PALMDALE GENERAL PLAN UPDATE

Transportation + Mobility

Spring 2020 | FINAL REPORT

Envision PALMDALE 2045
a complete community

Chapter 5: Transportation and Mobility

This section summarizes the existing transportation conditions in the City of Palmdale. Multimodal transportation elements including conditions of the City's local roadway system, transit system, bicycle facilities, goods movement infrastructure, parking availability, and air transport facilities are discussed.

Key Findings

The terms 'transportation' and 'mobility' are often used interchangeably because both refer to some aspect of movement. Transportation is a derived demand. We travel from point A to B in order to do something else. Mobility, on the other hand, is access to the transportation options that enable us to move from point A to point B. This review of existing transportation and mobility conditions in Palmdale provides a basis for understanding the issues and opportunities to address in the development of the General Plan Update. Key findings include:

- The existing street network relies heavily on arterials to move community members throughout the community. Most residential communities have limited street connectivity due to the nature of the street network design.
- The Active Transportation Plan – composed of a Safe Routes to School Plan, Complete Streets Plan, and Bicycle Transportation Plan – provide the groundwork necessary to develop multi-modal street designs. Such designs are critical for fostering livable communities, and walkable commercial areas that drive investment.
- Sidewalk coverage varies between neighborhoods due to differing development standards.
- Bicycle facilities are relatively limited within Palmdale today. Due to the high speeds of traffic along arterials, which also provide the necessary connectivity for a bicycle network, facilities must be designed in a way that creates a conducive environment for bicycles.
- Transit is often forgotten in complete streets considerations. Transit ridership provides a proxy for where people are walking. In Palmdale, 10th Street West, Palmdale Boulevard, Avenue R, and Avenue S have the most

transit activity within the City, providing some guidance for how complete streets investments may be prioritized.
- Key projects such as the High Desert Corridor, and the California High-Speed Rail Network and Virgin Trains USA are catalysts for development.

Existing Roadway Network

The existing regional and local roadway network in Palmdale is a hierarchical system of highways and local streets developed to provide regional traffic movement and local access. State Route (SR) 14 provides access to a regional highway route, while State Route (SR) 138 is a key arterial distributing vehicular traffic through the City.

The city's roadway network has primarily been developed around a suburban grid system in which arterials are spaced approximately every mile and secondary arterials are spaced every half-mile between major arterials. Between arterials, neighborhood local and collector streets are suburban in nature, with limited collector roads to lead traffic into arterials. Common features in neighborhoods are dead-ends, and cul-de-sacs. This design approach facilitates congestion, as arterials are the only options for moving between destinations in the community. Furthermore, this limits connectivity for alternative modes of transportation, particularly people walking or bicycling.

Roadway Classifications

The following section provides a description of the functional classification of the facilities within the study area. A circulation network is composed of facilities that emphasize mobility or access to different degrees. The following types of facilities are generically defined.

- Freeway: Mobility with very limited access.
- Expressway: Mobility with more frequent access to arterial streets than a freeway, but no direct land access.
- Arterial: Mobility with access to collectors, some local streets and major traffic.
- Collector: Connects local streets with arterials and also provides access to adjacent land uses; thus, balancing mobility with access.
- Local: Provides access to adjacent land uses exclusively.

Freeways/Expressways

The freeway is the highest level of roadway in the planning area and accommodates regional and interstate travel. Freeways typically have a minimum 180-foot cross-section and at least four through lanes (two per direction). Freeways have limited access at interchanges and have a typical design capacity of over 2,000 vehicles per hour per lane.

Regional Arterials

Regional arterials are limited access facilities that provide service to non-local through trips with minimal direct access to adjacent land uses. They have a design cross-section of eight lanes (four in each direction) with medians and turn lanes at a limited number of access points. Regional arterials are designated as 106-foot roadways typically within a 126 to 136-foot right-of-way. At their design capacity of level of service (LOS) D, most regional arterials can carry between 49,500 and 64,000 vehicles per day. Some bike lanes currently exist within primary and regional arterials, however current City policy is to provide new bike lanes on secondary arterials only.

Major Arterials

Major arterials are primarily intended to serve through, non-local traffic and provide limited local access. They have a cross-section of three through lanes in each direction, and a raised landscape median and turn lanes at a limited number of access points. Major arterials are designated as 84-foot roadways within a 104 to 114-foot right-of-way. At LOS D, major arterials can accommodate between 40,000 and 44,000 vehicles per day.

Secondary Arterials

Secondary arterials provide more local access than major arterials, while also providing a reduced level of non-local through traffic service. Secondary arterials have a cross-section of four through lanes (2 lanes in each direction), a bike lane in each direction, and a left-turn lane within 68 feet of curb-to-curb space within an 84 to 92-foot right-of-way. These roadways are usually undivided with the potential for limited on-street parking, turn lanes at major intersections, and partial control of vehicular and pedestrian access from driveways, cross streets, and crosswalks. Secondary arterials can accommodate between 22,000 and 24,000 vehicles per day at an acceptable level of service.

Collector/Local Streets

Collector and Local Streets provide access to adjacent land uses. These types of streets typically have a cross-section of two lanes, one in each direction, and a right-of-way of 64 to 84 feet. Local streets facilitate access into residential communities, while collector streets serve as the intermediary between local streets and arterials. Collector streets may be up to four lanes wide (two lanes in each direction), and are critical for providing access to arterials, facilitating access between community destinations.

Regional Road Network

The regional road network includes two state routes—SR 14 and SR 138. This network serves regional trips primarily.

State Route 14

SR 14 is a north–south state highway in southern California, approximately 116.6 miles in length. The southern portion of the highway is signed as Antelope Valley Freeway. The route connects Interstate 5 (I-5), near Santa Clarita, with U.S. Route 395, near Inyokern.

The southern part of the route is a busy commuter freeway serving and connecting the communities of Palmdale and Lancaster with the Greater Los Angeles area. The northern portion is legislatively named Aerospace Highway, as the highway serves Edwards Air Force Base. With U.S. Route 395, this road connects Los Angeles with such places as Mammoth Mountain, Mono Lake, Yosemite National Park, and Reno, Nevada. Housing and population growth in Santa Clarita, Lancaster, and Palmdale has made the Antelope Valley Freeway one of the most congested freeways in Southern California.

State Route 138

State Route 138 (SR 138) is an east–west state highway generally following the northern foothills of the San Gabriel Mountains from its junction with I-5, south of Gorman, eastward to Mount Anderson Junction, its eastern junction with State Route 18, south of Crestline in the San Bernardino Mountains. The route is approximately 105.4 miles long.

The western leg of SR 138 extends from I-5 to Gorman Post Road, Lancaster Road from Gorman Post Road to 245th Street West near Neenach School, and Avenue D from 245th Street West to SR 138's north junction with SR 14. After its co-routing with the Antelope Valley Freeway (SR 14) through Lancaster and Palmdale, it passes through the east side of Palmdale as four- to six-lane Palmdale Boulevard, 47th Street East, and Fort Tejon Road to Pearblossom Highway. The state route continues, named locally as Pearblossom Highway, as a four-lane facility to just west of 72nd Street East, where it tapers to three, then two lanes and continues east on Pearblossom Highway through Littlerock, Pearblossom, and Llano to its junction with SR 18.

Local Road Network

Figure 5.1 illustrates the layout of the local road network serving Palmdale. The street system is laid out on a grid. Each lettered east–west avenue is one mile from the next letter. Major streets that run north to south are numbered inside their direction, i.e., 10th Street West and 10th Street East. The east–west dividing line is Division Street, west of the Union Pacific/Metrolink rail corridor, which would be the equivalent of 0 Street East/West. Appendix II further describes the major roadways in the City.

Traffic Signal Locations and Speed Limits

Figure 5.2 illustrates the locations of traffic signals within the city limits, and the speed limits on numbered and lettered highways and streets. Except for East

Avenue Q, most of the east–west avenues are heavily populated with traffic signals spaced on the one-half or one-quarter mile intervals. While speed limits generally range from 45 to 55 miles per hour, based on speed surveys and engineering studies, point-to-point travel speeds are slower due to such factors as traffic signal delays, pedestrian crossings, slower moving trucks and transit vehicles, and overall traffic congestion.

The City of Palmdale attempts to coordinate the timing of its traffic signal system to improve safety and minimize delays, air pollution, and fuel consumption associated with vehicle travel. Traffic signals along the following streets are interconnected, with the objective of reducing travel delays along the route:

- Rancho Vista Boulevard/50th Street West, from 50th Street West to 25th Street East
- Technology Drive, from 10th Street West to Sierra Highway
- Palmdale Boulevard, from 10th Street West to 5th Street West
- Avenue R, from Division Street to 40th Street East
- Avenue S, from Tierra Subida Avenue to 40th Street East
- Highland Street from Rancho Vista Boulevard to Elizabeth Lake Road
- 10th Street West/Tierra Subida, from Avenue M to Date Palm Avenue
- 5th Street West, from Technology Drive to Palmdale Boulevard
- Sierra Highway, from Avenue N to Avenue S.

The City also maintains a Traffic Operations Center (TOC) to monitor the performance of the traffic signal system. The TOC is in the Development Services Building and centrally controls the signals that are interconnected through the signal communications system.

Traffic Division staff are connected to the TOC through individual computers which allow them to work on the system from their offices. The centralized traffic system allows real-time monitoring of intersection operations. Staff can change timings remotely, record and analyze the history of individual green times for each movement and monitor relationships among signals in coordinated groups. Alarms passed through the system alert technicians of field condition needs, such as power losses, signals going into flash mode, and railroad preemptions, resulting in quicker responses.

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Figure 5.1 Local Roadway Network

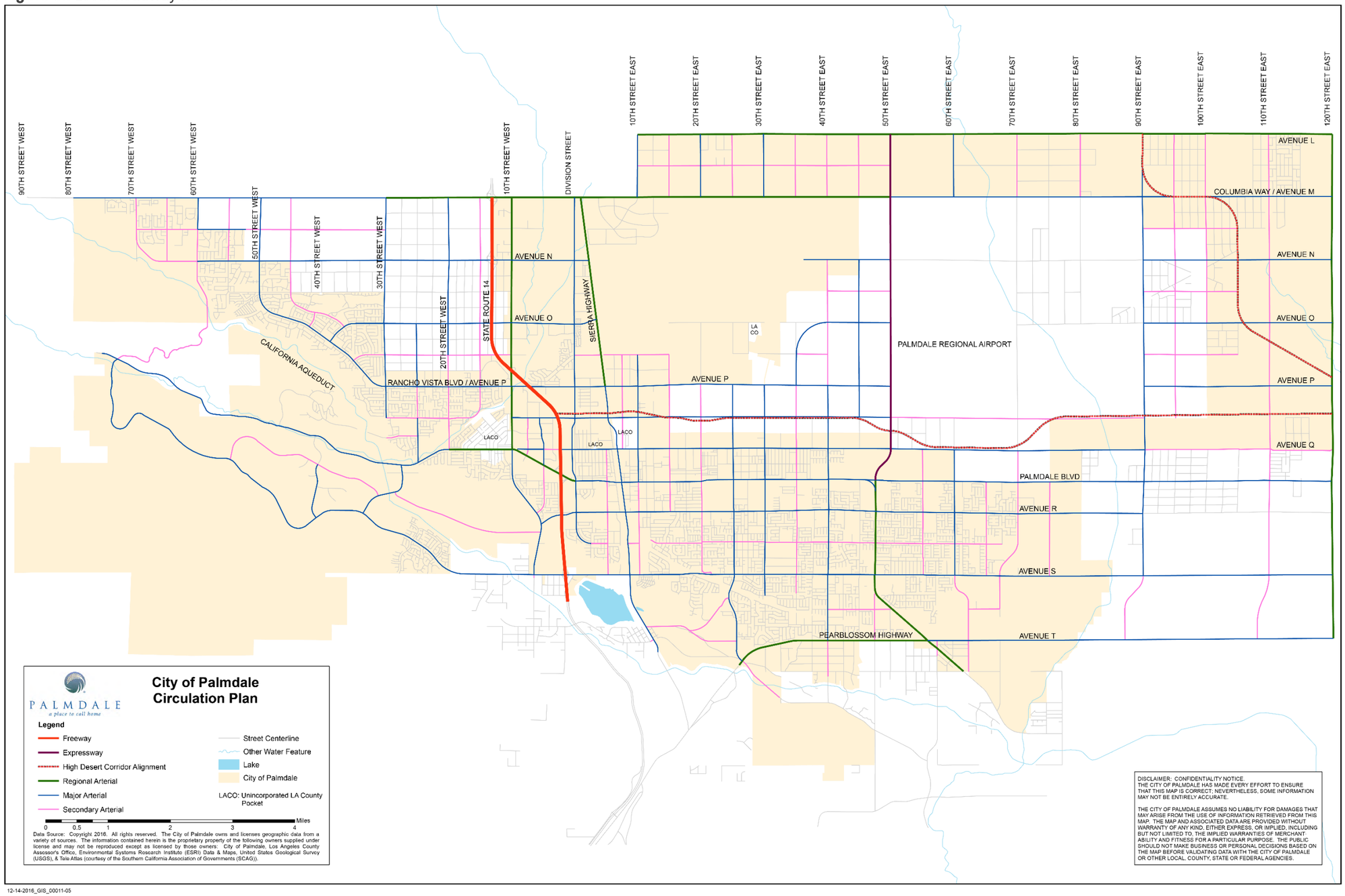
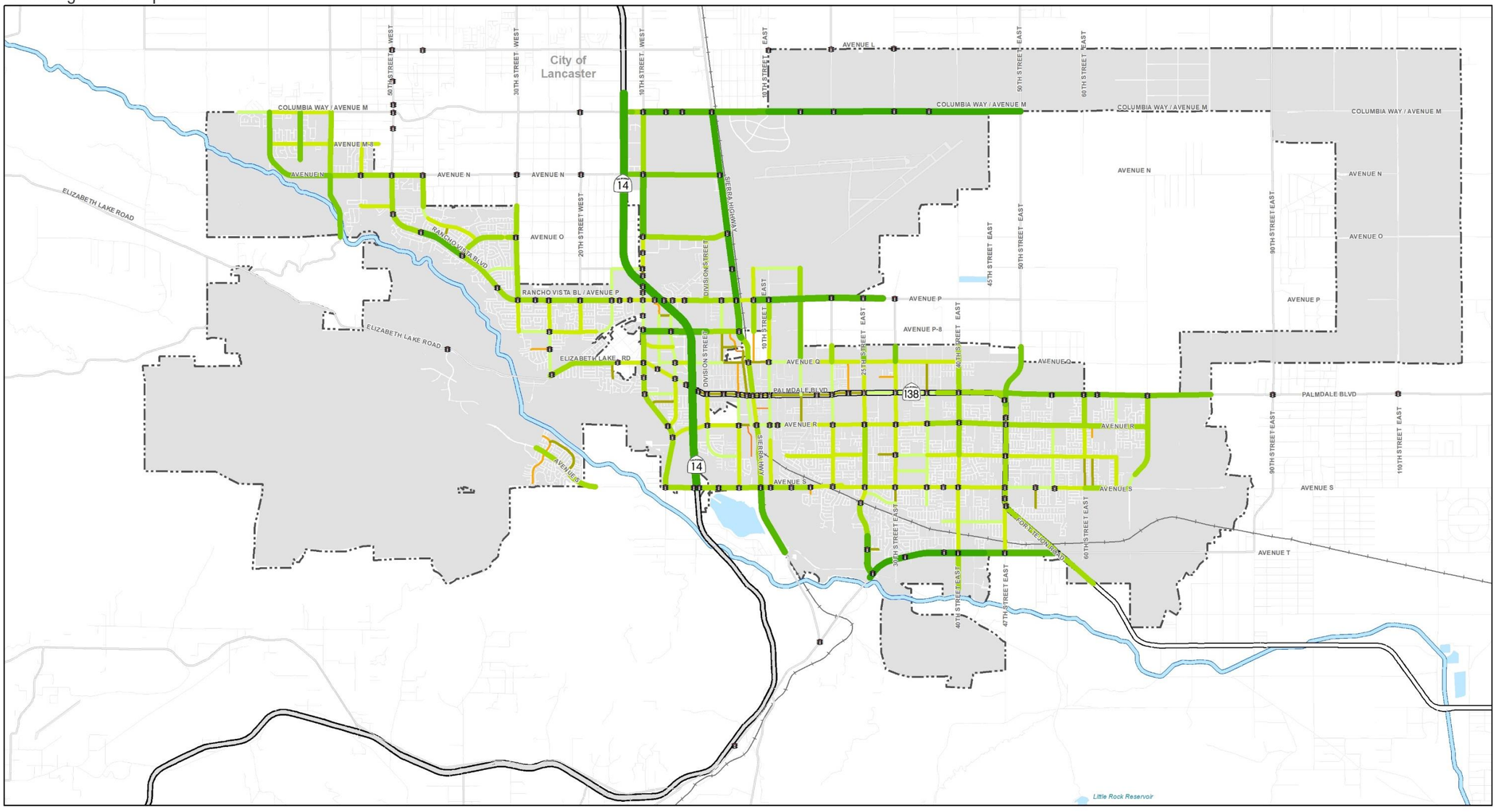


Figure 5.2 Traffic Signals and Speed Limits



Signalized Intersections and Speed Limits

- 45 mph
- 40 mph
- 35 mph
- 30 mph
- 25 mph
- 65 mph
- 60 mph
- 55 mph
- 50 mph
- Traffic Signals
- California Aqueduct
- City Boundary
- Sphere of Influence

0 0.5 1 1.5 2 2.5 3 Miles

0 5,000 Feet

Data Sources: City of Palmdale GIS data; World Terrain Base, 2015 ESRI, USGS, NOAA.

