Draft Truck Route Study

Prepared for:
City of Beamont, California

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Executive Summary

The City of Beaumont's *Elevate Beaumont 2040 General Plan Update* (2022) (the "General Plan") describes the potential truck priority network to serve existing, planned, and future industrial development, as well as commercial uses. The General Plan provides conceptual routes and recommends formalizing truck routes following an analysis of truck access needs. This truck routing analysis is pursuant to the General Plan strategy.

This report provides information about truck access, regulations, and land development associated with trucking operations. The intent of the analysis is to provide the city with sufficient information to codify local truck routes. In addition, pursuant to the discussion at the City Council meeting held on May 22, 2024, this report also provides potential solutions to address the impacts of trucks parking in unauthorized or unwanted areas within and adjacent to the city.

Background

For the last decade, the City of Beaumont and the greater Inland Empire region have experienced substantial growth in industrial warehousing and goods movement. The County of Riverside and some cities within the County have addressed the increase in industrial land use and associated trucking operations by adopting local truck routes. As of July 2024, the following cities in Riverside County have identified, and most have codified, truck routes in their jurisdictions. Caltrans provides links to them on its website:[1]

Eastvale
Lake Elsinore
Moreno Valley
Cathedral City (10.56)
El Cerrito (10.52)
Hemet (78.61)
La Quinta (12.56)
Moreno Valley (12.36.010)
Norco (10.16)
Palm Springs (12.56.042)
Perris (10.40)
Riverside (10.56)
Rancho Mirage (10.58.020)
San Jacinto (10.08.040)

[1]Caltrans Local Truck Routes accessed on 6/24/2024 at https://dot.ca.gov/programs/traffic-operations/legal-truck-access/local-truck-routes

Designating truck routes is an important measure local communities use to address concerns about the impacts of high volumes of trucks operating and parking in the city, including noise, emissions, congestion, and safety. Most trucks (over 93%) operating on the City of Beaumont's (City) roadways are servicing locations within the City. Truck drivers rely on the roadway network to deliver or pick up goods from local businesses ranging from industrial warehouses to neighborhood grocery stores.

In addition to delivery routes that provide truck access to local businesses, parking and staging near destinations is also needed. Truck drivers are required to meet scheduled delivery or pick up appointment times, which requires them to arrive early in case unexpected traffic congestion occurs.

Given uncertain traffic conditions on the regional freeway network, truck drivers frequently build in buffer time, which often results in early arrival ranging from 30 minutes to two hours. Most businesses prohibit trucks from entering the facility prior to their scheduled appointment so the truck drivers must find a place to park or "stage." In Beaumont, trucks are not allowed to park on city streets, so they frequently circulate looking for a legal place to wait for their appointment time. A lack of truck parking/staging areas, and consistent/adequate truck route signage puts truck drivers at risk of violating codes and losing time, money, and efficiency driving around trying to access their destination and/or looking for a place to wait.

The goal of this study is to collaborate and coordinate with stakeholders to create an inventory of existing truck routes and develop implementable truck route recommendations. Additionally, this study will identify existing and potential future gaps in the local truck route network and intra-jurisdictional truck routing needs. The main deliverable of this truck route study is a list of prioritized recommended actions for modified or new truck route designations, along with supporting infrastructure improvements that may become projects in the future. The literature review, analysis of existing truck travel patterns, and maps of freight generating land uses were prepared to support designation of new truck routes. Guidance on potential funding sources and grant applications for infrastructure development projects along existing and/or proposed truck routes is also included to support implementation.

<u>Government agencies and Stakeholders:</u>

City of Beaumont	Riverside County Transportation Commission (RCTC)
City of Banning	Western Riverside Council of Governments (WRCOG)
Riverside County	Southern California Association of Governments (SCAG)
	Caltrans

Various data sources and analyses were studied to understand current trucking operation characteristics and the needs and gaps in the truck route network as follows:

- Existing Surface Transportation Assistance Act (STAA) truck route maps for each jurisdiction
- Truck traffic volumes by vehicle type on selected arterials
- Truck-involved collisions from 2019-2023
- Existing truck generating land uses
- Areas with vulnerable receptors and disadvantaged communities
- Ongoing/planned transportation infrastructure projects
- Planned warehousing and logistics development projects

The existing truck route maps are presented in **Figure 7** to **Figure 9**.

The team took the following steps to identify a list of recommended projects:

- Prepared a list of potential projects for short- and long-term improvements.
- Evaluated all short-term projects for required infrastructure to accommodate trucks.
- Screened short-term projects based on right-of-way (ROW) requirements.
- Classified short-term projects into three tiers: Tier 1 is low-cost and easy to implement (e.g., striping); Tier 2 is medium- to high-cost and somewhat more difficult to implement (e.g., reconstructing curbs, medians, may require multiple jurisdiction coordination and/or ROW acquisition (e.g., improvements to the intersection of SR 60 EB off-ramp, I-10 WB on-ramp, and 6th Street).
- Created a list of potential improvement projects located within the City of Beaumont and its sphere of influence (SOI).

Long-term projects are included in the list as well. These projects may be needed due to future industrial/ logistics development projects.

Table 1 lists Tier 1 and Tier 2 projects. Several potential local funding sources are identified for these projects as described starting on page 57.

Table 1. Truck Route Network Recommended Improvements

Item	Recommendation – Main, Extents
Tier 1	
T1.1	Pennsylvania Avenue from E 6th Street to Oak Valley Parkway
T1.2	California Avenue from 1st Street to 6th Street, and 6th Street from California Avenue and westbound I-10 on-ramp
T1.3	6th Street from Pennsylvania Avenue and Highland Springs Avenue
T1.4	N Highland Springs Avenue from I-10 to Cherry Valley Boulevard
T1.5	W 1st Street from Veile Avenue to Beaumont Avenue (Class II Bike Lane Relocation)
T1.6	E Oak Valley Parkway between Beaumont Avenue and Cherry Avenue, and Cherry Avenue
Tier 2	

Project Understanding

This study analyzes the utility and necessity of roadways segments identified in the City's General Plan's Truck Priority Network and recommends a system of truck routes to serve the City's truck-served businesses.

For the last decade, the City of Beaumont and the greater Inland Empire have experienced substantial growth, and the City anticipates continued growth in goods movement, resulting in a need to establish truck routes:

The City of Beaumont is located in western Riverside County and the Inland Empire. Between 2010 and 2020, the City of Beaumont experienced an approximately 38% increase in population[2] and an approximately 7% yearly increase in jobs (US Census Bureau).

The City of Beaumont is specialized in transportation and warehousing land uses, with relatively low shares of research and development and technology and manufacturing.

In recent years, demand for e-commerce and regional distribution centers has increased rapidly to support online retailers' expedited shipping guarantees. Competitive shipping guarantees require strategic site selection of warehouse and distribution centers to meet consumer expectations.

Considering recent and anticipated future growth, as well as the City of Beaumont's desire to stimulate and facilitate jobs in the logistics and warehousing industries, truck routes must be reviewed and re-evaluated. The truck routes are evaluated holistically considering safety, industry accessibility, traffic circulation, and potential health impacts on communities.

The ultimate deliverable of this truck route study is a recommended truck route system, a list of recommended improvements to support trucks on the existing and planned designated truck routes, and potential funding sources.

The study supports the broader Connect SoCal initiatives identified in SCAG's *Connect SoCal: 2020-2045 Regional Transportation Plan (RTP)/Sustainable Communities Strategy (SCS):*

Goal 1 – Encourage regional economic prosperity and global competitiveness
Goal 2 – Improve mobility, accessibility, reliability, and travel safety for people and goods
Goal 4 – Increase person and goods movement and travel choices within the transportation system

[2] City of Beaumont, *Community Demographic Profile for Beaumont California,* 2023

Goods Movement Landscape in Beaumont

Southern California's large consumer base, workforce, vast road and railway networks, and proximity to the Ports of Los Angeles and Long Beach (a.k.a., the San Pedro Bay Ports—the largest container port complex in the nation), have made it one of the fastest growing markets for industrial warehouse development in the nation.

The City of Beaumont is uniquely positioned as a freight hub due to its location and connection to Southern California's extensive freight transportation system consisting of roadways, ports, railways, and airports. Interstate 10 (I-10) and State Route 60 (SR 60) meet in Beaumont. State Route 79 (SR 79) provides truck access from I-10 to Hemet and is the only designated STAA truck route in the City.

The truck route network provides connectivity and accessibility to industries and freight-served businesses across the region. This study documents existing conditions and provides information about existing and proposed truck generating development.

Table 2 provides population estimates for the City of Beaumont and Riverside County based on 2010 and 2020 Census data. During this period, the City of Beaumont experienced an average population growth of 4.4 percent annually, as compared to 10 percent for all Riverside County. In comparison, employment in Transportation and Warehousing increased 200% in the City of Beaumont and 199% in Riverside County.

Table 2. Growth in Beaumont and Riverside County

Jurisdiction	Population 2010 Census	Population 2020 Census	Decade Population growth	Primary* Employment (2021)	Transportation and Warehousing Employment (2010)	Transportation and Warehousing Employment (2020)	Decade Transportation and Warehousing Employment Growth
City of Beaumont	36,877	53,036	44%	2,818	36	108	200%
Riverside County	2,189,641	2,418,185	10%	264,577	17,919	53,716	199%

* A primary job is defined as the one job for each worker that provides the most earnings.
Source: Census.gov, https://onthemap.ces.census.gov/

Literature Review

This chapter summarizes related research and studies that informed the truck routing evaluation. These studies were selected because they provide background and guidance on the City's goals and policies, regional growth, trucking operations, and access needs.

