant consequences for freight facilities in the region. Ports, airports, intermodal terminals, and truck terminals frequently abut built-out industrial, residential, and commercial areas, creating land-use conflicts and limiting the ability to expand

existing facilities. Truck operators face increasing parking and traffic route restrictions in cities throughout Southern California. These conditions will, therefore, eventually require freight distribution centers to seek alternative, more remote, suburban locations.

As indicated, these conditions create opportunities in the AV for meeting the needs of goods movement markets. Although critical international trade and inland port markets and development factors do not yet exist in the Antelope Valley, it can develop plans to attract and local/regional-serving goods movement markets. As discussed development of facilities serving domestic goods movement markets are a precursor to attracting international trade.

In this regard, several sites were assessed with regard to development of industrial and related community development land uses. These sites could accommodate freight distribution and are situated within the vicinity of the Fox Field and Palmdale Airports. These four Opportunity Areas total over 19,000 acres located within the communities of Lancaster, Palmdale, and LA County. Together, these areas are referred to as "the Unified Economic Development district." Opportunity strategies, graphic vision plans, case studies, illustrative plans, economic opportunities, and economic impact studies were developed to demonstrate how the study goals could be met. These development plans can produce the desired economic goals with or without an inland port.

The long-term development of multimodal freight transfer facilities could occur in spurts and be phased over a long gestation period. The early stages may entail small conventional or free-standing industrial parks or stand-alone buildings served by truck transport, limited air cargo and possibly limited rail cargo service. As users develop over time, more supply-chain type anchors may be induced. As sufficient supply-chain type users are induced, the demand for more goods processing, consolidation, and distribution related uses may occur. As these uses develop, the AV region could evolve into a multimodal "logistics type industrial park." Also, as these freight logistics-related uses and value-added services grow, the potential to attract international trade from the ports may increase. As port-related trade and users are attracted, then more port-related support services and facilities can also be attracted. These components include trade zones, shippers, consignees, truckers, brokers, and other commercial entities that interact and behave as a satellite terminal for the marine ports. As the goods movement demand grows and possible rail financial subsidies can be identified, it may become possible to induce critical rail capacity that can lead to transport of international trade from the ports.

4.7.2. Economic Development Policies

The following are suggested economic development-related polices:

- Promote economic development in the Antelope Valley – ideally driven or anchored by industrial development, freight transfer/distribution, and associated community development uses as illustrated in the Report plans.

- Focus business attraction efforts on existing technologies and industry clusters that the AV dominates now – i.e., aeronautical/aerospace systems, unmanned aerial vehicles, guidance systems.
- Integrate industrial strategies with economic development strategies – aggressively court cutting-edge firms experimenting with "drone delivery" technologies, allowing AV to become the prototype testing market.
- Take advantage of existing AV assets such as relatively low-cost developable land, multimodal transportation assets, airport facilities, supportive development regulations, and other such elements.
- Take advantage of existing and planned transportation systems (HDC, CAHSR, Palmdale Airport revival, etc. – that can help facilitate freight development and eventually attract Inland Port-related uses.
- Plan and encourage freight distribution and terminal facilities that can enhance the conditions necessary to attract local/regional/ domestic freight and possibly international trade.
- Retain and attract desirable businesses and industry clusters – that require goods movement and supply chain facilities.
- Provide as many ancillary supportive uses that can help create development synergy – related office space, local-serving retail and services, community linkages and connections to the Palmdale City Transportation Center, workforce housing, etc.
- Create a favorable development environment that will attract "value added" uses that can attract international trade.
- Incorporate sustainable development policies into all aspects of future development.
- Create a Joint Powers Authority to help implement an AV region-wide economic development strategy.
- Support and help further Metro and SCAG's RTP transportation goals of:
  - Promoting local and regional job creation and retention
  - Increasing freight and passenger mobility and enhancing regional logistics and supply-chain conditions
  - Improving the safety of goods movement activities
  - Mitigating environmental impacts of goods movement operations (in particular reducing congestion, VMT, truck traffic and related RTP goals)

4.7.3. Key Planning Principles

- Maximize existing transportation infrastructure
- Develop pursuant to master plans that allow phasing
- Create multi-jurisdictional organizational framework for regional approaches
- Incorporate sustainability and Smart Growth principles into all plans

- Create synergy with existing uses and opportunities
- Incorporate TOD – mixed-uses compact development
- Incorporate new/innovative markets –technology
- Create plans that produce advantages and opportunities for grant funding
- Maximize coordination and site location with community-building institutional development, such as the High Desert Master Plan for Higher Education (by AVBOT, March 2007)

4.7.4. Economic Development Strategies

The following diagram outlines many of the ED strategies discussed in this report.

Figure 4-34: Economic Development Strategy Elements Diagram

4.7.5. AV Unified Development District

The challenge is how to accommodate future economic and goods growth movement in the context of heavily congested transportation facilities, regulatory constraints, increasing concerns about transportation safety and security, growing land use conflicts and constraints, and the complexity of regional governance and institutional relationships. For example, Southern California includes four district offices of the state department of transportation, 14 sub-regional councils of government, six county

transportation commissions that program transportation funds, and 184 cities. Needless to say, this is an extremely difficult environment within which to plan for freight transportation systems that transcend multiple jurisdictional boundaries within the region. Moreover, freight projects do not respect jurisdictional boundaries.

In an area as complex as Southern California, this creates an extremely complex planning process for such projects. Thus, freight projects and especially inland port projects will require the coordination of numerous local and regional agencies. To meet this challenge, unique institutions are needed to address these multi-jurisdictional issues and mechanisms to help bring a consensus to planning and development objectives. For example, the joint powers agency model created for the Alameda Corridor is an example of one type of institution used to create such cooperative working arrangements. In AV, the Antelope Valley Transit Authority and the High Desert Corridor Authority are also prime examples. An Antelope Valley regional approach is recommended to be operated under a Joint Powers-type governing authority. Such an organization could produce the following advantages and benefits:

- A unified approach best helps create a stronger and more competitive governing entity
- The unified district concept best helps meet the NCMITS TAC Study goals:
  - Economic development
  - Best utilizes existing land, transportation, and existing facilities
  - Promotes inter-jurisdictional cooperation and increases opportunity
  - Help generate synergy and critical mass
- A unified approach helps generate more project elements– the greater the benefits and opportunity for multiple support from various interest groups (i.e., economic development, freight-related entities, sustainability groups, health, environmental, transportation, high-speed rail, etc.) and the greater the potential for more project resources.
- The unified district concept avoids the need to prioritize a single site at this time, since all four candidate areas require many elements to become a full-fledged competitive freight distribution location.
- Research shows that major freight distribution centers and inland ports develop in stages; therefore, it is important to adopt a master plan will help guide development in a manner that can best attain project goals over a long gestation period.
- The larger the area, the more development opportunity available; conversely, the more the Study Area is dispersed, the less chance for land speculation.
- The larger the area, the more parties or partners will contribute resources and support.
- The larger the area, the greater the chances for “land value capture” strategies akin to the redevelopment tax increment financing concept. A larger area also provides more opportunity for Infrastructure financing district strategies.

- The undeveloped Study Areas provide an opportunity for optimum integrated planning, potentially generating the following benefits:
  - Flexible Master Planning Framework
  - Maximize existing and planned transportation systems
  - Accommodate industrial and freight uses in a strategic manner
  - Incorporate sustainability, leading to Eco-Industrial Parks
  - Provide jobs/housing balance, thereby reducing commuter VMT
  - Attain multi-jurisdictional goals
  - Maximize district-wide economic development opportunities
  - Incorporate Smart Growth principles – denser, more intensive and compact mixed uses and TOD
  - Create synergy with existing uses and opportunities
  - Incorporate new/innovative markets – technologies
  - Incorporate physical planning elements and phasing that help meet funding requirements

Chapter 5 - RAIL TRANSIT INTEGRATION

5.1. Introduction to NCMITS Fixed Guideway Assessment

Rail-transit integration in North County represents a new approach to planning for transit services in the region, in which existing and planned fixed-rail and transit service investments are strategically connected to provide subregional and system-wide benefits. Integration involves linking station, alignment, design, route, and operational as well as financial planning processes in cost-effective ways.

Since the completion of the North County Combined Highway Corridors Study (NCCHCS) in 2004, new opportunities for a more integrated transit network in Northern Los Angeles County have emerged. Land use and transportation forecasts have changed, and transportation needs and planning have evolved for the subregion's three major population and employment centers of Santa Clarita, Lancaster and Palmdale. In addition, new mega-transportation projects have surfaced in the past ten years including:

- California High Speed Rail (CHSR) service to Palmdale Transportation Center in the City of Palmdale
- High Desert Corridor (HDC) and associated high speed rail service to Palmdale Transportation Center
- Metrolink investments in capacity and safety enhancements on the Antelope Valley Line to support the CHSRA "blended approach"

Fixed guideway transit provides one strategy towards rail and transit integration goals. The Federal Transit Administration (FTA) defines fixed guideway transit projects as projects which operate on a separated right-of-way exclusive to public transportation through dedicated lanes, signal prioritization and or rail or catenary system. Using the FTA definition, fixed guideway can include a variety of transit modes including shuttle, bus, rapid bus, bus rapid transit, streetcar, light rail, heavy rail, commuter rail, high speed rail and automated people movers.

The operational suitability of each transit mode depends on a variety of factors, including but not limited to, travel distance, travel time, ridership, employment and residential density, operating and capital costs**.** The high cost and complexity of implementing additional infrastructure and service investments requires analysis of the broader transit system and operational approach, the existing and future land-use conditions, and overall feasibility of accommodating either transit or rail connections as a future component of the larger transit and transportation system.

This assessment aims to evaluate the opportunities associated with potential new transit and fixed guideway investments that would support rail-transit integration, as well as long-term growth and transit needs for the study area. The study focuses mostly on identifying indicators of transit ridership in key

corridors, such as land use, growth and economic development scenarios and integrates previous and ongoing studies by LA Metro, Metrolink, CHSRA, local transit service providers, and local jurisdictions.

The results indicate that several corridors in the North County subregion are potential candidates for upgraded or higher capacity transit service, which may include exclusive right-of-way transit or fixed guideway service, to improve and support rail-transit integration in the study area. It is recommended that these corridors be prioritized for future enhanced transit service improvements as they provide essential connections to the existing and future planned rail-transit system.

5.2. Transit System Assessment

5.2.1. Transit Service Goals/Objectives

The goals of the North County subregional transit planning have evolved since the 2004 North County Combined Highway System Report; however, several general principles remain consistent:

- Provide multimodal transit alternatives (bus and rail)
- Increase convenience and competitiveness of transit services
- Plan for future growth and development
- Reduce congestion on roadways through mode shift

5.2.2. Transit Service Needs/Customer Demand

Ridership demand for transit service is a key driver in shaping the direction of transit service improvements. Ridership demand can be determined by understanding the needs of current and future riders, by identifying where primary locations for employment, residences, and other trip generators are located, as well as through surveys and discussions with local constituency. This study queried a focused group of local stakeholders to gain their knowledge and understanding of transit needs within the subregion. Stakeholders indicated support for improved multimodal connectivity to existing and future major transportation centers within the North County subregion, as well as improved interregional connectivity to surrounding counties; identifying the following near- and long-term needs:

- Convenient transit connections in Lancaster and Palmdale to current and future rail-transit service (Metrolink and future CHSR and Xpress West) at the PTC
- Improve transit connectivity to central/western Los Angeles County
- Develop convenient transit connections to Kern County, Ventura County, and Victor Valley
- Access improvements to Palmdale Regional Airport (when commercial air service resumes)

In addition to early identified needs, stakeholders also emphasized how Metrolink service and projects could support transit service goals and needs within the subregion.

Overall, stakeholders aimed to identify gaps within the subregional transit system to guide local service providers and jurisdictions in planning for connectivity to existing and future major transportation investments by Metrolink, CHSR, and HDC).

5.2.3. Transit Service Usage: Commute Patterns

As vehicular travel dominates more than 90% of the total mode share for North County, additional transit investments must be competitive with auto investments, service major residential and employment centers, and provide convenient and efficient service in order to attract riders, particularly choice riders **(Figure 5-1).** As is shown in Figures 5-2 and 5-3, auto travel times vary considerably, whereas the majority of transit travel times fall within the 45 to 60 minutes or more range. This difference could be attributed to the length and distance of transit-based commute trips or the relative lack of direct, fast connections to regional commute locations.

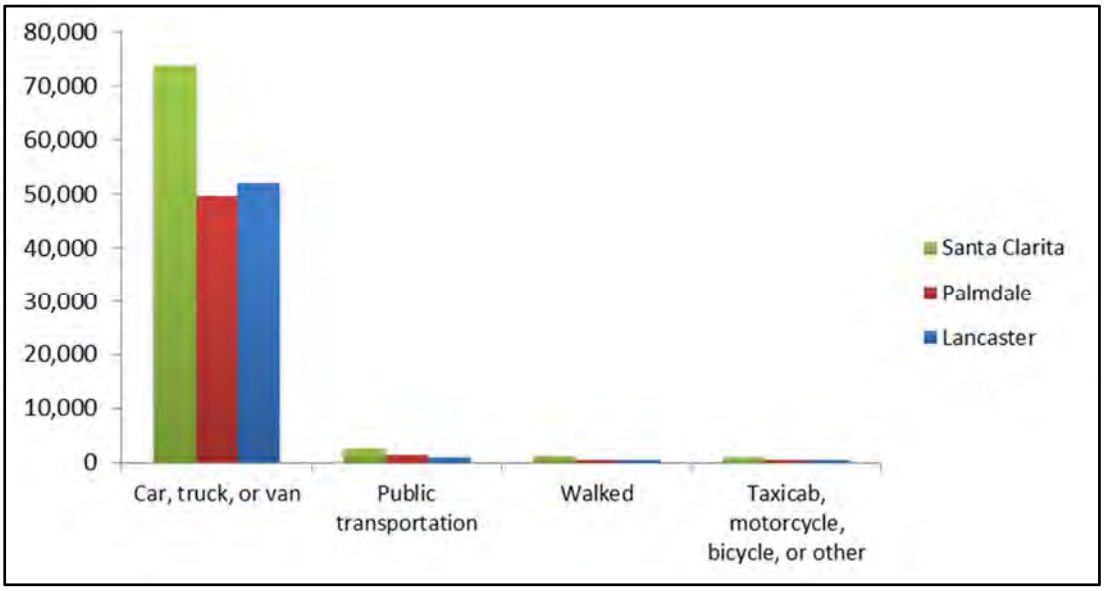


Figure 5-1: Means of Transportation to Work in North County

Looking in more detail at the commute times via auto, the curve of commute times for vehicles is U-shaped, indicating that commuters choose auto for either short, intracity trips or longer, intercity or regional trips **(Figure 5-2).** Conversely, 50-75% of commute times by public transport in the North County study area are greater than one hour, demonstrating that work trips by public transit are, on average, longer for various destinations than vehicle trips; or they are used for longer distance commuting when transit service is available and convenient (i.e., downtown Los Angeles via Metrolink) **(Figure 5-3).** This may be an advantageous indication for long distance rail services such as CHSR, but reflects that transit is

not yet a choice mode or preferential for local or shorter distance trips, as evidenced by a transit mode share of approximately 2 to 3 percent for the North County study area.[24].

Overall, the data suggests that vehicle trips are preferred for both shorter and longer commute trips originating in the North County subregion, and public transit is less likely used as a mode of choice due to comparatively longer travel times; or it is primarily chosen for longer trips that can be made on services such as Metrolink.

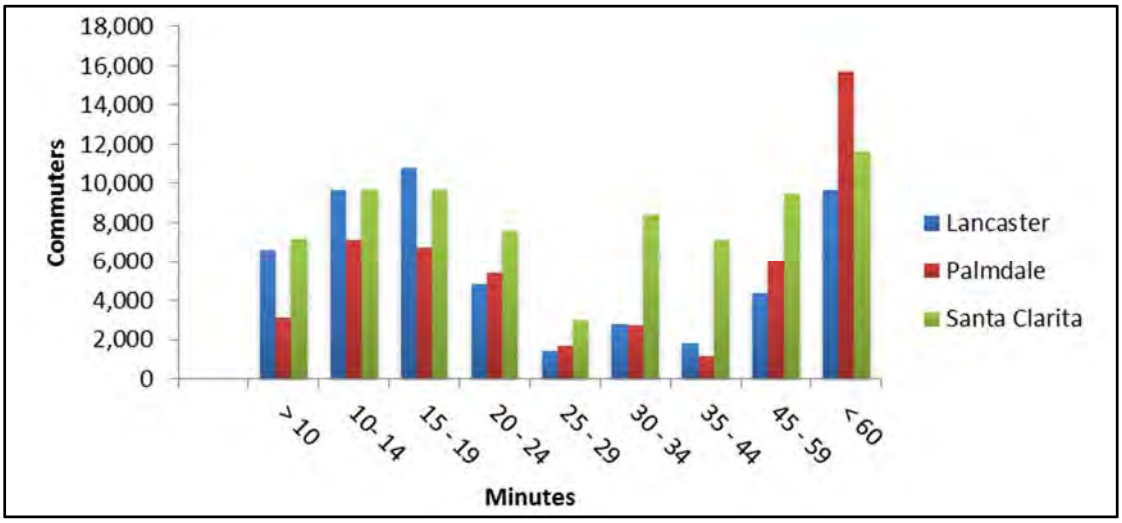


Figure 5-2: Travel Time to Work by Car, Truck or Van in North County

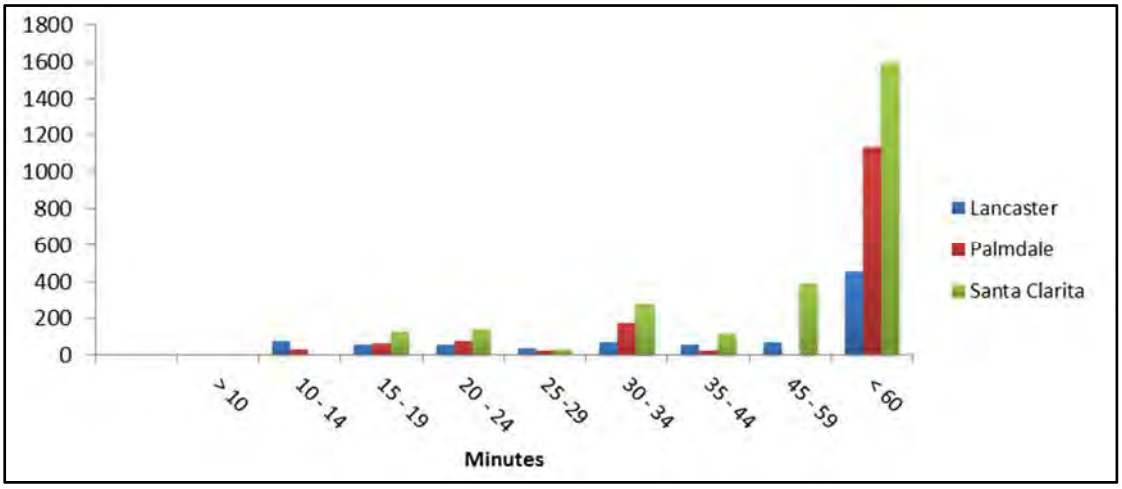


Figure 5-3: Travel Time to Work by Public Transport in North County

[24] *2009-2013 American Community Survey 5-Year Estimates (2014).*

Similarly, only 13 percent of Palmdale residents commute to work locations within Palmdale, whereas approximately 23 percent and 24 percent of residents live and work within the cities of Santa Clarita and Lancaster, respectively **(Figure 5-4, 5-5 and 5-6).** Nearly one-third of each cities commuters work in the city of Los Angeles and the remaining 60 percent of commuters from each city travel to work locations within the greater Los Angeles region.[25] These commuter patterns seem to support the curve of travel time data in Figures 5-2 and 5-3.

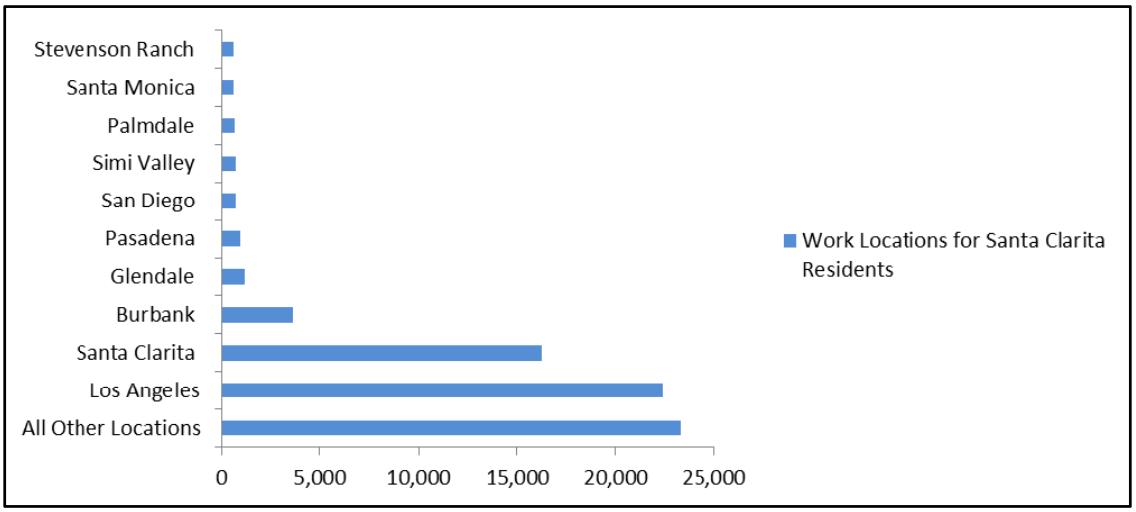


Figure 5-4: Regional Work Locations for Santa Clarita Commuters

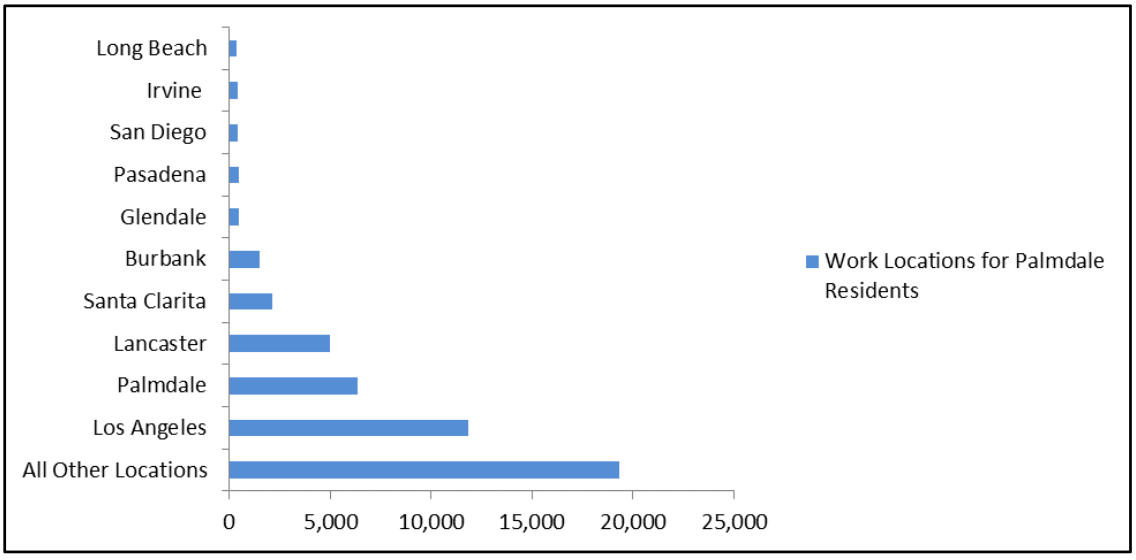


Figure 5-5: Regional Work Locations for Palmdale Commuters

[25] *U.S. Census Bureau, Longitudinal and Employer-Household Dynamics (LEHD), 2013.*

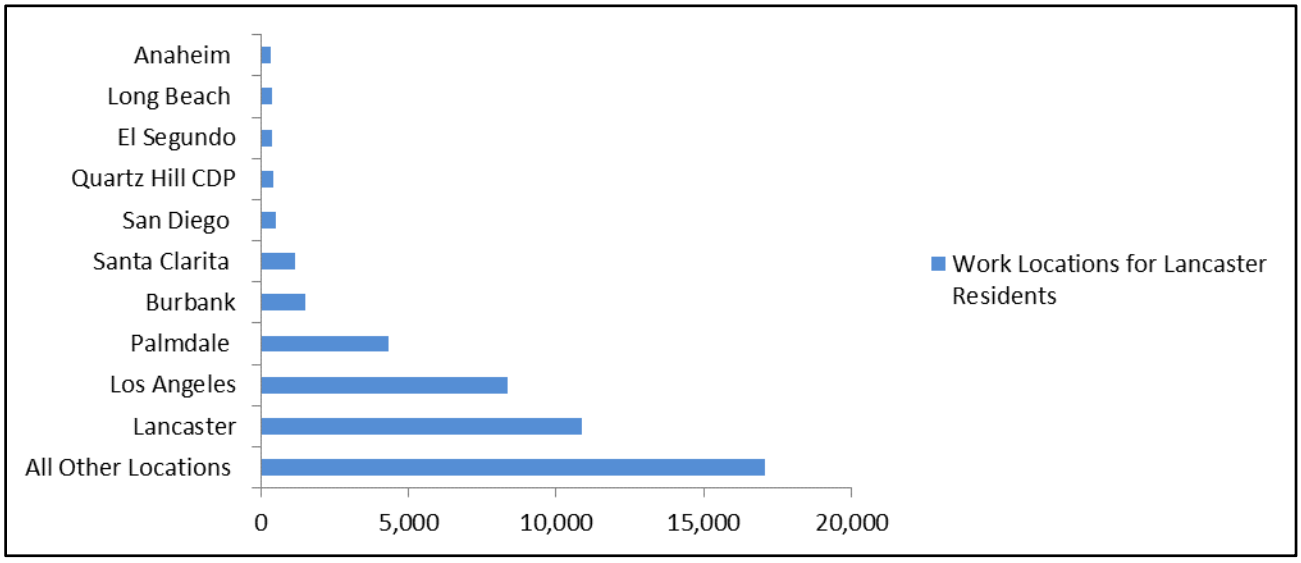


Figure 5-6: Regional Work Locations for Lancaster Commuters

With a significant outflow of commuters from the subregion, passenger demand for transit services, if competitive with auto travel times, could be maximized with better integrated services.