Produced by Parsons
March 2019

Existing Transit Network

Antelope Valley Transit Authority

The Antelope Valley Transit Authority (AVTA) serves a population of over 450,000 residents of Lancaster, Palmdale, and the unincorporated portions of northern Los Angeles County. The AVTA's total service area covers 1,200 square miles and is bound by the Kern County line to the north, the San Bernardino County line to the east, the Angeles National Forest to the south, and Interstate 5 to the west. The fixed route service area consists of approximately 100 square miles. The AVTA is the City of Palmdale's primary transit provider, operating:

- 13 local transit routes
- 5 supplemental routes serving local schools or key employment destinations, such as Edwards Air Force Base
- 3 commuter services to regional job centers such as UCLA, CSUN, and Downtown Los Angeles
- 1 TRANsporter service (Route 790), providing midday service to regional Metrolink service

The AVTA manages a total fleet of 75 transit buses, with 45 buses for local service and 30 buses for commuter service, surpassing the current peak requirements of 38 vehicles for local service and 25 vehicles for commuter service.

Figure 5.3 shows a system map of AVTA service in the Palmdale area. Table 5.1 lists all AVTA routes and key characteristics, including service type, span of service hours for weekdays and weekends, bus frequency, and key stops along each route. AVTA Routes include local services that operate daily, supplemental services that alleviate overcrowding on local routes during peak ridership times, and commuter routes meant to serve major commute patterns in the region. Additionally, special routes serve specific destinations, such as schools, or major employers.

Most routes serve Palmdale directly, except for routes 4, 8, and 748. However, transfer opportunities make those routes accessible from other AVTA services.

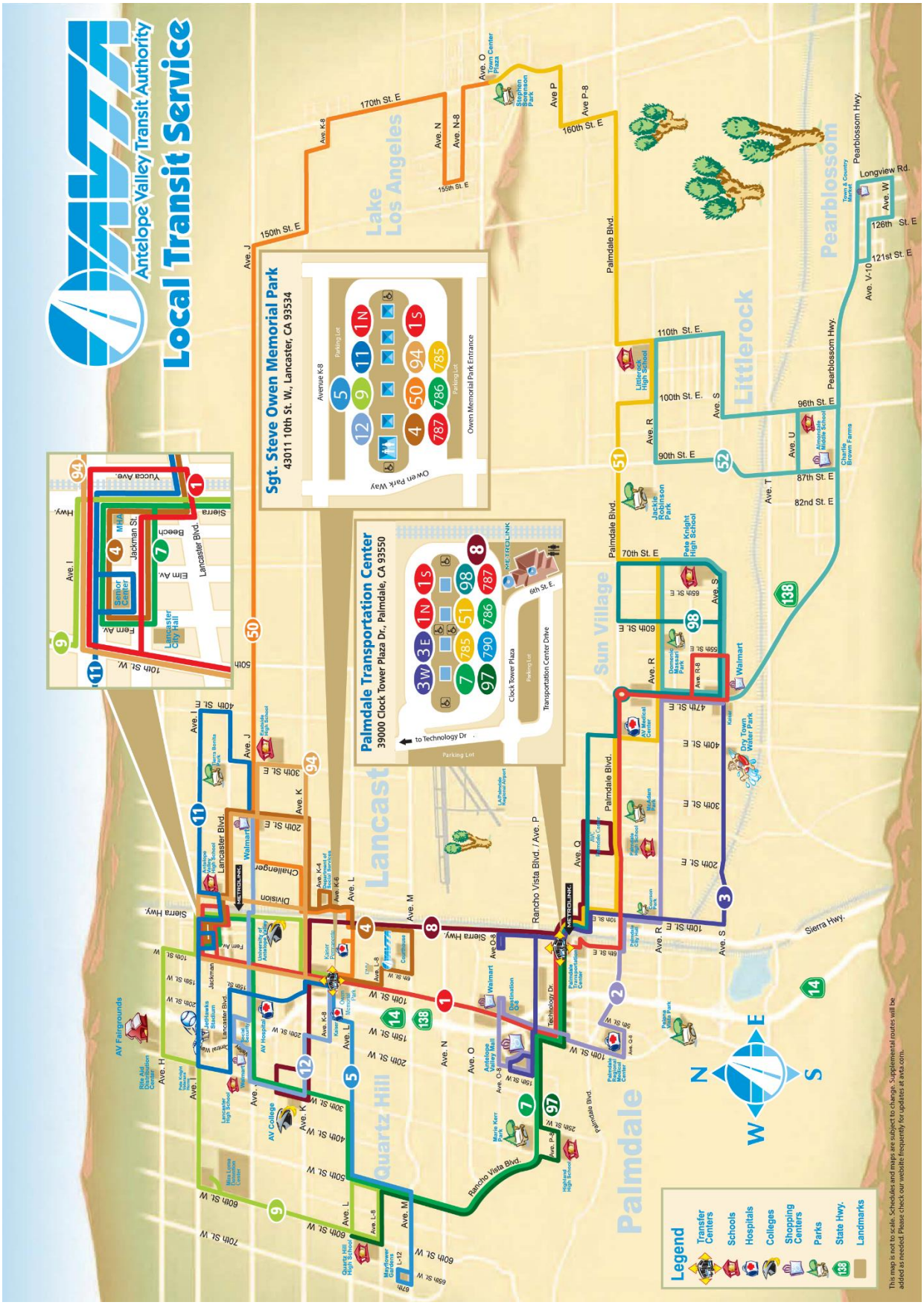


Figure 5.3 Antelope Valley Transit Authority Local Bus Route Network

Source: Antelope Valley Transit Authority, https://www.avta.com/userfiles/files/System-map.pdf, site accessed April 25, 2019

Table 5.1 AVTA Route Characteristics

Route	Service Type	Weekday/ Saturday/ Sunday Span	Weekday/ Saturday/ Sunday Headways (min)	Key Destinations
1	Local	5:00am – 12:00am 6:00am – 11:30pm 7:00am – 8:31pm	15/30/60	Owen Memorial Park Palmdale Transportation Center Amargosa Commons
2	Local	5:55am – 10:43pm 6:30am – 8:13pm 6:30am – 7:18pm	30/60/60	Antelope Valley Mall Amargosa Commons
3	Local	5:55am – 10:44pm 6:30am – 8:14pm 6:30am – 7:18pm	30/60/60	Antelope Valley Mall Palmdale Transportation Center
4	Local	6:40am – 9:20pm 7:40am – 9:17pm Sat + Sun are the same	60/120	Owen Memorial Park
5	Local	6:05am – 9:23pm 7:05am – 7:03pm Sat + Sun are the same	60/60	Mayflower Gardens Owen Memorial Park
7	Local	5:00am – 10:29pm 6:55am – 8:50pm 6:55am – 6:53pm	60/60/60	AV Mall Palmdale Transportation Center Amargosa Commons
8 (express)	Local	6:35am – 6:05pm No weekend service	90	AV College Palmdale Transportation Center AVC Palmdale Center
9	Local	6:15am – 8:05pm 8:15am – 5:31pm Sat + Sun are the same	100/90	Quartz Hill High School AV Fairgrounds Lancaster City Park
11	Local	5:15am – 11:55pm 5:45am – 7:57pm 6:45am – 6:57pm	30/60/60	AV Hospital Owen Memorial Park
12	Local	5:00am – 11:38pm 6:02am – 7:44pm 7:00am – 6:44pm	30/60/60	Owen Memorial Park
50	Local	5:20am – 11:12pm 7:20am – 8:29pm 7:20am – 8:06pm	130/130/130	Owen Memorial Park Town Center Plaza
51	Local	5:30am – 10:33pm 7:25am – 8:16pm 7:25am – 7:48pm	130/130/130	Palmdale Transportation Center Town Center Plaza Littlerock High School

52	Local	5:30am – 11:24pm 7:30am – 7:26pm Sat + Sun are the same	120/120	Pete Knight High School
94 Special	Supplemental	M-F Eastbound 6:40am – 3:55pm M-F Westbound 2:27pm – 3:55pm W Westbound 1:12pm – 2:12pm	Only one run per day	Owen Memorial Park Eastside High School Antelope Valley High School
97 Special	Supplemental	M-F Westbound 6:35am – 7:10am M-F Eastbound 3:15pm – 3:45pm W Eastbound 1:20pm – 1:50pm	Only one run per day	Rancho Vista Blvd. & Town Center Drive AV Mall Palmdale Transportation Center Highland High School
98 Special	Supplemental	M-F Eastbound 6:30am – 7:15am M-F Westbound 2:52pm – 3:22pm W Westbound 1:04pm – 1:39pm	Only one run per day	Palmdale Transportation Center Pete Knight High School
747 Special	Supplemental	AM run 5:15am – 9:29am PM run 2:25pm – 6:45pm No weekend service	60	Palmdale Transportation Center Edwards Air Force Base
748 Special	Supplemental	AM run 4:50am – 7:00am PM run 4:45pm – 6:25pm No weekend service	AM 60/ PM 30	The Spaceship Company -79 The Spaceship Company – Faith Mojave Air & Space Port
785	Commuter	AM run 3:50 am – 8:55 pm PM run 2:50 pm – 7:47 pm No weekend service	AM 15-20/ PM 20-25	Owen Memorial Park Palmdale Transportation Center LA Union Station Downtown LA
786	Commuter	AM run 4:00 am – 8:26 pm PM run 2:50 pm – 7:28 pm No weekend service	AM 20-30/ PM 30-40	Orwen Memorial Park Palmdale Transportation Center UCLA/Westwood Century City
787	Commuter	AM run 4:00 am – 8:55 pm	AM 10-20/ PM 20-30	Orwen Memorial Park Palmdale Transportation Center

		PM run 2:50 pm – 7:54 pm No weekend service		CSUN Transit Center Warner Center Tarzana
790	Rail Connector	7:50 am – 5:50 pm No weekend service	80-210	Palmdale Transportation Center College of the Canyons Henry Mayo Memorial Hospital Newhall Metrolink Station McBean Regional Transit Center

AVTA Ridership within Palmdale

According to data provided by AVTA for October 2018, on average AVTA sees over 51,300 boardings on weekdays and 8,240 boardings on weekends. Much of this ridership originates from Palmdale and Lancaster.

The highest AVTA ridership within Palmdale is observed along the following streets:

- 10th Street, providing connectivity to and from Lancaster
- Palmdale Boulevard, which has the highest activity along east/west corridors
- Avenue R and Avenue S

Four of the eight busiest bus stops within the AVTA system are in Palmdale. These stops are Palmdale Transportation Center, Antelope Valley Mall, Walmart at Avenue S/47th Street East, and Avenue R/47th Street East. While the Palmdale Transportation Center is the busiest of these stops, accounting for an average of 3,756 weekday boardings, the other stops listed serve a range of 470 to 650 weekday boardings each. Owens Memorial Park, located 1.5 miles north of Palmdale, is a key hub for commuter services–accounting for the most daily boardings on average (4,588).

Understanding where transit activity is highest helps inform how different modes of transportation should be prioritized along arterials in Palmdale.

The appendix contains visualizations of ridership activity at the stop level for each AVTA stop (Appendix III).

Palmdale Transportation Center

The Palmdale Transportation Center (PTC), located at 39000 Clock Tower Plaza Drive, opened in April 2005. The PTC is a regional multi-modal hub including connections between Antelope Valley Transit Authority (AVTA) buses, Metrolink commuter rail service, Santa Clarita Transit service, Greyhound bus Service, and Amtrak Throughway bus service. Hours of operation for the PTC are from 3 a.m. to

10:30 p.m. Monday through Friday, and from 6 a.m. to 8 p.m. Saturday and Sunday. Eight centrally located bus stops connect regional service providers and local bus routes. The PTC has an indoor passenger waiting area with concessions, public telephones, seating, restrooms, and a security service. The PTC also provides parking for passengers using bus transit or commuter rail service; however, it is not designated as a Park-and-Ride facility. Metrolink passengers may also use a partially enclosed outdoor waiting area on the rail platform.

Park-and-Ride

The City of Palmdale has three designated Park-and-Ride facilities.

- East Avenue S Park-and-Ride (210 East Avenue S)
- West Avenue S Park-and-Ride (434 West Avenue S)
- Pelona Vista Park-and-Ride (445 West Avenue R-8)

Dial-a-Ride Service

Dial-a-Ride provides curb-to-curb van service for seniors over the age of 65 and disabled residents of the Antelope Valley. Dial-a-ride is intended to fill transportation gaps between local, fixed route transit and ADA-mandated paratransit services, which are provided by Access Paratransit Services.

Paratransit Service

Paratransit is an alternative mode of flexible passenger transportation that does not follow fixed routes or schedules. Typically, vans or minibuses are used to provide paratransit service, but shared taxis and jitneys are also important providers as a form of transportation. Complementary ADA paratransit is a federally mandated civil right of persons with disabilities who cannot ride the accessible public fixed route buses and trains.

Access Paratransit Services (Access Paratransit) is the name of the Los Angeles County Consolidated Transportation Services Agency administering the Los Angeles County Coordinated Paratransit Plan on behalf of the County's 45 public fixed route operators (i.e., bus and rail).