Evaluated literature sources included the following:

1. Connect SoCal: 2020-2045 Regional Transportation Plan (RTP) & Sustainable Communities Strategy (SCS), SCAG
2. Elevate Beaumont 2040 General Plan Update, City of Beaumont
3. Quick Guide: Truck Length & Routes, Caltrans
4. Beaumont PLUS Policy (2022), City of Beaumont
5. Review of Truck Characteristics as Factors in Roadway Design (2003), NCHRP
6. Design and Access Management Guidelines for Truck Routes: Planning and Design Guide (2020), NCHRP
7. California Statewide Truck Parking Study, Appendix H (2022), Caltrans
8. Highway Design Manual (7th Edition, 2019), Caltrans
9. World Logistics Center Settlement Agreement (2021), Center for Community Action and Environmental Justice et al. and Highland Fairview Properties et al.

See **Appendix A** for select excerpts from the literature review.

Report No. 1: Connect SoCal: 2020-2045 Regional Transportation Plan (RTP) & Sustainable Communities Strategy (SCS), SCAG

SCAG's 2024 *Connect SoCal RTP/SCS* provides fewer goods movement related policies/strategies than the 2020 RTP/SCS. The latest RTP/SCS emphasizes equity and sustainability, including the critical importance of constructing, operating, and maintaining roadways that support goods movement.

Highlights

The 2024 RTP/SCS states

> "The efficient movement of goods is critical to a strong economy and improves quality of life in the SCAG region by providing essential goods and supplies to residents and businesses, generating employment opportunities and providing access to markets through trade. However, increased volumes of goods moving across the transportation system also contribute to greater congestion, safety concerns and harmful emissions. It is critical to integrate land use decisions and technological advancements to minimize environmental and health impacts while fostering continued growth in trade and commerce."

The City's thoughtful consideration of land use planning, development review, and truck route planning is consistent with the RTP's Goods Movement statement, as well as with key strategies stated below.

Relevant Strategies and Policies

Policy: Advance a resilient and efficient goods movement system that supports the economic vitality of the region, attainment of clean air, and quality of life for our communities.

2024 Connect SoCal Goods Movement Strategies

69. Leverage and prioritize investments, particularly where there are mutual co-benefits to both freight and passenger/commuter rail

70. Prioritize community and environmental justice concerns, together with economic needs, and support workforce development opportunities, particularly around deployment of zero-emission and clean technologies and their supporting infrastructure

71. Explore and advance the transition toward zero-emission and clean technologies and other transformative technologies, where viable

72. Advance comprehensive, systems-level planning of corridor/supply chain operational strategies that is integrated with road and rail infrastructure and inland port concepts

73. Ensure continued, significant investment in a safe, secure, clean and efficient transportation system—including both highways and rail—to support the intermodal movement of goods across the region

Report No. 2: Elevate Beaumont 2040 General Plan Update, City of Beaumont

The *Elevate Beaumont 2040 General Plan Update* lays out a roadmap for the future of Beaumont. The General Plan provides broad city and community goals that focus on balancing growth and quality of life with key policies and actions designed to achieve these goals. In line with the State of California's targets to reduce GHGs and encourage sustainable growth*, Elevate Beaumont 2040* focuses on encouraging multi-modalism while being mindful of the need for safe and efficient truck routes and industrial land use designation.

Highlights

This truck routing study is based on the General Plan's guiding principles as described below:

1. Evaluates truck routing options through a lens of transparency and honesty
2. Supports responsible and measured growth of industrial development
3. Considers roadway maintenance costs
4. Coordinates truck routes with adjacent jurisdictions
5. Protects the City's small-town atmosphere by removing trucks from the downtown
6. Focuses on quality of life and safety by removing truck routes on streets intended to promote walking and biking

Relevant Strategies and Policies

The General Plan states, "The City should work toward designating certain streets throughout the City as truck routes. These routes should not overlap with bicycle facilities." It contains two goods movement policies:

4.6.1 Prioritize goods movement along specific routes in the City, consistent with the adopted layered network, to foster efficient freight logistics.

4.6.2 Minimize or restrict heavy vehicle traffic near sensitive areas such as schools, parks, and neighborhoods.

Report No. 3: Quick Guide: Truck Lengths & Routes, Caltrans

Caltrans' *Quick Guide: Truck Lengths & Routes*[3] provides legal truck access guidance for truck drivers. The guidance is based on truck categories defined by size and weight, state route designations provided as the "California Truck Network Map," and local roadway categories. The Quick Guide provides definitions for maximum size and length of trucks permitted to operate on state facilities defined as California Legal trucks and trucks defined by size and weight limits established in the Surface Transportation Assistance Act of 1982, known as STAA trucks. The STAA trucks are slightly longer and require more turning radius than California Legal trucks. The two images below describe the differences (**Figure 1**).

[3] Caltrans, *Quick Guide: Truck Lengths & Routes*, accessed online on 6/10/2024 at: https://dot.ca.gov/programs/traffic-operations/legal-truck-access/quick-guide

Figure 1. STAA and Black California Legal Trucks Matrix

Lengths	"Green" STAA Trucks		"Black" California Legal Trucks
			
Route Colors:			
Overall Length:	unlimited	unlimited	65 feet Max
Semitrailer:	53 feet Max	48 feet Max	unlimited
KPRA (kingpin-to-rearmost-axle distance):	40 feet Max (two-axle semitrailer); 38 feet Max (single-axle semitrailer)	unlimited	40 feet Max (two-axle semitrailer); 38 feet Max (single-axle semitrailer)

Doubles:

Lengths	"Green" STAA Trucks	"Black" California Legal Trucks	
			
Route Colors:			
		Option A	**Option B**
Overall Length:	unlimited	75 feet Max	65 feet Max
Trailers:	28 ft - 6 inch Max (each trailer)	28 ft - 6 inch Max (each trailer)	28 ft - 6 inch Max (one trailer) unlimited (other trailer)

Source: Caltrans 3-Step Quick Guide

Highlights

- Heavy-duty trucks consisting of a tractor and trailer(s) are categorized as California Legal and STAA
- California Legal trucks are permitted to drive on state and local roads except where expressly prohibited (e.g., by weight restrictions), whereas STAA trucks are only allowed to operate on signed/designated STAA routes
- Beaumont Avenue is designated as an STAA terminal access route from I-10 to Ramona Expressway

Relevant Strategies and Policies

- The California Vehicle Code codified the 65-foot maximum length limit for vehicle combinations (California Legal Trucks) and the state and cities' authority to designate STAA routes in CVC Section 35401
- Facility operators that require STAA access to their sites can apply for STAA route designation through the City. The City will evaluate the proposed route to ensure all intersections are able to accommodate STAA trucks and submit a letter to Caltrans confirming the local roads and intersections meet geometric criteria.

Report No. 4: Beaumont PLUS Policy (2022), City of Beaumont

In 2022, the City of Beaumont established the Policy on Land Use and Sensitive Receptors, also known as the PLUS Policy, "to provide a guide through which logistics, warehouses and similar projects can be planned in a way that lessens their impact on the community and the environment." The policy focuses on protecting the health, safety, and quality of life of its residents through the establishment and implementation of conditions of approval for industrial warehouses.

Highlights

- Facility operators shall establish specific truck routes between the facility and regular destinations
- Projects shall be designed to provide adequate on-site parking for commercial trucks
- Facility operators shall require all drivers to park and perform any maintenance of trucks in designated on-site areas identified with signage

Relevant Strategies and Policies

Siting and Design:

1. Truck bays and loading docks shall be a minimum of 1,000 feet from the property line of the sensitive receptor to the nearest dock door using a direct straight-line method. This distance may be reduced if the site design includes berms or other similar features to appropriately shield and buffer the sensitive receptors from the active truck operations areas. Dock doors shall not be visible from surrounding residential properties or the public right-of-way. Other setbacks appropriate to the site's zoning classification shall be incorporated in the design.

2. Projects shall be designed to provide adequate on-site parking for commercial trucks and passenger vehicles and on-site queuing for trucks not visible from sensitive receptors. Commercial trucks shall not be parked in the public right-of-way or near residential areas. Queuing shall not extend into the public right-of-way.
3. Truck driveways shall be placed on streets that do not front sensitive receptors.
4. Sites shall clearly mark entry and exit points for trucks and service vehicles.
5. Facility operators shall establish **specific truck routes** between the facility and regular destinations, identifying the most direct routes to the nearest highway/freeway and prohibiting travel near sensitive receptors or through residential neighborhoods. The truck route should be submitted as part of the entitlement package.

Operation:

Facility operators shall require all drivers to park and perform any maintenance of trucks in designated on-site areas and not within the surrounding community or on public streets.

Wayfinding:

- Wayfinding signage shall be posted in the appropriate locations that clearly show the designated entry and exit points for trucks, service vehicles, and passenger vehicles.
- Signs that indicate parking and maintenance of all trucks is to be conducted within designated areas and not within the surrounding community or on public streets shall be posted in the appropriate locations.
- Signs should be posted in the appropriate locations and handouts should be provided that show the locations of nearest food options, fueling, truck maintenance services, and other similar convenience services, if these services are not available onsite. The facility operator shall also email this information to drivers expected to visit the site 24 hours in advance of their arrival.