5.2.4. Transit Service Markets

The transit service serves three target markets, including inter-regional, regional, and intracity travelers. These travelers shape the customer demand for the system, including which types of investments and connections are appropriate for the system. The characteristics of these markets serve as an indicator of projected passenger demand for new services and for commute and travel routes that would address current or future demand.

Intercity Travelers

For the purposes of this study, inter-regional travelers were defined as those traveling into the Palmdale-Lancaster area from other cities outside of the County. Inter-regional trips can be characterized by longer trips being served via the California High Speed Rail, future service at the Palmdale Airport, and the future Express West. These inter-regional travelers need connections between the current and future Palmdale Transportation Center (PTC) and the Palmdale Airport in order to connect the High Speed Rail and Xpress West travelers arriving at the Palmdale Transportation Center (PTC) to the Palmdale Airport. Connections to Lancaster or Santa Clarita from these facilities are anticipated to be serviced either by available local transit or Metrolink.

Regional Commuters

Home to work commuters traveling from the North County subregion to areas throughout the greater Los Angeles area make up the largest share of commuters in the region[26]. Regional commuters are served by Metrolink service to downtown Los Angeles and destinations along the Antelope Valley Line, by AVTA and Santa Clarita Transit commuter routes to a variety of locations that do not currently have fixed guideway service, and by Metro transit and rail routes connected to the Antelope Valley Line.

With the majority of commuters in Santa Clarita (72%), Lancaster (66%), and Palmdale (75%) employed outside of the North County subregion, these significant commuter flows could support higher levels of regional transit and rail ridership **(Figure 5-7, 5-8 and 5-9)**.[27] As noted earlier, study stakeholders voiced a desire for additional Metrolink service, including limited/express and off-peak service on the Antelope Valley Line. A desire for new/extended service to Mohave and Victorville was also identified to improve transit service and connectivity to areas north and east of the North County subregion.

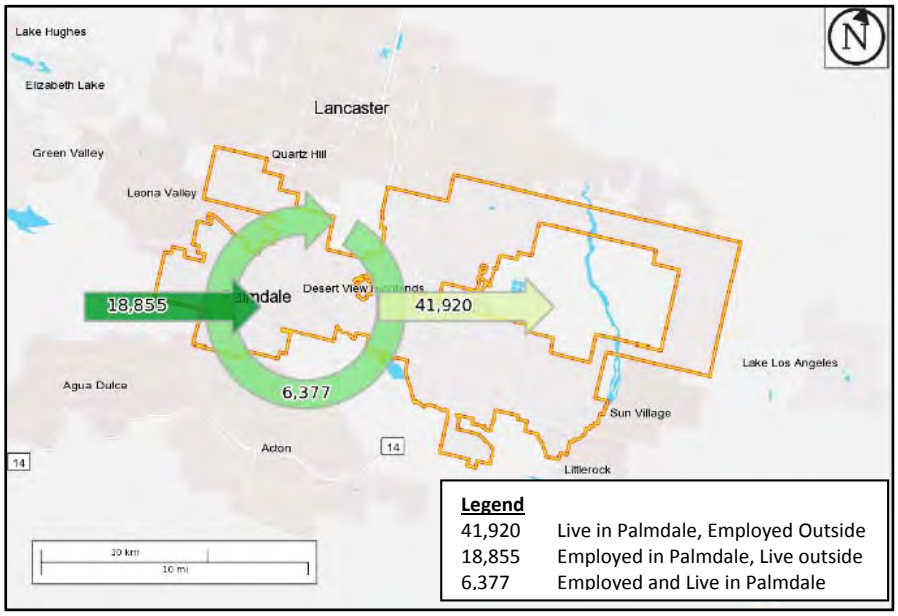


Figure 5-7: Commute Flows (Palmdale)

[26] *U.S. Census Bureau, Longitudinal and Employer-Household Dynamics (LEHD), 2013.*
[27] *U.S. Census Bureau, Longitudinal and Employer-Household Dynamics (LEHD), 2013.*

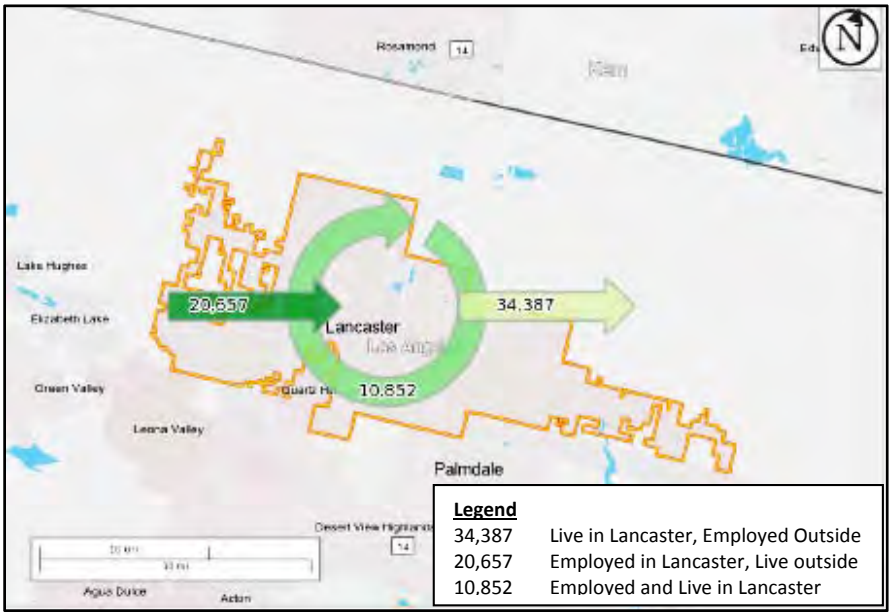


Figure 5-8: Commute Flows (Lancaster)

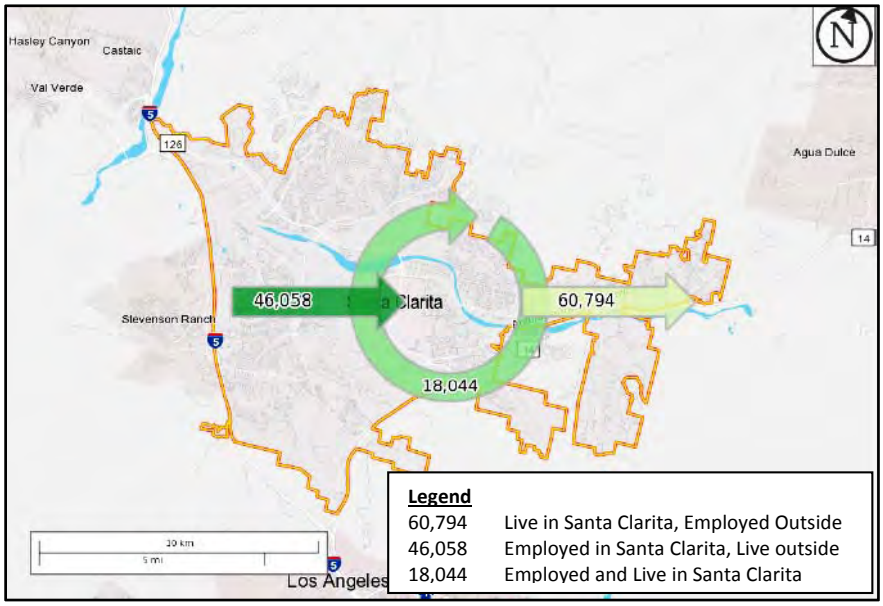


Figure 5-9: Commute Flows (Santa Clarita)

Intracity/Local Travelers

Intracity or within-city local trips includes travelers who are traveling within the individual cities of Santa Clarita, Lancaster and Palmdale. As noted earlier, only a small portion of Palmdale (25%), Lancaster (35%), Santa Clarita (28%) commuter trips, begin and end with both origins and destinations within each

individual city.[28] These travelers are expected to value connectivity to major local employers/employment centers, commercial destinations and centers, community service facilities, and educational institutions.

Demand for local trips are driven by intracity trip generators including residential, commercial and transportation destinations, and other high-intensity land uses **(Figure 5-10).** In the North County subregion; these include[29]:

- High Density Single Family Residential
- Mixed Multi-Family Residential
- High-Rise Apartments and Condominiums
- Low- to Medium-Rise Major Office Use
- Retail Center (Non-Strip)
- Regional Shopping Centers
- Colleges and Universities
- Airports
- Hospitals
- Commercial Recreation (Stadiums)
- Park and Ride Lots

These major trip generators form an arc around western Palmdale and Lancaster are dispersed along major arterials and existing bus routes in Santa Clarita. These land uses indicate areas of higher density that would generate potential passenger demand for local trips. Increasing local transit options could also provide feeder services and integration for the larger countywide and regional network.

[28] *U.S. Census Bureau, Longitudinal and Employer-Household Dynamics (LEHD), 2013.*
[29] *SCAG Land Use Code (2009).*

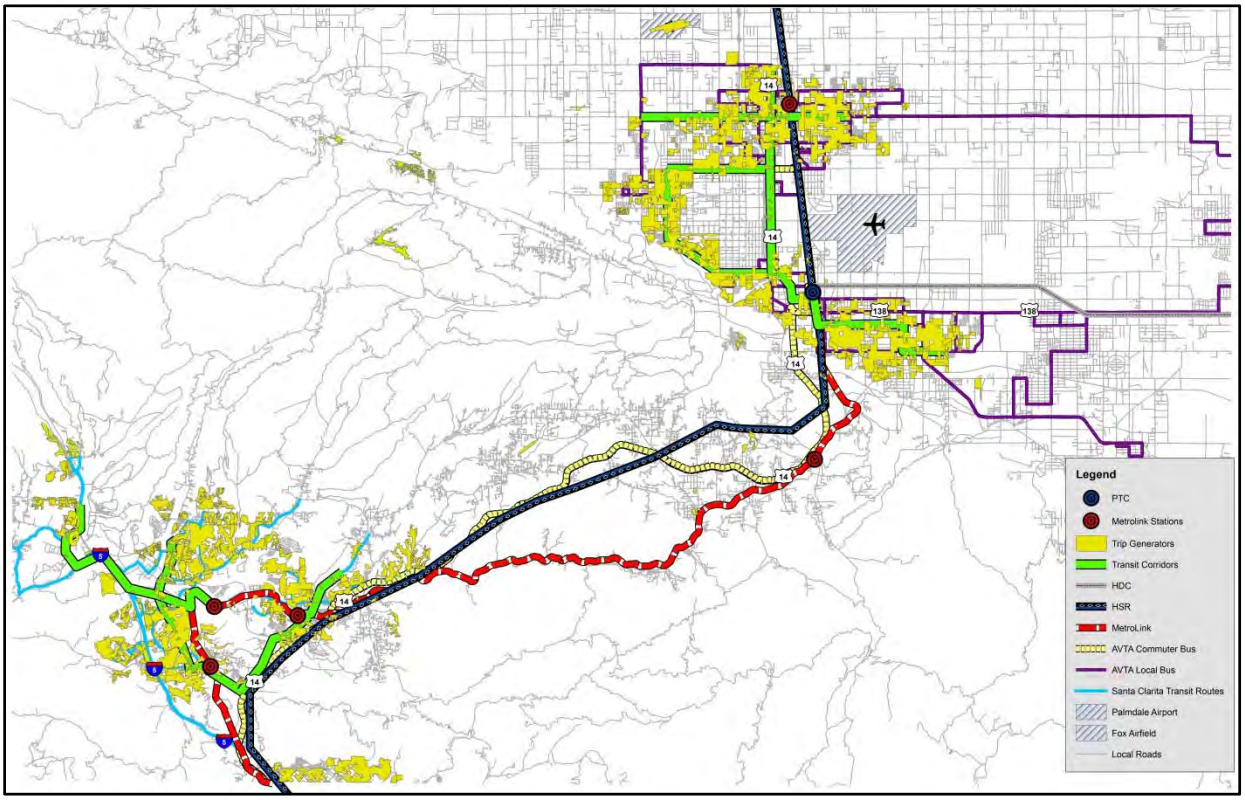


Figure 5-10: Major Trip Generators in North County

5.3. Major Fixed Guideway Investments in the Region

5.3.1. Southern California Regional Rail Authority (SCRRA)

The SCRRA (Metrolink) Antelope Valley Line is integral to the fixed guideway transit network in the study area. However, its effectiveness to fully address the area's transit service needs is constrained by the capacity of the existing infrastructure, the topography between Santa Clarita and Vincent Grade/Acton, and by the dispersed nature of commuter trips to/from the North County sub-region.

While there are a number of projects underway that will improve capacity along the AVL – for example the, Vincent Grade/Acton Station Second Platform and Siding Extension Project – the capacity constraints are projected to become more pronounced with population and employment growth in Lancaster, Palmdale and Santa Clarita. Future population and employment growth in outlying areas will increase the market for additional service in both the traditional commute direction (into Los Angeles), and will also increase the need for off-peak, weekend and potentially bi-directional service. The North County sub-region has previously experienced a rapid increase in growth based on economic conditions, and is projected to experience additional growth in the future. Future growth, coupled with limited freeway/highway options in the North County will further increase the need for expanded rail services

and facilities. As a result, early collaboration and planning efforts to progress the integration of future Metrolink service and projects is a key near-term activity for the North County sub-region, as nearly half of all Metrolink riders transfer from transit services to complete their trip. The Vista Canyon development and TOD is an example of planning and collaboration for planned, future development and Metrolink service and capital improvements.

The SCRRA is currently developing a Short-Range Transit Plan 2015-2020 and a 10-Year Strategic Plan. The Short-Range Transit Plan is addressing near-term operating conditions and service scenarios that will advance the SCRRA towards the long-term service and capital needs identified in the 10-Year Strategic Plan. The 10-Year Strategic Plan is projecting service needs in the year 2025 and includes the development of service scenarios for analysis and service planning considerations for both weekday and weekend rail service on the AVL. The scenarios are expected to range from a baseline or no service growth scenario to a scenario that includes the integration of planned CHSR service. The service scenarios under consideration in the 10-Year Strategic Plan will require system capacity improvements to address the projected rail travel patterns and markets, such as service level increases in peak, off-peak and bi-directional travel, and improvements in operational reliability and flexibility. The following track capacity projects (double tracking, siding extensions, and specific associated grade separations) have been identified for the AVL in the Metro Long Range Transportation Plan and are expected to be included as priority projects as part of the SCRRA 10-Year Strategic Plan:

- Brighton to Roxford
- Santa Clarita to Newhall

In addition to the above noted track capacity projects, a number of grade crossing improvements and grade separations were identified through the Mobility Matrix process and the Metro prepared Metrolink Antelope Valley Line Infrastructure Improvement Strategic Plan (AVLIISP) document. The projects included in the North County Sub-Region Mobility Matrix were incorporated into the NCMITS project list and identified as providing a high benefit to the existing and future fixed guideway system and services.

In the development and preparation of the Short-Range Transit Plan and 10-Year Strategic Plan, the SCRRA has completed public outreach via an on-line survey and coordinated with member agencies. Both documents will be presented to the Metrolink/SCRRA Board in December 2015. Once the documents have been approved and finalized, the service scenarios and associated capital investments identified should be incorporated into future transit planning efforts.

5.3.2. California High Speed Rail

The CHSR Bakersfield to Palmdale and Palmdale to Burbank segments are currently under study, with a number of alignments under consideration. The CHSR station in the North County subregion is proposed to be located in the immediate vicinity of the existing PTC. The CHSR service will generate considerable land use changes in the immediate area of the PTC and in the broader Lancaster-Palmdale area, as

implementation of CHSR enables new and faster transit mobility options for travelers with destinations north and south of the North County subregion.

The CHSR has worked directly with the City of Palmdale to study station configuration, access needs and access options for the proposed combined CHSR and Metrolink station. It is anticipated that the CHSR will follow an at-grade configuration with CHSR tracks running parallel and immediately west of the current Metrolink tracks (generally leaving Metrolink and the UPRR alignment at their current locations).

An initial concept under consideration is a combined Metrolink/CHSR station that would be located approximately 800 feet south of the existing Metrolink station, roughly centered on East Avenue Q. Primary station access routes are anticipated to be via Technology Drive, East Avenue Q, and East Palmdale Boulevard. Immediately surrounding the new combined Metrolink/CHSR station, grade separations are anticipated at Technology Drive, East Palmdale Boulevard, and East Avenue R. The City of Palmdale has proposed grade separating West Rancho Vista Road/East Avenue P, which was environmentally cleared in 2011. The CHSRA and City of Palmdale are working together to design the grade separation to accommodate CHSR, if the grade separation advances prior to the construction of CHSR.

As the CHSR station is anticipated to be located on the westerly side of the tracks, access to/from areas east of the UPRR right-of-way and the Palmdale Regional Airport should be considered, as these areas have capacity for increased development and growth. As noted in Chapter 4, the Economic Development Opportunity Area 4 is also situated to the east of the rail right-of-way and could be a major generator of transit demand if developed in the future.

Similarly, the City of Lancaster has worked directly with CHSRA to define modifications at the Lancaster Metrolink station and surrounding roadways in regard to roadway changes and grade separations that will be required as a result of the future CHSR project. At this time, the understanding is that all Lancaster area grade crossing locations will be grade-separated in the future in order to better connect neighborhoods located east of the combined rail right-of-way and the Lancaster Metrolink station. The potential grade separation exception is Lancaster Boulevard and Milling Street – with Lancaster Boulevard potentially being modified to a T intersection and Milling Street being grade separated (which currently does not cross the rail right-of-way).

This study identified likely transit corridors connecting to the future HSR station, but detailed access and future transit routes will be developed by other agencies as the project progresses. The cities of Palmdale and Lancaster, and the AVTA should continue to work directly with the CHSRA to refine the future CHSR alignments and station plans, determine necessary roadway changes, address local transit, auto, and non-motorized station access options and accommodate travel and needs on the adjacent local roadway network.

5.3.3. High Speed Rail – Las Vegas to Victorville (XpressWest)

The XpressWest is a proposed 185-mile rail service connecting Southern California with the City of Las Vegas, with proposed stations at Las Vegas, Barstow, and Victorville. **Figure 5-11** shows the potential XpressWest service and its relation to potential future connection points with the CHSR and Metrolink/Amtrak facilities and services. Also shown on the map is the potential extension to Palmdale and the future CHSR/Metrolink station at the PTC, which may be accommodated via the HDC right-of-way. The intention of this rail service is for a fully interoperable system with CHSR to allow service to Los Angeles and northern California locations via the CHSR infrastructure.

In March 2011, the Final Environmental Impact Statement and Final Section 4(f) Evaluation for the Proposed Desert Xpress High-Speed Passenger Train was released by Federal Railroad Administration (FRA). The most advanced segment of the Xpress West project is the Las Vegas to Victorville segment. As of December 2014, the segment had received a Record of Decision, obtained right-of-way agreements with the Bureau of Land Management, and the entitlements process had been completed. While a certificate of public conveyance has been approved, project financing has not yet been finalized or secured; and in July 2013, the Federal government halted the $5.5 billion federal loan review for Xpress West construction. As a result, the timing of construction and eventual HSR service between Las Vegas and Victorville is unclear.

Figure 5-11: XpressWest Route and Potential Connections California High Speed Rail and Metrolink/Amtrak Services

5.4. Fixed Guideway Feasibility Assessment

Many cities have conducted fixed guideway studies, though few studies offer universal criteria for evaluating fixed guideway investments. The process of evaluating which transit investments fit the current conditions and future goals of a given transit system is multi-dimensional, and varies depending on the region and the objective of the particular study. To structure the evaluation for the North County subregion, the analysis used Geographic Information Systems (GIS) data to facilitate the analysis methodology discussed below **(Table 5-1[30]).**

[30] *This methodology is adapted from the Transit Cooperative Research Program's (TCRP) 2014 Handbook on Making Effective Investments in Fixed Guideway.*

Table 5-1: Fixed Guideway Study Methodology

	Feasibility Assessment
1	Local and System-wide Goals/Needs
2	Service Thresholds
3	Existing and Planned Transit Network
4	Connectivity to Growth Areas
5	Connectivity of Existing and Planned Transit Network
6	Transit Corridor Selection

***S**tep 1* establishes a framework of locally defined transit service goals, needs, and usage and service markets as described in Section 5.2. Once locally defined goals, needs, and service markets are established, they can be adapted and linked to regional or national best practices.

Step 2 establishes basic minimum threshold needed to operate a variety of high-capacity transit modes. Per industry standard, a transit project should meet at least the minimum thresholds for capacity, land use and employment densities, distance and costs as detailed in **Table 5-2**, to be considered feasible. The minimum thresholds were then applied to the mapped transit network in *Step 3* in order to perform the subsequent land use and corridor analysis in *Steps 4* and *5*.

Step 4 involved a land use/growth analysis of the transit network based on projected housing and employment growth in traffic analysis zones in the study area. Areas which met the minimum service thresholds for high capacity transit were identified. The interaction of land use and housing densities near transit, along with parking costs, have the largest influence on ridership for new fixed-guideway transit.[31] As a result, population and employment density are a widely held metric for evaluating the benefits of a proposed transit project. *Step 5* assesses the connectivity of routes with high potential passenger demand to existing and planned transit services and facilities. The final result in *Step 6* are the selection of transit corridors based on the analysis.

This methodology does not determine the anticipated performance of any fixed guideway project, but identifies specific corridors that are the most optimal to route new services. The end product of the assessment is a set of "transit corridors" that qualify for further consideration of higher capacity transit service. The following sections discuss how *Steps 2* through *6* were completed for the outcome of this analysis.