Access Paratransit must be available for any eligible person for any purpose and to or from any location within three-quarters of a mile of any fixed route bus, and within three-quarters of a mile around Metro rail stations during the hours that the systems are operational. The service area is divided into regions and extends into portions of the surrounding counties of San Bernardino, Orange, and Ventura that are served by Los Angeles County fixed-route bus lines.

Access Paratransit operates seven days a week, 24 hours of the day in most areas of Los Angeles County. It is a shared ride service that is curb-to-curb and utilizes a fleet of small buses, mini-vans and taxis. Personal care attendants may ride with the qualified rider free of charge.

Metrolink

Metrolink is operated by the Southern California Regional Rail Authority (SCRRA) on behalf of the five counties in the greater Los Angeles Metropolitan region.

Metrolink offers commuter rail service from the Antelope Valley to Santa Clarita, the San Fernando Valley, and Los Angeles Basin cities Monday through Saturday. Table 5.2 shows the weekday timetable for this service.

Individual fares are calculated with a distance-based formula using the shortest driving distance between stations, with substantial discounts available for weekly and monthly passes. The one-way fare from Palmdale to Los Angeles Union Station is $10.75. A seven-day pass is $75.25, while a monthly pass is $301.00. Assuming a commuter schedule of 22 working days per month, the monthly pass calculates to $6.84 per one-way trip to Union Station. Metrolink also offers a popular $10 weekend pass, featuring unlimited system-wide travel between 7 p.m. Friday and 11:59 p.m. Sunday.

Table 5.2 Metrolink Train Schedule: Palmdale to and from Union Station

Southbound			Northbound		
Train No.	Depart	Arrive	Train No.	Depart	Arrive
200	3:54 a.m.	5:53 a.m.	201	6:19 a.m.	8:22 a.m.
202	4:56 a.m.	6:55 a.m.	205	8:29 a.m.	10:35 a.m.
204	5:26 a.m.	7:25 a.m.	209	11:06 a.m.	1:10 p.m.
282	5:58 a.m.	7:40 a.m.	215	3:28 p.m.	5:28 p.m.
206	6:08 a.m.	8:06 a.m.	219	4:44 p.m.	6:50 p.m.
208	6:58 a.m.	8:57 a.m.	285	5:34 p.m.	7:21 p.m.
212	9:11 a.m.	11:08 a.m.	221	5:58 p.m.	8:00 p.m.
216	11:45 a.m.	1:43 p.m.	223	6:38 p.m.	8:39 p.m.
220	1:55 p.m.	3:55 p.m.	225	7:36 p.m.	9:34 p.m.
226	6:26 p.m.	8:42 p.m.	227	9:25 p.m.	11:22 p.m.

Existing Active Transportation Network

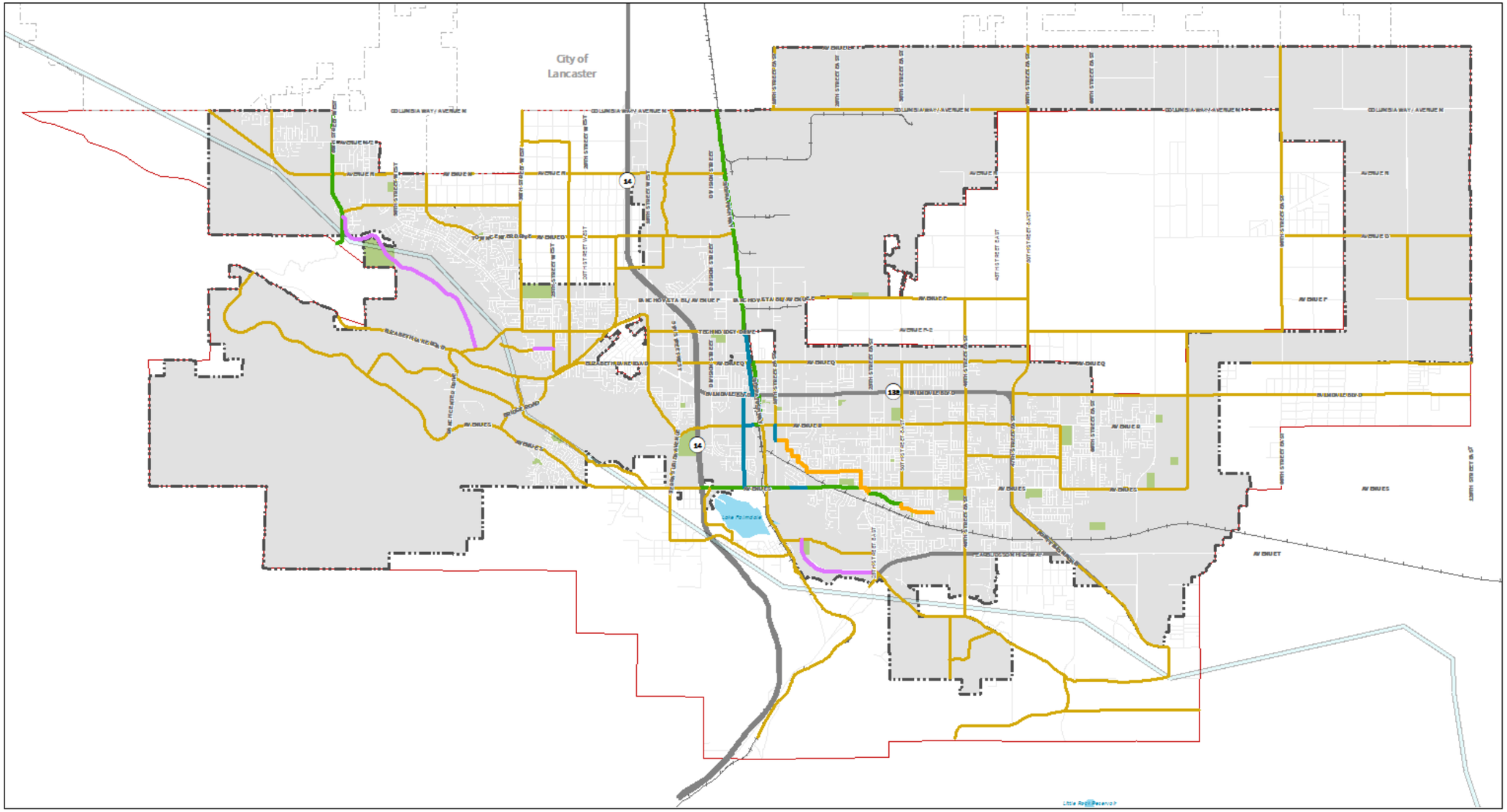
Bicycle Network

The City of Palmdale bicycle network is anchored by a 4.7-mile Class 1 bicycle path along Sierra Highway from just north of Avenue R, continuing north into Lancaster. This facility provides regional connectivity and may benefit from improvements, such as shade trees to assist people on bicycles on warm days. The Sierra Highway bike path, which is made up of approximately 4 miles of combined Class 1 bicycle paths, Class 2 bicycle lanes, and Class 3 bicycle paths, serves communities in central Palmdale as seen in Figure 5.4. Few multi-use paths across town provide recreational amenities.

Bicycle network connectivity is limited outside of a few neighborhoods within central Palmdale. The Bicycle Transportation Plan (2018 Draft) provides recommendations for an extensive network of bicycle facilities, ranging from bicycle paths to colored and/or buffered bicycle lanes. Figure 5.4 maps corridors planned for bicycle facilities without including planned facility design details. The Bicycle Transportation Plan (2018 Draft) includes a Design Toolkit to inform detailed designs and implementation.

Most proposed bicycle facilities exist on arterial roads to provide bicyclists with easy connectivity to community destinations. However, arterial roads also see some of the highest speed limits within Palmdale, so it will be necessary for bicycle facilities to be designed beyond the standard for bicycle lanes. Colored lanes, buffers, and separated facilities are critical to support a safe and inviting environment for bicyclists to access local destinations.

Figure 5.4 Existing and Planned Bicycle Facilities



Existing and Planned Bicycle Facilities

City Boundary
Sphere of Influence
California Aqueduct
Major Highway/Arterial
Railroad
Water Body
Park
Class I Bicycle Facility
Class II Bicycle Facility
Class III Bicycle Facility
Multi-Use Path
Planned Bicycle Facility - Class Not Designated

0 0.75 1.5 2.25 3 Miles
0 3,000 6,000 Feet

Data Sources: City of Palmdale GIS data; World Terrain Base, 2015 ESRI, USGS, NOAA.

Produced by Nelson\Nygaard
March 2019

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Pedestrian Facilities

No spatial data is available to provide a comprehensive assessment of pedestrian facilities. Using spatial imagery, the sidewalk coverage in the city of Palmdale varies between neighborhoods---likely a result of independent guidelines applied by independent housing developers. Based on spatial imagery, and a comprehensive look of available data, the following are key observations:

- Sidewalk coverage varies between neighborhoods, suggesting the need for a gap analysis to prioritize infill. The Complete Streets Plan (2018 Draft) provides guidance for sidewalk amenities moving forward.
- Sidewalks may benefit from streets for shade and street calming benefits due to hot weather experienced in the Antelope Valley. Many sidewalks along Palmdale's arterials present challenging environments for people walking, especially in the summer.
- As noted in Figure 5.2, signalized intersections presenting crossing opportunities along arterials for pedestrians are spaced between one quarter and one-half mile. This creates a significant challenge for pedestrians and introduces potential conflicts between pedestrians and automobiles.

Roadway Safety Trends

This section provides an analysis of collisions within the City of Palmdale to identify trends and key factors posing a risk to safety on local streets. This data is critical for understanding behaviors on the current roadway network, and for guiding recommendations to promote safe facilities for all users.

This safety analysis is based on the most recent five years of collision data (2014-2018) available from the California Transportation Injury Mapping System (TIMS). The dataset includes all reported collisions that resulted in an injury. During the five-year span, 3,963 collisions were reported, all of which resulted in varying levels of injury. Collisions between vehicles and those involving people bicycling and walking were reviewed separately. A more detailed analysis can be found in Appendix I.

Vehicle-Involved Collisions

Collisions that occurred on both the Regional Roadway Network (RRN) and the Local Roadway Network (LRN) were analyzed according to location type, primary collision factor, and type of collision. The RRN is composed of two highways, SR 14 and SR 138, which serve north/south and east/west connections, respectively in the City of Palmdale. The LRN consists of principal and minor arterials, collectors, and local roads. Key findings include:

- 572 vehicle-involved collisions occurred on the RRN and 3,092 vehicle-involved collisions occurred on the LRN between 2014 and 2018.
- 17 of the RRN collisions and 58 of the LRN collisions resulted in fatalities.

- Unsafe speed and failure to yield properly were the most common collision factor for RRN and LRN vehicle-involved collisions, respectively.

Active Transportation Involved Collisions

Active Transportation includes travel involving a pedestrian or a bicyclist. Identifying tends and streets or intersections with the highest number of collisions can help identify where to prioritize safety improvements and increase enforcement. Active transportation collisions have been declining overall from 2014-2018 and collectively account for 299 incidents. Key findings include:

- 62% of active transportation collisions involved pedestrians while 38% involved bicyclists.
- The highest number of collisions occurred in 2014 with 74 collisions involving pedestrians or bicyclists.
- Pedestrian violation and wrong side of road were the most common collision factors for pedestrian- and bicycle-involved collisions.

Commute Patterns

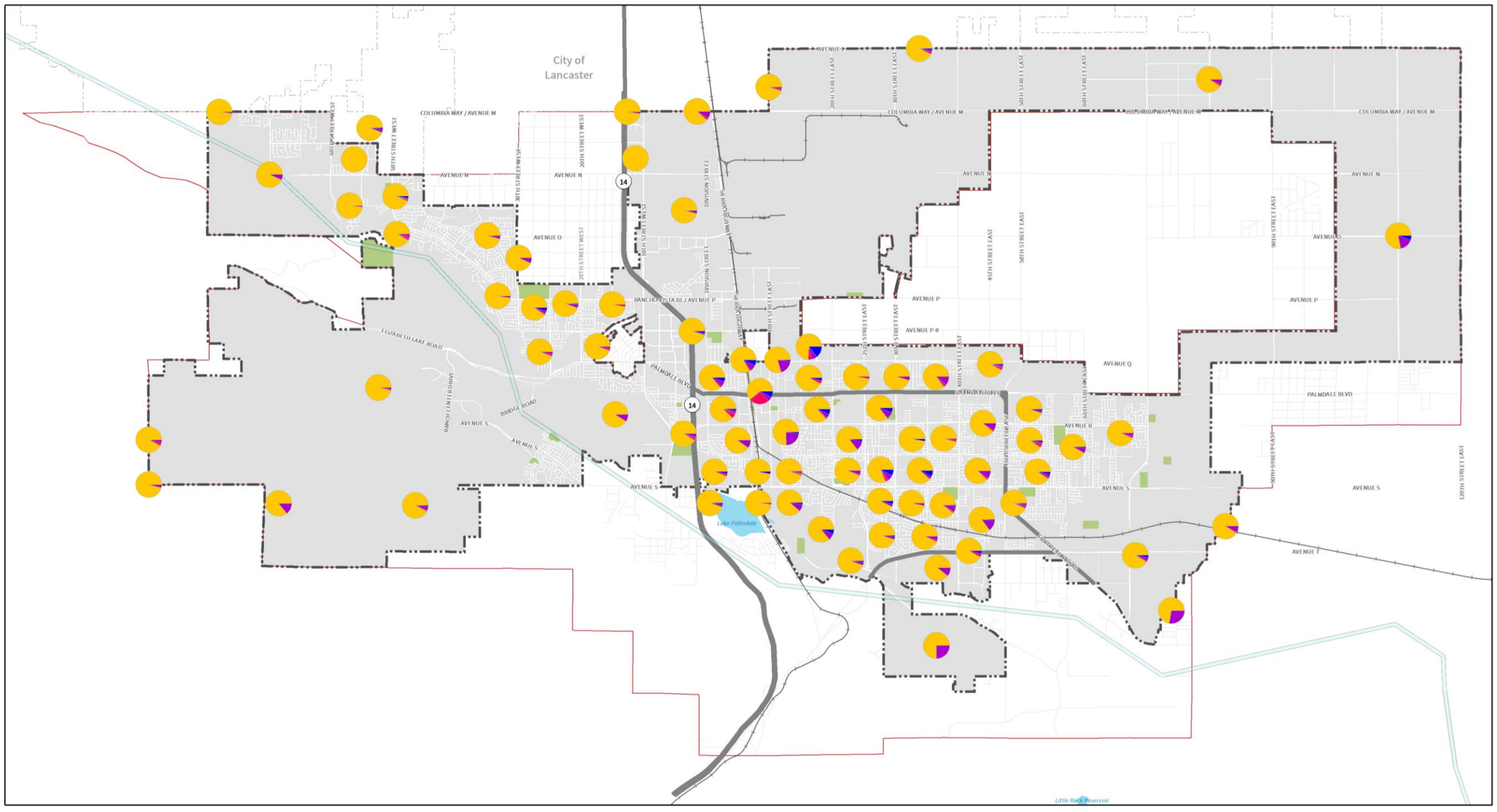
A majority of Palmdale residents commute to work by car, truck, or van (91.4%). Of these residents, 76% drive alone, while 14% carpooled with at least one other individual (Figure 5.5). Roughly 2% of residents use public transit, while 4.9% of residents worked at home. Figure 5.5 shows commuter mode splits across different Traffic Analysis Zones (TAZ's) in Palmdale.