Report No. 5: Review of Truck Characteristics as Factors in Roadway Design (2003), NCHRP

This report evaluates the truck routing needs of heavy-duty trucks on interstates, state routes, and local roadways. The most relevant sections for truck routing are contained in *Chapter 5, Truck Characteristics Related to Geometric Design*.

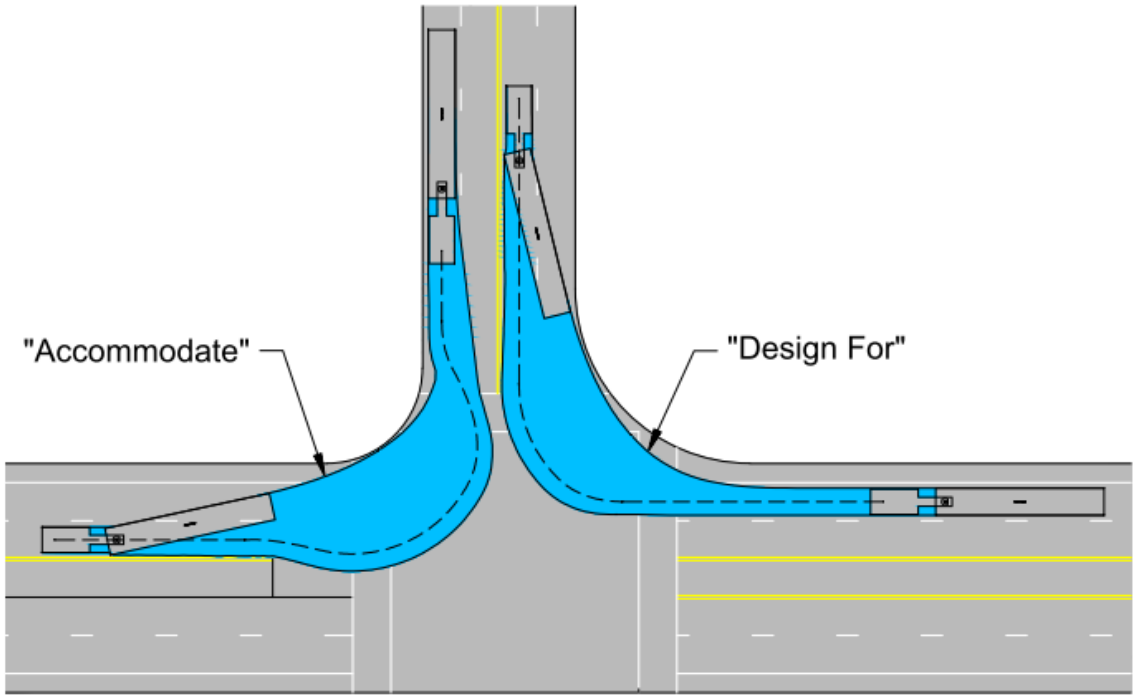
Highlights

Turning Radius: The minimum turning radius of a truck is defined as the path of the outer front wheel following a circular arc at a very low speed and is limited by the vehicle steering mechanism. Parameters such as weight, weight distribution, and suspension characteristics have a negligible role in turns at very low speeds (e.g., less than 10 MPH).

Off-Tracking and Swept Path Width: Off-tracking literally means off the track. Unlike trains that are on rails whereby the rear wheels always follow the path of the front wheels, vehicles that are not on tracks experience what is known as "off-tracking," which describes how the rear wheels follow a different path.

The longer the wheelbase, the more off-track the rear wheels will be from the path of the front wheels. This is described as the "swept path" of the vehicle. The City of Seattle's Right-of-Way Improvements Manual provides images illustrating off-tracking and swept path (**Figure 2**). The image below provides examples of designing for a truck by increasing the curb radii to contain the off-tracking and swept path within the direction of travel versus accommodating the movement by allowing the off-tracking and swept path to overtake a portion of the opposite direction of travel (e.g., the opposing left-turn lane in this case).

Figure 2. Right-of-Way Improvements for Off Tracking and Swept Path



Source: Seattle Right-of-Way Improvements Manual

Relevant Strategies and Policies

This document provides strategies for ensuring the safe and efficient movement of trucks through local communities. Specific strategies provided are:

- Determining the design vehicle, such as heavy-duty Class 7-8 trucks with an average wheelbase of 67 feet, or smaller Class 5-6 trucks with average wheelbase of 40 feet
- Geometric design of truck routes, including intersections, and design of access points to truck-served businesses (e.g., driveway design) and provides roadway and access management treatments to accommodate trucks.
- Geometric design considerations for five types of interchange designs, as follows:

1. Conventional diamond interchanges and closely related interchange configurations
2. Single-point diamond interchanges
3. Full cloverleaf interchanges
4. Diverging diamond interchanges
5. Roundabout interchanges

- Length of turning lanes, on- and off-ramps, driveway entrances, etc. to accommodate truck queues and prevent truck traffic from spilling into travel lanes
- Design considerations for shared corridors, especially with bicycles and pedestrians
- Truck parking accommodations to prevent conflicts with trucks parking illegally in communities, such as in designated bus or bike lanes and on residential streets

Report No. 6: Design and Access Management Guidelines for Truck Routes: Planning and Design Guide (2020), NCHRP

This report[4] provides access management and geometric design approaches for truck routes, whether formally designated by a transportation agency to serve trucks or for any other routes that carry a substantial volume of trucks, while improving traffic operations and safety for all road users. Trucks take longer to accelerate at signalized intersections, make much wider turns, and require wider lane widths and height clearances. Roadway designs that accommodate trucks (e.g., wider intersections) frequently conflict with other modes of transportation, most notably walking and biking.

Highlights

This document supplements Report 5 herein by providing additional policies and strategies relevant to today's trucking operations, such as balancing the needs of different corridor users and model policy language for use in general plans.

Relevant Strategies and Policies

Storage Length for Trucks: As stated in Section 2.4 of this report, the common design vehicle on truck routes and freight corridors has a wheelbase of 67 feet (WB-67), which is 73.5 feet in length. To put the significant size of heavy-duty trucks (also called Class 7 and 8 trucks) into perspective, a single-unit truck (Class 5 or 6) is about 30 feet long, and a passenger car is about 20 feet long. When planning truck routes, the storage capacity of the left- and right-turn lanes should be designed with sufficient storage length to avoid vehicles queueing into intersections and blocking traffic. Section 4.4 provides further guidance on designing turning lanes.

Lane Widths: As stated in Section 4.6.1, heavy-duty trucks are typically a minimum of 8.5-feet wide, and up to 10.5-feet wide including side mirrors. Wider lanes of 12 feet, or use of differential lane widths with

[4] National Academies of Sciences, Engineering, and Medicine 2020. Design and Access Management Guidelines for Truck Routes: Planning and Design Guide. Washington, DC: The National Academies Press. https://doi.org/10.17226/25950.

12-foot outside curb lanes and narrower inside and center left turn lanes are necessary to accommodate Class 7 and 8 trucks.

Maintenance Considerations: Section 3.4 of this report explains common maintenance concerns associated with intersections that carry trucks but were not designed to accommodate them. Trucking maneuvers at inadequately designed intersections can cause trucks to overtake and damage curbs, sidewalks, landscaping, drainage features, pedestrian pushbutton pedestals, and raised center medians. In addition to geometric design considerations, heavy trucks quickly degrade pavement and striping. Like reinforced pavement frequently seen at bus stops, reinforced pavement for turn lanes can mitigate stresses caused from deceleration of heavy loads and lateral forces resulting from trucks slowing to make a turn at an intersection.

Report No. 7: California Statewide Truck Parking Study, Appendix H (2022)

In 2022 as part of the *California Truck Parking Study*, Caltrans investigated truck parking demand associated with freight generating land uses. The analysis and findings are contained in *Appendix H, Truck Parking Demand Model* of the 2022 *Statewide Truck Parking Study*.

Highlights

- Manufacturing, warehousing, and transportation and logistics have approximately the same parking rate of about 10.3 percent of total truck trips generated by the use.
- Just above 1 in 10 trips require parking prior to their service stop. This only includes "parking" as described above, which occurs in designated truck parking areas (public or private), ROW, or vacant areas, not those at any other private facilities, residences, or other land uses.

Relevant Strategies and Policies

Calculating Truck Parking Demand:

The "Application" section of the Caltrans Truck Parking Demand Model provides the following three steps for calculating truck parking demand:

1. Estimate number of daily truck trips to facility: Trip rates can be used to estimate the number of trips attracted to a facility. Traffic impact studies for new development or the actual count data at the existing facility would help to determine the number of daily truck trips to the facility.
2. Estimate truck trips that need parking: Table 4.1 shows the share of truck trips that would require parking is approximately 10.3 percent. The daily parking generated can be calculated by multiplying the number of trips by 10.3 percent.
3. Estimate peak parking need: The user should refer to Table 4.2 that gives the maximum parking occupancy factor for each facility type. The daily parking can be multiplied by that percentage to get the expected peak demand—the highest number of trucks that will be parked at once. For example, a traffic impact study might estimate that a facility classified as warehousing would generate 1,000 daily truck trips. Approximately 103 (10.3 percent of the 1,000 truck trips) would need parking, and of those, 23 trucks would need parking at the same time (103 trucks x 22

percent). This implies that the facility should provide about 23 parking spaces to meet the parking demand their operations would generate.