5.4.1. Service Thresholds: Land Use Intensity, Ridership, and Distance

Fixed guideway transit services require a combination of land use intensity, average trip capacity, trip length, and costs that are usually greater than those for conventional transit. Dedicated lane or right-of-way characteristic of fixed transit necessitates that certain conditions along the route be fixed to maximize

[31] *TCRP 167 Handbook.*

ridership for the service. **Table 5-2** provides standard project development criteria recommended for profitable high capacity service investments. Qualitatively, several initial indicators were used to determine where high capacity transit investments would be most feasible in the North County subregion. Fixed guideway investments are likely to be more successful when the noted indicators and associated threshold values are met[32]:

1. Provide fixed guideway transit where bus ridership is already high
2. Service fixed guideway parallel to congested highway infrastructure
3. Connect multiple employment center
4. Connect regional destinations
5. Provide service in high demand travel corridors where alternative capacity is expensive
6. Provide service in corridors with high development potential tied to local and regional plans
7. Provide service in corridors where inexpensive right-of-way can be easily accessed

High capacity transit investments, including fixed guideway transit, typically require a minimum household density of six households per acre or greater and employment densities of 15 jobs per acre or greater for all modes in the central urban core. Depending on modal choice, passengers per hour/per direction can vary from 1,000 for bus-based transit to 2,500 to 40,000 for commuter rail services. Average station spacing should be approximately 0.5 miles for BRT and up to 1.5 miles for light rail. Typical trip lengths are 4-5 miles for all modes except commuter bus and commuter rail, which are typically greater than 20 miles. While typical capital and operating costs per passenger have been provided in **Table 5-2**, actual costs can vary greatly from those shown. Capital costs will be affected by availability, cost, and amount of dedicated right-of-way and infrastructure needed to support the desired level of service (tunnel, elevated structure, and at-grade), environmental considerations, mitigation needs and other factors.

[32] *TRCP 167 Handbook.*

Table 5-2: High Capacity Guideway Transit Options by Land Use, Capacity, Distance, and Costs Requirements[33]

Mode	Right-of-way	Households per Acre		Employees per Acre		Capacity		Distance		Costs
		Suburbs	Central City/Core	Suburbs	Central City/Core	Passengers per vehicle	Corridor (Passengers per hour/direction)	Station/Stop Spacing	Average Passenger Trip Length	Capital Costs/Operating Costs per passenger mile
Commuter Rail	Dedicated	2-4	>4	N/A (Typically residential Park-and-Ride)	N/A (Varies by corridor and terminal stations)	90-190 seated	2,500-40,000	2-10 miles	24 miles	$5 - $100 million/mile $0.30 - $0.50
Heavy Rail	Dedicated	12-18	>18	25-35	>35	65-75 seated 100-120 total	25,000	0.5-1 mile	5 miles	$100 - $600 million/mile $0.30 - $0.50
Light Rail	Dedicated/ Shared	3-7	>7	8-18	>18	40-80 seated 180 total	3,600	0.75 – 1.5 miles	5 miles	$50 - $150 million/mile $0.40 - $0.80
Modern Streetcar	Dedicated/ Shared	3-6	>6	5-15	>15	30-50 seated 120 total	1,200	0.5 mile	4 miles	$30 - $80 million/mile $0.50 - $0.85
Commuter Bus	Dedicated/ Shared	N/A: Long distance point-to-point service				45-65 seated	100-1,000	Varied; stops clustered around start and end0.5 mile	20-60 miles	$500K - $600K per vehicle
Bus Rapid Transit	Dedicated	3-6	>6	8-18	>18	60 seated	1,900-2,100	0.5 mile	5 miles	$5 - $30 million/mile $0.40 - $0.60
Enhanced Bus	Shared	3-6	>6	8-18	>18	40-45 seated 60-70 total	1,200-1,400	0.25 – 0.5 mile	4 miles	$250K - $2 million/mile $0.40 - $0.65

[33] *Based on recent WMATA and other industry experience, APTA National Transit Database and VDRPT Transit Service Design Guidelines.*

5.4.2. Demand Analysis: Population/Household Density

A review of existing and future projected land use intensity was completed to identify locations within the study area that meet or will meet the land use requirements recommended for fixed guideway services and to determine service options for these areas. Census data for 2010, SCAG TAZ household and employment data for 2008 (base condition), and SCAG TAZ projections for 2020 and 2035 were analyzed to locate areas where household densities were greater than six households per acre. The density of households in each census tracts or TAZ serves as an estimate of population densities for the area.

5.4.3. Demand Analysis: Employment Density

Total employment data for 2008, 2020 and 2035 by traffic analysis zone (TAZ) was used to estimate high employment areas in the region. [34] Employment densities greater than 15 jobs per acre is a standard that is typically considered as a requirement for high capacity transit. Employment density in addition to total employment provides an estimates of the number of jobs in each traffic analysis zone.

5.4.4. Transit Corridor Selection

The feasibility assessment began by mapping all existing and proposed transit modes within the study area including existing Metrolink, AVTA and Santa Clarita Transit commuter and local bus routes, as well as proposed CHSR, and potential HDC rail component, and associated transit facilities. The resulting transit corridors for the cities of Santa Clarita, Palmdale and Lancaster are identified in **Figures 5-12** and **5-13**. Mapping analysis included the following data components and Appendix D includes maps of average household densities and average total employment in the North County subregion.

- Household Density by Census Tract (2010)
- SCAG Traffic Analysis Zones (TAZ) (2009)
- TAZ Household density greater than 6 households per acre (2008, 2020, 2035)
- TAZ Employment density greater than 15 jobs per acre (2008, 2020, 2035)
- SCAG Countywide Land Use Zoning (2009)
- Palmdale Transportation Center
- Palmdale Regional Airport
- Metrolink route, Antelope Valley Line
- AVTA commuter bus routes
- AVTA local bus routes
- Santa Clarita Transit commuter bus routes
- Santa Clarita local bus routes
- City boundaries for Lancaster, Palmdale, and Santa Clarita
- CHSR SR-14 Hybrid Supplemental Alternatives Analysis (SSA) Alternative alignment (2014)
- HDC alternatives with high speed rail feeder service
- Antelope Valley Plan Economic Opportunity Areas (2015)

[34] *Data obtained from Southern California Association of Governments (SCAG) 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy model.*

5.4.5. Results

The results shown in **Figure 5-12** indicate street-based routes that serve the overall transit system needs and:

- Provide connections to high density housing and employment areas
- Foster local, intracity, and regional trips as defined in the initial needs assessment
- Provide connections to key transportation services and facilities such as Metrolink, CHSR, HDC/Xpress West, AVTA, Santa Clarita Transit, and the PTC

The routes identified meet the minimum land use service thresholds for higher capacity service. However, based on current ridership levels for AVTA and Santa Clarita Transit Lines ranging less than 1,000 to 12,000 riders per day and only 2% and 3% of commute trips by transit and may not be high enough to substantiate a major high capacity transit investment, which requires an average of more than 1,000 passenger per hour/per direction. It should be noted that the actual routing of future, new transit services may be on adjacent streets to adjust for the availability of right-of-way, adjacent development and densities, other roadway needs, current and future development, available alternatives, and agency and community plans.

Based on this analysis, the most appropriate actions to improve the attractiveness of public transit for commute trips and choice riders would be to address the needs of the both the intracity and regional commuter transit market, continued integration with the existing and planned rail transit system, and implement service and infrastructure improvements that reduce transit travel times. Faster peak period bus service would provide feeder service for planned rail connection facilities, to major employment and residential locations and serve the target service sectors identified in Section 5.2.4.

Both Commuter Bus and Bus Rapid Transit (BRT) enhancements would provide more cost effective options for near- and mid-term investments, as these modes typically require less and lower cost infrastructure and vehicle requirements, and can be implemented in a more incremental approach. Commuter bus and BRT services can provide flexible service options and accommodate varied station/stop spacing as demand warrants. Commuter-based investments can provide the greatest benefit to areas/regions with major employment destinations that do not have current fixed rail services. The goal of this service would be to change the total arc of commute trips by public transport to resemble vehicular trip times and depending on routing and service needs, may also support first-mile and last mile connections to high speed transit alternatives.

The identified transit corridors for the three North County subregion cities of Lancaster, Palmdale and Santa Clarita are described in greater detail below.

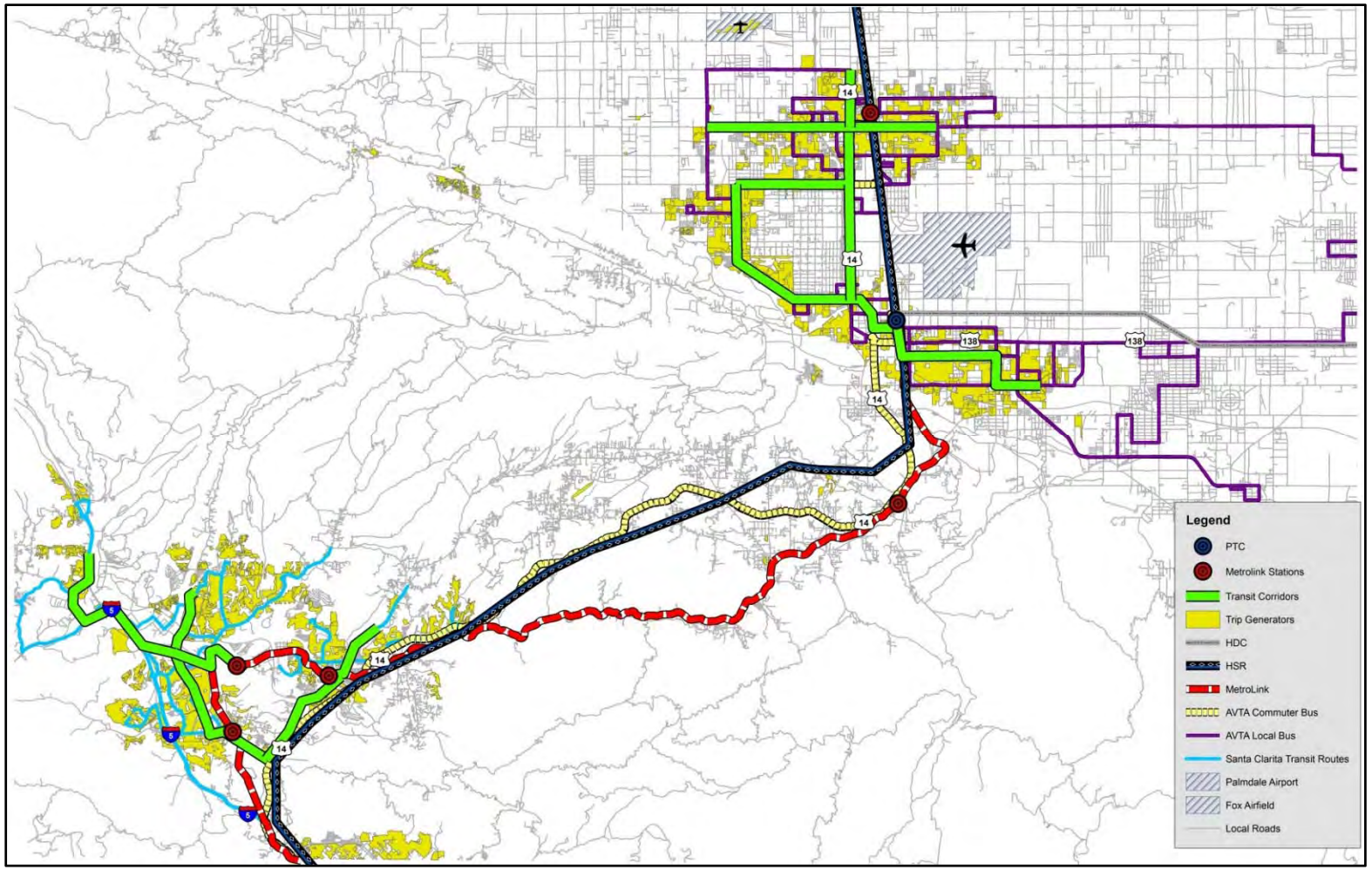


Figure 5-12: Potential High Capacity Transit Corridors in Study Area

Lancaster and Palmdale

The analysis results are presented jointly for Lancaster and Palmdale to reflect the connected transportation facilities and corridors.

Within the City of Lancaster, the analysis identified three key corridors which are candidates for enhanced transit service – the 10th Street West Corridor, the Avenue J Corridor and the West Avenue L corridor. (**Table 5-3**).

Table 5-3: Lancaster Transit Corridor Identification

Transit Corridor 1	10th Street West Corridor from Avenue H to Avenue M
Transit Corridor 2	Avenue J from 60th Street West to 20th Street East
Transit Corridor 3	W Avenue L from 10th Street W to 50th Street West

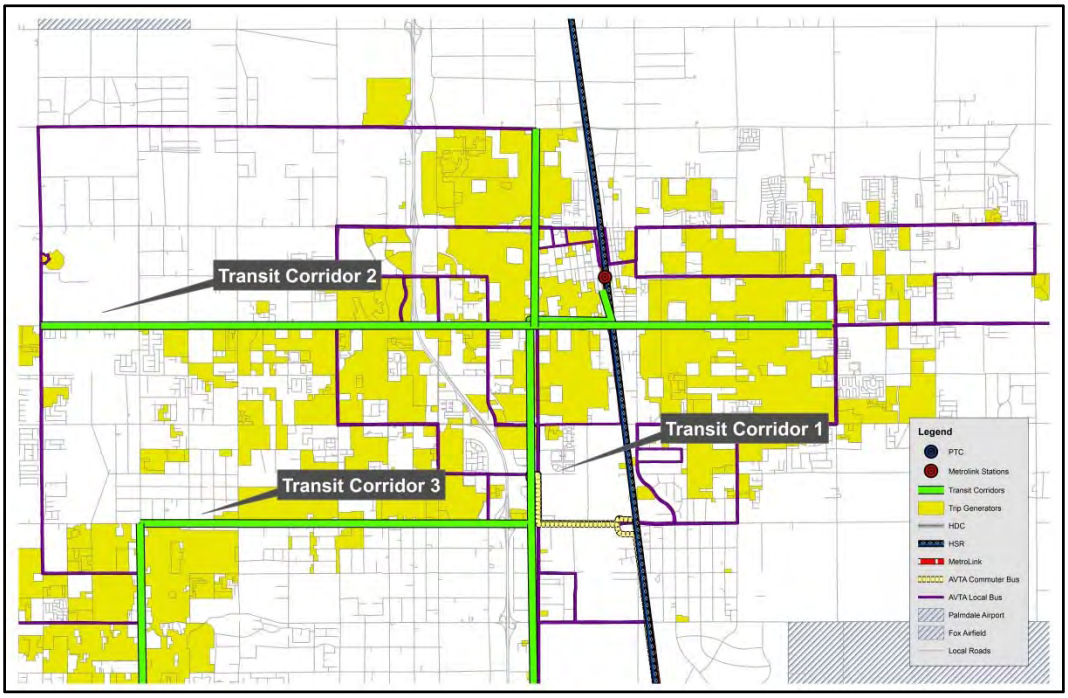


Figure 5-13: Potential High Capacity Transit Corridors in Lancaster

The AVTA has already identified the 10th Street West corridor as the routing for new arterial BRT service. This corridor may be a candidate for a higher capacity transit service in the future, particularly as the area continues to develop and as CHSR and HDC rail service are implemented. This corridor would also provide transit services to economic opportunity Area 2, supporting local transit needs via a north-south "spine" with connections at either end to Metrolink, CHSR, and any potential HDC transit services at the PTC.

Avenue J could provide mid-city, east-west service with connections to the 10th Street West spine and its connection to the PTC, and the Lancaster Metrolink station. West Avenue L from 10th Street West to 50th Street West was identified as an east-west transit corridor reflecting the mix of residential and commercial development and connection to the Quartz Hill High School and the 10th Street West corridor (and associated transit services and connections).

In Palmdale, the analysis identified three transit corridors that should be considered for enhanced transit services and prioritization as transit streets.

Table 5-4: Palmdale Transit Corridor Identification

Transit Corridor 1	10th Street West from W Avenue L to Rancho Vista Boulevard
Transit Corridor 2	50th Street West/Rancho Vista Boulevard from W Avenue L to West Avenue P
Transit Corridor 3	Sierra Highway/W Avenue R from Sierra Highway to 55th Street East

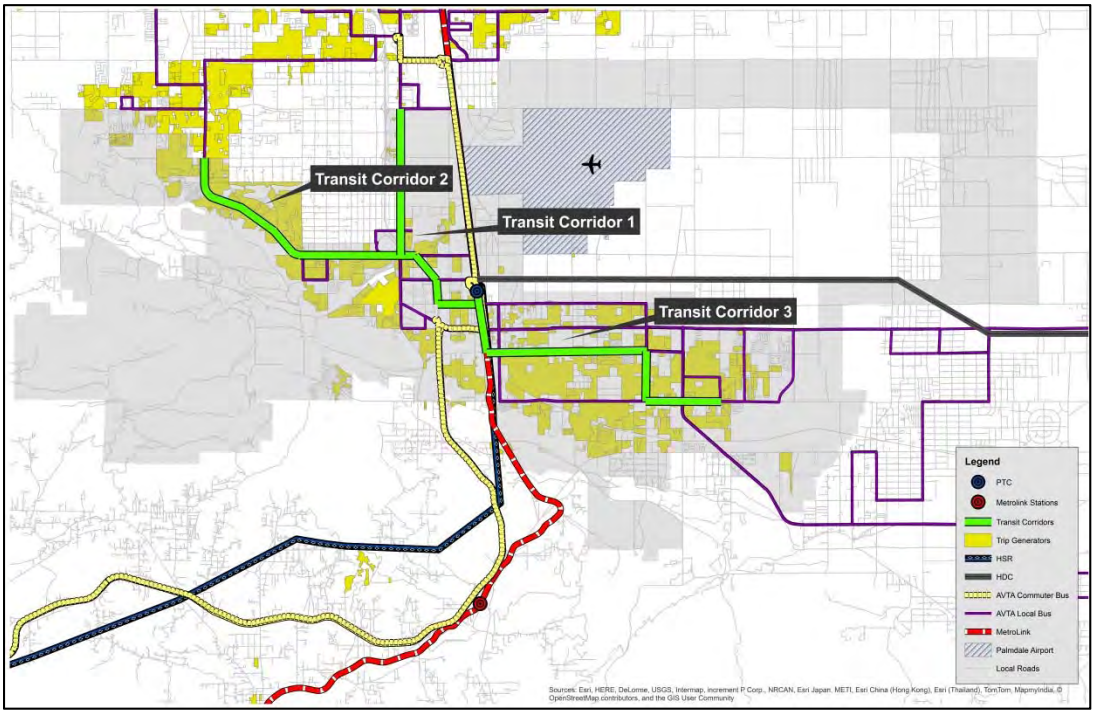


Figure 5-14: Potential High Capacity Transit Corridors in Palmdale

As shown in **Figure 5-14**, the analysis results for Palmdale also reflect the 10th Street West corridor (from West Avenue L to Rancho Vista Boulevard within the Palmdale city limits), as was also identified for Lancaster. As noted earlier, 10th Street West has been identified for arterial BRT service by AVTA. The 50th Street West/Rancho Vista Boulevard corridor reflects residential, commercial, and community (YMCA, multiple schools, and the Palmdale Amphitheater complex) trip generators and connection to transit

services at the PTC. While the transit corridors noted reflect only the portions within Palmdale, the corridors extend northward and connect to the corridors identified for Lancaster, highlighting the underlying travel corridors and the connectivity between the two cities. The last transit corridor identified is Sierra Highway/West Avenue R from the PTC to 55th Street East, connecting the residential community south of Palmdale Boulevard to transit (rail and bus) services at the PTC.

These analysis results show the importance of maintaining and improving connections and access to the PTC and the existing Metrolink rail services and future CHSR service. Given the location of the PTC on the west side of the rail right-of-way, access to the PTC for areas east of the rail right-of-way and to/from Palmdale Regional Airport will be an important consideration, as current access is limited due to the need to cross both the Sierra Highway and UPRR right-of-ways to access the PTC. The City of Palmdale is currently working with CHSRA to develop station configurations for the future CHSR/Metrolink station that will provide improved access for users to and from the east.

Santa Clarita

In Santa Clarita, five major corridors were identified **(Table 5-5)** as potential high-capacity transit corridors. The identified corridors included routes with connections to existing regional transportation infrastructure and services (Via Princessa, Santa Clarita and Newhall stations and the McBean Regional Transit Center) regional employment areas (Valencia Commerce and Industrial Centers) and areas of denser development along McBean Parkway, as well as Lyons Avenue (**Figure 5-15**).

In discussions with Santa Clarita, it was noted that the issue of designating transit streets was considered in the recent past, with the ultimate decision being to not move forward with a formalized transit street designation. However, the analysis presented can be used to inform future transit and transportation planning efforts.

Table 5-5: Santa Clarita Transit Corridor Selection

Transit Corridor 1	Old Road/I-5 via Magic Mountain Parkway/Soledad Canyon Road to Santa Clarita Metrolink Station
Transit Corridor 2	McBean Parkway/Orchard Village Road from Sunset Hills Drive to Lyons Avenue
Transit Corridor 3	Lyons Avenue/Newhall Avenue from Orchard Village Road to Sierra Highway
Transit Corridor 4	Sierra Highway at Lyons Avenue to the Via Princessa Metrolink Station
Transit Corridor 5	Sierra Highway from Linda Vista Street to the Via Princessa Metrolink Station

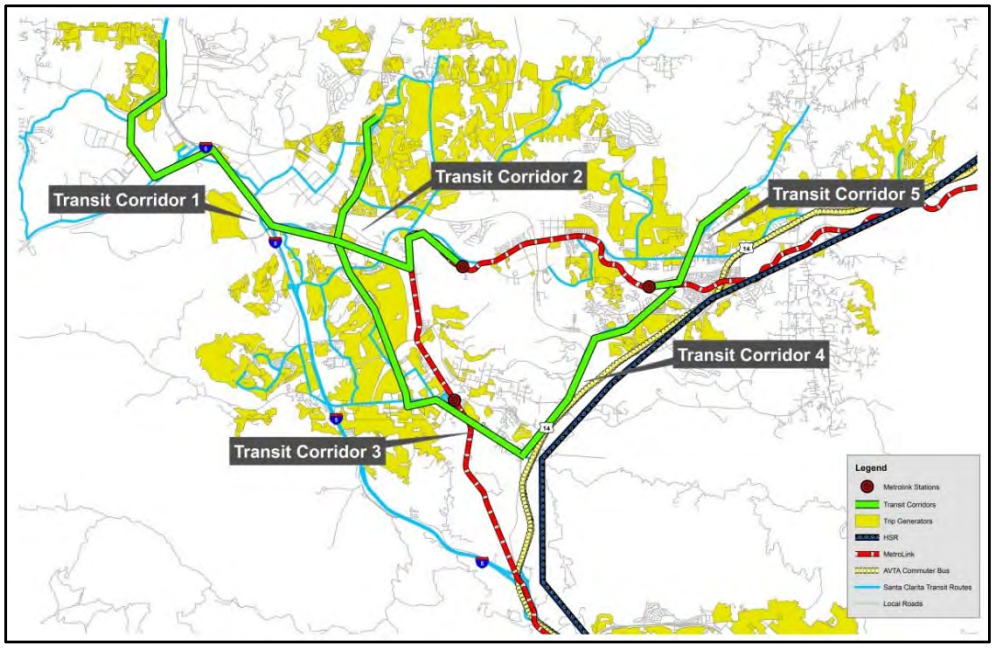


Figure 5-15: Potential High Capacity Transit Corridors in Santa Clarita

5.4.6. Future Corridor Improvements: Planning/Economic Growth Scenarios

As with any analysis, context is a critical component of the overall review and assessment process, particularly when considering and understanding the interplay of a variety of outside components and factors that will also shape the outcome of the analysis and results. While many of the outside factors associated with this analysis are fixed and are not expected to change, such as Metrolink facilities and services, current high density employment and housing locations, CHSR station co-located with Metrolink service at the PTC – other components such as the intensity or exact location of future developments are variable. These contextual elements not captured by the GIS analysis provide context and a broader perspective and understanding of the potential rail integration needs and opportunities within the study area.

In particular, identifying and assessing the potential transit needs associated with the potential Economic Development Areas, reviewed and studied as part of this project, is particularly important to incorporate. Other important considerations are major changes to existing transit stations or services, such as the potential Vista Canyon Station in Santa Clarita (and subsequent elimination of the Via Princessa Station). Other contextual considerations include geography, infrastructure capacity/system compatibility, and urban framework. The following discussion will touch on the potential Economic Opportunity areas studied as part of this project, as well as input received from study stakeholders to augment and refine the results of the GIS analysis.

Lancaster

In reviewing the economic opportunity areas and their potential transit connection and integration needs – additional north-south and east-west connections would be an important component of planning for and connecting these potential development areas to both existing and planned intra- and inter-regional transit service and facilities, as well as the surrounding community.