Approximately 35% of residents have commutes to work that are at least 60 minutes long. Of these residents, 94% drive to work, either in their own private vehicle or by carpooling with other passengers. 4.8% of hour-long commuters travel to work by transit (Table 5.3).

Table 5.3 Travel Time to Work

	Driving	Public Transit	Walking	Taxi, Motorcycle, Bicycling, or Other
Average Commute Time				
Less than 30 min	46%	8%	77%	50%
Between 30 and 60 min	19%	11%	17%	19%
More than 60 min	34%	81%	16%	31%

Figure 5.5 Commute Mode Split by TAZ



Commute Mode Split

- Driving
- Taxi
- Motorcycle
- Bicycle
- Walked
- Other
- Work at Home
- Transit
- City Boundary
- Sphere of Influence
- California Aqueduct
- Major Highway/Arterial
- Railroad
- Water Body
- Park

0 0.75 1.5 2.25 3 Miles

0 3,000 6,000 Feet

Data Sources: City of Palmdale GIS data; World Terrain Base, 2015 ESRI, USGS, NOAA.

Produced by Nelson\Nygaard
March 2019

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Transportation Network Utilization

Vehicle Miles Traveled

In 2013, the California legislature enacted Senate Bill (SB) 743, which required changes to the guidelines implementing the California Environmental Quality Act (CEQA) regarding transportation impact analysis. Pursuant to SB 743, the criteria for determining the significance of transportation impacts must promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. To that end, changes to the CEQA Guidelines now identify vehicle miles traveled (VMT) as the most appropriate metric to evaluate a project's transportation impacts.

The Governor's Office of Planning and Policy Research has published a Technical Advisory[1] containing recommendations regarding the assessment of VMT, thresholds of significance, and mitigation measures. These recommendations are not requirements, and lead agencies, such as the City of Palmdale, have until July 1, 2020 to implement the provisions of SB 743 related to methodologies for calculating VMT, the significance of increased VMT, acceptable mitigation for induced VMT, and thresholds of significance among other topics.

Methodology for Estimating VMT

The Governor's Office of Planning and Policy Research (OPR) Technical Advisory indicates that a lead agency may use models to estimate a project's VMT. SB 743 states that VMT refers to the amount and distance of automobile travel attributable to a project, with the term "automobile" referring to on-road passenger vehicles--specifically cars and light trucks. Heavy-duty truck VMT can be included for modeling convenience and ease of calculation where models or data provide combined automobile and heavy-duty truck VMT.

For subsequent analysis of individual land development projects (e.g., residential, office, and retail projects) more simplified models will be suggested.

[1] *Technical Advisory on Evaluating Transportation Impacts in CEQA,* Governor's Office of Planning and Research, December 2018

Palmdale Sphere of Influence VMT

VMT has been computed for Palmdale to include its sphere of influence. Table 5.4 lists the planning variable assumptions and VMT for Palmdale and the Southern California Associations of Governments (SCAG) region.

Three Palmdale VMT measurements include its sphere of influence:

- Total VMT includes all trips having either an origin or destination within Palmdale.
- Palmdale network VMT includes all travel on highway links within Palmdale, including pass-through trips having neither an origin nor destination within Palmdale.
- Palmdale internal VMT excludes pass-through trips that reported for the Palmdale network VMT.

Table 5.4 2016 Vehicle Miles Traveled—Palmdale and Region

	Population	Households	Jobs	VMT	VMT/ Capita
Palmdale—Total	188,488	53,626	49,501	7,788,754	41.32
Total Internal Network				4,359,017	N/A
Internal Network minus Through				3,064,876	N/A
SCAG Region	18,985,906	6,210,320	8,113,734	467,436,640	24.62

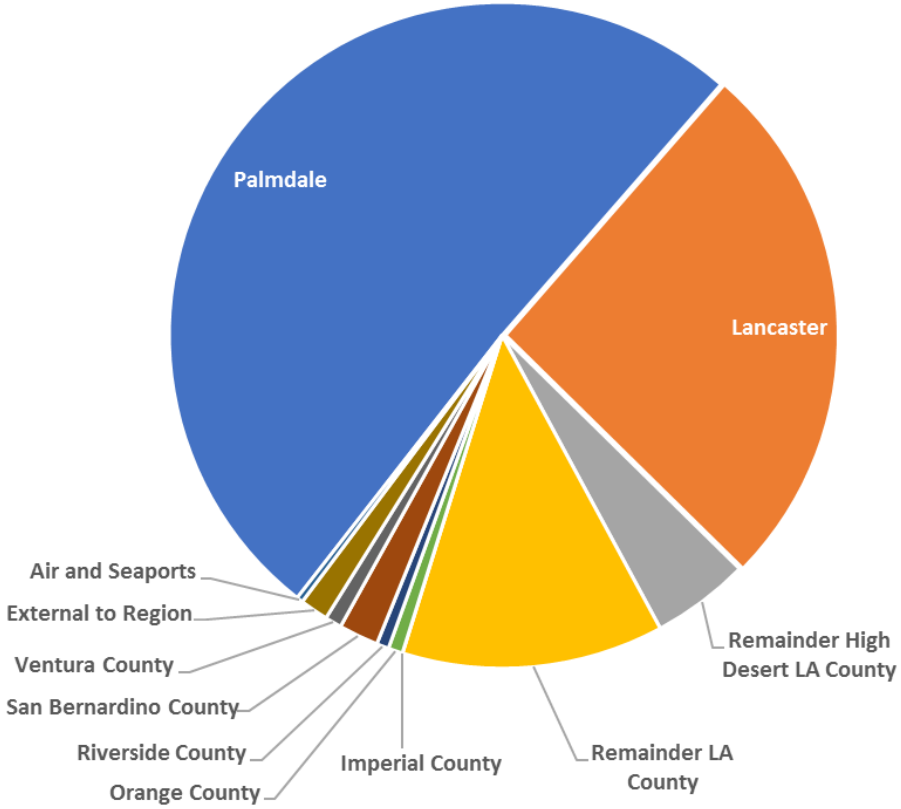
Source: Parsons

Understanding Palmdale's VMT

While the average VMT per capita is high relative to the SCAG region (41.32 versus 24.62), most of the vehicle trips are short. Figure 5.6 provides a breakdown of where trips to or from Palmdale (including its sphere of influence) originate or are destined.

Importantly, 387,243 vehicle trips, equal to 81.21% of all trips, occur solely within Palmdale or to or from Lancaster and the surrounding portions of Los Angeles County, such as the High Desert region. The next largest trip destination or origin is the remainder of Los Angeles County, which attracts or generates 60,371 vehicle trips, equaling 12.66% of the weekday total. All other SCAG region counties, including external points of entry, airports, and seaports, attract or generate 29,244 vehicle trips, equal to 6.13% of the daily total.

Figure 5.6 Weekday Vehicle Trips To/From Palmdale (2016)



Source: Parsons

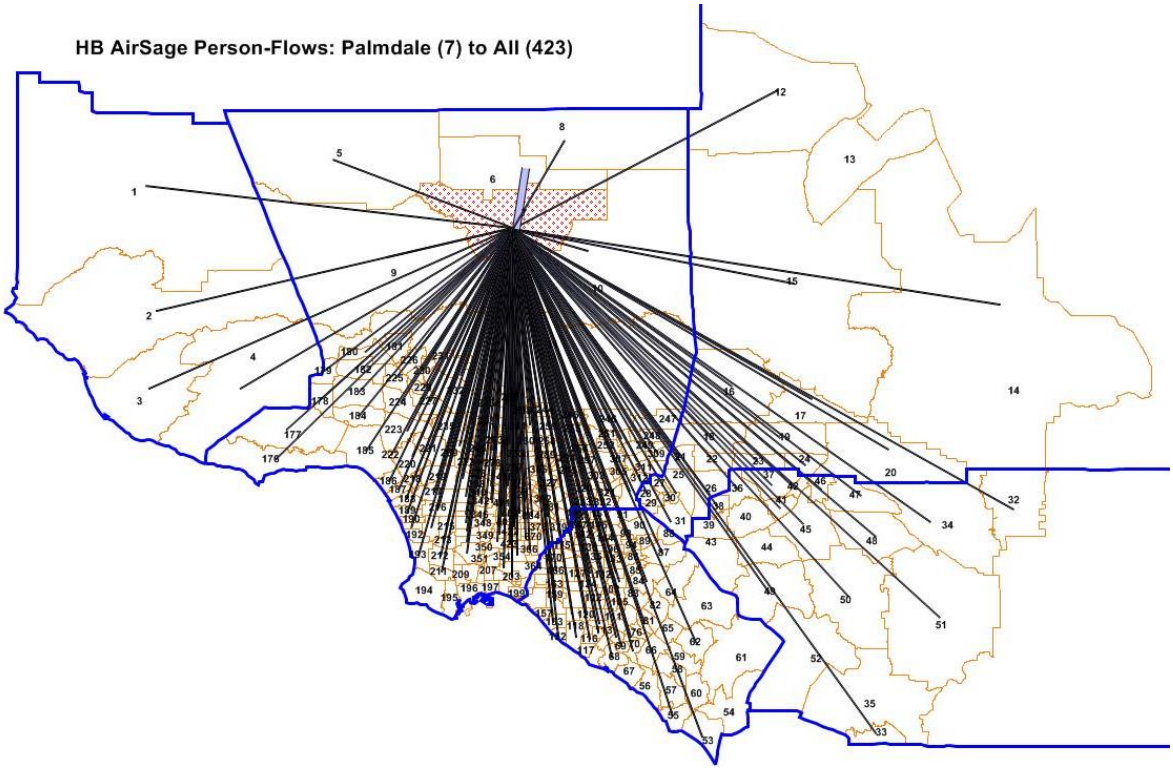
	Trips	Percent	Trips	Percent
1. Palmdale	241,498	50.64	387,243	81.21
2. Lancaster	123,157	25.83		
3. Remainder High Desert LA County	22,588	4.74		
4. Remainder LA County	60,371	12.66	60,371	12.66
5. Imperial County	49	0.01	29,244	6.13
6. Orange County	3,329	0.70		
7. Riverside County	2,831	0.59		
8. San Bernardino County	9,113	1.91		
9. Ventura County	3,839	0.81		
10. External to Region	8,631	1.81		
11. Air and Seaports	1,452	0.30		
	476,857	100.00		

Figure 5.7 provides an indication of where trips originating or destined to Palmdale travel based on cellular origin–destination data collected by AirSage using wireless signal extraction technology. The AirSage product relies on tracking wireless signal data sent by smart devices such as cell phones, which is obtained through contracts AirSage has with national cellular carriers. The data are anonymous, as the personal identifications of the wireless devices are stripped prior to its dissemination. The AirSage data represents movements by persons between origins and destinations.

Trips solely occurring within the High Desert region (Palmdale, Lancaster, and the surrounding portions of Los Angeles County) produce 35.86% of the weekday VMT originating within or destined to Palmdale. Trips to or from the remainder of Los Angeles County account for 40.33% of Palmdale's VMT. All other SCAG region counties, including external points of entry, airports, and seaports, attract or generate the remaining 23.81% of VMT attributable to the City of Palmdale including its sphere of influence.

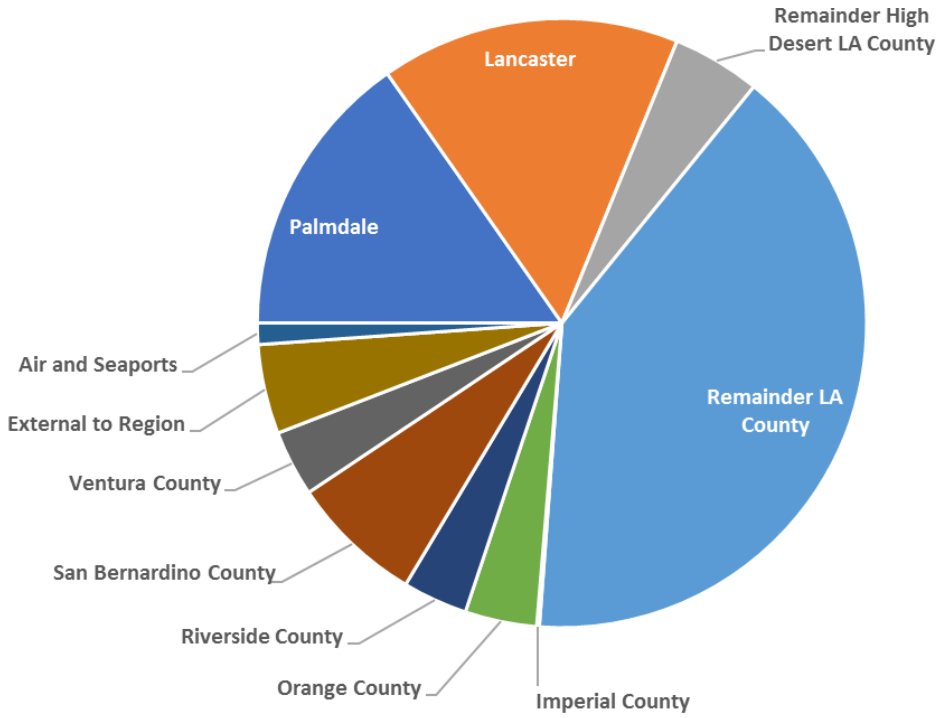
VMT to and from the destinations mapped on Figure 5.7 are displayed on Figure 5.8.

Figure 5.7 Home Based AirSage Origin–Destination Person Flows to/from Palmdale



Source: Parsons, AirSage

Figure 5.8 Weekday Palmdale Vehicle Miles Traveled (2016)



Source: Parsons

	VMT	VMT/Trip	Percent	Σ Percent
1. Palmdale	1,190,182	4.93	15.28	35.86
2. Lancaster	1,237,530	10.05	15.89	
3. Remainder High Desert LA County	364,768	16.15	4.69	
4. Remainder LA County	3,141,324	52.03	40.33	40.33
5. Imperial County	11,130	227.59	0.14	23.81
6. Orange County	296,714	89.14	3.81	
7. Riverside County	268,001	94.66	3.44	
8. San Bernardino County	548,490	60.19	7.04	
9. Ventura County	272,620	71.01	3.50	
10. External to Region	370,037	42.87	4.75	
11. Air and Seaports	87,958	60.59	1.13	
	7,788,754	16.33	100.00	

Local Transportation Analysis

A local transportation analysis evaluates the effects of a development project on transportation, access, circulation and related safety elements in the proximate area of the project. A local transportation analysis also establishes consistency with the general plan policies and goals through the following three objectives:

1. Ensures that a local transportation system is appropriate for serving the types, characters, and intensity of the surrounding land uses.
2. Encourages projects to reduce personal motor vehicle trips and increase alternative transportation mode share.
3. Addresses issues related to operations and safety for all transportation modes, with trade-offs guided by the general plan street typology.

Because general plans evaluate circulation conditions on a large scale, they typically do not analyze intersection operations or conditions during peak traffic periods.

More detailed analysis is typically done as part of a sub-area traffic plan or traffic study for a specific development project or environmental evaluation.

Additionally, intersection performance can vary significantly between the morning and evening peak periods as the commuter traffic flow reverses direction.

The Circulation Element of a General Plan Update typically evaluates and identifies the adequacy of the overall arterial system in terms of daily coverage, continuity, and generalized traffic carrying capacity.

Therefore, a more general planning measure is to review the operations of roadway segments in aggregate over the course of a typical day.

Level of Service Definitions and Standards

The County's Congestion Management Program (CMP) conducts a biennial assessment of the volume and level of operation of selected corridors in the region. Additional traffic volume data is collected by local agencies during other planning exercises and traffic studies conducted for development projects.