Report No. 8: Highway Design Manual (7th Edition, 2019), Caltrans

The Caltrans Highway Design Manual was prepared by the Division of Design for use in the design of Caltrans' facilities. This manual establishes uniform policies and procedures to carry out Caltrans' highway design functions. For the purposes of planning the City's truck route network, this manual provides guidance on how to design and maintain pavement to withstand the heavier loads of trucks.[5]

Highlights

Truck Route Design Life and Serviceability

This section of the HDM provides guidance for designing and rehabilitating pavement based on the intensity of traffic with a focus on truck traffic, which is the primary factor affecting pavement design life and its serviceability.

Relevant Strategies and Policies

The HDM contains guidance for calculating the design pavement for truck corridors. Similar to passenger car equivalents whereby truck trips are converted to auto equivalents, the weights of trucks are converted to Equivalent Single Axle Loads (ESALs) for the purpose of estimating pavement design and wear-and-tear. Caltrans developed a tool, CalME, to assist with this analysis. The guidance was created for highways, but is applicable to major arterials. Relevant strategies for designing corridors that carry high truck volumes are as follows:

- Use CalME to estimate Mechanistic-Empirical (ME) pavement design and rehabilitation needs
- Truck routes should be designed with an understanding of the Equivalent Single Axle Loads (ESALs) per travel lane over the pavement design life of the facility, and the Traffic Index (TI)
- Proper design and maintenance of shoulders along truck routes improves the life of the facility
- Consider all approach traffic at intersections; the level of truck/bus traffic may be high on all approaches and add more loads to the intersection itself

[5] Caltrans Highway Design Manual (7th Edition). Refer to Topic 613 – Traffic Considerations sections of the PDF accessed online on 6/24/2024 at: https://dot.ca.gov/-/media/dot-media/programs/design/documents/chp0610-092923-a11y.pd

Regulatory Landscape

Truck size and weight limits vary from state to state, but in 1982 the United States Department of Transportation (USDOT) set size and weight limits for combination vehicles. These limits became law through the 1982 Surface Transportation Assistance Act. Trucks meeting federal limits are referred to as STAA trucks. In California, STAA trucks are slightly longer than trucks defined as California Legal, and thereby, access to facilities served by STAA trucks must be evaluated by the local jurisdiction, approved by Caltrans, and STAA routes must be properly signed. Conversely, California Legal trucks are permitted to operate on all roadways where trucks are not expressly prohibited. Local agencies have the sole discretion to establish truck routes within their jurisdiction and place weight limits on streets not designed to accommodate heavy duty trucks. Truck drivers often prefer designated truck routes because they are less likely to experience access and mobility challenges associated with inadequate roadway geometry for large trucks.

Local Authority

Local jurisdictions have the authority to restrict heavy duty trucks from operating in residential areas and establish the weight limits of vehicles and loads on local roadways (CVC Sections 21101 (c), 35712 (a), and 35706). Once adopted by resolution, Caltrans posts the truck routes and roadway weight restrictions on its website.[6]

California Commercial Vehicle Regulations

As described in Caltrans' *Quick Guide: Truck Lengths & Routes*, the California Vehicle Code limits the length of vehicle combinations to 65 feet, and it also gives Caltrans the authority to designate STAA truck access routes (CVC Section 35401). There is only one designated STAA route in the City located on SR 79 (Beaumont Avenue) from SR 60 to the southern City limit.

Federal Truck Driving Requirements

Hours of Service: The Federal Motor Carrier Safety Administration's (FMCSA) Hours of Service (HOS) regulation places strict driving limits, rest breaks, sleeper berths, and "restart" timing on drivers. HOS regulations are monitored by Electronic Logging Devices (ELDs) in trucks and enforced by state highway patrol on interstate highways, as well as local law enforcement in local jurisdictions. Penalties can be high for drivers and trucking companies and may include putting the truck out of service, fines of up to $16,000, and loss of a driver's Commercial Drivers License (CDL) and livelihood. For this reason, truck drivers stop and park in random locations when they hit their HOS. This also requires careful planning by drivers to make sure they arrive at delivery or pick-up appointments within the designated time (e.g.,

[6] Caltrans, Local Truck Routes accessed on June 26, 2024 at: https://dot.ca.gov/programs/traffic-operations/legal-truck-access/local-truck-routes

typically a short window of one hour or less) while operating with the HOS constraint. Many drivers arrive 2-3 hours early either to avoid peak hours or to provide enough travel time buffer to mitigate traffic collisions, construction delays, weather events, etc.

Trends and Needs Assessment

The *Elevate Beaumont 2040 General Plan Update* was adopted in 2020 which includes land use designations for all parcels within the jurisdictional boundary.

The land use information was used to inform where heavy truck generating developments are most likely to be located due to existing General Plan land use designations within the City of Beaumont. General Plan land use maps, containing a full list of General Plan designations, are provided in **Appendix B, Appendix C,** and **Appendix D** for the City of Beaumont, City of Banning, and Riverside County respectively.

As noted, the goal of this study is to understand where existing and future heavy truck generating developments are likely to occur and evaluate which routes may or may not be appropriate to provide a connection to these locations from the various freeways in the region, while minimizing impacts on communities.

To evaluate the safety of truck movement activities in the area, the project team reviewed truck-involved collisions between 2019 and 2023.

Heavy Truck-Generating Uses

General Plan land use designations are used to help determine where certain types of developments should be located. Because local jurisdictions use General Plan land use designations to oversee land use decisions, adopted General Plan land use designations were used to evaluate existing and future heavy truck generation uses. We assumed the following land use designations could result in heavy truck generating developments for each jurisdiction.

Beaumont

General Commercial
Manufacturing
Industrial

Banning

General Commercial
Industrial
Industrial – Mineral Resource

Riverside County (Unincorporated)

General Commercial
Controlled Development Areas
Industrial Park
Manufacturing – Service Commercial
Manufacturing – Medium
Manufacturing – Heavy

The City of Beaumont's land uses are shown in **Figure 3** and **Figure 4**; all designations aside from "Agriculture" are displayed as "Truck Generating Land Use."

City of Beaumont

The City is located at a critical junction of the regional transportation network which connects the Ports of Long Beach and Los Angeles, both major gateways for international trade, to the Inland Empire and greater western United States.

The City has an estimated population of 53,000, spread over approximately 30 square miles. The truck route network provides connectivity and accessibility to industries and communities across the region. The City has become an attractive and strategic choice for a logistics hubs and industrial/warehouse development due to its unique location within the Inland Empire and proximity to the confluence of I-10, SR 60, and SR 79.

This section provides an overview of the growth in industrial development in the city, which has been primarily focused in the southwestern quadrant of the city and its Sphere of Influence (SOI). This area of industrial growth is generally bound by SR 60 to the north, I-10 to the northeast, Beaumont Ave/SR 79 to the east, and the San Jacinto Mountains to the southwest. **Figure 3** presents Commercial and Industrial Zoning and **Figure 4** presents the Existing Land Use & proposed Development overlay.

Industrial Development and Growth

Rolling Hills Ranch Industrial Park Specific Plan. The Rolling Hills Ranch Industrial Park Specific Plan in Beaumont was adopted in 1991 and amended in 2000, 2002, 2004, and 2018. The 2004 amendment changed land use from residential to industrial. The subsequent 2018 amendment increased allowable building heights, clarified permitted and not permitted uses within the specific plan area, and updated the permitted land uses to reflect the City of Beaumont's M zoning classification (industrial). The specific plan area encompasses approximately 153 acres south of SR 170, west of SR 79 and southwest of Interstate 10 at Beaumont Avenue and traveling west on 4th Street to Nicholas Road. Build out of the specific plan area is in progress with completed projects including Amazon and Wolverine warehouses and distribution centers. Upon completion, the specific plan area will support an estimated 3 million square feet of building space, 5.34 acres of open space, approximately 15 acres of landscaped areas, and completion of the extension of 4th Street through the southern portion of the plan area.

Beaumont Pointe Specific Plan. The Beaumont Pointe Specific Plan is an approved specific plan in the City of Beaumont Sphere of Influence (SOI). The plan area encompasses about 540 acres and provides for the development of an up to 5,331,000 square foot employment and retail center. The specific plan includes up to 233 acres of industrial development and 30 acres of recreation, commercial, retail, and hospitality land uses. Additionally, the specific plan includes approximately 125 acres of open space and 142 acres of open space conservation. The industrial land use designation supports up to 4,995,000 square feet of industrial warehouse/distribution.

Orchard Logistics (Dowling Ranch). Orchard Logistics is a proposed project in the City of Beaumont. The project encompasses approximately 40 acres formerly occupied by Dowling Ranch located east of Western Knolls Avenue and south of SR 60. The project includes constructing a single industrial

warehouse totaling 610,000 square feet and related site improvements including landscaping, parking, and infrastructure facilities. Of the total proposed building square footage, 590,000 square feet is allocated for warehouse/distribution and 20,000 square feet for office. A total of 96 truck doors are proposed, with 48 dock doors each. Truck service to the project site would be provided via a primary driveway on the southeast corner at Nicholas Road, with a secondary truck access to the intersection of Prosperity Way and Distribution Way. The project's environmental impact report (EIR) was certified in March 2024.