Connections from Area 1 Fox Field could include a north-south transit corridor west of SR-14 that would provide a "western edge" transit component and provide connectivity options for current and future employment and residential populations. This western edge could be the analysis identified 50th Avenue West corridor or the 30th Avenue West corridor. The 30th Avenue West corridor is currently being considered for potential improvements by AVTA and other stakeholders and would provide connections to the Antelope Valley College/neighborhood transit center, two high schools and the West Lancaster Plaza Shopping Center. Connection to the Lancaster Metrolink station and the PTC in Palmdale could be accomplished via direct routing or via connections to east-west routes, pending overall development types and densities. This additional transit corridor and the following corridors discussed below are shown in **Figure 5-16**, along with those identified in the initial analysis.

A second potential north-south connector associated with the potential economic opportunity areas would be on the far east side of Lancaster, on 50th Street East, connecting with the identified opportunity area 3 and 4 to the north and south of the Palmdale Regional Airport. This corridor could provide connections to both existing intra- and inter-regional transit services and facilities at the Lancaster Metrolink station and the PTC, either via direct service or connections to east-west transit service. This corridor, like the 50th or 30th Street West corridor, could function as an "eastern edge" transit component of the overall transit system for future planning purposes.

Other north-south connections for consideration would be 20th Street East between East Avenue I and M Avenue East, which could provide transit connections to the economic opportunity area 3 and the Lancaster Metrolink station.

Lastly, in discussions with City of Lancaster stakeholders, it was noted that Avenue I and Avenue J could be considered as potential east-west transit corridors between Sierra Highway and 50th Street East. While Lancaster Boulevard currently serves as the primary roadway access to the Lancaster Metrolink Station, the City of Lancaster and CHSRA are in discussion on station and roadway changes associated with the future construction of the high speed rail line through Lancaster, which will modify station access and routes providing service to and from the Lancaster Metrolink station, as well as provide improved access to/from areas east of the rail right-of-way.

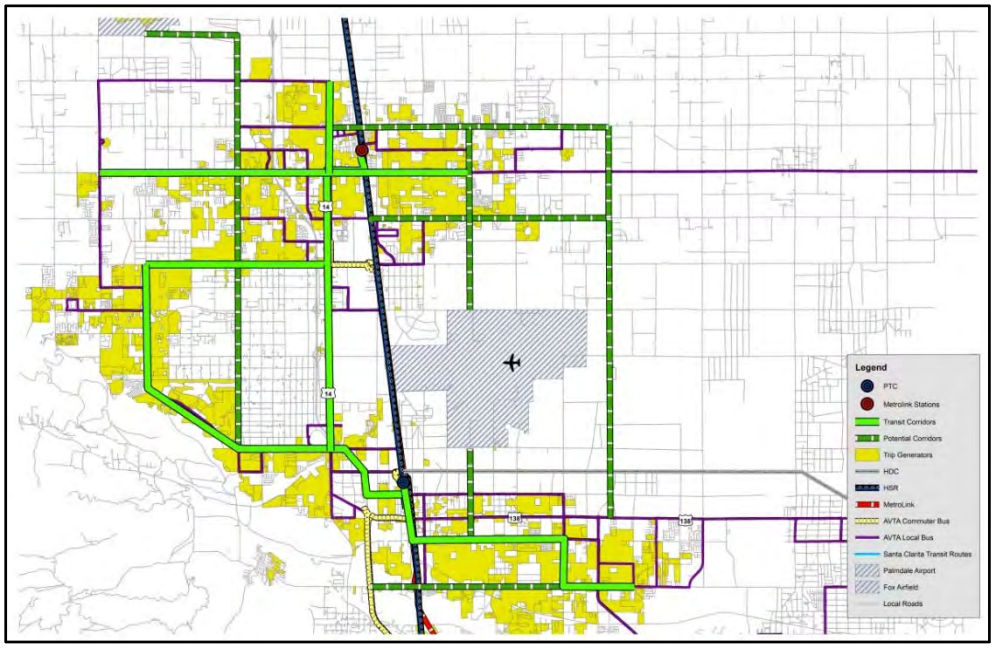


Figure 5-16: Potential Future High Capacity Transit Corridors (Lancaster-Palmdale)

Palmdale

Similar to Lancaster, future connections for consideration in Palmdale include the north-south corridors of 30th Street West from approximately Fox Field or E Avenue I to Rancho Vista Boulevard/E Avenue P, as well as 50th Street East from E Avenue I to East Avenue P. These corridors would support connections to and from economic opportunity areas 1 (30th Street West), 3 and 4 (50th Street East), and to other routes providing connections to intra- and inter-regional transit services at the PTC. The 50th Street East corridor could also serve as a boundary or "edge" for a long-range transit system framework for the two cities as future development is contemplated **(Figure 5-16).**

The study team identified the need for north-south access to East Avenue Q, which is expected to be the approximate cross street for the future CHSR/Metrolink station and the primary access to the PTC for residents and businesses located east of the rail right-of way. 20th Street East was identified as a potential north-south transit corridor to connect with E Avenue Q and the PTC station. 20th Street East would also provide a connection to the Palmdale Regional Airport facilities, particularly if the terminal is maintained at the current location when commercial air service is reinstate. The City of Palmdale is currently working directly with the CHSRA to develop station plan and station area access plans, which will largely shape the integration of the fixed rail services at the PTC facility with the broader transit and transportation network. This study can be utilized to further understand the potential transit corridors beyond the station area bounds.

A proposed future connection to serve future residential development in east Palmdale is East Avenue S (from Sierra Highway to 40th Street East). However, AVTA considers Palmdale Boulevard the currently preferred transit corridor/street due to current ridership levels. The East Avenue R or East Avenue S corridors are still viable options for potential higher capacity transit for the City of Palmdale and AVTA to consider in future planning efforts.

Santa Clarita

The two additional corridors to be considered for higher capacity transit or transit prioritization (if desired in the future) based on connection to employment sites, existing and future transit facilities, and geographic coverage are shown in **Figure 5-17**.

The first future corridor connects the Santa Clarita and the Via Princessa Metrolink station via Soledad Canyon Road and Via Princessa Road to complete the overall connectivity triangle formed by the current Metrolink stations and the Sierra Highway that facilitate transit access to stations. This addition can support and enhance Santa Clarita Transit's service and operational speed and reliability to Metrolink rail services and facilities along these primary roadways. Looking to the future, a transit corridor could extend to the future Vista Canyon Metrolink station once constructed, likely via Soledad Canyon and Sand Canyon Road. Lastly, Lyons Avenue from I-5 to Orchard Village Road and the Newhall Metrolink Station is suggested to provide convenient transit and auto access from I-5 and potential growth areas west of I-5.

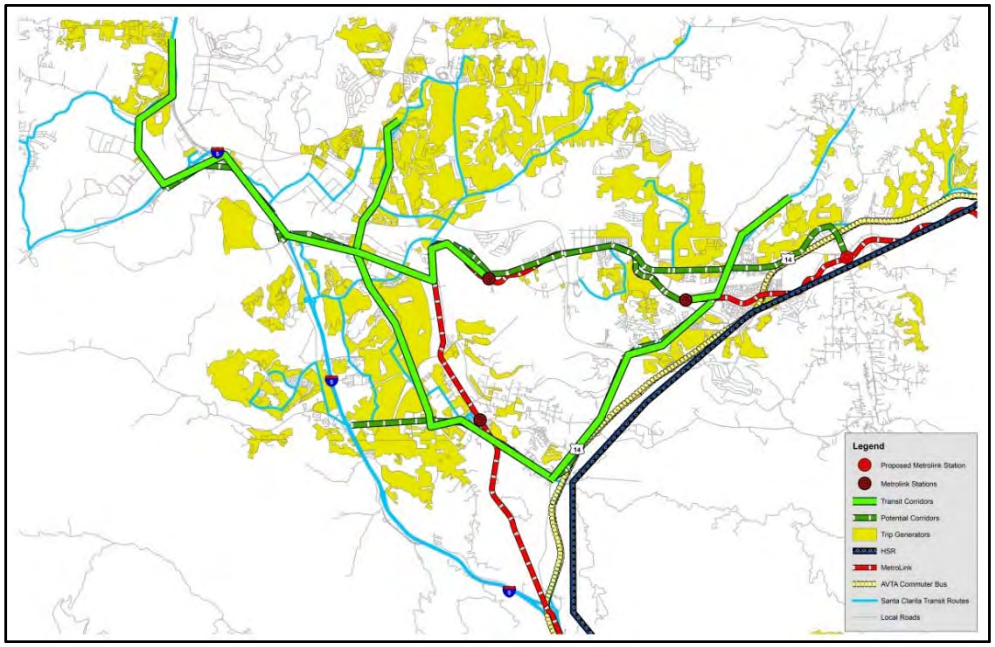


Figure 5-17: Potential Future High Capacity Transit Corridors (Santa Clarita)

5.5. Recommendations

This assessment has been used to identify transit corridors that benefit rail-transit integration and also should be considered for potential, future higher capacity transit services. The project team used the analysis to highlight opportunities where local, intra-regional and inter-regional transit service and facilities (both bus and fixed guideway) integrate with the broader transportation system and potential future development opportunities.

The significant pattern of regional commuter flows indicate that higher speed local transit options targeted to commuter service and intracity employment centers would support increased overall transit patronage, support the existing and planned rail ridership, and increase rail-transit integration in the North County subregion.

The identified transit corridors should be considered for incorporation into future transportation planning efforts, as well as into short- and long-range transportation and transit plans based on subregional jurisdiction and agency priorities and development projections. As transit corridors overlap with existing routes, the current performance and ridership of the existing route should be incorporated as a performance indicator. Any potential new or revised transit corridors or routes should connect with the current and planned facilities for Metrolink, AVTA and Santa Clarita Transit routes, and future CHSR services in order to maximize transit linkages and integration to the broader transit network. Further study is required to determine the feasibility of future implementation of higher capacity transit modes within the identified corridors. These studies include, but are not limited to the following components:

- Ridership projections
- Right-of-way analyses
- Travel time analyses
- Constructability and capital cost estimations
- Operating and maintenance needs and costs
- Environmental constraints assessment
- Preliminary traffic studies
- Community impacts
- Compatibility with future land-use projections

Transportation funding is a large determinant of transit investment decisions. Local jurisdictions and agencies can use the results of the assessment to inform future efforts in order to plan and prioritize future service and capital investments for all transit modes, preserve right-of-way within the corridors, and guide future funding decisions. Further assessment and coordination between transit operators and local jurisdictions is necessary to further review and define the identified transit corridors to determine the appropriate transit service for the identified transit corridors and rail-transit integration needs and goals.

The prioritization of capital improvements on the Antelope Valley Line that will facilitate weekday and weekend service improvements, increased speeds and greater operational flexibility is key to maintaining and growing rail ridership in the North County subregion. The provision of transit service routing and timing that is in concert with Metrolink service to support both rail and bus transit ridership increases by providing critical linkages and first-mile/last-mile solutions. Lastly, the stakeholder-identified Metrolink route extensions to Rosamond, Mojave, and Victorville should be assessed to better understand the need, potential ridership benefits, and costs associated with these extensions to inform future planning efforts.

Continued coordination and planning efforts with CHSRA regarding station sizing and siting, access requirements, and transit priority measures are a high priority in order to align the capital infrastructure and transit service improvements to future CHSR service. Particular attention should be paid to access to/from areas east of the rail right-of-way and to the Palmdale Regional Airport. Further discussions with HDC should seek to incorporate potential station needs into the proposed combined HSR/Metrolink station at the PTC.

Connections to the Palmdale Regional Airport as identified in Chapter 6 can be incorporated into the overall transit planning process to ensure future integration with the broader transit plan, once the viability of airline service is established. Transit service and mode will be dependent on air passenger forecasts, passenger destinations within the North County subregion, and projected interaction with CHSR services. Shuttles could be used as an initial pilot service for the transit linkage between the PTC and the Palmdale Regional Airport as commercial air services are reinstated.

Chapter 6 - AIRPORT GROUND ACCESS

As part of the NCMITS project, consideration was given to ground access to two airport facilities in the Antelope Valley; LA/Palmdale Regional Airport and Fox Field. At the present time, commercial operations at these facilities is limited, but opportunities for either commercial passenger flights and/or cargo flights is expected to grow as the Antelope Valley region develops.

6.1. Palmdale Regional Airport

Palmdale Airport is located in the City of Palmdale, adjacent to the US Air Force Plant 42. In 1951, the US Air Force (USAF) purchased the property on which the existing passenger terminal is located. In November 1970, the Los Angeles World Airports (LAWA), a department of the City of Los Angeles, purchased 17,000 acres of land adjacent to Plant 42.[35] However, the right to operate the facility was transferred to the City of Palmdale in 2011. The existing terminal was once accessed via 20th Street East, just north of Avenue P (shown in **Figure 6-1**), but it is currently closed to traffic. Although commercial flights ceased in 2009, the airport has an agreement with Edwards Air Force to allow 50 commercial flights per day, with the potential to serve up to 400 flights per day in the future.[36]

Figure 6-1: Access to Existing Terminal – Palmdale Regional Airport

[35] *http://www.lawa.org/75thanniv/pdf/pmd_history.pdf*
[36] *Source: http://ourweekly.com/news/2013/aug/02/palmdale-airport-plans-still-air/*

There is no updated Master Plan for the Palmdale Airport. Preparation of such a plan was halted by LAWA when the responsibility of operating the airport was transferred to the City of Palmdale. In the future, the City of Palmdale may consider alternate locations within the LAWA property that could move the terminal east to the vicinity of 40th Street East to place it closer to the runways and better accommodate freight operations. For that reason, the NCMITS has evaluated ground access needs for the airport under two scenarios; one where it remains at 20th Street East, and one where it is relocated to the east.

In order to reinitiate air passenger service at Palmdale, the City will have to undertake a Federal Aviation Administration Part 139 Recertification. This is a federal airport certification for airports serving scheduled air carrier operations in aircraft designed for more than nine passenger seats, but less than 31 passenger seats. Through this process, the airport operator must agree to certain operational and safety standards and provide for such things as firefighting and rescue equipment (requirements vary by size of airport, etc.). The Part 139 Recertification does not address land-side ground access except for emergency vehicle access and airside access controls, so a Palmdale Airport Master Plan will eventually be needed.

6.1.1. SCAG Air Activity Forecasts

Since 1990, several regional express carriers have initiated and subsequently discontinued service at the airport, providing service to Los Angeles, San Francisco, and Las Vegas. Enplanements at the airport were approximately 11,000 in 2008 and have been as high as 26,000 in 1990. As the regional planning agency, the Southern California Association of Governments (SCAG) is responsible for preparation of the Regional Transportation Plan for the six-county SCAG region, including plans for airports. The SCAG Aviation Task Force prepares forecasts for future passenger and cargo levels for all regional airports to assist in that planning. As part of the preparation of the 2012 Regional Transportation Plan/Sustainable Communities Plan, SCAG produced baseline, low and high forecasts for air passenger and freight cargo demand. Those forecasts are summarized in the figures below:

	Low	Baseline	High
Bob Hope	9.4	9.4	9.4
John Wayne	10.8	10.8	10.8
LAX	78.9	78.9	78.9
Long Beach	4.2	4.2	4.2
March Inland Port	0.4	0.6	2.5
Ontario	19.2	30.7	31.6
Palmdale	1.6	2.6	6.1
Palm Springs	2.3	4.1	9.6
San Bernardino	1.8	2.8	6.7
SoCal Logistics	0.4	0.7	1.6
Imperial	0.6	0.9	2.1
Oxnard	0.1	0.2	0.5
Total	**130**	**146**	**164**

Figure 6-2: 2035 Air Passenger Forecasts (Millions of Annual Passengers)

(000 tons)	Scenario		
	Low Growth	Baseline	High Growth
Bob Hope	80	108	130
John Wayne	34	46	55
Los Angeles International	2,685	3,647	4,358
Long Beach	69	94	112
March Inland Port	108	147	176
Ontario International	968	1,314	1,570
Palmdale Regional	25	34	40
Palm Springs International	Note 1	Note 1	Note 1
San Bernardino Int'l	108	146	175
So. California Logistics	50	68	81
	4,127	**5,605**	**6,697**

Note: 1. Less than 100 tons

Figure 6-3: 2035 Air Cargo Forecasts (Thousands of Tons)

The SCAG forecasts indicate that LA/Palmdale Airport could serve a passenger demand of between 1.6 Million Annual Passengers (MAP) (low growth forecast scenario) and 6.1 MAP (high growth forecast scenario) in 2035, capturing between 1.5 and 4% of the regional air passenger demand. It is not known when the airline service may start, but it could grow to those levels by 2035.

SCAG also forecasts that air cargo operations at LA/Palmdale Airport could reach between 25,000 and 40,000 tons annually in 2035, similar to the amount of cargo forecast for John Wayne Airport. This forecast

is likely based on the amount of cargo that would be expected in the bellies of passenger flights and not reflective of a major cargo operation.

SCAG is currently updating the 2016 RTP/SCS aviation forecast and preliminary indications are that the forecasts for LA/Palmdale Airport may not increase beyond those in the 2012 RTP/SCS.

6.1.2. Ground Access Requirements

Given that there is not a Master Plan for the airport and it is not known precisely where the terminal will be located, let alone other related facilities, such as short- and long-term parking or rental cars, it is difficult to develop a detailed airport ground access plan. The NCMITS team instead looked at comparable sized airports to identify the magnitude of ground access capacity that has been provided at comparable airports in the 1.6 – 6.1 MAP range of passengers. The graphics below illustrate some of those small- to mid-sized airports.

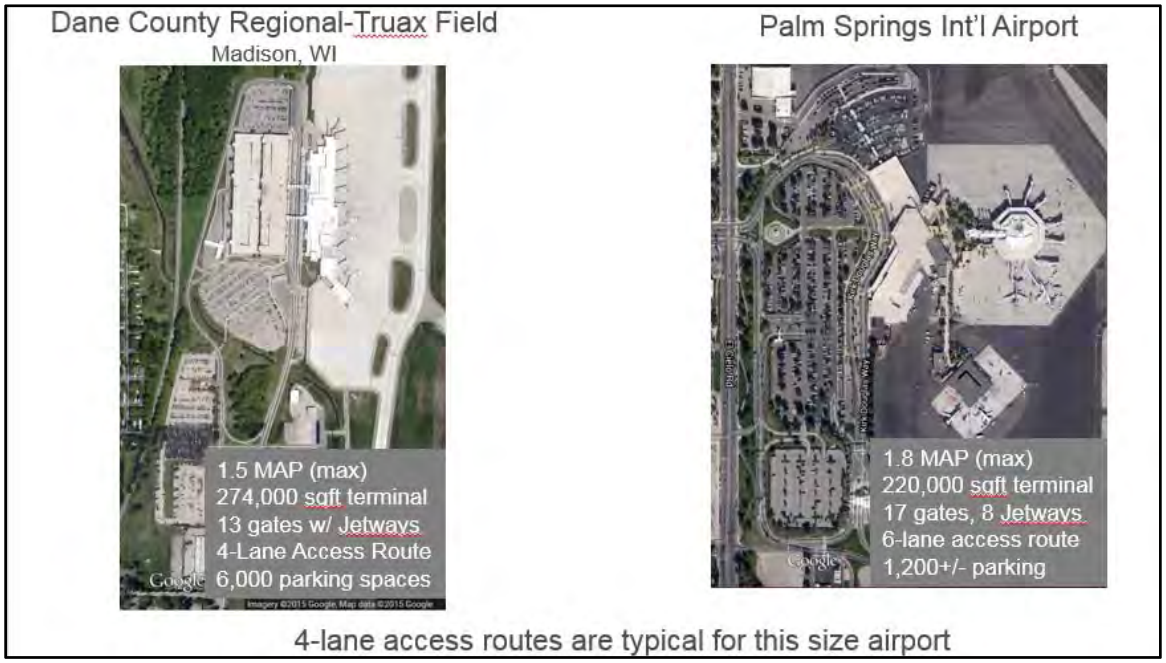


Figure 6-4: Examples of 1.6 MAP Airport

Figure 6-5: Examples of 2.6 MAP Airport

Figure 6-6: Examples of 6.1 MAP Airport

The examples above illustrate that the LA/Palmdale Airport is likely to need the equivalent of a four-lane to six-lane main access road if it handles up to approximately 6 MAP in the future. This means that if the

terminal stays at 20th Street East, north of Avenue P, it would need to be improved to a six-lane roadway. Secondary access to the terminal area could be needed for future expansion or if additional operations, such as air cargo or hotels and airport-related commercial activity also occurs at that site.

If the airport terminal is built further to the east, potentially on 40th Street East, there is more flexibility with regard to alternative airport access routes. Roadway improvements to/from the south could be provided on 40th Street East, but potentially also on 30th Street East and 50th Street East, both of which will eventually have interchanges located on the High Desert Corridor. There is also the potential for access from the east through the currently undeveloped LAWA property.

6.1.3. Airport Traffic Generation

The 2012 RTP/SCS provided a high-level baseline forecast for vehicular traffic generated by each airport in the SCAG region. Using the average daily vehicle trips per MAP for the baseline (4,231), estimates can be developed for the low and high forecasts:

1.6 MAP = 7,000 daily vehicle trips

2.6 MAP = 11,000 daily vehicle trips

6.1 MAP = 26,000 daily vehicle trips

These trips are in addition to the 28,000 Average Daily Traffic (ADT) forecast by the SCAG 2035 travel demand model on East Avenue P. Therefore, even the low estimate may require an expansion of E Avenue P to six lanes if it is the primary access route to the airport prior to construction of the High Desert Corridor. The higher trip estimate would require expansion or mitigation (e.g., diversion to other access routes).

In addition to auto trips to/from the airport, there will be truck trips associated with air cargo. Using the average daily truck trips per annual ton for the baseline (1.6), estimates can be developed for the low and high forecasts:

25,000 tons = 40 daily vehicle trips

34,000 tons = 54 daily truck trips

40,000 tons = 64 daily truck trips

The range of truck trips (40-64) per day is small and would not in and of itself require additional roadway capacity expansion. Ninety percent of these trucks will likely be vans, with the remainder carried in larger trucks. It should be noted, however, that if a major air cargo operation were to be attracted to LA/Palmdale Airport, a more detailed analysis of ground access improvements for trucking operations would be necessary.

6.1.4. Conceptual Ground Access Improvements

The figures below illustrate the conceptual ground access improvements suggested by the NCMITS team in the vicinity of the two alternative LA/Palmdale Airport locations. Both assume that the High Desert Corridor will be in place and will provide regional access to the airport areas. Should that not be the case, or in the interim, greater use of East Avenue P would suggest that it would need to be improved to a six-lane facility.

It should also be noted that the potential for economic development around the airport area is significant, particularly if the LAWA-owned land is developed as a goods movement-related economic development area with related commercial and workforce housing as noted in the Inland Port chapter of this report. That would require a major transportation planning effort for the area.