By statute, each CMP must include measures that evaluate current and future multimodal system performance for the movement of goods and people. The highway and roadway system base its service indicator levels on the traffic volume and practical vehicular capacity of designated roadway sections during a typical day. These two measures are expressed together as a ratio.

The volume-to-capacity ratio (V/C) is then converted to an alpha descriptor identifying operating conditions and expressed as a level of service (LOS), LOS A through LOS F. Level of service A identifies the best operating conditions along a section of roadway and is characterized by free-flow traffic, low volumes, and little or no restrictions on maneuverability. Level of service F characterizes forced traffic flow with high traffic densities, slow travel speeds, and often stop-and-go

conditions. Level of service standards in the County can be set no lower than LOS E, or no lower than the current level of service and V/C (if the level of service is already below LOS E). City of Palmdale has established LOS D as its criterion for an acceptable LOS.

Table 5.5, Level of Service Criteria, defines and describes the level of service criteria for roadway segments. Appendix IV identifies the level of service for arterial roadway segments based on these criteria.

Table 5.5 Level of Service Criteria

Level of Service	Interpretation	Volume-to-Capacity Ratio
A	Free-flow speeds prevail. Vehicles are almost unimpeded in their ability to maneuver within the traffic stream.	0.00–0.60
B	Reasonably free-flow speeds are maintained. The ability to maneuver within traffic is only slightly restricted.	>0.60–0.70
C	Flow with speeds at or near free-flow speed of the roadway. Freedom to maneuver within the traffic stream is noticeably restricted and lane changes require more care and vigilance on the part of the driver.	>0.70–0.80
D	Speeds begin to decline slightly with increasing flows. In this range, density begins to increase somewhat more quickly with increasing flow. Freedom to maneuver within the traffic stream is noticeably limited.	>0.80–0.90
E	Operation at capacity with no usable gaps in the traffic stream. Any disruption to the traffic stream has little or no room to dissipate.	>0.90–1.00
F	Breakdown of the traffic flow with long queues of traffic. Unacceptable conditions.	> 1.00

Source: Los Angeles County Metropolitan Transportation Authority 2010 Congestion Management Program.

Local Roadway Improvements

Several improvements have been recommended by local transportation studies to address the roadway needs of Palmdale. These may or may not be ultimately included in the General Plan. For information, the improvements recommended by local transportation studies include:

- Avenue P/Rancho Vista Boulevard: Three lanes per direction between west of 10th Street West and 20th Street East, and two lanes per direction between 20th Street East and 50th Street East.
- Technology Drive: Two lanes per direction between Sierra Highway and 20th Street East including a grade separation of the Union Pacific (UP)/Metrolink/California High-Speed Rail (CHSR) corridor.
- East Avenue Q: Two lanes per direction between 5th Street West and 30th Street East, including a grade separation of the UP/Metrolink/CHSR corridor.
- West Palmdale Boulevard: Three lanes per direction between 10th Street West and SR 14.
- East Palmdale Boulevard: Three lanes per direction between SR 14 and 10th Street East including a grade separation of the UP/Metrolink/CHSR corridor.
- East Avenue R: Two lanes per direction between Division Street and 47th Street East (SR 138), including a grade separation of the UP/Metrolink/CHSR corridor.
- East Avenue S: Three lanes per direction between SR 14 and 47th Street East including a grade separation of the UP/Metrolink/CHSR corridor.
- 10th Street West: Four lanes per direction between Rancho Vista Boulevard and Avenue O-4 and three lanes per direction between Rancho Vista Boulevard and West Palmdale Boulevard.
- 20th Street East: Two lanes per direction between East Avenue P and Palmdale Boulevard.
- 30th Street East: Two lanes per direction between East Avenue P and Palmdale Boulevard.
- 50th Street East: Two lanes per direction between East Avenue P and Palmdale Boulevard.

Figure 5.9 illustrates street segments that would be widened to meet these roadway travel lane recommendations.

These traffic lane assumptions do not necessarily reflect City of Palmdale right-of-way dedication requirements for arterial streets as set forth in the General Plan Circulation Element (adopted January 25, 1993).

The 1993 General Plan identifies standard street cross sections for all arterial roadways that will be needed to accommodate land use zoning build-out. However, the population and employment levels forecast for 2045 do not represent build out conditions, so these roadway network assumptions may be less than the build out requirement.

Regional Road Improvements

In addition to the above listed local roadway improvements, the Circulation Plan assumes three regional roadway improvements consistent with the High Desert Corridor Final Environmental Impact Report/Final Environmental Impact Statement (EIR/EIS).

- Extending the high-occupancy vehicle (HOV) lane on SR 14 from Avenue P-8 to Avenue L.
- Widening SR 14 to three mixed flow lanes and one HOV lane in each direction between Sand Canyon Road on the eastern edge of Santa Clarita to the west leg of SR 138 in Lancaster. This widening was identified in a District 7 approved Project Study Report and will be needed to accommodate interregional traffic using the High Desert Corridor and the Northwest SR 13 Corridor Improvement Project
- Construction of the High Desert Corridor (HDC) freeway/tollway/high-speed rail feeder service between SR 14 in Palmdale and I-15 in Victorville, continuing as an expressway to join with SR 18 in Apple Valley.

Near-Term Street Improvements

The City of Palmdale develops, implements and manages an ongoing Ten-Year Capital Improvement Program which includes improvement projects throughout the City, such as landscaping, beautification and signage; street widening, rehabilitation, resurfacing and sealing; sidewalks, bikeways and trails; Americans with Disabilities Act (ADA) improvements; traffic signals and safety improvements; transportation facilities and transit amenities; water resource and drainage systems; parks, recreation and athletic facilities; public offices and buildings; overhead utility undergrounding; drainage projects; and environmental mitigation.

Appendix V includes a listing and map of the street improvement projects included with the 2018–2028 Capital Improvement Plan.

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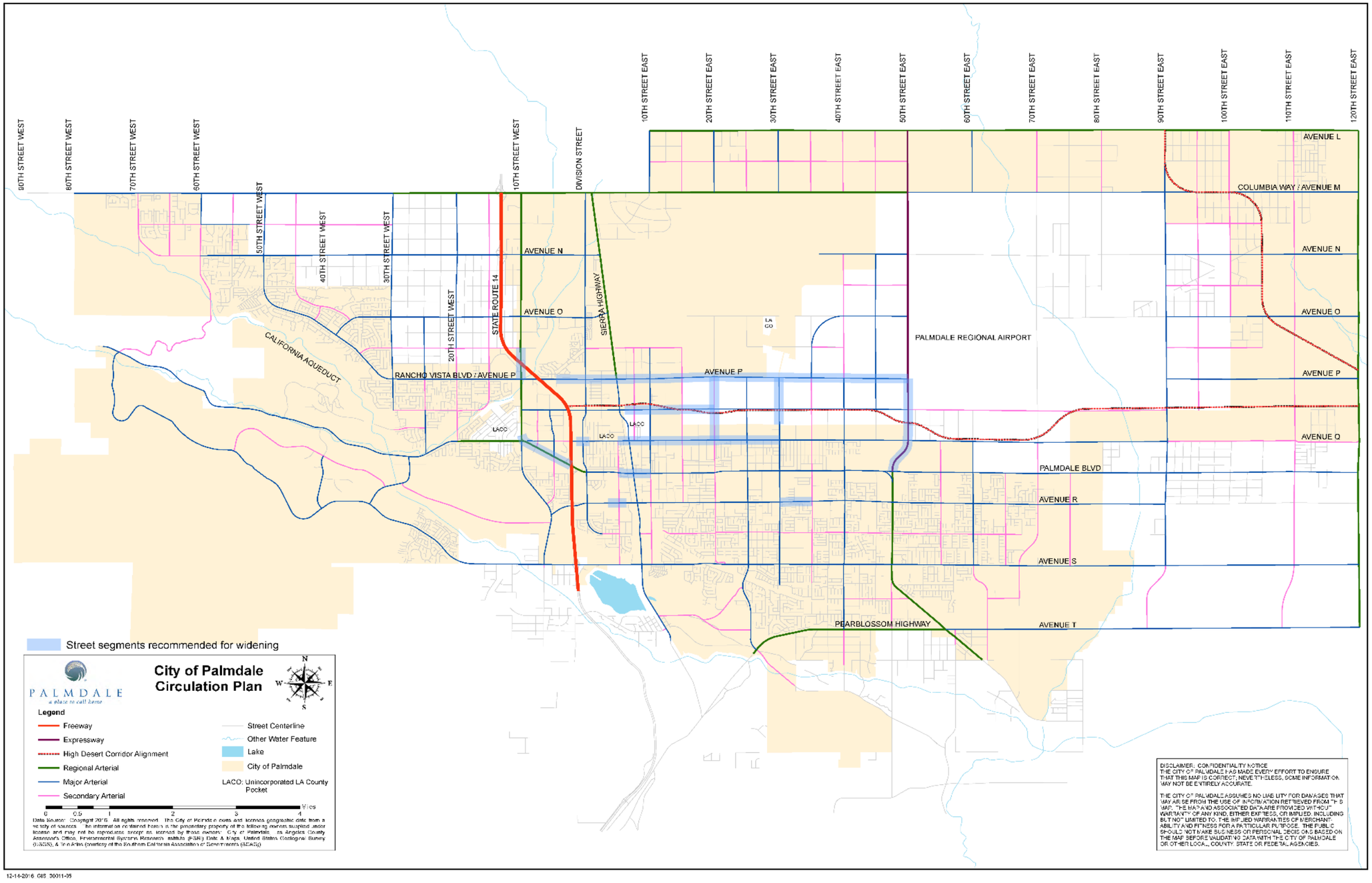
Figure 5.9 Street Segments Recommended for Widening By Various Local Transportation Planning Studies



Source: City of Palmdale, Parsons

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Goods Movement

Goods within, and passing through, Palmdale move by trucks and the Union Pacific Railroad. Figure 5.10 illustrates the location and extent of truck routes and rail lines within the city limits and sphere of influence. Section 10.04.050 Vehicles and Traffic Code of the City of Palmdale Municipal Code (PMC) prohibits certain vehicles except on designated routes as follows:

> *(Ord. 953 § 1, 1991)*
>
> *Chapter 15.102*
>
> *A. Except as provided in subparagraph B hereof, any commercial vehicle exceeding a manufacturer's gross vehicle weight rating of 10,000 pounds is hereby prohibited from using any streets in the city other than those designated in Chapter 15.103 which have been marked by appropriate signs. All streets in the city not designated in Chapter 15.103 shall be restricted streets for the purpose of this Chapter 15.102.*
>
> *B. Notwithstanding subparagraph A above, nothing herein shall be deemed to prohibit any such commercial vehicle from entering upon a restricted street from an unrestricted street, by use of the shortest and most direct route, when necessary for the purpose of making pickups or deliveries of goods, wares and merchandise from or to any building or structure located on the restricted street, or for the purpose of delivering materials to be used in the actual and bona fide repair, alternation, remodeling or construction of any building or structure upon the restricted street for which a building permit has previously been obtained.*

Section 10.04.060 of the PMC designates the truck routes as follows:

> *(Ord. 953 § 1, 1991)*
>
> *Chapter 15.103*
>
> *Commercial vehicles having a manufacturer's gross vehicle weight rating of 10,000 pounds or more shall use the following streets or portions of streets within the city limits except as provided in Section 15.102.B:*
>
> *A. 10th Street West from Avenue P to Avenue M.*
> *B. Sierra Highway from the Antelope Valley Freeway to Avenue M.*
> *C. 50th Street East from Palmdale Boulevard to Avenue M.*
> *D. Avenue M from the Antelope Valley Freeway to 50th Street East*
> *E. Avenue P from 10th Street West to 50th Street East.*
> *F. City Ranch Road, Tierra Subida, Rayburn Road, and Avenue R from the Palmdale landfill to Sierra Highway.*
> *G. Avenue S from Antelope Valley Freeway to Sierra Highway.*
> *H. Pearblossom Highway from Sierra Highway to Fort Tejon Road.*
> *I. Avenue T from Fort Tejon Road to 90th Street East.*

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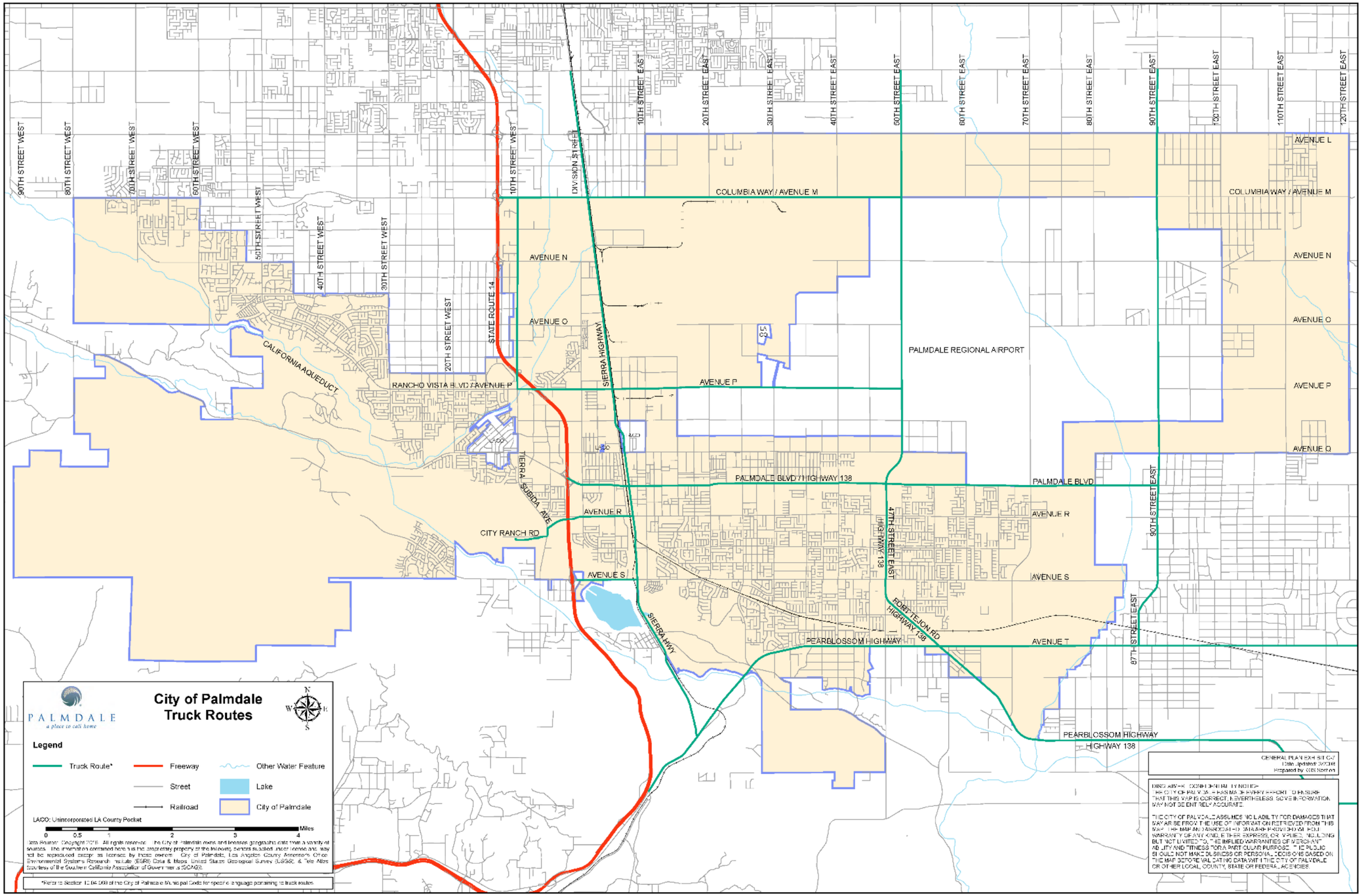
Figure 5.10 City of Palmdale Truck Routes



Source: City of Palmdale website, http://www.cityofpalmdale.org/Portals/0/Documents/Maps/09-28-2016_GIS_00011-14_TruckRoutes_GDT.pdf?ver=2016-09-28-131000-600, accessed 4/23/2019

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Information regarding the volume of trucking activity within or passing through Palmdale is limited. Table 5.6 reports average annual daily truck traffic on SR 14 and SR 138 as published by Caltrans for 2016. No information is currently available for truck traffic volumes on local streets designated as truck routes.