Potrero Logistics Center. The Potrero Logistics Center is a proposed project in the City of Beaumont. The project encompasses approximately 60 acres north of W 4th Street, west of Potrero Boulevard, south of SR 60, and east of vacant land. A portion of the project site is located within Riverside County but would be annexed to the City as part of the project. The project includes an up to 578,000 square foot industrial warehouse facility, parking, and detention basin encompassing approximately 31 acres. As of July 2024, the Potrero Logistics Center is under environmental review.

Legacy Highlands. Legacy Highlands is a proposed project in the City of Beaumont and its SOI. The project encompasses approximately 1,415 acres located south of SR 60 and east of Potrero Boulevard. The project is proposed to be constructed in phases and at build out will support up to 18,205,200 square feet of transload/short-term storage warehouse use, 399,425 square feet of cold storage warehouse, and 143,000 square feet of retail/commercial space. The project would also include various on- and off-site improvements including roadway improvements, utility connections, and rights-of-way to support the project.

Figure 3. Commercial and Industrial Zoning in the City of Beaumont

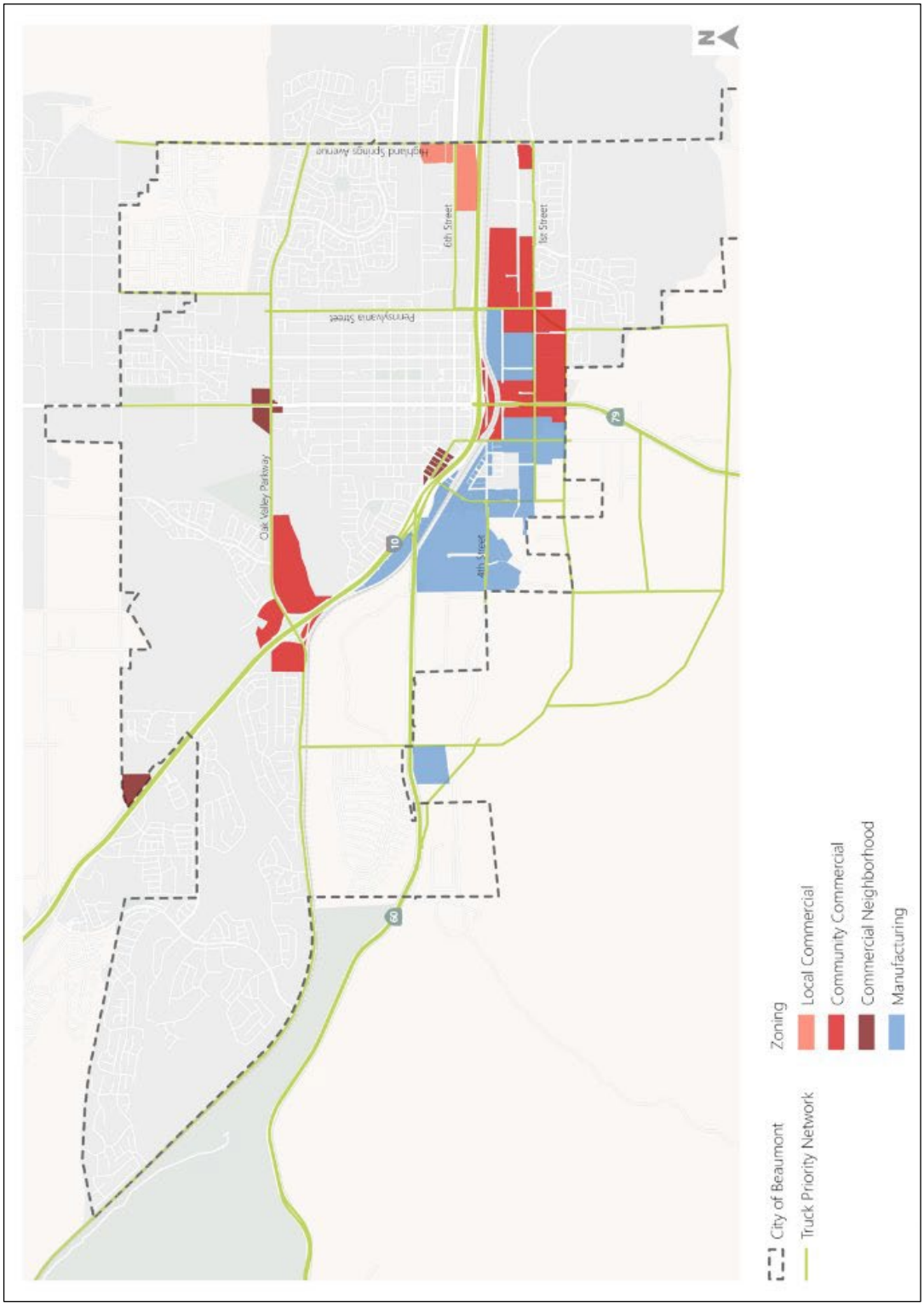


Figure 4. Existing Land Use & Proposed Development

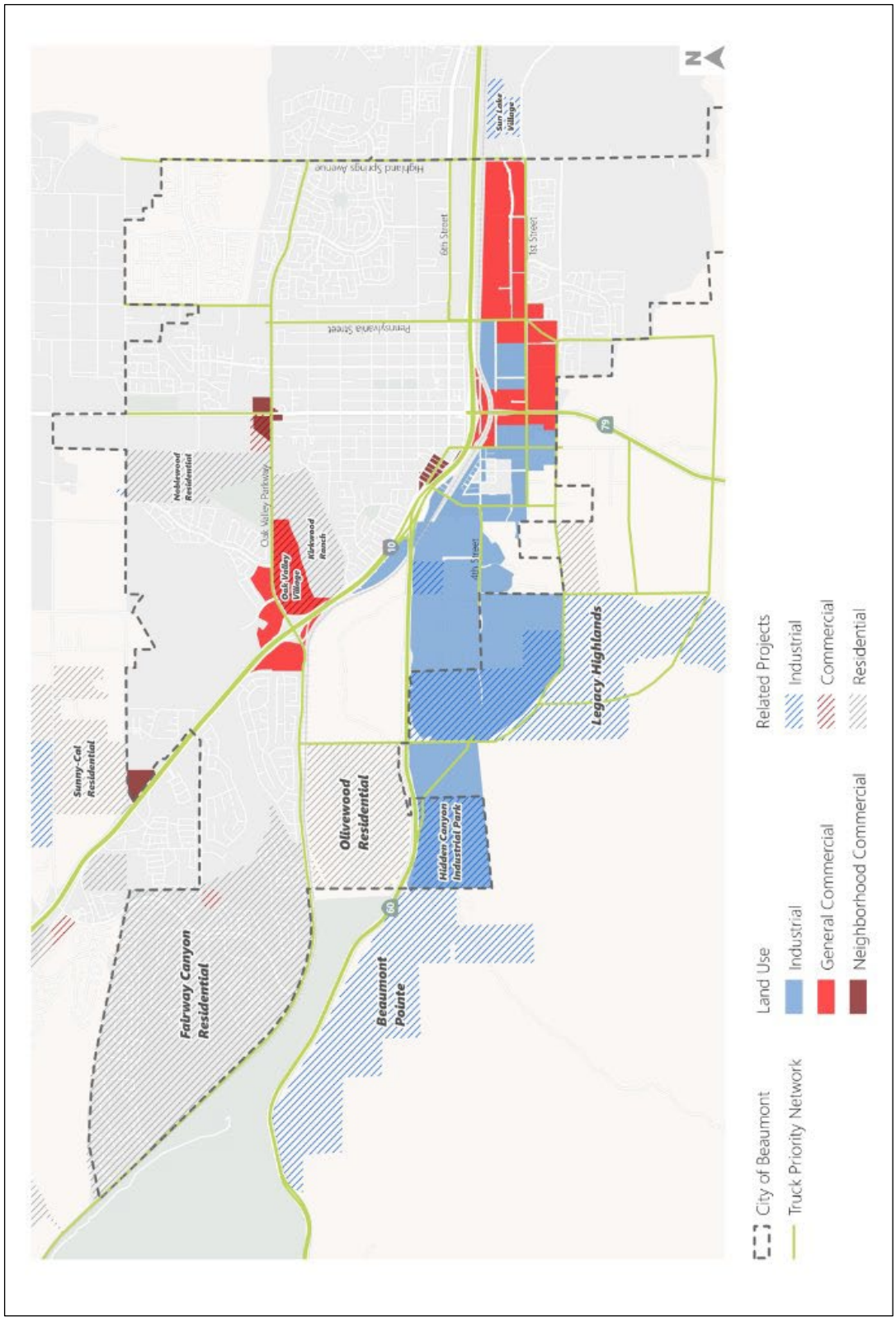
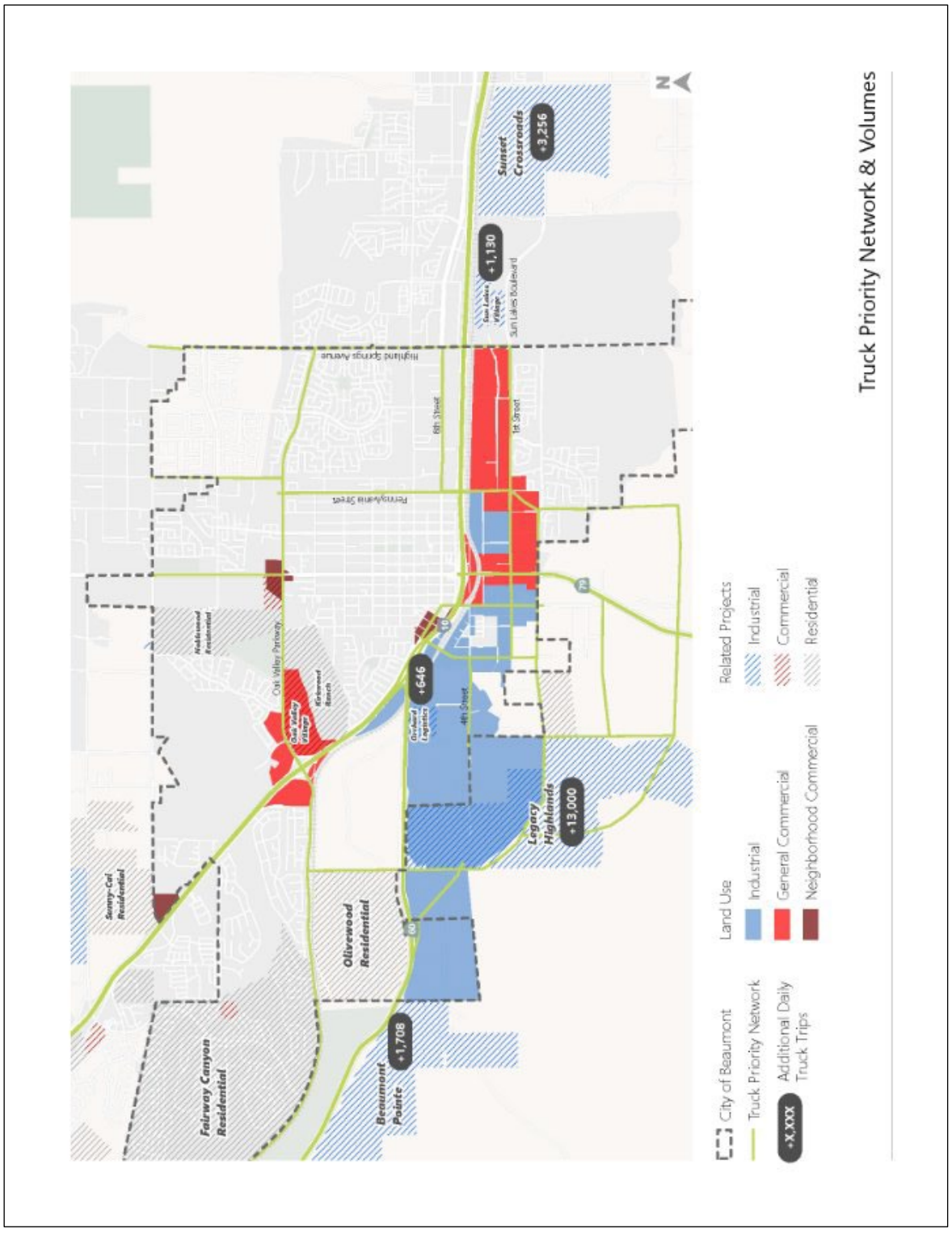