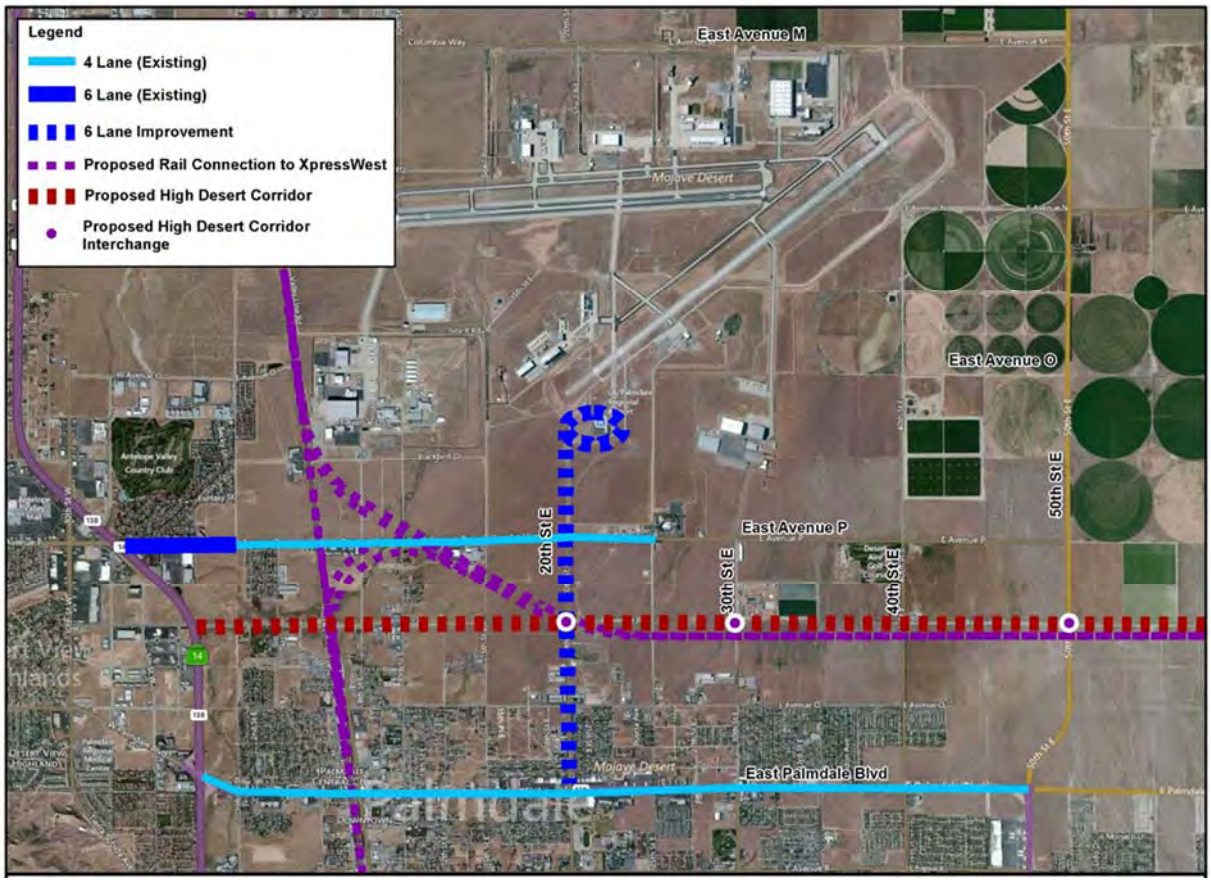


Figure 6-7: Conceptual Ground Access - 20th Street East Airport Site

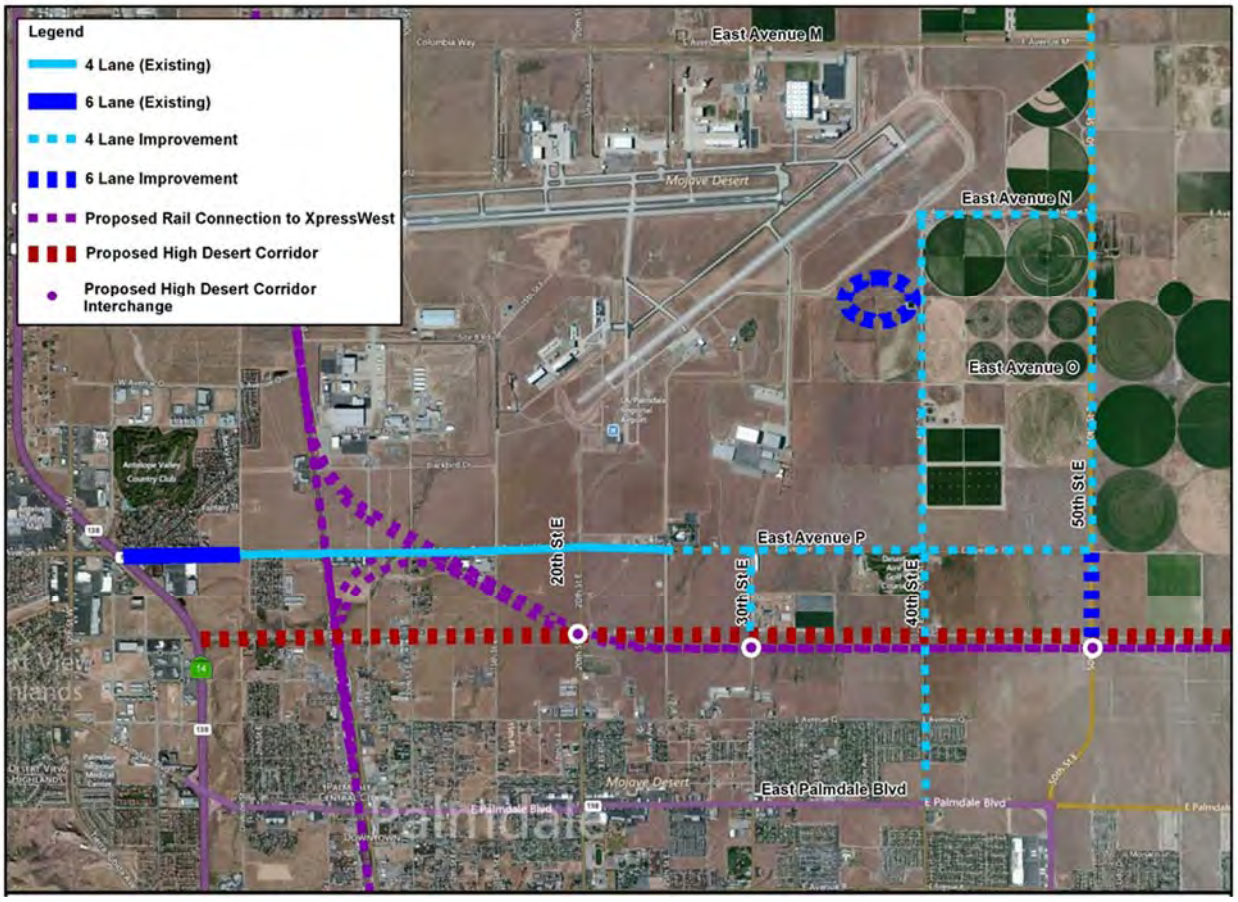


Figure 6-8: Conceptual Ground Access - Eastern Airport Site

Another component of the ground access plan for LA/Palmdale Airport will be transit connections. The proximity of the Palmdale Transportation Center (PTC), with current Metrolink service, should be connected to the airport with a shuttle service. When the CAHSR project reaches Palmdale at a station adjacent to the PTC, a fixed guideway transit connection may prove feasible. This is more likely to be the case if the air terminal is at 20th Street East as opposed to 40th Street East, given the per-mile costs of such systems.

6.2. William J. Fox Airfield, Lancaster, CA

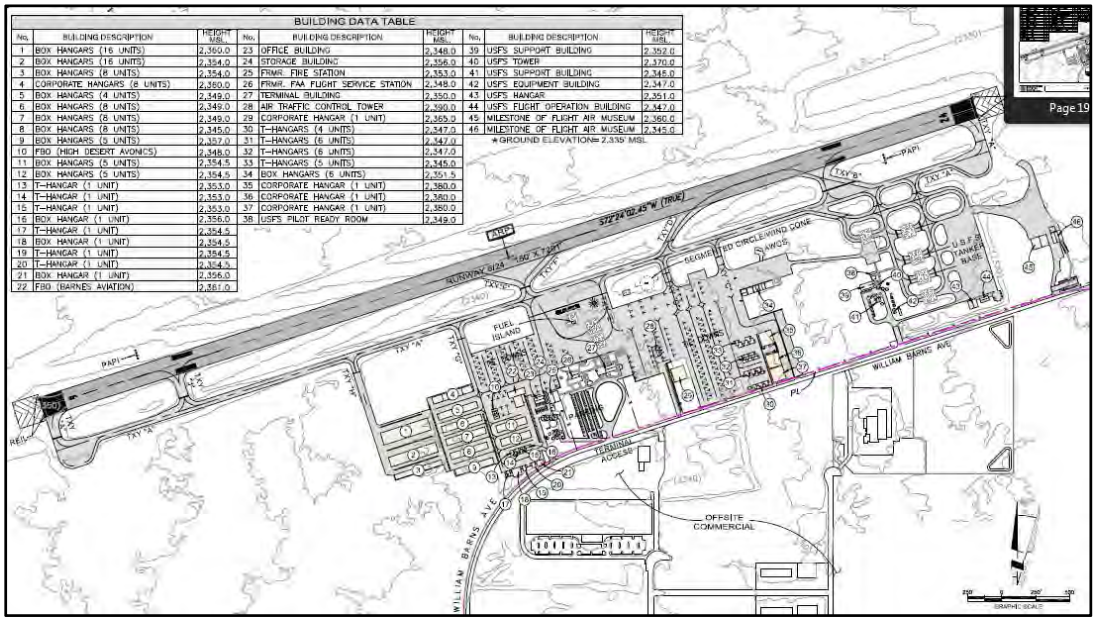
General William J. Fox Field (Fox Field) is located in northwest Lancaster, in unincorporated Los Angeles County. It is located in the area bounded generally by Avenue G on the south, Avenue F on the North, 60th Street West on the west, and 40th Street West on the east. It was developed in 1959 by the County of Los Angeles under a prior agreement with the Federal Government to buy the Palmdale Airport. The sale in 1954 required relocating commercial and general aviation operations from the Palmdale Airport to Fox Field in order to separate military and civilian aircraft operations.

Fox Field serves the general aviation needs of Lancaster, Palmdale, Rosamond, and Quartz Hill. The Airport is owned by the County of Los Angeles and is administered by the Department of Public Works Aviation Division. The figure below shows the airport vicinity.

Source: General William J. Fox Airfield Master Plan Update, August, 2013

Figure 6-9: General William J. Fox Airfield and Vicinity

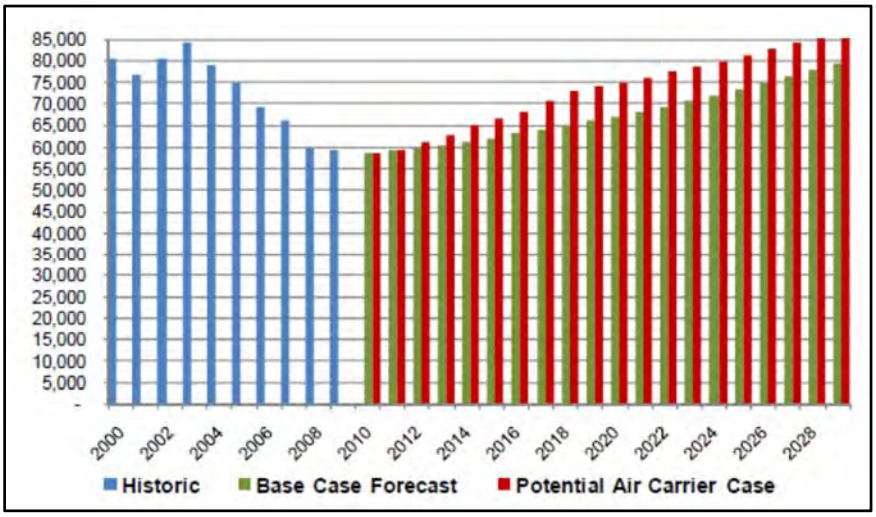
Fox Field has one runway that is 7,201 feet long by 150-feet wide, capable of handling commercial aircraft. The airport layout is shown in **Figure 6-10**. The main entrance is via William J. Barnes Avenue off of Avenue G.



Source: General William J. Fox Airfield Master Plan Update, August, 2013

Figure 6-10: General William J. Fox Airfield Layout

The historic and projected aviation demand for Fox Field is graphically shown and taken from the 2013 Fox Field Airport Master Plan.

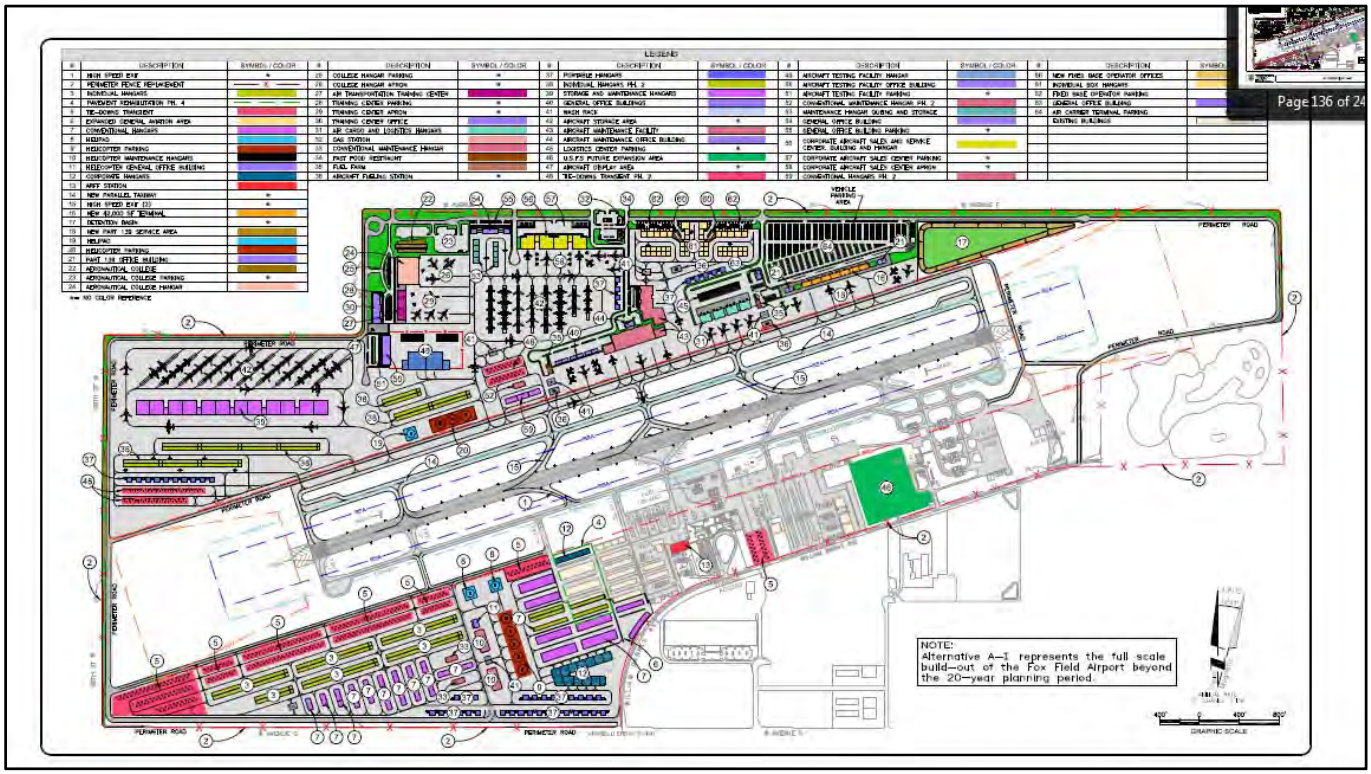


Source: General William J. Fox Airfield Master Plan Update, August, 2013

Figure 6-11: Historic and Projected Aircraft Operations

Fox Field primarily serves general aviation planes. The distribution of single engine aircraft has declined while the distribution of jets and helicopters has increased. The Master Plan envisions the potential for

air carrier operations with up to 11 flights per day in the planning horizon. The figure below shows the preferred alternative recommended in tha Airport Master Plan.



Source: General William J. Fox Airfield Master Plan Update, August, 2013

Figure 6-12: General William J. Fox Airport Master Plan

6.2.1. Conceptual Ground Access Improvements

Roadway and interchange improvements are suggested on both the north and south sides of the airport. Avenue G has been improved to six lanes for most of the distance between SR 14 and William J Barnes Avenue, but the area closest to the freeway and the SR 14/Avenue G interchange need to be upgrades. William J. Barnes Avenue is only a two-lane road that dead ends at the adjacent park. It should be widened and connected to Avenue F-8 to connect to 30th Street West as an alternate access point. On the north side of the airport, Avenue F and its interchange on SR 14 need to be improved if airport development shifts to the north side of the runway. One or more of the streets linking the airport area to SR 138 should also be improved. This could be one or more of the following: 60th Street West, 50th Street West, 40th Street West or 30th Street West, depending upon where development on the north side of the airfield proceeds first.

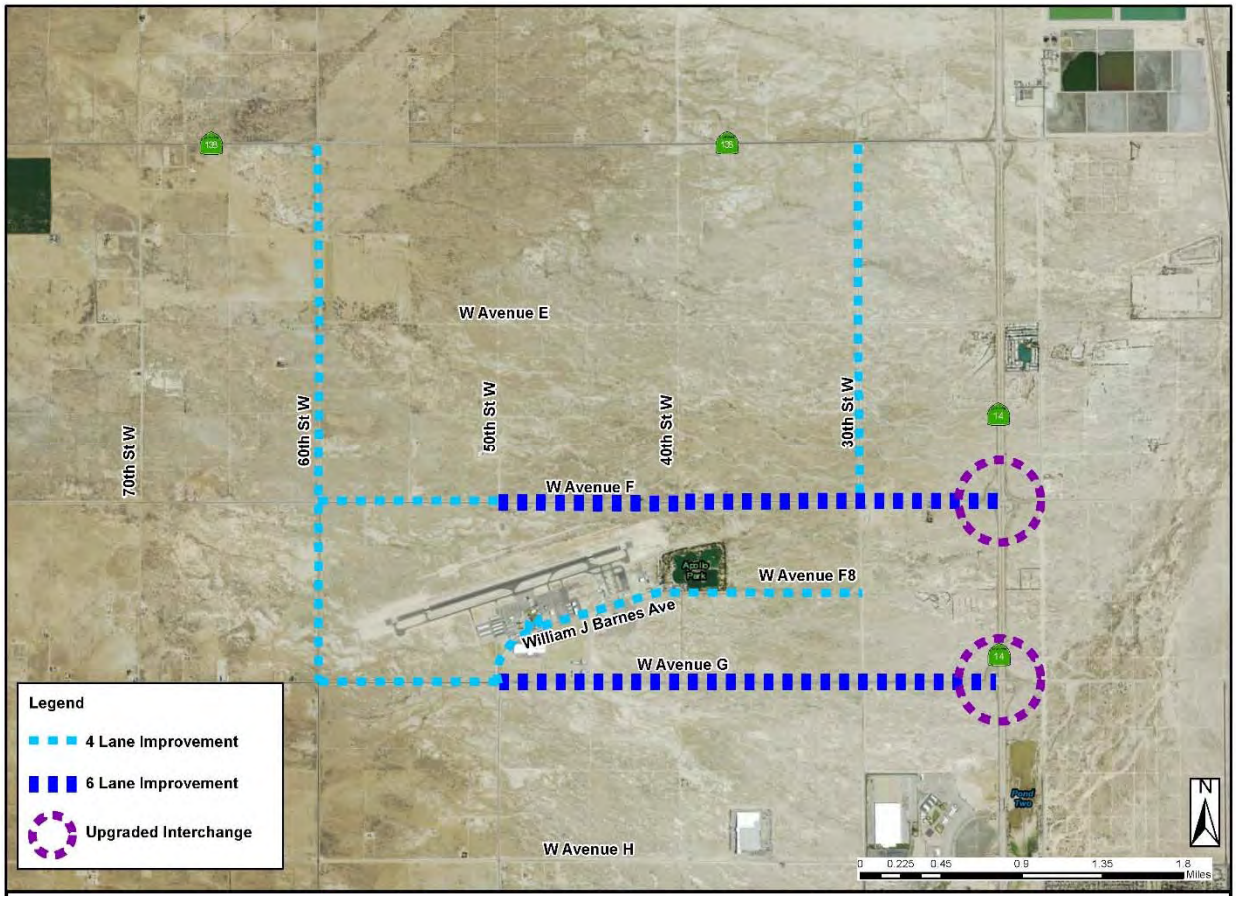


Figure 6-13: Potential Ground Access Improvements for General William J Fox Airfield

Additional transportation improvements could be needed if a commercial air cargo operator decides to begin service at Fox Field or if the goods movement economic development initiative near the airport proceeds.

Chapter 7 - TRANSPORTATION INFRASTRUCTURE PACKAGES

7.1. Introduction

In February 2014, the Los Angeles County Metropolitan Transportation Authority (Metro) Board approved the development of Mobility Matrix (MM) studies for County subregions. The MM effort is the starting point for the update of the Metro Long-Range Transportation Plan (LRTP) which is expected to be adopted in 2017.

The North County subregion was involved in two MM efforts: 1) the City of Santa Clarita was evaluated as part of the San Fernando Valley MM, and 2) the Antelope Valley was evaluated as its own MM. The MM identified projects and programs intended to meet overarching goals defined by the North County Project Delivery Team (PDT) are summarized below:

- Increase Multimodal Mobility Options for North County Residents, Visitors, and Businesses
- Make Transportation Investments that Address Current Needs and Anticipate Future Opportunities
- Coordinate Implementation of Multimodal Improvements that Support Subregional Economic Development Goals
- Ensure that Investments Balance Mobility, Environmental Sustainability, and Quality of Life
- Maintain and Preserve the Transportation System

This current North County Multimodal Integrated Transportation Study (NCMITS) is updating the 2004 North County Combined Highway Corridors Study (NCCHCS) by assessing mobility deficiencies, constraints and opportunities for regional highways (I-5, SR-14, and SR-138) and other future multimodal components including:

- Freight/Economic Development Opportunity Areas
- Fixed Guideway Transit
- Regional Airport Ground Access
- High Desert Corridor (HDC)

The MM studies identified projects in a bottoms-up planning process, but it did not assign priorities to the projects. The NCMITS supports the MM by developing bundled investment packages of MM projects that support the multimodal components defined by NCMITS. The NCMITS effort has also identified other potential projects to further support the multimodal components. The investment packages identified as part of NCMITS include:

- Freight/Economic Development Opportunity Development Areas (four total)
- High Desert Corridor (HDC)
- Fixed Guideway Transit/HSR
- Local Airport Development (Palmdale and Fox Field)

- Regional State Highway System (SHS) Corridors updated from the 2004 NCCHCS

The evaluation approach developed for NCMITS is flexible, so that it can be applied in the development of the LRTP.

7.2. Mobility Matrix Process

The recently completed MM process identified a locally-generated list of projects and programs and evaluated them against the North County goals and objectives. Some of these include projects that were previously proposed, but not completed under the 2004 NCCHCS effort.

The MM study did not prioritize projects, which will be done as part of the upcoming LRTP development, but it did result in the development of anticipated investment needs and a proposed implementation plan for short-term (2015-2024), mid-term (2025-2034) and long-term (2035-2045) timeframes.

The MM project lists and timelines were used as the basic input to this NCMITS effort. The MM resulted in a North County subregion project list of 438 projects that addressed potential investments for all modes and jurisdictions within the North County. **Figure 7-1** summarizes the types of projects that were identified as part of the MM effort. The largest number of projects are in the City of Lancaster, with 172 projects, 92 of which are Active Transportation Projects (bicycle and pedestrian improvements). There are 44 projects in Palmdale, 16 in Santa Clarita, and 69 in unincorporated areas of LA County. These projects were used as the starting point for the NCMITS investment package process.