Table 5.6 2016 Daily Truck Traffic on State Routes within Palmdale

Total ADT	Total Trucks	Total Truck Percent	2-Axle and 3-Axle Volume	Percent	4-Axle and 5-Axle Volume	Percent
SR 14 South of Palmdale Boulevard						
84,000	4,402	5.2%	2,359	2.8%	2,043	2.4%
SR 14 North of Palmdale Boulevard						
89,000	3,391	3.8%	1,579	1.8%	1,812	2.0%
SR 138 Palmdale Boulevard East of SR 14						
33,000	1,779	5.4%	1,300	4.0%	479	1.4%
SR 138 Fort Tejon Road North of Avenue T						
14,500	1,030	7.1%	372	2.6%	658	4.5%
SR 138 Pearblossom Highway South of Avenue T						
18,100	1,690	9.3%	1,199	6.6%	491	2.7%

Source: Average annual daily truck traffic on the California State Highway System, California Department of Transportation, 2016

The Union Pacific Railroad freight line runs 400 miles from Lathrop to Colton via Bakersfield and Palmdale. Just south of Avenue R, the line veers east along the Palmdale Cutoff, which was constructed in 1967. Prior to 1967, freight trains used the Saugus Line to Burbank and Los Angeles, now used by Metrolink.

According to Metro's Antelope Valley Line Study completed in July 2019, an average of 12 freight trains run through Palmdale per day, with at-grade highway rail crossings at Avenue M (28,434 vehicles per day [VPD]), Rancho Vista Boulevard (33,863 VPD), Sierra Highway (14,366 VPD), Palmdale Boulevard (34,080 VPD), Avenue R (19,490 VPD), 10th Street East (12,215 VPD), Cemetery Road (N/A), 40th Street East (10,437 VPD), 45th Street East (1,869 VPD), 47th Street East (6,067 VPD), and 92nd Street East (N/A).

An industrial lead/pass track, 8,350 feet in length, is located immediately south of Columbia Way/East Avenue M, and a second pass track is located between 25th Street East and 40th Street East. The pass track between 25th Street East and 40th Street East, known as Palmdale Siding #2, is only 7,370 feet in length, whereas most sidings along the Palmdale Cutoff are 9,000 feet in length or longer. The short siding limits the length of trains to approximately 83 cars including locomotive units.

According to highway crossing delay measurements collected at Palmdale Boulevard in 2014 for the SR 138 Widening Project, the duration of the down gate time averages 2 minutes 14 seconds during peak hours of highway travel.

To address motor vehicle delay and enhance safety, grade separations of roadways crossing the freight and passenger rail corridor are being designed at Rancho Vista Boulevard, and are planned for Sierra Highway, Avenue Q, Palmdale Boulevard, and Avenue R in conjunction with the California High-Speed Rail line passing through Palmdale. An extension and railroad grade separation of Technology Drive has also been proposed.

Aviation

Palmdale Regional Airport

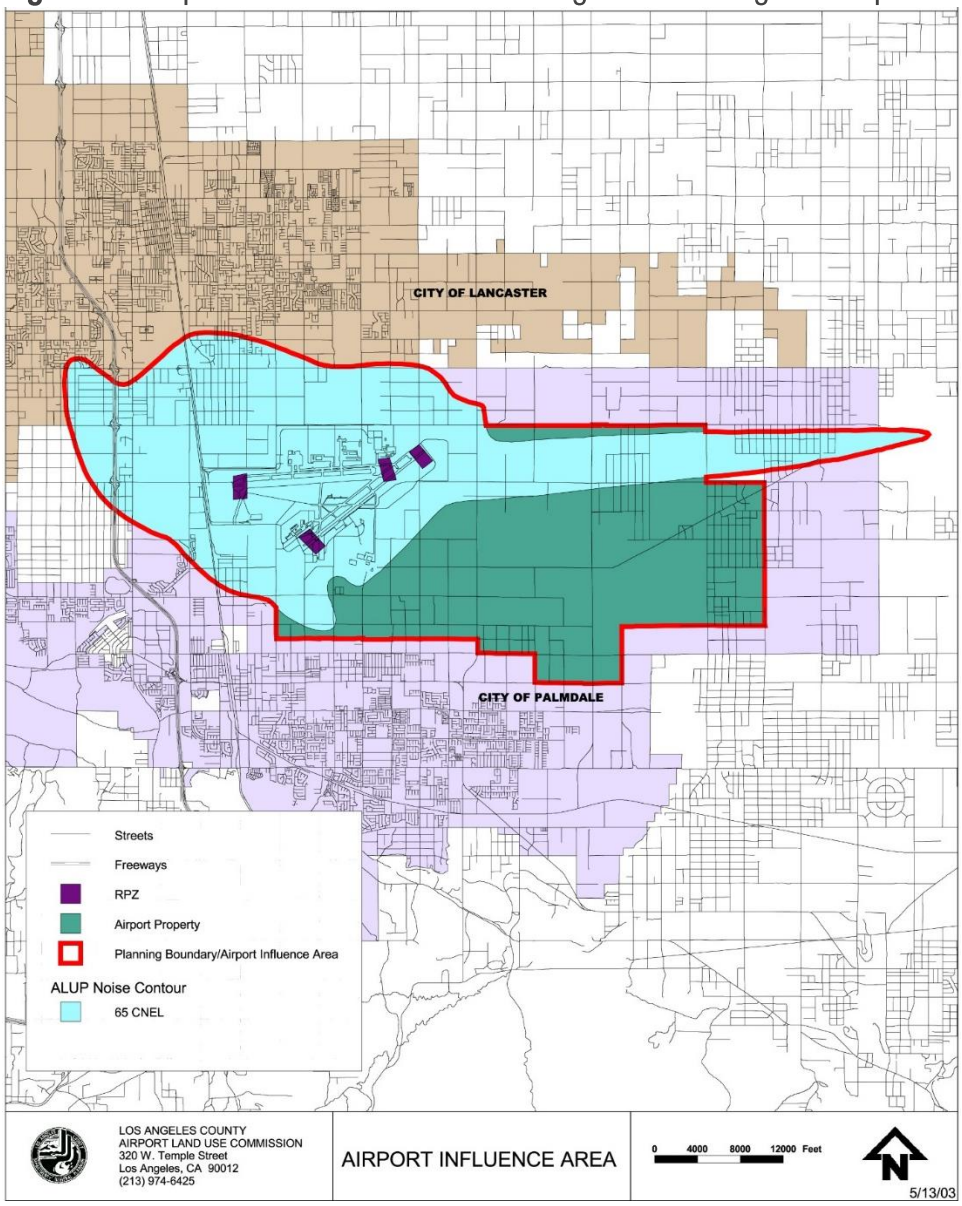
Until recently, Los Angeles World Airports (LAWA) leased 61.75 acres of land from the U.S. Air Force (USAF) on Plant 42 property for the Palmdale Regional Airport (PMD) under a joint use agreement. The joint use agreement allowed civilian operations on Plant 42. The airport terminal was located at the southwest corner of the airport on Avenue P and was comprised of a small airline terminal, a hangar and parking lot. Figure 5.11 illustrates the airport influence area surrounding PMD.

Palmdale Regional Airport began civilian operations in 1971. During the 1990s, commercial airlines operated out of the airport, but in late 2008, passenger service was suspended at the facility due to low volume. Ownership of the airport was transferred from LAWA to the City of Palmdale in 2013. Since then, the airport has been managed by the Palmdale Airport Authority. The City is planning for the construction of a new airport terminal to be located on the S/E corner of Avenue M and Sierra Highway. The goal is to have passenger service by 2022.

SR 14, about three miles west of the airport, provides regional access. As PMD has no scheduled commercial air service, there are no rental car facilities at the airport, and no private operators provide ground transportation services to the airport. The Palmdale Transportation Center (PTC), the proposed site of a future California High-speed Rail station, is located approximately two miles southwest of the airport. The PTC provides connections with the local public transit provider, AVTA, but no AVTA routes currently serve the airport. Several transportation improvements near the airport are currently in the planning phase, study phase or are under construction.

As Northrop Grumman has geared up operations at Plant 42 for B-21 Raider production, the company has expressed an urgent need for flights directly into and out of Palmdale. Much of their workforce is scattered throughout the country—flying into Los Angeles International Airport on Monday for the workweek, then flying home on Friday for the weekend. The company loses employee hours every week to air and ground travel time. The other three aerospace companies in Plant 42 have also expressed a similar desire.

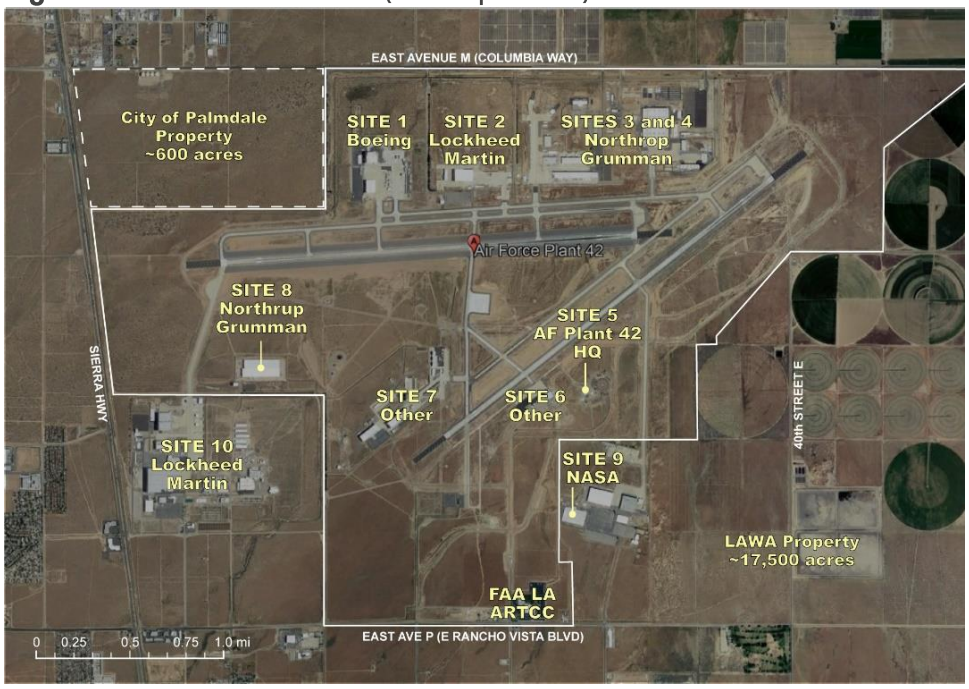
Figure 5.11 Airport Influence Area Surrounding Palmdale Regional Airport



Source: Los Angeles County Department of Regional Planning, Airport Land Use Commission http://planning.lacounty.gov/assets/upl/project/aluc_airport-palmdale.pdf, site accessed 12/10/2018

The City of Palmdale (City) owns approximately 600 acres of land north and west of the Plant 42 perimeter that the City proposes to develop into an air terminal facility. The property extends between Sierra Highway in the west and 15th Street East in the east, and between East Avenue M (Columbia Way) in the north and Avenue M-12 in the south. Figure 5.12 illustrates the general location and boundaries of the property. Once the City and the USAF have reached an agreement for access to the runways on Plant 42, the City will develop access routes from the new air terminal facility to the runways.

Figure 5.12 Plant 42 Site Plan (As of April 2018)



Palmdale Land Holdings

Los Angeles World Airports (LAWA) is the airport authority that owns and operates Los Angeles International Airport (LAX) and Van Nuys Airport (VNY) for the city of Los Angeles, California. Los Angeles World Airports formerly owned and operated Ontario International Airport (ONT) and Palmdale Regional Airport (PMD), and currently provides oversight and operations for a 17,500-acre parcel of land immediately east of USAF Plant 42 known as Palmdale Land Holdings. Strategic plans for the property are undefined at this time.

Financial Capacity for Transportation Projects

Every year, the City of Palmdale publishes a Comprehensive Annual Financial Report. During the fiscal year (FY) that ended June 30, 2018, the most recent report indicated that the City of Palmdale completed various street and resurfacing projects totaling $9.1 million, completed various traffic signal projects totaling nearly $8.0 million, and acquired approximately 17,772 streetlight poles for $11,650,000.

At the end of FY 2018, the City of Palmdale's total debt was $92.2 million, of which $68.7 million was secured by revenue bonds and certificates of participation. The total debt increased by $7.4 million during the fiscal year primarily due to financing the above-mentioned acquisition of streetlights.

Transportation related revenues are derived from a variety of sources as listed in Table 5.8. During FY 2018, revenues totaled $30.7 million, expenditures totaled $32.1 million, and the on-hand fund balance was $62.0 million on June 30, 2018. These revenues do not include bond proceeds.

Table 5.8 City of Palmdale Transportation Funding

Fund Source	Fiscal Year Ending June 30			
	2018	2017	2016	2015
Proposition A				
Revenues	3,025,404	2,861,689	2,859,231	2,762,822
Expenditures	2,420,877	2,539,319	2,744,021	2,352,953
Fund Balance	5,335,343	4,730,817	4,408,447	4,293,237
Proposition C				
Revenues	5,316,253	7,193,004	4,036,050	4,810,996
Expenditures	1,466,083	5,518,486	6,260,338	2,483,975
Fund Balance	7,971,645	4,669,069	2,994,551	5,218,839
Measure R				
Revenues	5,168,884	3,901,154	3,265,678	3,945,188
Expenditures	3,124,809	5,228,669	4,131,931	2,482,242
Fund Balance	6,962,259	4,918,184	6,245,699	7,111,952
Measure M				
Revenues	1,686,111	—	—	—
Expenditures	—	—	—	—
Fund Balance	1,686,111	—	—	—
Article 3				
Revenues	123	170	100,083	217,506
Expenditures	12,670	69,464	193,139	182,736
Fund Balance	8,610	21,157	90,451	183,507

Fund Source	Fiscal Year Ending June 30			
	2018	2017	2016	2015
Article 8				
Revenues	6,155,048	6,135,143	5,855,304	6,020,653
Expenditures	5,460,486	5,618,945	5,637,671	5,480,818
Fund Balance	1,968,829	1,274,266	758,068	540,435
Gas Tax				
Revenues	3,573,279	3,328,101	3,744,518	4,608,913
Expenditures	2,877,149	4,965,061	702,739	4,715,117
Fund Balance	17,747,257	14,854,206	16,737,397	14,155,974
Miscellaneous Grants/Developer Contributions				
Revenues	536,372	315,108	293,461	296,491
Expenditures	163,626	112,038	467,144	921,303
Fund Balance	2,240,353	1,867,607	1,654,093	1,827,776
Traffic Impact				
Revenues	635,209	808,607	1,927,839	331,982
Expenditures	72,591	492,420	158,753	96,135
Fund Balance	3,130,627	3,237,969	3,660,477	2,632,044
Street Lighting Assessment District				
Revenues	4,622,810	4,260,555	4,167,474	15,027,668
Expenditures	16,540,775	3,494,698	3,488,381	3,596,855
Fund Balance	14,948,682	15,469,545	14,703,688	14,024,595

Source: City of Palmdale Comprehensive Annual Financial Reports

Regarding the revenues, a brief description of the funding sources is provided in Table 5.9, abridged in part from the *Metro Funding Sources Guide* 2017 edition.