Figure 5. Anticipated Truck Volumes, City of Beaumont



City of Banning

The City of Banning is located east of the City of Beaumont. Highland Springs Road is the boundary between the two cities' urbanized areas. The City of Banning has an estimated population of 29,505 as of the 2020 US Census, spread over approximately 23.5 square miles. Similar to the City of Beaumont, the City of Banning has become an attractive and strategic choice for logistics hubs and industrial/warehouse development due to its location.

This section provides an overview of industrial development growth in the City of Banning, which has several proposed industrial developments concentrated south of I-10 near the city center and its border with the City of Beaumont, as well as north of I-10 in the eastern part of the city.

Sunset Crossroads Specific Plan. The Sunset Crossroads Specific Plan is a proposed specific plan in the City of Banning and its SOI. The plan area encompasses about 534-acres roughly bound by I-10 to the north, Bob Cat Road to the south, Highland Home Road to the west, and Sunset Avenue to the east. The specific plan proposes development of up to 5,813,400 square feet of general commercial and industrial uses. The specific plan includes up to 392 acres designated for industrial land use, approximately 48 acres for general commercial, and approximately 66 acres of open space. The industrial land use designation will support up to 5,545,000 square feet of industrial warehouse/distribution, while the general commercial land use will support up to 268,400 square feet of retail/commercial, including a travel center.

Sun Lakes Boulevard Extension. While not part of the Sunset Crossroads Specific Plan, a future extension of Sun Lakes Boulevard from its current terminus at S Highland Home Road easterly to Sunset Avenue in the City of Banning is proposed. Sun Lakes Boulevard will serve as the backbone of the specific plan area, particularly for traffic as a critical segment to route trucks from the specific plan area to I-10 via Sunset Boulevard. The Sun Lakes Boulevard Extension roughly follows existing Westward Avenue. Additionally, the Sun Lakes Boulevard extension will also support truck traffic from other proposed industrial developments, including Sun Lake Village North, and could divert truck trips away from Highland Springs Boulevard and the City of Beaumont.

Sun Lake Village North. Sun Lake Village North is a proposed development in the City of Banning. The development encompasses approximately 47 acres north of Sun Lakes Boulevard and south of I-10, The Lakes assisted living complex and east of the Sun Lake Country Club subdivision, and west of Sun Lakes Village shopping center. If approved, the project would support up to 620,000 square feet of industrial use.

Banning 25. Banning 25 is a proposed development in the City of Banning. The development encompasses approximately 25 acres north of Ramsey Street/I-10, south vacant land, east of N Hathaway Street, and west of Caltrans' Banning Station. If approved, the project would support up to 418,000 square feet of industrial use.

Banning Commerce Center. Banning Commerce Center is a proposed development in the City of Banning. The development encompasses approximately 132 acres north of I-10, south of vacant land, east

of Caltrans' Banning Station, and west of vacant land. If approved, the project would support up to 1,675,000 square feet of industrial use with 368 trailer spaces and 272 truck doors.

Local Highway and Roadway Infrastructure Projects

Several major infrastructure projects are in-progress or planned to improve the safety and efficiency of the local and regional transportation systems (**Figure 6**). As these projects develop, they represent a pivotal step toward a safer, more efficient, and more interconnected network that supports local and regional growth.

I-10 Oak Valley Parkway Interchange. The I-10 Oak Valley Parkway Interchange project is a multi-phase project to improve safety and traffic flow. The project proposes to reconstruct the interchange to increase capacity, alleviate traffic congestion, and support the future growth of the City of Beaumont. Conceptual design alternatives have been prepared, including cloverleaf and diamond pattern designs, and the City of Beaumont is entering the project phase of selecting the preferred option.

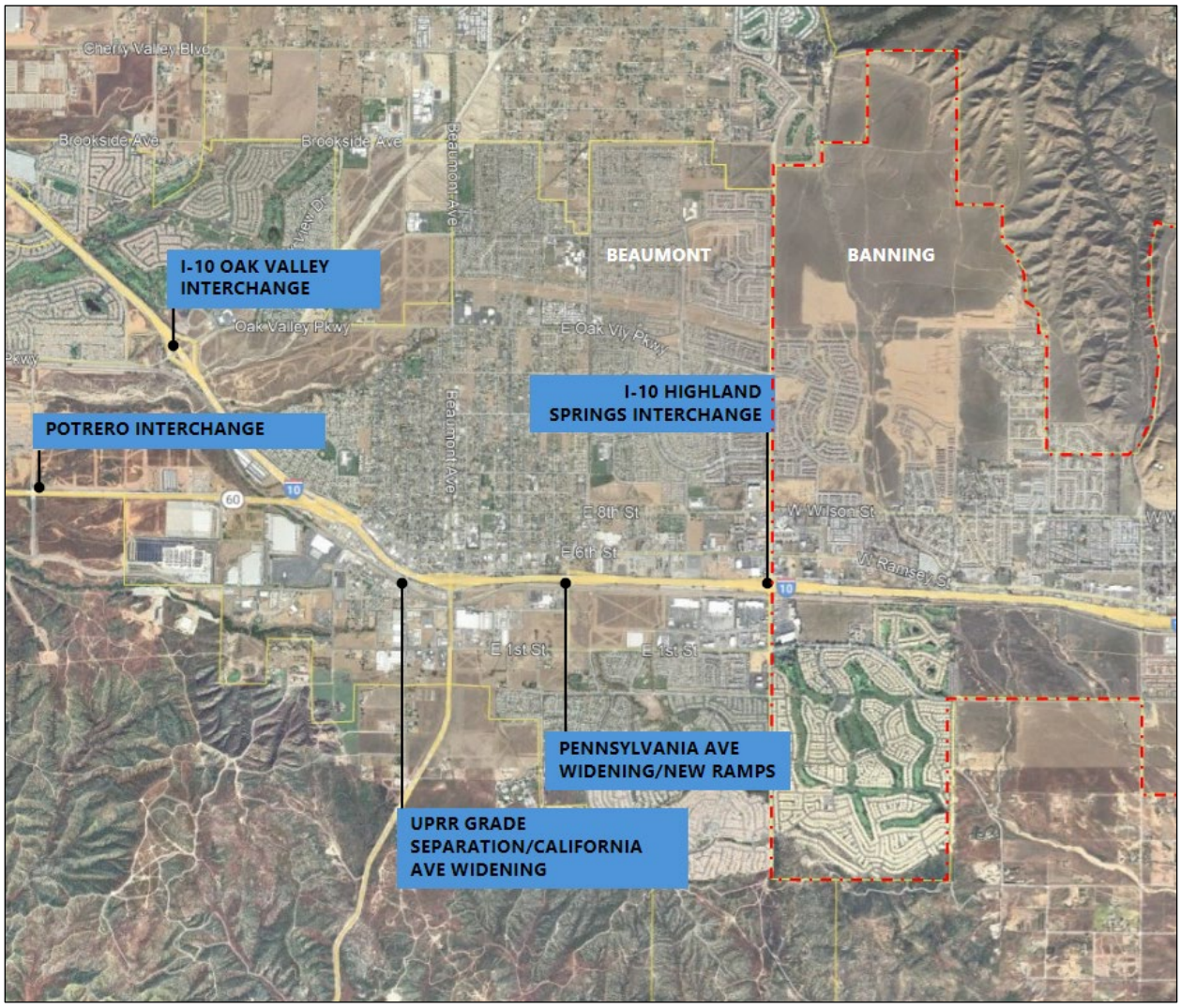
I-10 Highland Springs Avenue Interchange. The I-10 Highland Springs Avenue Interchange is a joint public works project between the Riverside County Transportation Commission (RCTC), the City of Banning, and the City of Beaumont. The project proposes to reconfigure lanes to the I-10 underpass at Highland Springs Avenue and add auxiliary lanes to the ramps to improve traffic flow and safety.