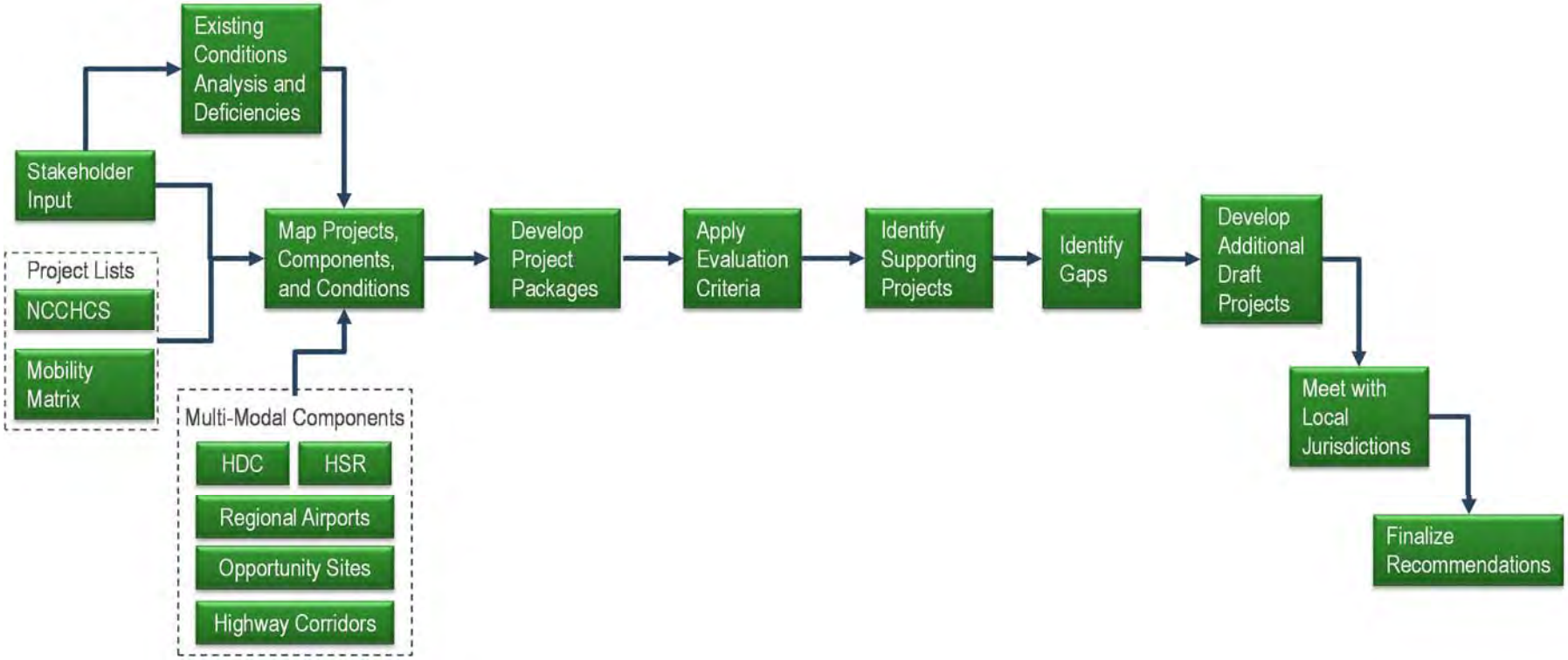
Project Category		Transit		Highway Corridors					Cities/County					Totals
		AVTA	Metrolink	HDC	I-5	I-5/ SR-14	SR-14	SR-138	Lancaster	Lancaster/ Palmdale	Palmdale	Santa Clarita	North LA County	
Active Transportation		-	-	-	-	-	-	-	92	-	4	-	27	**123**
Arterial	Bridge, Tunnel, and Grade Separation	-	-	-	-	-	-	-	1	-	1	-	1	**3**
	Capacity Enhancement	-	-	-	6	-	-	-	67	1	15	12	19	**120**
	State of Good Repair/ Safety	-	-	-	-	-	-	-	1	-	3	1	5	**10**
	TSM	-	-	-	7	-	2	-	1	-	7	1	9	**27**
Goods Movement	Grade Crossing Safety Improvement	-	-	-	-	-	-	-	4	-	5	-	2	**11**
	AV Inland Port	-	-	-	-	-	-	-	-	1	-	-	-	**1**
Highway	Bridge, Tunnel, and Grade Separation	-	-	-	-	-	-	-	-	-	-	-	1	**1**
	Capacity Enhancement	-	-	3	11	2	7	2	1	-	2	-	1	**29**
	Intersection/ Interchange	-	-	-	-	-	-	-	1	-	1	-	4	**6**
	State of Good Repair/ Safety	-	-	-	-	1	-	-	-	-	1	-	-	**2**
	TSM	-	-	-	2	-	2	-	1	-	-	-	-	**5**
Multi-Modal		-	-	-	-	-	-	-	1	-	-	-	-	**1**
Transit	Bus	5	1	-	3	-	-	-	2	1	2	-	-	**14**
	Commuter Rail	-	6	-	-	-	-	-	-	-	-	-	-	**6**
	Rail	-	-	-	-	-	-	-	-	-	1	-	-	**1**
	Rail or Bus	-	-	-	-	-	-	-	-	-	-	1	-	**1**
	TDM	-	-	-	1	-	1	-	-	-	1	-	-	**3**
	Transportation Center	-	-	-	-	-	-	-	-	-	1	1	-	**2**
Totals		**5**	**7**	**3**	**30**	**3**	**12**	**2**	**172**	**3**	**44**	**16**	**69**	**366**

Figure 7-1: North County Mobility Matrix Project Types

7.3. NCMITS Project Assessment

As with the MM process, the NCMITS project assessment process did not prioritize individual projects, but attempted to identify how MM projects could be bundled to support the North County State Highway improvements and other multimodal components. It was not possible to prioritize projects given the number of uncertainties and unanswered questions about the timing and/or funding of major infrastructure projects each of which is being funded, planned, designed or implemented by different entities and jurisdictions. These project include, but are not limited to the High Desert Corridor, CHSR and Desert Express, as well as commercial air service at one or more of the Antelope Valley airports, or the development of one or more Antelope Valley goods movement economic development areas. This process is summarized in the flow chart in **Figure 7-2**.

Figure 7-2: NCMITS Project Assessment Process



The NCMITS project assessment process began by first updating the existing conditions baseline to reflect changes since the development of the 2004 NCCHCS. The NCMITS study team, in coordination with the MM study team and the NCMITS Technical Advisory Committee (TAC) Focus Group compiled project lists from the 2004 NCCHCS study as well as the final MM project list and the other multimodal components evaluated as part of this study:

- **Freight/Economic Development Opportunity Sites.** The NCMITS effort provided an in-depth analysis and site evaluation for economic development that supports the MM "Inland Port" project for economic development, which served as the genesis for the NCMITS effort.
- **High Desert Corridor.** The MM includes the HDC as a project, and this NCMITS effort supports the HDC by identifying other MM projects that would supplement HDC development and enhance access to the HDC.
- **Fixed Guideway Transit/High Speed Rail.** The NCMITS is designed to enhance integration of the California HSR, Metrolink, and Xpress West rail projects with bus transit services, and potential access to a future Palmdale Regional Airport.
- **Regional Airport Access.** Ground access improvements to address potential expansions to provide commercial passenger service and air cargo operations at the Palmdale Regional Airport and Fox Field.
- **SHS Corridor Updates.** NCMITS identifies projects that are complementary to enhanced mobility in each of the NCCHCS corridors.

The NCMITS study team created Geographic Information System (GIS) maps of all these projects and components and developed project packages described above by applying additional evaluation criteria that were applied to all 438 projects. These additional criteria include:

- Deficient Segment – Does the project potentially mitigate a capacity or congestion deficiency identified as part of the Existing Conditions Assessment?
- Bottleneck Location - Does the project potentially mitigate a SHS Corridor bottleneck identified as part of the Existing Conditions Assessment?
- Truck Route – Is the project located on a local or SHS truck route?
- Regionally Significant Arterial – Is the project located on a Metro-identified regionally significant arterial?
- National Highway System (NHS) – Is the project located on an NHS highway or principal arterial?
- Bus Rapid Transit (BRT) Route – Is the project located on a known or potential BRT route?
- Bus Route - Is the project located on a known regional bus route?
- HSR .5/1 Mile Radii – Is the project located within one-half or one mile of a proposed HSR station?
- Metrolink .5/1 Mile Radii – Is the project located within one-half or one mile of a Metrolink station?
- Park and Ride (PnR) 1 Mile Radius - Is the project located within one mile of an existing PnR lot?

- Accessibility 1-Mi Radius – Is the project located within one mile of a major destination such as an educational facility or medical center?
- Airport Access – Does the project provide direct access to a regional airport?
- Access to Economic Opportunity Site – Does the project provide direct access to an economic opportunity site?
- HDC Access – Does the project support the proposed HDC by providing direct access?
- HDC Corridor – Denotes a MM project that lies on the proposed HDC Right-of-Way (ROW)
- Safety – Does the project lie in an area with a high number of bicycle-pedestrian accidents as identified in the Existing Conditions?
- 2004 NCCHCS Project – Is the project in the 2004 NCCHCS project list?
- Supports I-5 Corridor – Does the project directly improve or enhance access to the I-5 Corridor?
- Supports I-5/SR-14/SR-138N/SR-138S Corridors - Does the project directly improve or enhance access to the major SHS Corridor?

Figure 7-3 shows how this evaluation was applied to the NCMITS project list.

NCMITS Project ID	Revised Program	Revised Sub-Program	Project Description	Jurisdiction	1-Deficient Segment	2-Bottleneck Location	3-Truck Route	4-Regionally Significant	5-NHS	6-BRT Route	7-Bus Route	8-HSR .5 Mi Radius	9-HSR 1 Mi Radius	10-Metrolink .5 Mi Radius	11-Metrolink 1 Mi Radius	12-PnR 1 Mi Radius	13-Access 1-Mi Radius	14a-Airport Access	14b-Airport Location	15a-Access to Opp Site	15b-Access to Opp Site	16-HDC Access	17-HDC Corridor	18-Safety	19-2004 NCCHCS Project	20-Supports I-5 Corridor	21-Supports SR-14 Corridor	22-Supports SR-138N Corridor	23-Supports SR-138S Corridor
NCMITS Project ID	Revised Program	Revised Sub-Program	Project Description	Jurisdiction	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	MI	vPr	I_5	SR_14	138	138
91	Arterial Program	Arterial Capacity Enhancement Program	Highway Corridor/Gap Closure/Goods Movement; 60th St W-Avenue L-4 to Avenue L-8; Widening project	County of Los Angeles			1	1			1						1												
92	Arterial Program	Arterial Capacity Enhancement Program	Highway Corridor/Gap Closure/Goods Movement; Avenue K - 40th St W to 52nd St W; Widening project	County of Los Angeles			1																						
93	Arterial Program	Arterial Capacity Enhancement Program	Highway Corridor/Gap Closure/Goods Movement; 60th St W-Avenue M to Avenue M-8; Widening project	County of Los Angeles				1																					
94	Arterial Program	Arterial Capacity Enhancement Program	Highway Corridor/Gap Closure/Goods Movement; Avenue L-40th St W to 57th St W; Widening project	County of Los Angeles				1																					
95	Arterial Program	Arterial Capacity Enhancement Program	Highway Corridor/Gap Closure/Goods Movement; Avenue M-30th St W to Antelope Valley Freeway; Widening project	County of Los Angeles					1								1			1	2								
96	Arterial Program	Arterial Capacity Enhancement Program	Highway Corridor/Gap Closure/Goods Movement; Avenue M-40th St West/60th St West; Widening project	County of Los Angeles				1									1												
97	Arterial Program	Arterial Capacity Enhancement Program	Highway Corridor/Gap Closure/Goods Movement; Avenue N-45th St W to SR-14; Widening project	County of Los Angeles			1	1									1			1	2								
98	Arterial Program	Arterial Capacity Enhancement Program	Highway Corridor/Gap Closure/Goods Movement; Avenue O-30th St W to 10th St W; Widening project	County of Los Angeles																1	2								

Figure 7-3: NCMITS Evaluation Criteria

Once these evaluation criteria were applied to each project, the NCMITS study team performed a qualitative assessment of how well each project would potentially support each of the five investment packages described above using a “High Benefit” for projects that were determined to definitely provide a direct benefit for an investment, “Potential Benefit”, for projects that may provide some benefit, but the benefits would depend on how the project was implemented. An example of a “potential benefit” project would be one that improves intersections for trucks regionwide. The benefit of such a project for an economic opportunity site or air cargo airport would depend on the specific locations of those projects. A “high benefit” project could be one located within or near an economic opportunity site that directly enhanced mobility within or access to the site. It could also include a project that enhanced accessibility to the High Desert Corridor or one of the airport sites or transit centers.

If a project lies outside the proximity of a package location such as an arterial improvement in the City of Santa Clarita that is many miles away from the Palmdale Regional Airport, then that project would be flagged as not having a benefit for that investment bundle.

Other projects, such as active transportation projects, would have a high benefit for access to proposed HSR stations, but would likely not provide a significant benefit to access an air cargo airport even if they were in close proximity to the airport.

Using this as guidance, the NCMITS study team members reviewed each project to assess the potential impact on an investment location/package as providing a “High Benefit”, “Potential Benefit”, or Limited benefit. The study team also identified new projects beyond the MM or NCCHCS projects where gaps in the transportation network were noted. **Figure 7-4** shows how this evaluation was performed in the NCMITS/MM project list.

Project List	MM Project ID	NCMITS Project ID	Revised Program	Revised Sub-Program	Project Description	Jurisdiction	Freight Opp Site 1	Freight Opp Site 2	Freight Opp Site 3	Freight Opp Site 4	Fixed Guideway	HOV	Fox Airfield	PM10 (20th St)	PM10 (30th St)	I-5	SR-14	SR-138N	SR-138S	Total
Project List	MM Project ID	NCMITS Project ID	Revised Program	Revised Sub-Program	Project Description	Jurisdiction	Ev al.	Ev al.	Ev al.	Ev al.	Eva l.	Ev al.	Ev al.	Ev al.	Ev al.	Ev al.	Ev al.	Ev al.	Ev al.	
NC	34	91	Arterial Program	Arterial Capacity Enhancement Program	Highway Corridor/Gap Closure/Goods Movement; 60th St W-Avenue L-4 to Avenue L-8; Widening project	County of Los Angeles					1									1
NC	36	92	Arterial Program	Arterial Capacity Enhancement Program	Highway Corridor/Gap Closure/Goods Movement; Avenue K - 40th St W to 52nd St W; Widening project	County of Los Angeles														-
NC	35	93	Arterial Program	Arterial Capacity Enhancement Program	Highway Corridor/Gap Closure/Goods Movement; 60th St W-Avenue M to Avenue M-8; Widening project	County of Los Angeles														-
NC	37	94	Arterial Program	Arterial Capacity Enhancement Program	Highway Corridor/Gap Closure/Goods Movement; Avenue L-40th St W to 57th St W; Widening project	County of Los Angeles														-
NC	39	95	Arterial Program	Arterial Capacity Enhancement Program	Highway Corridor/Gap Closure/Goods Movement; Avenue M-30th St W to Antelope Valley Freeway; Widening project	County of Los Angeles		2												2
NC	40	96	Arterial Program	Arterial Capacity Enhancement Program	Highway Corridor/Gap Closure/Goods Movement; Avenue M-40th St West/60th St West; Widening project	County of Los Angeles														-
NC	41	97	Arterial Program	Arterial Capacity Enhancement Program	Highway Corridor/Gap Closure/Goods Movement; Avenue N-45th St W to SR-14; Widening project	County of Los Angeles		2												2
NC	42	98	Arterial Program	Arterial Capacity Enhancement Program	Highway Corridor/Gap Closure/Goods Movement; Avenue O-30th St W to 10th St W; Widening project	County of Los Angeles		1												1

Figure 7-4: NCMITS Investment Package Evaluation

Finally, the study team mapped the projects that could provide potential benefits in support of the investment package.

An example of one of these maps is shown in **Figure 7-5**. **Appendix E** of this final report shows the mapped results for each of the investment packages. In this illustrative example, for Economic Opportunity Area 1 surrounding the vicinity of Fox Field in Lancaster, projects shaded green are those identified by the project team that could potentially support access to Area 1 beyond those identified as part of the MM. For example, if economic development (particularly though warehousing/industrial development) were to occur around Fox Field, then arterial improvement projects to better connect 30th, 40th, 50th, or 60th Streets West to SR-138 may be considered to accommodate heavy duty trucks.

Purple-colored projects are projects from the MM and/or the 2004 NCCHCS that may provide a "high benefit" for economic development in this area. The rationale for selecting each of these projects can be found by reviewing the project listing spreadsheet described above and shown in Figures 7-3 and 7-4 above.

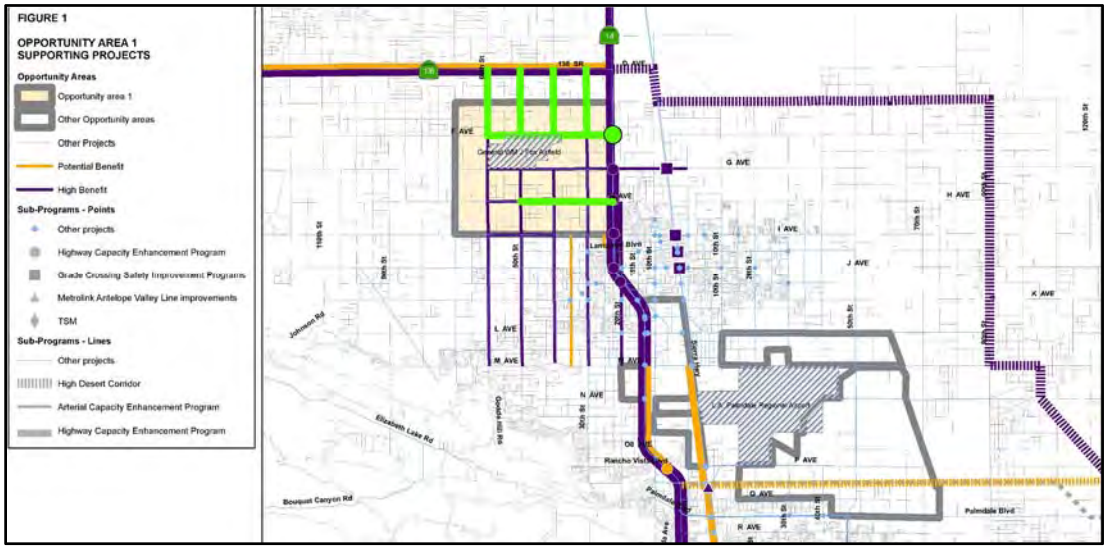


Figure 7-5: NCMITS Investment Package Evaluation

The rationale for developing these investment packages of transportation improvement projects stemmed from the uncertainty as to which areas might develop fastest, the unknown implementation schedules of the HDC, HSR, and commercial air passenger or air cargo operations at either of the two airports. The investment packages provide a set of transportation improvements designed to enhance mobility related to each potential future scenario. Once the projects were mapped, they were reviewed by the study team for consistency and edits made where appropriate. The projects were then evaluated on how well they address key needs in the North County. These findings and conclusions will be discussed in Chapter 8.

Chapter 8 - FINDINGS AND CONCLUSIONS

The NCMITS study is a comprehensive assessment of the existing, in progress, and planned future transportation and land-use projects and programs in the North County area as well as an update of the 2004 NCCHCS. The study is focused on the following four key elements of a system-level vision that would support sustainable growth in North County:

- Economic Development Opportunities
- Fixed Guideway Transit Service
- Airport Ground Access
- High Desert Corridor/Regional State Highway System Improvements

8.1. Findings

The study includes identification and evaluation of potential economic development opportunities, multimodal transportation including highway and passenger rail, access to the Palmdale and Fox Field airports, and goods movement core and support infrastructure. It incorporated the list of projects submitted by the North County subregion under Metro's Mobility Matrix (MM) planning effort in this comprehensive assessment to reflect the priorities currently identified by the subregion. Additionally, the NCMITS study suggests new projects for consideration in the future to address remaining deficiencies. Neither the MM study nor the NCMITS prioritize projects. Project prioritization will be done during the on-going and future Metro Long-Range Transportation Plan (LRTP) update process.

The MM effort identifies investment needs and a proposed implementation plan for short-, mid- and long-term timeframes. The NCMITS suggests multimodal packages of projects. The NCMITS evaluation approach was designed to be flexible so that it can be applied in the development of the LRTP and in response to LRTP funding strategies/priorities that may be articulated by the Metro Board.

Further advancement of the projects considered and recommended in North County should address the following issues of concern:

8.1.1. Economic Development Opportunities

The NCMITS explores the opportunity for development of an Inland Port (IP) in the Antelope Valley (AV), preferably near the Palmdale or Fox Field airports. It has been determined that critical Inland Port site factors and market conditions (many beyond the control of AV communities, including short-haul railroad economics) do not yet exist to support an IP in the AV. The fundamental interest in assessing the opportunities for an IP was to enhance local economic development by better utilizing the airports in Palmdale and Lancaster and taking advantage of existing and planned transportation systems, land, workforce, and other AV regional assets. Economic development strategies to address how the AV sub-region can further its economic development goals were formulated. Strategies included master plan

vision concepts for four Opportunity Sites, economic development initiatives, and a unified joint powers governing approach. NCMITS examined the MM projects and suggested new projects that would support each of the areas considered for enhancement of the sub-region's economic development.

The principle study recommendations include:

- Promote economic development strategies that incorporate AV assets and advantages such as low-cost developable land, projected high levels of population and job growth, supportive development regulations, local workforce, and existing and planned transportation systems (HDC, CAHSR, Palmdale Airport revival, etc.). Create "land value capture" and infrastructure financing strategies in advance of major planned transportation improvements and other development plans. Create east/west goods movement and mobility linkages via the proposed High Desert Corridor and the SR-138 currently being studied by LACMTA. Take advantage of the economic impacts and synergy, improved regional and statewide access, mobility, and connectivity generated by the CHSR project.
- Adopt an AV regional master-plan ideally anchored by industrial development, freight transfer/distribution, and associated community development uses such as office space, retail, local internal transit system, public amenities, educational institutions, workforce housing, etc.
- Focus ED business attraction and retention efforts on key AV industry clusters, such as aeronautical/aerospace systems, unmanned aerial vehicles, and guidance systems. For example, build upon the October 2015 announcement by the United States Air Force of the $55 billion contract award to Northrup Grumman to build a new stealth aircraft with the majority of the work to be done at Plant 42 industrial park facility in Palmdale.
- Create a Joint Powers Authority planning and governing entity (modeled after AV Transit and HDC Authorities) to help implement region-wide economic development goals, better manage multi-jurisdictional needs and priorities, create economic synergy among jurisdictions, enhance the combined member resources, and pursue mutually beneficial land-use planning goals.

8.1.2. Fixed Guideway Transit

The NCMITS rail transit assessment identifies opportunities for increased rail-transit integration in the North County sub-region. The study integrates previous and on-going work by Metro, Metrolink, the California High Speed Rail Authority, local transit agencies, and local jurisdictions to support the identification of strategies to better integrate rail-transit services and future investments into the broader transportation system, and support long-term growth and transit needs.

Since the completion of the 2004 NCCHCS, new mega-transportation projects have surfaced that will significantly change rail-transit service in North County – these changes include:

- CHSR service to the PTC (and associated station changes)
- Metrolink investments in the Antelope Valley Line
- Proposed high speed rail service along the HDC multimodal project

At this time, CHSRA is working with the City of Palmdale to finalize a new PTC location, determine facility size and design that will accommodate co-located CHSR and Metrolink services and the required access needs for all modes in order to develop specific station area access plans. The PTC will also be the station location for any HDC based rail service. However, the timeframe for implementation of potential rail service via the HDC alignment will be better defined after the funding requirements are addressed. Metrolink has identified four track capacity projects for prioritization, as well as a number of grade crossing improvements or grade separations along the Antelope Valley Line that will support train service growth, as well as operational reliability and flexibility.

The NCMITS evaluation in Chapter 5 identifies MM projects and programs that support rail transit, as well as corridors where transit service should be prioritized to support the integration of existing and future rail-transit projects into the broader North County transportation network. Chapter 5 also addresses the current and future development patterns and opportunities.

8.1.3. Airport Ground Access

NCMITS evaluates ground access needs should passenger service be reinstated at the Palmdale Regional Airport. The study also discusses the ground access requirements associated with potential air cargo services at both Palmdale Fox Field airports. The development of an airport Master Plan was halted when LAWA transferred the Palmdale airport to the City of Palmdale. Future studies to identify improved access to Palmdale Airport would be contingent upon development of plans for the growth of the airport and determination of the ultimate location of the airport terminal.

Chapter 7 identifies multimodal projects that would support passenger and air cargo services at two proposed locations in Palmdale and for air cargo services at Fox Field. However, until the need for these services is further advanced and the locations of these airport facilities are determined, the ground access needs cannot be accurately assessed.

8.1.4. High Desert Corridor/Regional State Highway System Improvements

In July 2015, Caltrans and the Metro Board of Directors adopted the preferred alternative for the HDC. The project proposes freeway and high speed passenger rail service between SR-14 in Palmdale and the City of Victorville in San Bernardino County. The Final EIS/EIR is scheduled to be completed in spring 2016. When and how this facility will be constructed will help to determine future economic and transportation development in the North County. The development of the HDC may impact the need or scope of multiple projects proposed for the State Highway System (i.e., I-5, SR-14, and SR-138) and regional arterials that support the HDC. For example, the expansion or improvement needs for particular arterials that serve the HDC may also depend on proposed plans for fixed guideway rail, the development of identified economic opportunity areas, and the location and size of a future regional commercial airport.

8.2. Recommendations

Addressing the issues above will be integral to how the North County develops and which transportation programs and projects should be advanced. The NCMITS recommendations focus on a framework for better integrating project development with the multimodal components identified as part of this study. **Tables 8-1** through **8-4** provide the list of projects that would be beneficial to each of the four elements listed above deemed to be critical to the future development in North County. The recommendations provided below are based on the information available as of the date of this study. Proper prioritization and implementation of these projects would be contingent upon clear identification of the overall goals for the future of the North County, decisions on the large-scale plans and projects that would shape the identity of the subregion, and defined expected outcomes.