Table 5.9 City of Palmdale Funding Sources

Funding Source and Annual Amount (approximate)	Description	Eligible Uses
Proposition A	A voter-enacted (1980) half-cent sales tax in Los Angeles County.	
	25% Local Return Program—distributed to Los Angeles County and the cities in Los Angeles County on a per capita basis for public transit uses.	Exclusively to benefit public transit: expenditures related to fixed route and paratransit services, Transportation Demand Management (TDM), Transit Systems Management (TSM), and fare subsidy programs that exclusively benefit transit.
Proposition C	A voter-enacted (1990) half-cent sales tax for public transit purposes.	
	20% Local Return—distributed to cities on a per capita basis exclusively for public transit purposes.	Exclusively to benefit public transit: expenditures related to fixed route and paratransit services, TDM, TSM, fare subsidy programs that exclusively benefit transit, congestion management programs, commuter bikeways and bike lanes, street improvements supporting public transit service, and pavement management system projects.
Measure R	A voter-enacted (2008) half-cent sales tax for public transit purposes for a period of 30 years beginning July 1, 2009 through June 30, 2039 (rail expansion, local street improvements, traffic reduction, better public transportation, quality of life).	
	15% Local Return—distributed to the incorporated cities within Los Angeles County and to Los Angeles County for the unincorporated area of the county on a per capita basis.	Major street resurfacing, rehabilitation and reconstruction, pothole repair, left turn signals, bikeways, pedestrian improvements, streetscapes, signal synchronization, and transit.
Measure M	A voter-enacted (2016) half-cent sales tax for transportation purposes (increasing to one cent in July 2039 at the expiration of Measure R).	

Funding Source and Annual Amount (approximate)	Description	Eligible Uses
	16% Local Return—distributed to the incorporated cities within Los Angeles County and to Los Angeles County for the unincorporated area of the county on a per capita basis.	Major street resurfacing, rehabilitation and reconstruction, pothole repair, left turn signals, bikeways, pedestrian improvements, streetscapes, signal synchronization, and transit.
Transportation Development Act (TDA)	A local transportation fund for each county derived from quarter-cent of the 7.25 cent statewide retail sales tax. The funds are apportioned to each county by the State Board of Equalization according to the amount of tax collected in the county.	
TDA Article 3	2% TDA Article 3 (bicycle and pedestrian facilities)—allocated to local jurisdictions based 85% on population and 15% to City of Los Angeles and Los Angeles County unincorporated areas for maintenance of regionally significant Class I bicycle facilities.	Bicycle and pedestrian facilities.
TDA Article 8	TDA Article 8—For areas within Los Angeles County not served by Metro, North County unincorporated areas, Palmdale, Lancaster, Santa Clarita, and Avalon.	Transit and paratransit programs to fulfill unmet transit needs in areas not served by Metro. If there are no unmet transit needs, may be used for street and road improvements.
State Gas Tax Subventions	Highway Users Tax Fund—gas taxes directly disbursed by the State Controller to the cities and the county. State Excise Tax on Gasoline—distributed to cities and the county for local streets and roads per the fuel tax swap (2010).	Recipient chooses street and highway projects that increase capacity, busways, and repaving.
Traffic Impact Fees	New residential and non-residential development in the City of Palmdale shall mitigate the impacts of that development on the City's transportation system. Developers are therefore	Constructing transportation improvements pursuant to the most current transportation facilities plan in accordance with Section 3.40.060 of the Palmdale Municipal Code.

Funding Source and Annual Amount (approximate)	Description	Eligible Uses
	required to mitigate traffic impacts caused by their development or to pay a traffic impact fee as adopted by City Council Resolutions and authorized by Chapter 3.40 of Title 3 of the Palmdale Municipal Code.	

Source: Metro Funding Sources Guide, 2017; Parsons

Regarding expenditures, Table 5.10 provides a snapshot of how revenue derived from Propositions A and C, Measure R, and TDA Articles 3 and 8 were expended during fiscal years 2016 and 2017.

Table 5.10 City of Palmdale Transportation Funding Expenditures

Project Name	2017 Actual	2016 Actual
Proposition A Local Return Fund		
AVTA (city contribution to O&M)	2,024,727	1,904,885
Recreational Transit Services	—	17,434
Park and Ride Security	65,508	60,838
PTC Security Cameras	—	95,474
HSR Station Planning	—	11,181
Multimodal Transit Facility Study	5,077	—
North County ITS Forum	435,823	599,009
Palmdale Transportation Center Wayfinding Signage	8,184	55,200
Total Expenditures	*2,539,319*	*2,744,021*
Proposition C Local Return Fund		
AVTA (city contribution to O&M)	250,000	241,954
North County ITS Forum	—	—
Facility Lease Payment	651,638	653,900
Pavement Management Program	78,246	116,417
Total Expenditures	*979,884*	*1,012,271*
Measure R Local Return Fund		
HSIP Roundabout S8 and 40th E	2,400	—
Road Safety Improvements	(36,537)	287,000
Avenue S Widen 30th Street East to 47th Street East	1,883,613	483,349
RVB Widen—Gap Closure	96,400	45,871
Traffic Signal—Repairs and Maintenance	—	1
Avenue R and 55th Street	20,008	—
Total Expenditures	*1,965,884*	*816,221*
Transportation Development Act Article 3		
Desert Willow	—	120,593
Avenue S Widen	69,464	72,546
Total Expenditures	*69,464*	*193,139*
Transportation Development Act Article 8		
Traffic Engineering and Street Maintenance	5,618,945	5,637,671
Total Expenditures	*5,618,945*	*5,637,671*

Source: Simpson & Simpson, Independent Auditor's Report for Proposition A and C, Measure A and TDA Article 3 and 8 for Fiscal Years ended June 30, 2017 and 2016

Policy and Planning Context

Key Planning Documents

Safe Routes to School Master Plan (2018 Draft)

The Safe Routes to School (SRTS) Plan was initiated in 2015 after a California State Department of Transportation grant was awarded to the City of Palmdale to create a citywide Active Transportation Plan (ATP). The City of Palmdale included a SRTS Plan as part of its ATP.

The SRTS Plan provided individualized recommendations on how to provide safety through physical improvements and programs for 31 schools in three school districts: Antelope Valley Union High School District, Palmdale School District, and Westside Union School District. The recommendations in this plan provide a resource for improving roadway safety and connectivity in Palmdale's residential neighborhoods.

Plan Goals

- To make it safer for students to walk and bicycle to school.
- To increase the number of students walking and bicycling to school.

Implementation

Recommendations resulted from school and community outreach, background research, fieldwork, and past SRTS program experience. Stakeholders from three districts participated in several SRTS Plan workshops, which set the groundwork for the Plan. The plan also took into consideration current programs in Palmdale, including the Safe Moves City program, which educates school-age children about traffic and pedestrian safety.

The City of Palmdale SRTS Plan seeks to make bicycling and walking safer by using the 5 E's: Engineering, Education, Encouragement, Enforcement, and Evaluation:

- **Engineering**: Streets were studied, and suggestions for infrastructure improvement were made including locations for bicycle parking; sidewalk improvements; and the addition of street signs and crossings in key intersections.
- **Education**: Suggestions included Bicycle Rodeo; pedestrian and bicycle safety skills course for adults and youth; personal safety training; print and media campaign with safe walking, bicycling, and driving messages; safe driving tips; and safe walking and bicycling tips.
- **Encouragement**: Suggestions included, "Caught Being Good;" International Walk to School Day; Open Streets events; parent awards; park and walk; principal, mayor and/or teacher-led walks; student or classroom competitions with prizes; walk and roll Wednesdays; and walking school bus/bicycle train.

- **Enforcement**: Suggestions included corner captains; crossing guards; law enforcement presence; neighborhood watch; pedestrian decoy program; radar enforcement; speed trailers, active speed monitors, and photo enforcement; and student safety patrol (valet).
- **Evaluation**: Stakeholders were given suggestions on methods to track progress and determine whether goals and policies are being met.

Complete Streets Plan (2018 Draft)

The Complete Streets Plan was part of Palmdale's Active Transportation Program, along with the Bicycle Transportation Plan and Safe Routes to School Plan. The Complete Streets Plan established a framework for the creation of an all-inclusive circulation network in Palmdale to allow universal access to activities and services. The plan enabled people using different transportation modes (such as walking, driving, public transit, and bicycling) to safely access the same right-of-way. Recommended updates serve their local contexts and included design elements such as sidewalks, lighting, signage, landscaping, and pedestrian and public transit lanes. This plan provides the tools to prioritize and design safer streets within Palmdale in a way that supports walkability and emerging commercial centers.

Plan Goals

The Complete Streets Plan was designed to facilitate the use of multiple modes of transportation and reduce greenhouse gas emissions, and included the following goals:

- Improved community health, safety, and economic vitality
- Safe and convenient access for a variety of mobility types
- A circulation network that enables travel to and from destinations in a safe and efficient manner
- Mobility for multiple modes of transportation, not just vehicles
- Reduced vehicle emissions from increased use of alternative transportation modes

Implementation

Palmdale's existing roadways were surveyed, and traffic studies were performed to establish which roadways would best contribute to the circulation network. Community and stakeholder recommendations came from the Technical Advisory Committee (TAC), community surveys, and workshops.

The final plan recommended specific roadways to include, multiple options for street cross-sections, comprehensive and locally specific street design guidelines, and updates to existing municipal codes, including suggested updates for the Parks, Recreation, and Trails element of Palmdale's 1993 General Plan.

Bicycle Transportation Plan (2018 Draft)

The Palmdale Bicycle Transportation Plan was created within Palmdale's Active Transportation Plan (ATP), and examined existing and proposed bikeways, facilities, and programs. Also included were bicycle design guidelines, funding sources, and an implementation plan. This plan and accompanying resources provide tools to guide the design of complete streets in Palmdale and prioritize corridors for such improvements in support of emerging development.

Plan Goals

- Update the City of Palmdale's Bicycle Transportation Plan (BTP) (2006)
- Plan bikeways that will complement the Safe Routes to School (SRTS) Plan for schools located within the City of Palmdale
- Supplement the "Bicycle and Trails" section of the Parks, Recreation and Trails element for the City of Palmdale's General Plan (1993)
- Prepare the bicycle component of the Complete Streets Plan

Implementation

Implementation began with public outreach to understand the bicycle needs of Palmdale. Existing plans and ordinances were analyzed to establish a basis for planning efforts. Seven goals were established to guide plan implementation. Each goal corresponded with one or more policies that could guide the City to meet the goal.

Goal 1: Develop a comprehensive bikeway network

- **Policies**: Implement the bikeways in the plan; integrate the City's bikeway network with bikeways in surrounding jurisdictions; develop bikeways that service the full spectrum of bicyclists; apply new technologies and innovative treatments on appropriate roads and bikeways

Goal 2: Develop comprehensive support facilities for bicycling

- **Policies**: Facilitate the provision of quality bicycle support facilities at public and private sites/buildings throughout the community
- Goal 3: Develop and enhance multi-modal opportunities for bicyclists to connect with other forms of transportation
- **Policies**: Provide secure bicycle storage facilities where bicyclists connect with other forms of transportation; expand opportunities for bicyclists to use buses

Goal 4: Increase awareness of bicycle safety and education

- **Policies**: Encourage and support comprehensive bicycle safety and education awareness programs for bicyclists; encourage and support comprehensive bicycle safety and education awareness programs for motorists

Goal 5: Promote bicycling

- **Policies**: Actively encourage city staff, employees, residents and visitors to use bicycles as often as possible; actively support promotional efforts at schools
- Goal 6: Maximize available revenue for bicycling enhancements
- **Policies**: prioritize projects to best use available funds

Goal 7: Enhance regular ongoing practices

- **Policies**: Ensure that planning, design and implementation documents are adhered to; ensure that ongoing maintenance keeps bicycle facilities in good repair; continue to gather information and make modifications to ensure enactment of the Bicycle Transportation Plan

Off-Street Parking Policies

Off-street parking policies were created to ensure that facilities are properly designed and maintained to facilitate safety and efficiency. Parking requirements have a significant impact on development due to the space necessary to build parking. Tools such as shared parking strategies, outlined in this plan, help find a balance between parking needs and demand to facilitate vibrant commercial districts.

Policy Goals

- Facilitate the intended use of the property
- Reduce traffic congestion and safety concerns
- Protect the neighborhoods from the effects of vehicular noise and traffic
- Assure maneuverability of emergency vehicles
- Provide a positive visual experience

Implementation

The following guidelines must be met to have adequate off-street parking facilities:

- Number of Parking Spaces Required
  - The number of spaces required depends on the function of the building served by the parking, and the size of the structure, and whether TDM policies are in place or there is a bus turnout
- Use of Parking Spaces
  - Guidelines on parking space use dictates what a parking space may not be used for, and what type motor vehicle can use a space
- Design Standards
  - Many design standards must be met, including the size of spaces, design of vehicle circulation around spaces, amount of drainage, type of surface, landscaping, and screening of parking lots
- Shared Parking

    - Policies dictate what requirements must be met before a parking facility can be considered for shared use. Requirements include time of use, number of spaces, and location
- Loading Zone Standards
    - The number of required loading zones depends on the function and size of the building served by the parking
- Bicycle Parking Facilities
    - The number of bicycle racks depends on the number of vehicle parking spaces and the size of the accompanying building
- Modification to Parking and Loading Requirements
- Exceptions and modifications may be made with the City's approval

Street Maintenance Policies and Procedures (2011)

Street maintenance policies and procedures were written for the Public Works Maintenance Division to make sure the parkway is maintained properly and to provide safe walking areas for the public.

Policy Goals

- Conduct a detailed inspection of the parkway twice per year, in the spring and fall, to ensure proper maintenance of public improvements
- Maintain an accurate record of inspections and document how the inspections took place
- Note any conditions needing correction and any citizen complaints
- Monitor any conditions that may be hazardous to pedestrians

Implementation

Inspections take place two times per year using GIS or Sewer Maintenance Maps. Two maintenance personnel make the inspections in a vehicle and inspect on foot when the terrain is not visible from the vehicle. Any noted hazards or vertical displacements are inspected or barricaded within 48 hours of discovery.

General Plan, Circulation Element (1993)

The City of Palmdale's Circulation Element was created within the 1993 General Plan. It was designed to provide a blueprint for the construction and maintenance of a transportation network that accommodates growth, supports economic development, and allows for safe and convenient access to goods and services. The Element also outlines the City's plans to upgrade and expand its pedestrian walkways, surface streets, arterial and regional highways, public transportation, rail service, and air service.