I-10 Pennsylvania Avenue Interchange & Widening. The I-10 Pennsylvania Avenue Interchange & Widening Project is a multi-phase project to improve safety and traffic flow. The completed initial phase included the widening of Pennsylvania Avenue to four lanes between 1st and 6th Streets in the City of Beaumont, as well as improvements to the Pennsylvania Avenue and 6th Street intersection and railway right-of-way improvements. Future phases include plans to expand the existing I-10 Pennsylvania Avenue interchange to include a new eastbound off-ramp and westbound on-ramp (e.g. west-facing ramps), and a grade separation at the railroad tracks south of the interchange.

SR 60 Potrero Boulevard Interchange. The SR 60 Potrero Boulevard Interchange is a multi-phase project. The completed initial phase of the project included a new six-lane Potrero Boulevard overcrossing with a temporary connection to Western Knolls Avenue. The phase also included a deceleration lane and acceleration lane along westbound SR 60 at the Western Knolls Avenue access point. A future phase includes the construction of a six-ramp interchange. The City just received final funding for the ramp implementation of the interchange and the City has partnered with RCTC and Caltrans to finalize design and construction of the ramps at this location.

California Avenue Widening and UPRR Grade Separation. The I-10 California Avenue Widening and UPRR Grade Separation Project is a conceptual proposed project to improve safety and traffic flow. The grade separation was studied by the Riverside County Transportation Commission (RCTC) and documented in the 2012 *Grade Separation Priority Update Study for Alameda Corridor East (Riverside County*). The proposal includes the widening of California Avenue and a grade separation at the railroad tracks that run roughly parallel to the south of Luis Estrada Road.

Figure 6. Local Highway and Roadway Infrastructure Projects

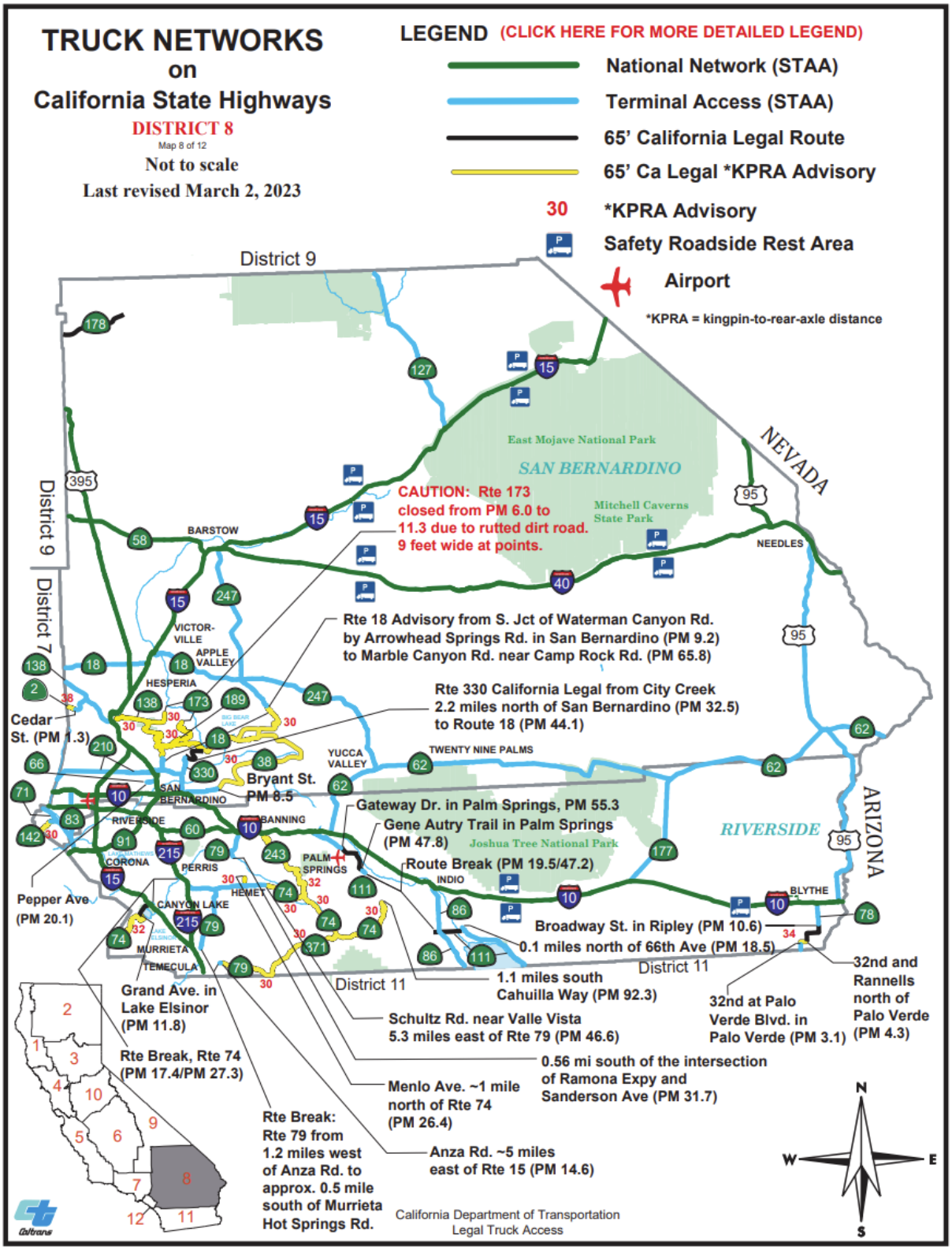


Source: Fehr & Peers, 2024

Caltrans District 8 Truck Routes

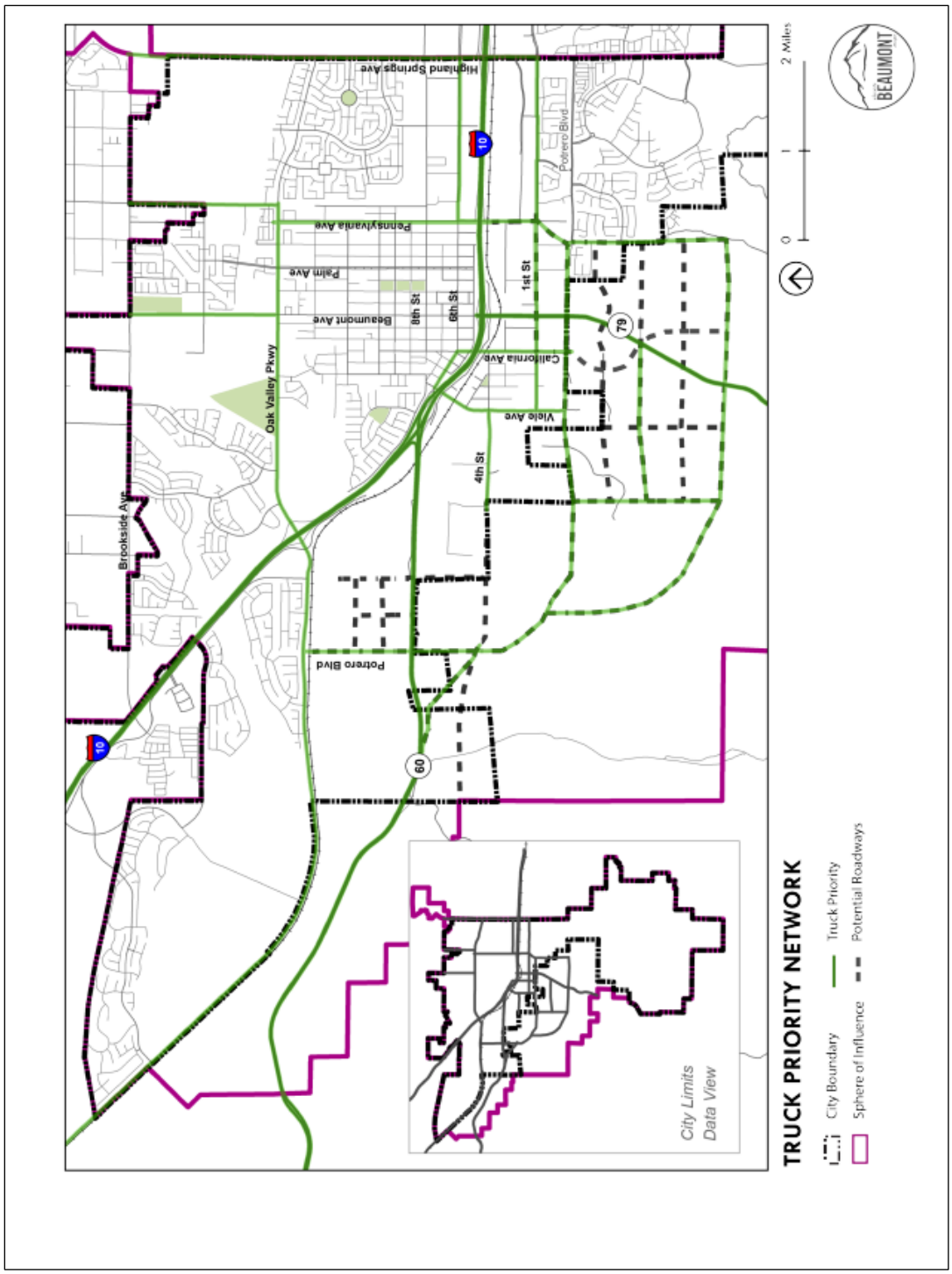
Figure 7 presents the existing truck route network for the Caltrans District 8, which includes all of Riverside and San Bernardino counties. **Figure 8** and **Figure 9** present the existing truck route networks for the cities of Beaumont and Banning, respectively.