8.2.1. Economic Development Opportunities

- Creation of a Joint Powers Authority planning and governing entity to help implement region-wide economic development goals and pursue regionally significant development opportunities in each of the four opportunity areas identified in Chapter 5
- Interchange improvement projects along SR-14 to enhance accessibility to the four opportunity areas
- Grade separation projects along the north-south railroad alignment to enhance accessibility to the opportunity areas

8.2.2. Fixed Guideway Transit

- Metrolink capacity and operational improvements
- Grade separation projects
- Palmdale Transit Center planning/expansion to accommodate the CHSR service and future demand

8.2.3. Airport Ground Access

- Arterial improvement program in the vicinity of each airport
- Highway interchange improvements on SR-14 and SR-138 near Fox Field and along HDC near Palmdale Airport

8.2.4. High Desert Corridor/Regional State Highway System Improvements

- Environmental clearance and right of way protection for the HDC
- Interchange improvements along SR-14

8.3. Conclusion

Given the uncertainty related to the timing of the major infrastructure improvement projects (CHSR and HDC) and growth of airport service at both Palmdale and Lancaster airports, as well as the private market forces that will drive the pace of development at the four economic opportunity sites, it would be advisable for the sub-region to focus on short-term priorities that would collectively provide the capacity, operational, and access improvements needed for subregional and regional mobility and ultimately fulfill goals for economic prosperity in North County.

Table 8-1: Potential High Benefit Projects for Freight/Economic Development Opportunity Areas

Freight/ Economic Opportunity Sites Supported	Project Source	MM Project ID	Sub-Program	Project Description	Jurisdiction
Arterial Program					
2	North County MM	39	Arterial Capacity Enhancement Program	Avenue M-30th St W to Antelope Valley Freeway; Widening project	County of Los Angeles
2	North County MM	41		Avenue N-45th St W to SR-14; Widening project	County of Los Angeles
3	North County MM	107		8th Street East from Avenue L to Avenue M	Lancaster
2	North County MM	146		Avenue K-4 east of Gadsden to 5th Street West	Lancaster
2	North County MM	147		Avenue K-6 east of Gadsden to 5th Street West	Lancaster
1	North County MM	128		60th Street West Corridor, Ave F to Ave M	Lancaster
1	North County MM	126		50th Street West Corridor, Ave G to Ave M	Lancaster
1	North County MM	123		40th Street West Corridor, Ave G to Ave M	Lancaster
1	North County MM	119		30th Street West Corridor, Ave F to Ave M	Lancaster
1	North County MM	115		20th Street West Corridor, Ave H to Ave M	Lancaster
2	North County MM	111		10th Street West Corridor, Ave G to Ave M	Lancaster
2	North County MM	127		5th Street West Corridor, Ave K to Ave L	Lancaster
2,4	North County MM	141		Sierra Highway Corridor, Ave M to Ave G	Lancaster
2,3	North County MM	108		Avenue M, 40th West to Challenger Way	Lancaster
3	North County MM	110		10th Street East Corridor, Ave H to Ave M	Lancaster
3	North County MM	114		20th Street East Corridor, Ave H to Ave M	Lancaster
3	North County MM	118		30th Street East Corridor, Ave H to Ave M	Lancaster
3	North County MM	120		35th Street East Corridor, Ave H to Ave L	Lancaster
3	North County MM	122		40th Street East Corridor, Ave H to Ave L	Lancaster
1	North County MM	130		Avenue G Corridor, 60th West to Division St	Lancaster
1	North County MM	131		Avenue H Corridor, 60th West to 50th East	Lancaster
1	North County MM	132		Avenue I Corridor, 60th West to 40th East	Lancaster
2	North County MM	136		Avenue K-8 Corridor, 35th East to 10th West	Lancaster
2	North County MM	137		Avenue L Corridor, 4th East to 35th East	Lancaster
2	North County MM	24		Division Street roadway construction between SR 138 and Avenue M.	Palmdale
2	North County MM	22		10th Street West roadway construction between Elizabeth Lake Road and Avenue M	Palmdale
#2,#3,#4	North County MM	38		Avenue M widening between SR14 and 50th Street East	Palmdale
4	North County MM	43		Avenue Q widening between SR14 and 50th Street East	Palmdale

Freight/ Economic Opportunity Sites Supported	Project Source	MM Project ID	Sub-Program	Project Description	Jurisdiction
3,4	North County MM	27		50th Street East widening between SR138 and Avenue M	Palmdale
4	North County MM	44		Avenue R roadway construction between Division and 70th Street East	Palmdale
2,4	North County MM	48		Rancho Vista Boulevard / Avenue P roadway construction between Fairway Drive and 50th Street East	Palmdale
4	North County MM	7		Avenue R- Widen from 5th St. E to 20th St E	Palmdale
4	North County MM	33		Highway Corridor/Gap Closure/Goods Movement; 50th Street East Connector Arterial for E-220 to SR-138/ Palmdale Blvd Roundabout	Palmdale
4	North County MM	67		Highway Corridor/Gap Closure/Goods Movement; Palmdale Blvd at 40th Street East Intersection Widening	Palmdale
4	North County MM	66		Highway Corridor/Gap Closure/Goods Movement; Palmdale Blvd at 30th Street East Intersection Widening	Palmdale
1	New North County NCMITS Suggested Project			Avenue H from 50th Street West to SR-14: arterial capacity/geometric enhancements to improve heavy duty truck access	Lancaster
1				Avenue F from 60th Street West to SR-14: arterial capacity/geometric enhancements to improve heavy duty truck access	Lancaster
1				60th Street West from SR-138 to Avenue F: arterial capacity/geometric enhancements to improve heavy duty truck access	County of Los Angele, Lancaster
1				30th Street West from SR-138 to Avenue F: arterial capacity/geometric enhancements to improve heavy duty truck access	Lancaster
1				Avenue F at SR-14	Los Angeles County
3,4				Avenue M from 50th Street East to 90th St East (HDC): arterial capacity/geometric enhancements to improve heavy duty truck access	Palmdale, County of Los Angeles
3				Avenue L from 35th Street East to 90th Street East	Palmdale, County of Los Angeles
3				50th Street East from Avenue L to Avenue M	Palmdale
3				Avenue L from SR-14 to 50th Street East (and potentially to future HDC eastern outer loop): arterial capacity/geometric enhancements to improve heavy duty truck access	County of Los Angeles
4				70th Street East from Avenue M to Avenue P	County of Los Angeles
4				Avenue P from 50th Street East to 70th Street East	County of Los Angeles
4				40th St East from future proposed HDC IC to E Ave P: arterial capacity/geometric enhancements to improve heavy duty truck access and access to future proposed commercial airport (if constructed at nearby location to arterial)	County of Los Angeles
4				20th St East from Palmdale Blvd to E Ave P/Palmdale Regional Airport (if at current 20th St/E Ave P location): arterial capacity/geometric enhancements to improve heavy duty truck access and access to future proposed commercial airport (if constructed at current location)	Palmdale, County of Los Angeles

Freight/ Economic Opportunity Sites Supported	Project Source	MM Project ID	Sub-Program	Project Description	Jurisdiction
4				30th St East from future proposed HDC IC to E Ave P: arterial capacity/geometric enhancements to improve heavy duty truck access and access to future proposed commercial airport (if constructed at nearby location to arterial)	Palmdale, County of Los Angeles
1				William J Barnes Ave from Avenue G to West 30th St	Lancaster
2,4	North County MM	167	Grade Crossing Safety Improvement Programs	Lancaster	County of Los Angeles
2,4	North County MM	162		Lancaster	County of Los Angeles
1,2	North County MM	165		County of Los Angele, Lancaster	Lancaster
1	North County MM	164		Grade Separation; Avenue I Grade Separation	Lancaster
1	North County MM	163		Grade Separation; Avenue G Grade Separation	Lancaster
2	North County MM	166		Grade Separation; Avenue K Grade Separation	Lancaster
1,2	North County MM	4		Grade Separation; Milling Street Grade Separation	Lancaster
2,3,4	North County MM	160		Grade Separation; Rancho Vista Boulevard at Sierra Highway Grade Separation (UPRR and Metrolink)	Palmdale
2,3,4	North County MM	158		Grade Separation; Avenue M at Sierra Highway Grade Separation (UPRR and Metrolink)	Palmdale
2,3,4	North County MM	161		Grade Separation; Sierra Highway at the Alignment of Avenue P-8 (UPRR and Metrolink)	Palmdale
2,4	North County MM	159		Grade Separation; Avenue R at Sierra Highway Grade Separation (UPRR and Metrolink)	Palmdale
3,4	North County MM	156		Highway Corridor/Gap Closure/Goods Movement; Various streets in Palmdale area - At Grade Rail Crossing Improvements	Palmdale
4	North County MM	398	TSM	SR-138 from Jct. 14 to Avenue T in Palmdale: Install fiberoptic signal interconnect.	Caltrans
1	North County MM	81		Traffic Signal and Signal Synchronization; Various streets in Lancaster area; Traffic Signal Improvement projects (Local)	Lancaster
2,3,4	North County MM	82		Traffic Signal and Signal Synchronization; Various streets in Palmdale area - Traffic Signal Improvement projects (Local)	Palmdale
Goods Movement					
1,2,3,4	SFV MM	G2	Arterial Programs	Improvements to intersections across subregion to better accommodate truck turning radii and grades	Subregional
1,2,3,4	North County MM	386	Goods Movement	Regional Inland Port (Location TBD)	Lancaster, Palmdale
1,2,3,4	SFV MM	G3		Improvements to railroads across subregion to better accommodate freight trains without affecting passenger rail service	Subregional
1,2,3,4	SFV MM	G1	Grade Crossing Safety Improvement Programs	Improvements to at-grade rail crossings across subregion to better accommodate truck turning radii and grades	Subregional

Freight/ Economic Opportunity Sites Supported	Project Source	MM Project ID	Sub-Program	Project Description	Jurisdiction
Highway Program					
1,2,3,4	SFV MM	H42	Arterial Interchange Programs/Projects	Regional: Upgrade traffic signal system at on- & off-ramp intersections with arterials, connect with ramp metering system, establish communication with fiber system and upgrade communication of Field Device to IP.	Subregional
2,3,4	North County MM	220	High Desert Corridor	High Desert Corridor (Phase 2) - Design and construction of the multi-purpose corridor including highway, high-speed train, green energy, and bicycle elements. Assumes P-3 delivery method.	County of Los Angeles
1,2,3,4	North County MM	221		Freeway and Interchange; High Desert Corridor - Phase 1 from SR-14 to 110th Street East	Palmdale
1,2,3,4	North County MM	205		HDC N-S. SR-14 to HDC SR-138 – Add 2 lanes	
1,2,3,4	North County MM	215	Highway Capacity Enhancement Program	Highway Corridor/Gap Closure/Goods Movement; SR-138 from I-5 to SR-14; Corridor Improvement	County of Los Angeles
1,2,3,4	North County MM	200		SR-14- Avenue L to Kern Co Line – Add 1 mixed flow lane	County of Los Angeles, Lancaster
2,3,4	North County MM	177		SR-14- Avenue P to Avenue L – Add 1 mixed flow lane and 1 HOV	County of Los Angeles, Lancaster, Palmdale
2,3,4	North County MM	69		SR-14- Deployment of 4 ITS projects along the proposed SR-14 HOV lanes. I-5 to Avenue P along SR-14	County of Los Angeles, Lancaster, Palmdale
1,2,3,4	North County MM	217		SR-14- Expansion of Freeway Service Patrol (FSP- Throughout the SR-14 corridor	County of Los Angeles, Lancaster, Palmdale, Santa Clarita
1,2,3,4	North County MM	218		Freeway and Interchange; Context Sensitive Solutions (SR 14, Avenue M to Avenue G)	Lancaster
2	North County MM	384		Avenue K-8 Interchange at State Route 14	Lancaster
2,3,4	North County MM	209		Freeway and Interchange; SR-14 Widening and gap closure to provide a consistent 3 lanes and HOV lane in each direction from Sand Canyon Rd to Rancho Vista Boulevard/Avenue P. Consider adding additional HOV or Truck climbing lane	Palmdale
2	North County MM	210		Highway Corridor/Gap Closure/Goods Movement; Sierra Hwy widening between Avenue M and Pearblossom Hwy	Palmdale
4	North County MM	212		Highway Corridor/Gap Closure/Goods Movement; Pearblossom Hwy widening between SR14 and Fort Tejon Road/Avenue T intersection.	Palmdale

Freight/ Economic Opportunity Sites Supported	Project Source	MM Project ID	Sub-Program	Project Description	Jurisdiction
4	North County MM	214		SR138 roadway improvements from SR14 to Fort Tejon/Pearblossom/Avenue T intersection and additional unfunded segments to San Bernardino County Line	Palmdale
1,2,3,4	North County MM	196		SR-14: I-5 to Kern County Line (Mixed-flow improvements)	
1	NCCHCS			Ave G Interchange Improvement	Lancaster
1	NCCHCS			Ave H Interchange Improvement	Lancaster
1	NCCHCS			Ave I Interchange Improvement	Lancaster
1	NCCHCS			Ave J Interchange Improvement	Lancaster
1	NCCHCS			Ave J-8 Interchange Improvement	Lancaster
2	NCCHCS			Ave K Interchange Improvement	Lancaster
2	NCCHCS			Ave K-8 Interchange Improvement	Lancaster
2,3	NCCHCS			Ave L Interchange Improvement	Lancaster
2,3	NCCHCS			Ave M Interchange Improvement	Lancaster
2	NCCHCS			Ave N Interchange Improvement	Lancaster
2	NCCHCS			10th St West Interchange Improvement	Lancaster
2				Highway Capacity Enhancement at Sierra Highway and Avenue L	Lancaster
#2,#4	North County MM	59	State of Good Repair/ Safety Programs	Pearblossom Hwy Improvement Project; Corridor improvements betw SR-14 & SR-138 to commuter/trucking route	Palmdale
Transit Program					
1,2,3,4	North County MM	451	Metrolink Antelope Valley Line improvements	Sierra Highway Grade separation (HSR): Grade separation	Metrolink
2,4	North County MM	431		Avenue S Grade Separation (HSR): Grade Separation	Metrolink
2,4	North County MM	445		Palmdale Blvd Grade Separation (HSR): Grade separation	Metrolink

Table 8-2: Potential High Benefit Projects for Fixed Guideway Transit

Sub-Program	Project List	MM Project ID	Project Description	Jurisdiction
Active Transportation				
Active Transportation Program	SFV MM	B18	Regional: Add/expand park-and-ride facilities	Subregional
Active Transportation Program	SFV MM	B19	Regional: TDM programs to reduce trips	Subregional
Active Transportation Program	SFV MM	B3	Improvements to bus stop zones to meet ADA compliance	Subregional
Arterial Program				
Arterial Capacity Enhancement Program			Fox Field & West Lancaster to Palmdale Transportation Center (via Ave G, 30th Street, Rancho Vista Blvd then access PTC either via W 10th/Technology or via Ave P/Sierra Highway depending on final PTC/HSR Station Access.	Palmdale, Lancaster
Arterial Capacity Enhancement Program			Southeast Palmdale to PTC (via Avenue S from 70th St to Sierra Hwy, entering PTC based on future station access configuration.	Palmdale
Grade Crossing Safety Improvement Programs	North County MM	4	Grade Separation; Milling Street Grade Separation	Lancaster
Grade Crossing Safety Improvement Programs	North County MM	156	Highway Corridor/Gap Closure/Goods Movement; Various streets in Palmdale area - At Grade Rail Crossing Improvements	Palmdale
Grade Crossing Safety Improvement Programs	North County MM	158	Grade Separation; Avenue M at Sierra Highway Grade Separation (UPRR and Metrolink)	Palmdale
Grade Crossing Safety Improvement Programs	North County MM	159	Grade Separation; Avenue R at Sierra Highway Grade Separation (UPRR and Metrolink)	Palmdale
Grade Crossing Safety Improvement Programs	North County MM	160	Grade Separation; Rancho Vista Boulevard at Sierra Highway Grade Separation (UPRR and Metrolink)	Palmdale
Grade Crossing Safety Improvement Programs	North County MM	161	Grade Separation; Sierra Highway at the Alignment of Avenue P-8 (UPRR and Metrolink)	Palmdale
Grade Crossing Safety Improvement Programs	North County MM	162	Grade Separation; Barrel Springs RD at SCRRA	County of Los Angeles
Grade Crossing Safety Improvement Programs	North County MM	163	Grade Separation; Avenue G Grade Separation	Lancaster
Grade Crossing Safety Improvement Programs	North County MM	164	Grade Separation; Avenue I Grade Separation	Lancaster
Grade Crossing Safety Improvement Programs	North County MM	165	Grade Separation; Avenue J Grade Separation	Lancaster
Grade Crossing Safety Improvement Programs	North County MM	166	Grade Separation; Avenue K Grade Separation	Lancaster
Grade Crossing Safety Improvement Programs	North County MM	167	Grade Separation; Avenue S over Metrolink Tracks grade separation at Sierra Highway	County of Los Angeles

Sub-Program	Project List	MM Project ID	Project Description	Jurisdiction
Grade Crossing Safety Improvement Programs	SFV MM	A7	Magic Mountain Parkway: Grade separation at railroad tracks / Railroad Ave	Santa Clarita, Metrolink
Widening and/or Transit Street Designation (could be complete street)			Technology Drive from 10th West to Sierra Hwy/PTC access.	Palmdale
Goods Movement				
Goods Movement	SFV MM	G3	Improvements to railroads across subregion to better accommodate freight trains without affecting passenger rail service	Subregional
Highway Program				
Highway Capacity Enhancement Program	North County MM	214	SR138 roadway improvements from SR14 to Fort Tejon/Pearblossom/Avenue T intersection and additional unfunded segments to San Bernardino County Line	Palmdale
Multimodal Program				
Park-and-Ride/Station Access Program			Transit Oriented Development Project (planned by City of Palmdale)	Palmdale
Park-and-Ride/Station Access Program	North County MM	354	SR-14- SR-14 Corridor. Add and/or expand park-and-ride facilities	Subregional
Park-and-Ride/Station Access Program	North County MM	391	Palmdale Transportation Center Area Improvements Program- new CA-HSR and Xpress West multimodal station will require significant surface improvements in the area of the station.	Palmdale
People Mover to Palmdale Airport	North County MM	378	Transit; People mover from the Palmdale Transportation Center to the Palmdale Regional Airport	Palmdale
Transit Program				
Bus Service Program	NCCHCS		Express Bus Service	Subregional
Bus Service Program	North County MM	355	I5 Corridor - Long haul bus service expansion program	Subregional
Bus Service Program	North County MM	357	Increase Shuttle service from Metrolink Stations to employment destinations in Lancaster and Palmdale	County of Los Angeles, Lancaster, Palmdale
Bus Service Program	North County MM	359	Local and express buses on High Desert Corridor (east/west routes)	Palmdale
Bus Service Program	North County MM	368	Transit; Bus Stop Upgrades for ADA Compliance	Palmdale
Bus Service Program	North County MM	371	Transit; AVTA Bus Rapid Transit Project (Palmdale Bl and 10th St W)	AVTA
Bus Service Program	North County MM	387	Expand transporter (790) bus service	AVTA
Bus Service Program	North County MM	388	Expand commuter bus services	AVTA

Sub-Program	Project List	MM Project ID	Project Description	Jurisdiction
Bus Service Program	SFV MM	T2	Metrolink Station Shuttle Buses: Expand service	Subregional
Bus Service Program	SFV MM	T3	I-5 / SR-14: Expanded express bus service in HOV lanes	Subregional
Bus Service Program	SFV MM	T31	San Fernando: Public transit improvements, including upgrading bus stop infrastructure and enhancing routes and connections	County of Los Angeles
Bus Service Program	SFV MM	T8	Santa Clarita Transit: Increase frequency on existing express routes	Santa Clarita, LA, LA County
Bus Service Program			Transit Route on NW SR 138 from I-5/Quail Lake area to Lancaster & Palmdale Stations	Subregional
Bus Service Program			Extend Regular Transit from Santa Clarita, Palmdale, Lancaster to Rosemond and Mojave	Subregional
Bus Service Program			Transit Route on HDC from Lancaster and Palmdale Stations to Victorville.	Subregional
Bus Service Program			Expand AVTA Transporter service to Burbank Airport	Subregional
Metrolink Antelope Valley Line improvements	North County MM	376	Transit; Metrolink Improvements as identified in the AV Line Study Conducted by Metro	Palmdale
Metrolink Antelope Valley Line improvements	North County MM	383	Extend Metrolink to Kern County	Metrolink/Palmdale
Metrolink Antelope Valley Line improvements	North County MM	399	EMF Additional Storage Tracks: Increase storage capacity at EMF by extending the length of the existing storage tracks and adding a middle crossover.	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	400	EMF SKI Tracks: Add 2 SKI tracks at EMF. Install dump stations and potable water.	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	401	Locomotives (for base case growth of locomotives and cars): This is the amount needed for the "organic" growth (irrespective of 30 min. service) and is not counted as part of the 30 min. growth scenario	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	403	Palmdale Passing Siding : Construct 2,000 foot passing siding between MP 69.3 and MP 69.9	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	405	Soledad Cyn Crossing to Robbins Nest Crossing Double Track : MP 47.1 - MP 48.3: Construct 2400 TF, 1500 TF shift, 1 EA 10', 3 EA 8', and I EA 6' bridge MP 48.3 - 50.5: Construct 9050 TF, 1800 TF shift, 2 EA 6' bridges MP 50.5 - MP 50.9: 1500 TF shift, 2 EA 8' bridges	Metrolink

Sub-Program	Project List	MM Project ID	Project Description	Jurisdiction
Metrolink Antelope Valley Line improvements	North County MM	406	Thousand Trails Road to CP Harold Track Construction and Improvements: MP 54.3- MP 54.6: 1200 TF shift MP 54.6- MP 55.4: 280 TF shift, Construct 1200 TF MP 55.4-MP 55.9: Construct 2020 TF MP 55.9-MP 57.4: 250 TF shift MP 57.4-MP 60.0: 4000 TF shift, construct 4300 TF, 400 FT concrete wall MP 60 - MP 61.2: 400 TF shift, construct 1500 TF, shift 1 EA turnout MP 61,2-MP 62.2: 2000 TF shift, construct 7100 TF, shift 1 EA turnout MP 62.2-MP 64.7: Construct 11660 TF, 1 EA 190' bridge * 5580' MSE Wall MP 64.7-MP 66.3: Construct 2930 TF MP 66.3-MP 67.4: Construct 3490 TF	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	407	Track Modifications (Tunnels 18 & 19): MP 45.9 - 46.9: 1750 TF shift MP 46.9 - 47.1: 1000 TF shift	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	409	Palmdale Station (platform extension): Extend platform to allow for operation of 8-car trains and improve station design	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	413	Vincent Station Platform Extension: Extend platform to allow for operation of 8-car trains and improve station design	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	414	Another CMF level facility for heavy maintenance (for 30 min. service expansion): Need 100% size of CMF in approximately 2017. Will include the administrative offices from existing CMF, a run-through progressive car and loco shop, S&I, storage tracks, fuel system, train wash, shop machinery, and expanded warehouse capacity	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	415	Expanded layover facility in Palmdale (30 min Expansion): Build out is 5 tracks, fuel, lighting, sewer connections and potable water.	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	416	Locomotives (for 30 min. service Expansion): To get to a 30 minute headway, 26 additional locomotives will be needed. The cost of rail cars is assumed to be $7 M/unit. For the "base case" (i.e. non 30 min. service), another 26 locomotives would be needed. The costs for the base case are shown separately.	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	417	Rail Cars (for 30 min. service expansion): To get to a 30 min. headway, 90 additional rail cars will be needed. The cost of passenger car is assumed to be 3M/unit. For the "base case" (i.e. non 30 min. service), another 90 passenger cars would be needed. The costs for the base case are shown separately.	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	418	Reconfiguration of existing CMF: Relocate admin office to new CMF location and improve capacity by building a run-through progressive car and loco shop at existing CMF	Metrolink