Plan Goals

- Establish, maintain, and enhance a system of streets and highways which will provide for the safe and efficient movement of people and goods while minimizing adverse impacts on the community
- Reduce the number of trips and vehicle miles traveled to meet regional transportation and air quality goals

- Encourage use of non-vehicular transportation
- Promote opportunities for rail service to move goods, passengers, and commuters
- Protect and promote a variety of air transportation services

Implementation

To help guide plan implementation, the City requires the future construction of roads and transportation facilities to be in conformance with the Roadway Network. In some cases, improvements to roadway projects are deferred, or may result in piecemeal approach to construct right of way section by section. The City regularly updates the Roadway Network and coordinates it with the Land Use Element of the General Plan to ensure the provision of transportation facilities adequately supports permitted land uses.

Key Projects

California High Speed Rail

The California High-Speed Rail Authority (CHSRA) is responsible for planning, designing, building and operation of a high-speed rail system in California that will connect the mega-regions of the state. The system will run from San Francisco to the Los Angeles basin in under three hours at speeds capable of over 200 miles per hour. The system will eventually extend to Sacramento and San Diego, totaling 800 miles with up to 24 stations, as illustrated on Figure 5.13.

In 2015, the high-speed rail broke ground, beginning construction on the 119-mile segment passing through Fresno in the Central Valley. The CHSRA is currently focused on completing the Central Valley segment and extending it to Merced on the north and Bakersfield on the south. The CHSRA plans to operate high-speed rail service along this 170-mile route, electrifying the northern segment between San Jose and San Francisco, and constructing several key grade separation projects in Southern California.

The CHSRA is also committed to completing the environmental review for all project segments (Merced/San Francisco—Los Angeles/Anaheim) by 2022. No schedule has been established for completing construction of the high-speed rail line sections between Bakersfield and Palmdale or between Palmdale and Los Angeles Union Station. Due to its location along the corridor, linking the Central Valley and Los Angeles basin, Palmdale must plan ahead to ensure growth supports the City as a hub that will attract residents, jobs, and commercial activity.

Figure 5.13 Proposed Statewide High-Speed Rail Alignment

Source: http://www.hsr.ca.gov/Newsroom/Multimedia/maps.html, site accessed April 9, 2019.

High Desert Corridor

The High Desert Corridor freeway (HDC)/tollway/high-speed rail feeder service will create a high capacity connection between SR 14 in Palmdale and I-15 in Victorville, continuing as an expressway to join with SR 18 in Apple Valley. The proposed alignment of the 63-mile-long facility is illustrated on Figure 5.14.

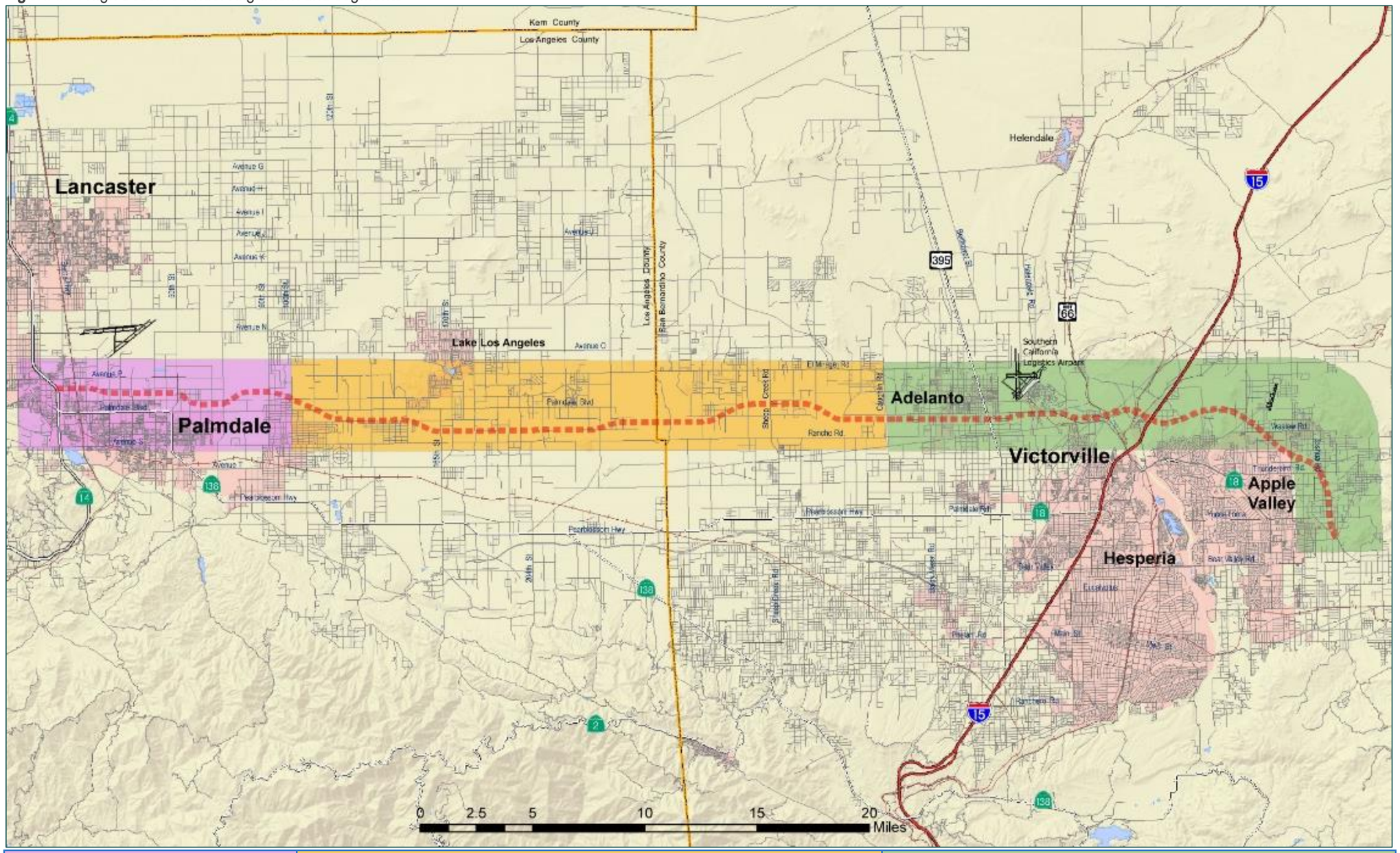
The nine-mile-long Antelope Valley segment of the HDC would begin from a new freeway-to-freeway SR 14/HDC interchange and extend east as an eight-lane

freeway parallel with and near Avenue P-8 to 90th Street East in Palmdale. The right-of-way to be acquired for this segment would accommodate ultimate expansion to possibly four lanes and one HOV lane in each direction plus a high-speed passenger rail line.

The 33-mile long High Desert segment would extend from Palmdale to Adelanto, running in a west–east direction parallel and south of Palmdale Boulevard. This portion would be three toll lanes in each direction from 90th Street East to US 395. The 21-mile-long Victor Valley segment would generally follow the alignment of Air Expressway Boulevard between Caughlin Road in Adelanto and Dale Evans Parkway east of I-15 in Apple Valley and continue southeasterly as an expressway to join SR 18 just east of Joshua Street. The freeway portion of this segment between US 395 and I-15 would be six lanes wide.

The HDC project would also include bicycle facilities, extending 36 miles along the corridor from US 395 in Adelanto to 20th Street East, with funding provided to the City of Palmdale to improve local streets to provide a bike route connection to the Palmdale Transportation Center.

Figure 5.14 High Desert Corridor Alignment and Segments



Source: Parsons, High Desert Corridor Traffic Study, June 2014

High Desert Corridor High-Speed Rail Feeder/Connector Service

The preferred HDC alternative includes CHSR feeder/connector service between the cities of Palmdale and Victorville. This high-speed rail component of the HDC would operate as a new west-to-east passenger rail service running from the Metrolink station in Palmdale to Victorville. This service could also conveniently allow rail passengers to continue to Las Vegas without having to change trains at Victorville (a one-seat ride). It would provide a crucial, currently missing, interregional link between two major Southern California rail infrastructure investments currently in the planning stages-namely the CHSR and the Virgin Trains USA (formerly known as XpressWest, and earlier as Desert Xpress). No schedule has been announced for the extension of Virgin Trains USA service to High Desert Corridor Interchanges and Grade Separations

High Desert Corridor Interchanges

The western terminus of the HDC would have a series of interchanges providing directional connections to SR 14. At their highest points, these interchanges would gradually rise to approximately three to four stories tall. A partial interchange at Avenue P (Rancho Vista Boulevard) on SR 14 would be removed, and a full interchange at 10th Street West would be constructed to provide enough merging distance for the two freeways. Several existing ramps along SR 14 would be realigned to accommodate the SR 14 widening between 10th Street West and Palmdale Boulevard. The westbound Palmdale Boulevard to northbound SR 14 on-ramp would be removed and consolidated into a loop on-ramp to northbound SR 14, serving eastbound and westbound Palmdale Boulevard traffic. Palmdale Boulevard interchange ramps would be realigned as listed below.

- SR 14 to Palmdale Boulevard
- Westbound Palmdale Boulevard to southbound SR 14
- Westbound Palmdale Boulevard to northbound SR 14
- Eastbound Palmdale Boulevard to southbound SR 14
- Eastbound Palmdale Boulevard to northbound SR 14.

In addition, a direct on-ramp from Palmdale Boulevard to eastbound HDC would be added. The HDC would also include:

Local access service interchanges at the following intersections:

- 20th Street East
- 30th Street East
- 50th Street East
- 90th Street East

Grade separations proposed as local street undercrossings at the following intersections:

- 3rd Street East (Future Division Street)
- Sierra Highway/UP and Metrolink right-of-way
- 8th Street East
- 10th Street East

- 15th Street East
- 25th Street East
- 40th Street East
- 70th Street East
- Division Street (at a future date).

Virgin Trains USA (Formerly Xpress West) Connection to Las Vegas

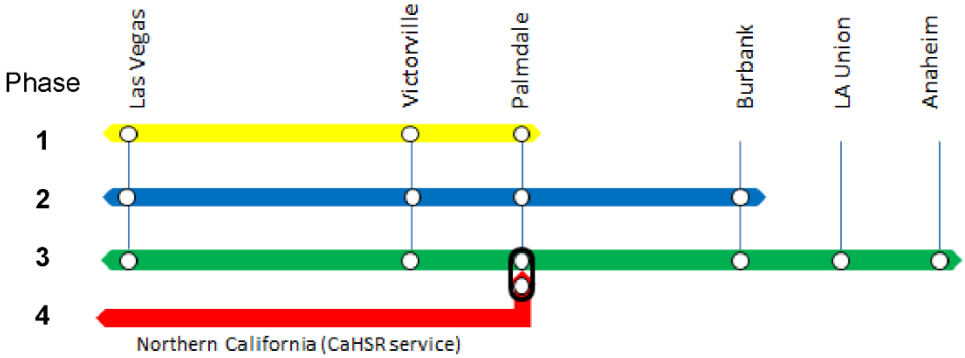
The high-speed rail feeder service, as envisioned by Virgin Trains USA, would be modeled on the Brightline service currently operating in Florida between Fort Lauderdale and Miami (with an extension to Orlando under construction). Diesel electric locomotives pulling and pushing dual ended trains would operate along steel tracks with a maximum operating speed of 125 miles per hour. The high-speed rail feeder would be built within the HDC right-of-way. The area needed for this rail facility would be approximately 160 feet wide to accommodate the tracks and associated structures. The rail alignment would primarily run in the median of the HDC freeway.

The Palmdale Multimodal Rail Station would be located south of the existing Palmdale Transportation Center between Avenue Q and Palmdale Boulevard.

Virgin Trains USA expects the initial Southern California station to be in Victorville, and intends to add stations and provide connections to CHSR and Metrolink. The first phase of what Virgin Trains USA calls the "Vegas Expansion" is expected to be built on a right-of-way within and adjacent to Interstate 15, traversing 185 miles with no at-grade or pedestrian crossings. Initial service is expected to begin by 2023.

Prior to Virgin Trains USA's September 2018 purchase of the rights to develop a high-speed rail project between Victorville and Las Vegas, DesertXpress Enterprises, LLC. (doing business as XpressWest) planned four phases of implementation for this service, outlined in Figure 5.16.

Figure 5.16 Desert Xpress Rail Implementation



Source: High Desert Corridor Joint Powers Authority, High Desert Corridor: Investment Grade Ridership & Revenue Forecasts, Executive Summary, March 2017

Once Phase 1 construction is complete, the Vegas Expansion is estimated to carry passengers between Victorville and Las Vegas in approximately 1 hour 30 minutes (compared to an approximate 2 hours 50 minutes trip by motor vehicle). Virgin Trains USA estimates that fares between Victorville and Las Vegas will average approximately $60 per person, which is less expensive than driving (when including parking costs) and the typical cost of flying.

Antelope Valley Line Study

The Los Angeles County Metropolitan Transportation Authority (Metro) is a member agency of the Southern California Regional Rail Authority (SCRRA). Metro, in collaboration with SCRRA, is studying potential opportunities to add more rail service from Lancaster and Palmdale to Los Angeles (see Figure 5.17).

The Antelope Valley Line Study has two objectives: to look at increasing the frequency of the Metrolink service; and to develop a phased and prioritized approach for capital improvements based on benefits, costs and impacts. The study was completed in July 2019 and findings were presented to the Metro Board on July 25, 2019.

At 76.6-miles long, the Antelope Valley Line is the only Metrolink route that operates entirely within Los Angeles County. The average speed for this line is approximately 40 miles per hour, and passenger rail travel time between Lancaster and Los Angeles Union Station is approximately two hours. The Antelope Valley Line is currently Metrolink's third busiest line with approximately 7,000 passengers per weekday. The line is facing a variety of service challenges due to its aging infrastructure, which was constructed through mountainous terrain on approximately 60% single track.

This study focuses on the portion of the Antelope Valley Line between Burbank Junction and Lancaster Station, which handles 42 train trips per day—30 Metrolink and 12 Union Pacific Railroad trains.

The final report identifies rail infrastructure projects needed to deliver the track capacity necessary for increased service levels, including potential double-tracking of portions of the line that are currently single track, extension of passing sidings, additional platforms at stations, and improved signaling systems. Adding late night train service, more frequent service and bidirectional service are some of the recommendations likely to move forward toward implementation.

Preliminary Considerations

This review of existing transportation and mobility conditions in Palmdale provides a basis for understanding the issues and opportunities to address in the development of the General Plan Update. Preliminary considerations moving forward include:

- As new developments are introduced into the community, opportunities to add to the cities street network capacity should be considered to enhance connectivity throughout Palmdale and reduce additional congestion on arterials
- The General Plan update will need to guide prioritization of complete streets investments, and balance the needs of transit, people walking, people bicycling, and vehicles in Palmdale
- The project team may consider the development of a sidewalk gap analysis tool to inform and prioritize sidewalk needs in Palmdale
- Due to the high speeds of traffic along arterials, bicycle facilities must be designed in a way that creates a safe environment. Buffers, color, and size are key factors for bicycle facilities prioritized in this General Plan effort, as outlined in the Active Transportation Plan
- Palmdale has been proactive in planning for changes, as evident by a dozen specific plans in place. This General Plan will need to provide a roadmap for supporting future transportation needs

Figure 5.17 Antelope Valley Regional Rail

Source: https://media.metro.net/projects_studies/regionalrail/map_regionalrail_antelopevalley.pdf. Metro Burbank-Glendale-Los Angeles Corridor Study, January 2019. Site accessed April 9, 2019

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