Sub-Program	Project List	MM Project ID	Project Description	Jurisdiction
Metrolink Antelope Valley Line improvements	North County MM	419	Santa Clarita - Acton Double Track (30 min expansion): Track work, increased signal spacing, additional crossover capability and improvements at certain stations. The unit cost for track and signals is $6000/foot	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	420	Rehab -Short Term: Includes rehab of rail, ties, OTM, structures, communication, Central Train Control (CTC), grade crossing signals, facilities & equipment, vehicles, rolling stock (locomotives & cars)	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	421	Rehab -Mid Term: Includes rehab of rail, ties, OTM, structures, communication, Central Train Control (CTC), grade crossing signals, facilities & equipment, vehicles, rolling stock (locomotives & cars)	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	422	Rehab -Long Term: Includes rehab of rail, ties, OTM, structures, communication, Central Train Control (CTC), grade crossing signals, facilities & equipment, vehicles, rolling stock (locomotives & cars)	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	423	Rehab - Expansion (for 30 min. service on all Metrolink lines): Includes rehab of rail, ties, OTM, structures, communication, Central Train Control (CTC), grade crossing signals, facilities & equipment, vehicles, rolling stock (locomotives & cars)	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	424	1000 Trails Road Crossing Improvements: Install additional track through crossing, relocate existing facilities to accommodate new track, potentially install exit gate in Northwest quadrant with raised median extending from intersection to crossing, install right turn only restrictive median on drive access in Southeast quadrant	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	426	Aliso Canyon Road Crossing Improvements: Signage and striping; install additional track through crossing, relocate existing facilities to accommodate new track, install 100 ft median channelization to both approaches of the crossing	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	427	Avenue J Crossing Improvements: Enhance at-grade crossing	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	428	Avenue K Crossing Improvements: Enhance at-grade crossing	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	429	Avenue R Crossing Improvements: Enhance at-grade crossing	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	430	Avenue S Crossing Improvements: Signage and striping (review for sight distance and crossing time, potentially upgrade treatment); Install additional track through crossing, relocate existing facilities to accommodate new track	Metrolink

Sub-Program	Project List	MM Project ID	Project Description	Jurisdiction
Metrolink Antelope Valley Line improvements	North County MM	431	Avenue S Grade Separation (HSR): Grade Separation	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	432	Barrel Springs Road Crossing Improvements: Signage and striping; install additional track through crossing, relocate existing facilities to accommodate new track, install 100 ft median channelization to both approaches of the crossing	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	433	Bring 1 grade crossing to new SCRRA Standards (including active warning devices and civil improvements) 5 xings/yr * 5 years * $2M per xing = $50M Systemwide*: Bring 1 grade crossing to new SCRRA Standards (including active warning devices and civil improvements) 5 xings/yr * 5 years * $2M per xing = $50M Systemwide*	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	434	Cameras at Grade Crossings: Install cameras at grade crossings	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	435	Canyon Park Blvd Crossing Improvements: Signage and striping; install additional track through crossing, relocate existing facilities to accommodate new track, install exit gates on Northwest quadrant	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	436	Columbia Way (formerly Avenue M) Crossing Improvements: Enhance at-grade crossing	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	437	Crown Valley Road Crossing Improvements: Signage and striping; install additional track through crossing, relocate existing facilities to accommodate new track, install 100 ft median channelization to both approaches of the crossing	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	440	Lancaster Blvd Crossing Improvements: Enhance at-grade crossing	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	441	Lang Station Crossing Improvements: Signage and striping; install lights, gates, 100 ft median channelization on both approaches	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	444	Palmdale Blvd Crossing Improvements: Enhance at-grade crossing	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	445	Palmdale Blvd Grade Separation (HSR): Grade separation	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	447	Rancho Vista Blvd (formerly Avenue P) Crossing Improvements: Enhance at-grade crossing	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	448	Rancho Vista Blvd (formerly Avenue P) Grade Separation: Grade separation	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	450	Sierra Highway Crossing Improvements: Signage and striping; relocate existing facilities to north and install new track on north side of crossing, install 100 ft median channelization on both approaches	Metrolink
Metrolink Antelope Valley Line improvements	North County MM	451	Sierra Highway Grade separation (HSR): Grade separation	Metrolink
Metrolink Antelope Valley Line improvements	SFV MM	T17	Metrolink Antelope Valley Line Improvements (various)	Subregional
Neighborhood transit centers program	SFV MM	T30	Vista Canyon Transit Center: New Metrolink Station, Bus Transfer Facility	Santa Clarita, Metrolink
Real-Time Travel Information	SFV MM	T19	Real-time transit info for municipal & local bus operators, Metrolink, airport and other info	Subregional

Sub-Program	Project List	MM Project ID	Project Description	Jurisdiction
Transit Street Designation			10th Street between Lancaster Station and PTC	Lancaster
Transit Street Designation			Palmdale Avenue between 50th and PTC	Palmdale
Transit Street Designation			Soledad Canyon from Bouquet Canyon Rd to SR-14	Santa Clarita County of LA
Transit Street Designation			Lost Canyon Rd from Soledad Canyon Rd to Via Princessa	Santa Clarita
Transit Street Designation			Via Princessa from Sierra Hwy to Lost Canyon Rd	Santa Clarita
Transit Street Designation			Sierra Hwy from Newhall Ave to Soledad Canyon Rd	Santa Clarita
Transit Street Designation			Lyons Ave/Newhall Ave from I-5 to Railroad Ave	Santa Clarita
Transit Street Designation			Avenue Q from East 60th St to proposed HSR station	Palmdale

Table 8-3: Potential High Benefit Project for Regional Airports

Sub-Program	Project List	MM Project ID	Project Description	Jurisdiction
Arterial Program				
Arterial Capacity Enhancement Program	North County MM	119	Highway Corridor/Gap Closure/Goods Movement; 30th Street West Corridor, Ave F to Ave M	Lancaster
Arterial Capacity Enhancement Program	North County MM	123	Highway Corridor/Gap Closure/Goods Movement; 40th Street West Corridor, Ave G to Ave M	Lancaster
Arterial Capacity Enhancement Program	North County MM	126	Highway Corridor/Gap Closure/Goods Movement; 50th Street West Corridor, Ave G to Ave M	Lancaster
Arterial Capacity Enhancement Program	North County MM	128	Highway Corridor/Gap Closure/Goods Movement; 60th Street West Corridor, Ave F to Ave M	Lancaster
Arterial Capacity Enhancement Program	North County MM	130	Highway Corridor/Gap Closure/Goods Movement; Avenue G Corridor, 60th West to Division St	Lancaster
Arterial Capacity Enhancement Program	North County MM	131	Highway Corridor/Gap Closure/Goods Movement; Avenue H Corridor, 60th West to 50th East	Lancaster
Arterial Capacity Enhancement Program	New NCMITS Suggested Project		Avenue F from 60th Street West to SR-14: arterial capacity/geometric enhancements to improve heavy duty truck access	Lancaster
Arterial Capacity Enhancement Program			60th Street West from SR-138 to Avenue F: arterial capacity/geometric enhancements to improve heavy duty truck access	Lancaster
Arterial Capacity Enhancement Program			30th Street West from SR-138 to Avenue F: arterial capacity/geometric enhancements to improve heavy duty truck access	Lancaster
Arterial Capacity Enhancement Program			Avenue F at SR-14	Lancaster
Arterial Capacity Enhancement Program			William J Barnes Ave from Avenue G to West 30th St	Lancaster
Arterial Capacity Enhancement Program			Avenue N from 40th Street East to 100th Street East	Palmdale
Arterial Capacity Enhancement Program	North County MM	114	Highway Corridor/Gap Closure/Goods Movement; 20th Street East Corridor, Ave H to Ave M	Lancaster

Arterial Capacity Enhancement Program	New NCMITS Suggested Project		20th St East from Palmdale Blvd to E Ave P/Palmdale Regional Airport (if at current 20th St/E Ave P location): arterial capacity/geometric enhancements to improve heavy duty truck access and access to future proposed commercial airport (if constructed at current location)	Palmdale
Arterial Capacity Enhancement Program	North County MM	27	Highway Corridor/Gap Closure/Goods Movement; 50th Street East widening between SR138 and Avenue M	Palmdale
Arterial Capacity Enhancement Program	North County MM	38	Highway Corridor/Gap Closure/Goods Movement; Avenue M widening between SR14 and 50th Street East	Palmdale
Arterial Capacity Enhancement Program	North County MM	48	Highway Corridor/Gap Closure/Goods Movement; Rancho Vista Boulevard / Avenue P roadway construction between Fairway Drive and 50th Street East	Palmdale
Arterial Capacity Enhancement Program	North County MM	118	Highway Corridor/Gap Closure/Goods Movement; 30th Street East Corridor, Ave H to Ave M	Lancaster
Grade Crossing Safety Improvement Programs	North County MM	158	Grade Separation; Avenue M at Sierra Highway Grade Separation (UPRR and Metrolink)	Palmdale
Grade Crossing Safety Improvement Programs	North County MM	160	Grade Separation; Rancho Vista Boulevard at Sierra Highway Grade Separation (UPRR and Metrolink)	Palmdale
Highway Program				
High Desert Corridor	North County MM	221	Freeway and Interchange; High Desert Corridor - Phase 1 from SR-14 to 110th Street East	Palmdale
Highway Capacity Enhancement Program	NCCHCS		2 lanes	
Highway Capacity Enhancement Program	North County MM	215	Highway Corridor/Gap Closure/Goods Movement; SR-138 from I-5 to SR-14; Corridor Improvement	County of Los Angeles
MultiModal Program				
People Mover to Palmdale Airport			Avenue O from 25th Street East to 40th Street East	Palmdale
People Mover to Palmdale Airport	North County MM	378	Transit; People mover from the Palmdale Transportation Center to the Palmdale Regional Airport	Palmdale
Transit Program				
Metrolink Antelope Valley Line improvements	North County MM	376	Transit; Metrolink Improvements as identified in the AV Line Study Conducted by Metro	Palmdale

Table 8-4: Potential High Benefit Project for High Desert Corridor/Regional State Highways

Highways Supported	Sub-Program	Project List	MM Project ID	Project Description	Jurisdiction
Active Transportation					
I-5,SR-14	Active Transportation Program	NCCHCS		Park and Ride	Subregional
HDC,I-5,SR-14,SR-138		SFV MM	B18	Regional: Add/expand park-and-ride facilities	Subregional
I-5,SR-14,SR-138		SFV MM	B19	Regional: TDM programs to reduce trips	Subregional

Highways Supported	Sub-Program	Project List	MM Project ID	Project Description	Jurisdiction
SR-14		SFV MM	B20	Newhall Avenue / SR-14 Park-and-Ride: Expand	Santa Clarita, Caltrans
Arterial Program					
SR-14	Arterial Capacity Enhancement Program	NCCHCS		Golden Valley Rd Overcrossing Widening	Santa Clarita
I-5		North County MM	5	I-5 Parker Road - Intersection Improvements including bridge widening and lane additions	County of Los Angeles
I-5		North County MM	12	I-5 Lake Hughes Rd- Intersection improvements and widening to provide additional lanes on EB and WB Approaches	County of Los Angeles
HDC		North County MM	43	Highway Corridor/Gap Closure/Goods Movement; Avenue Q widening between SR14 and 50th Street East	Palmdale
HDC		North County MM	48	Highway Corridor/Gap Closure/Goods Movement; Rancho Vista Boulevard / Avenue P roadway construction between Fairway Drive and 50th Street East	Palmdale
I-5		North County MM	49	Highway Corridor/Gap Closure/Goods Movement; The Old Road - Hillcrest Parkway to Lake Hughes Road; Widening project	County of Los Angeles
SR-138		North County MM	64	Highway Corridor/Gap Closure/Goods Movement; Avenue S at 47th Street East/SR 138 Intersection Widening	Palmdale
SR-138		North County MM	65	Highway Corridor/Gap Closure/Goods Movement; Fort Tejon Road/SR 138 at Avenue T Intersection Widening	Palmdale
SR-138		North County MM	66	Highway Corridor/Gap Closure/Goods Movement; Palmdale Blvd at 30th Street East Intersection Widening	Palmdale
SR-138		North County MM	67	Highway Corridor/Gap Closure/Goods Movement; Palmdale Blvd at 40th Street East Intersection Widening	Palmdale
HDC		North County MM	392	Palmdale Intersection Improvement Program	Palmdale
HDC		New NCMITS Suggested Project		20th St East from Palmdale Blvd to E Ave P/Palmdale Regional Airport (if at current 20th St/E Ave P location): arterial capacity/geometric enhancements to improve heavy duty truck access and access to future proposed commercial airport (if constructed at current location)	Palmdale
HDC				90th Street East from Avenue M to Palmdale Boulevard	Palmdale
HDC				130th Street East at Avenue Q crossing of HDC and bus service	Palmdale
HDC				40th St East from future proposed HDC IC to E Ave P: arterial capacity/geometric enhancements to improve heavy duty truck access and access to future proposed commercial airport (if constructed at nearby location to arterial)	Palmdale
HDC				30th St East from future proposed HDC IC to E Ave P: arterial capacity/geometric enhancements to improve heavy duty truck access and access to future proposed commercial airport (if constructed at nearby location to arterial)	Palmdale
HDC	Grade Crossing Safety Improvement Programs	North County MM	160	Grade Separation; Rancho Vista Boulevard at Sierra Highway Grade Separation (UPRR and Metrolink)	Palmdale
HDC		North County MM	161	Grade Separation; Sierra Highway at the Alignment of Avenue P-8 (UPRR and Metrolink)	Palmdale

Highways Supported	Sub-Program	Project List	MM Project ID	Project Description	Jurisdiction
SR-14	TSM	North County MM	70	SR-14- Install Traffic Signal Synchronization and Other Improvements along major arterial roads serving SR-14 (Sierra Highway, Agua Dulce Canyon Rd, San Canyon Rd, Soledad Canyon Rd, San Fernando Rd)	County of Los Angeles, Lancaster, Palmdale, Santa Clarita
SR-138		North County MM	398	SR-138 from Jct. 14 to Avenue T in Palmdale: Install fiberoptic signal interconnect.	Caltrans
Highway Program					
I-5,SR-14,SR-138	Arterial Interchange Programs/Projects	SFV MM	H42	Regional: Upgrade traffic signal system at on- & off-ramp intersections with arterials, connect with ramp metering system, establish communication with fiber system and upgrade communication of Field Device to IP.	Subregional
I-5	Grade Crossing Safety Improvement Programs	NCCHCS		Retrofit Bridge over Castaic Creek	County of Los Angeles
HDC	Highway Capacity Enhancement Program	North County MM	205	HDC N-S. SR-14 to HDC SR-138 – Add 2 lanes	Caltrans
HDC		North County MM	220	High Desert Corridor (Phase 2) - Design and construction of the multi-purpose corridor including highway, high-speed train, green energy, and bicycle elements. Assumes P-3 delivery method.	County of Los Angeles
HDC		North County MM	221	Freeway and Interchange; High Desert Corridor - Phase 1 from SR-14 to 110th Street East	Palmdale
I-5		NCCHCS		1 HOT lane per direction	Caltrans
I-5		NCCHCS		I-5/SR-126 Interchange Improvement	Caltrans
I-5		NCCHCS		Sedona Way Interchange Improvement	Caltrans
I-5		NCCHCS		Hasley Canyon Road Interchange Improvement	Caltrans
I-5		NCCHCS		Magic Mountain Pkwy Interchange Improvement	Caltrans
I-5,SR-14		NCCHCS		SR-14/I-5 HOV Direct Connector	Caltrans
SR-14		NCCHCS		Northwest 138	Caltrans
SR-14		NCCHCS		Ave S Interchange Improvement	Caltrans
SR-14		NCCHCS		Ave G Interchange Improvement	Caltrans
SR-14		NCCHCS		Ave H Interchange Improvement	Caltrans
SR-14		NCCHCS		Ave I Interchange Improvement	Caltrans
SR-14		NCCHCS		Ave J Interchange Improvement	Caltrans
SR-14		NCCHCS		Ave J-8 Interchange Improvement	Caltrans
SR-14		NCCHCS		10th St West Interchange Improvement	Caltrans
SR-14		NCCHCS		Ave K Interchange Improvement	Caltrans

Highways Supported	Sub-Program	Project List	MM Project ID	Project Description	Jurisdiction
SR-14		NCCHCS		Ave K-8 Interchange Improvement	Caltrans
SR-14		NCCHCS		Ave N Interchange Improvement	Caltrans
SR-14		NCCHCS		Ave L Interchange Improvement	Caltrans
SR-14		NCCHCS		Ave M Interchange Improvement	Caltrans
I-5		North County MM	68	Highway Corridor/Gap Closure/Goods Movement; Calgrove and I-5 onramp improvements; Widening project	County of Los Angeles
SR-14		North County MM	69	SR-14- Deployment of 4 ITS projects along the proposed SR-14 HOV lanes. I-5 to Avenue P along SR-14	County of Los Angeles, Lancaster, Palmdale
I-5		North County MM	84	I-5- In Los Angeles, SR-14 to Kern County Line. Install CCTV and Communications System from SR-14 to the Kern Co. line	LA, Lancaster, Palmdale, Santa Clarita
I-5		North County MM	174	I-5- SR-126 West to Lake Hughes Rd– Add 1 Truck Climb and 1 HOV	County of Los Angeles, Santa Clarita
SR-14		North County MM	177	SR-14- Avenue P to Avenue L – Add 1 mixed flow lane and 1 HOV	County of Los Angeles, Lancaster, Palmdale
SR-14		North County MM	192	Freeway and Interchange; Avenue S at SR-14	Palmdale
SR-14		North County MM	196	SR-14: I-5 to Kern County Line (Mixed-flow improvements)	Caltrans
I-5		North County MM	199	I-5- Lake Hughes Rd to Kern County Line – Add 1 Truck Climb	County of Los Angeles
SR-14		North County MM	200	SR-14- Avenue L to Kern Co Line – Add 1 mixed flow lane	County of Los Angeles, Lancaster
SR-14		North County MM	209	Freeway and Interchange; SR-14 Widening and gap closure to provide a consistent 3 lanes and HOV lane in each direction from Sand Canyon Rd to Rancho Vista Boulevard/Avenue P. Consider adding additional HOV or Truck climbing lane	Palmdale
SR-138		North County MM	214	SR138 roadway improvements from SR14 to Fort Tejon/Pearblossom/Avenue T intersection and additional unfunded segments to San Bernardino County Line	Palmdale
SR-14,SR-138		North County MM	215	Highway Corridor/Gap Closure/Goods Movement; SR-138 from I-5 to SR-14; Corridor Improvement	County of Los Angeles

Highways Supported	Sub-Program	Project List	MM Project ID	Project Description	Jurisdiction
SR-14		North County MM	217	SR-14- Expansion of Freeway Service Patrol (FSP- Throughout the SR-14 corridor	County of Los Angeles, Lancaster, Palmdale, Santa Clarita
SR-14		North County MM	384	Avenue K-8 Interchange at State Route 14	Lancaster
I-5		North County MM	395	I5 from Pico Canyon to SR-126: Add 1 truck lane and 1 HOV lane in each direction	Caltrans
I-5		North County MM	396	I-5 at SR-126: Construct NB I-5 to WB SR-126 direct connector. Existing NB 5 Off to SR-126 is beginning to approach capacity.	Caltrans
I-5		SFV MM	H26	I-5: North Capacity Enhancements - Add truck lane and HOV lanes from Pico Canyon Rd to Kern County Line	Santa Clarita, LA County, Caltrans
SR-14		SFV MM	H27	SR-14: Widen to provide at least three mixed flow lanes and one HOV lane in each direction from I-5 to Ave L	Santa Clarita, LA County, Caltrans
HDC,I-5,SR-14	TSM	SFV MM	H39	Regional: Improve Ramp metering, CCTV cameras, CMS for freeways in subregion as needed	Subregional
I-5		SFV MM	H43	Regional: Upgrade TM	Subregional
Multimodal Program					
HDC,SR-138	Park-and-Ride/Station Access Program	North County MM	353	SR-138/HDC E-W- Park-and-ride. 11 new lots 4,000 total spaces	Palmdale
HDC,SR-14		North County MM	354	SR-14- SR-14 Corridor. Add and/or expand park-and-ride facilities	Palmdale
HDC		North County MM	391	Palmdale Transportation Center Area Improvements Program- new CA-HSR and Xpress West multimodal station will require significant surface improvements in the area of the station.	Palmdale
Transit Program					
HDC		North County MM	359	Local and express buses on High Desert Corridor (east/west routes)	Palmdale
SR-138		North County MM	371	Transit; AVTA Bus Rapid Transit Project (Palmdale Bl and 10th St W)	AVTA
HDC, SR-14		North County MM	388	Expand commuter bus services	AVTA
I-5,SR-14		SFV MM	T3	I-5 / SR-14: Expanded express bus service in HOV lanes	Subregional

Chapter 9 – GLOSSARY

AA – Associate of Arts
AAA – American Automobile Association
AADT – Annual Average Daily Traffic
APZ – Accident Potential Zone
AS – Associate of Science
ASI – Access Services Incorporated
ATP – Active Transportation Plan
AV Inland Port – Antelope Valley Inland Multimodal Freight Transfer Facility
AVBOT – Antelope Valley Board of Trade
AVH – Antelope Valley Hospital
AVLIISP – Antelope Valley Line Infrastructure Improvement Strategic Plan
AVTA – Antelope Valley Transit Authority
BA – Bachelor of Arts
BRT – Bus Rapid Transit
BYD – Build Your Dreams
CAHSR – California High Speed Rail
CalArts – California Institute of the Arts
CCD – Census County Division
CHP – California Highway Patrol
CIP – Capital Improvement Program
CNEL – Community Noise Equivalent Level
CSTAN – Countywide Strategic Truck Arterial Network
CSUAV – California State University – Antelope Valley Campus
E.S.A. – Little Rock Wash Eco Area
ED – Economic Development
EDAP – Emergency Department Approved for Pediatrics
EDD – California Employment Development Department
EIA – Economic Impact Analysis
EIS/EIR – Environmental Impact Statement/Report
FEMA – Federal Emergency Management Agency
FHWA – Federal Highway Administration
FRA – Federal Railroad Administration
FSP – Metro Freeway Service Patrol Program
FTA – Federal Transit Administration
FTZ – Foreign Trade Zone

GIS – Geographic Information Systems
H.O.A. – Home Owners Association
HDC – High Desert Corridor
HOV – High Occupancy Vehicle
HVAC – Heating Ventilation Air Conditioning
IP – Inland Port
JPA – Joint Powers Authority
LAUS – Los Angeles Union Station
LAWA – Los Angeles World Airports
LAX – Los Angeles International Airport
LOS – Level of Service
LRT – Light Rail Transit
LRTP – Long-Range Transportation Plan
MA – Master of Arts
MAP – Million Annual Passengers
MBA – Master's in Business Administration
MCG – Madrid Consulting Group
Metro – Los Angeles County Metropolitan Transportation Authority
MF – Mixed-flow
MM – Mobility Matrix
MRTC – McBean Regional Transit Center
MSA – Los Angeles Metropolitan Statistical Area
NAICS – North American Industry Classification System
NCCHSC – North County Combined Highway Corridors Study
NCMITS – North County Multimodal Integrated Transportation Study
NCTC – North County Transportation Coalition
P-3 – Public-Private Partnerships
PDO – Property Damage Only
PDT – Project Delivery Team
PeMS – Caltrans Performance Measurement System
PnR – Park and Ride
PTC – Palmdale Transportation Center
PTC – Positive Train Control
ROW – Right-of-Way
RTP/SCS – Regional Transportation Plan/Sustainable Communities Strategies (SCAG 2012-2035)
SAA – Supplemental Alternatives Analysis
SCRRA – Southern California Regional Rail Authority
SHOPP – 2014 State Highway Operation and Protection Program

SHS – State Highway System
SOC – Standard Occupations Code
SSA – Supplemental Alternatives Analysis
STAA – Surface Transportation Assistance Act of 1982
STB – Surface Transportation Board
STIP – 2014 State Transportation Improvement Program
SWITRS – Statewide Integrated Traffic Records System
TAC – Transportation Advisory Committee
TAZ – Traffic Analysis Zone
TCR – Caltrans Transportation Concept Report
TEA – Transportation Enhancement Facilities
TOD – Transit-Oriented Development
UAV – Unmanned Aerial Vehicles
UP – Union Pacific
UPRR – Union Pacific Railroad Officials
USAF – U.S. Air Force
USDOT – U.S. Department of Transportation
VMT – Vehicle Miles Travelled
YMCA – Young Men's Christian Association

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APPENDICES

Appendix A – Los Angeles County Bike Plan

Appendix B – Los Angeles County Land Use – Antelop Valley Area

Appendix C – Economic Development Impact Case Studies

Appendix D – North County Average Household Density Maps

Appendix E – Evaluation Package Maps