Figure 7. Truck Networks on California State Highways District 8



City of Beaumont

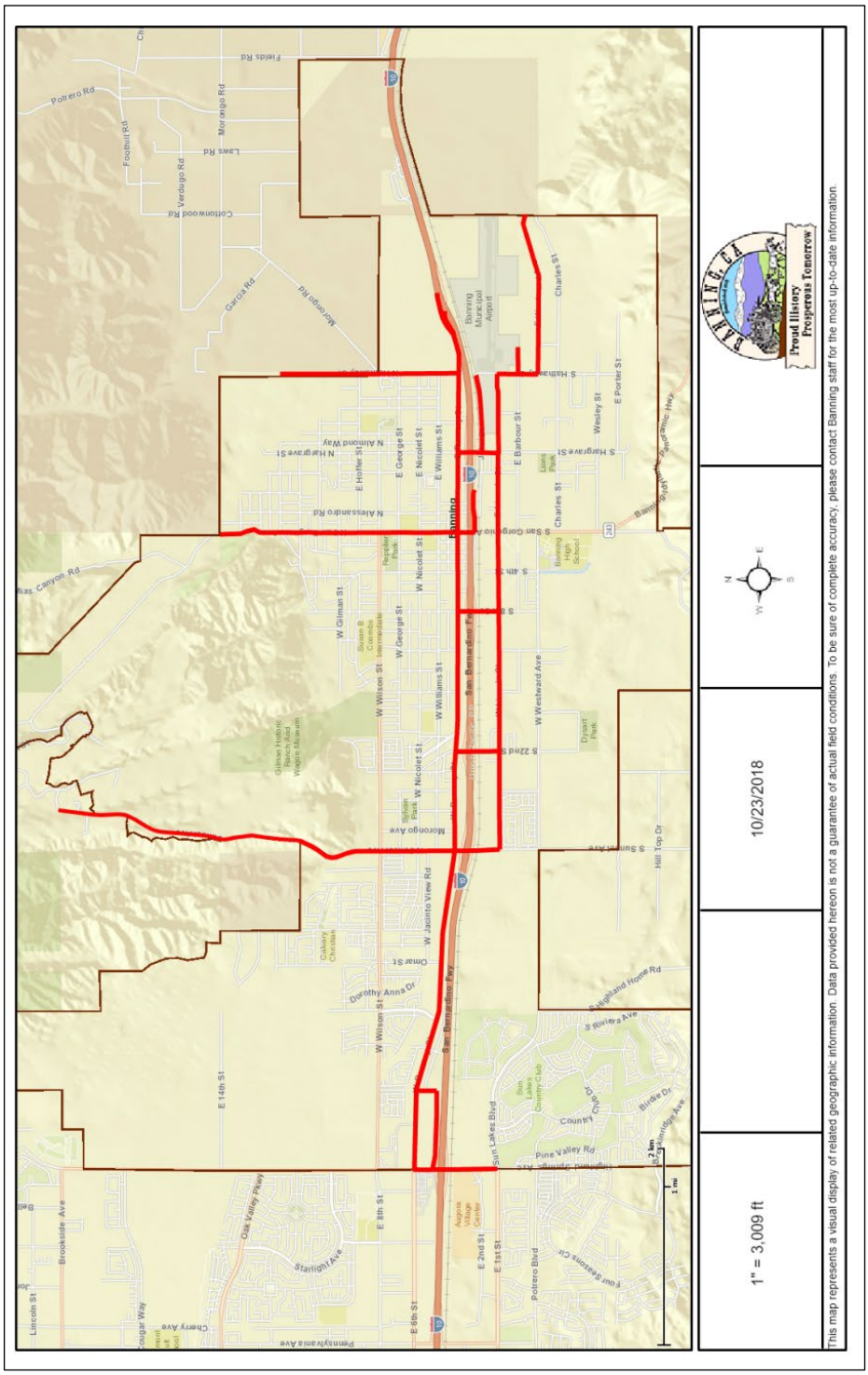
Figure 8. Existing Truck Priority Network, City of Beaumont (2020)



Source: City of Beaumont, 2020

City of Banning

Figure 9. Commercial Vehicle Routes, City of Banning (2018)



Source: City of Banning

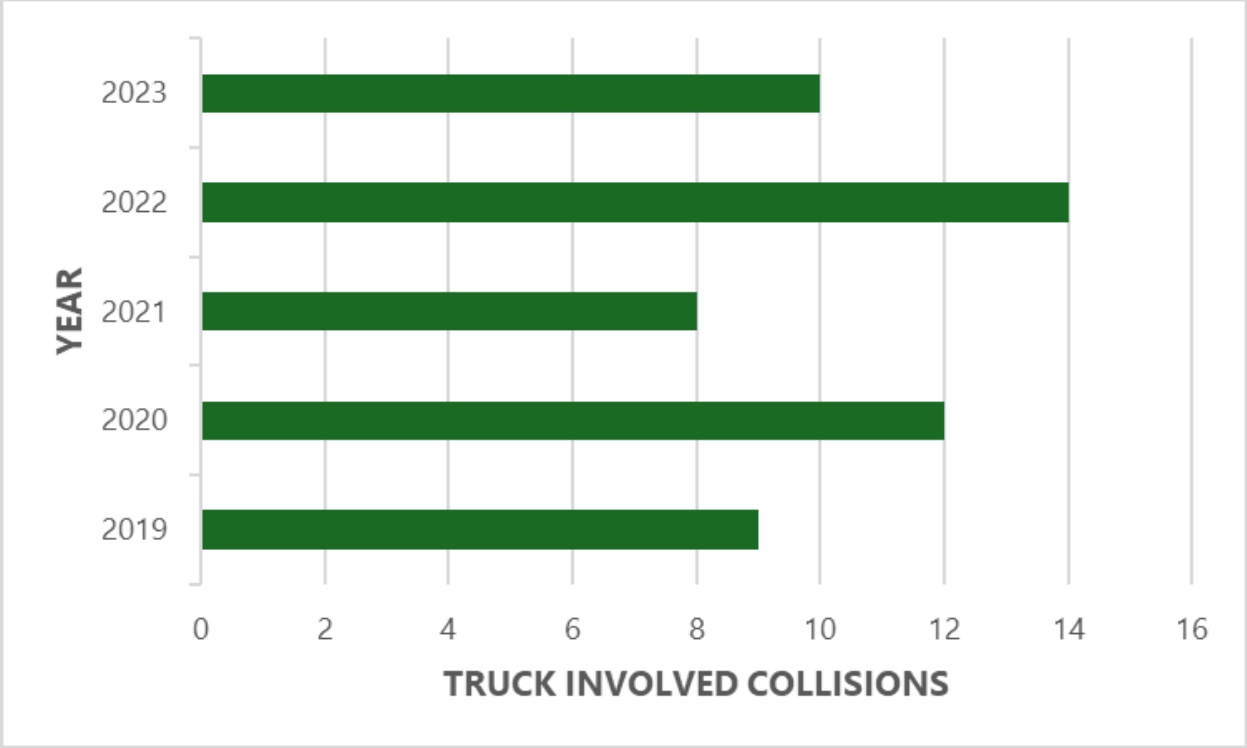
Truck-Involved Collision History

We reviewed truck-involved collision data between 2019 and 2023 to evaluate the safety of truck movement activities in the area.

There were 53 truck-involved collisions between 2019-2023 in the City of Beaumont.[7] Of those, 39 (74%) occurred on state highways and 14 (26%) occurred on local jurisdiction roadways. These collisions resulted in a total of 4 fatalities and 78 severe injuries. Pedestrians were involved in 3 of the crashes and a bicyclist was involved in 1 crash. Unsafe speed, improper turning, and unsafe lane change were the primary causes of truck-involved collisions, accounting for 24.5%, 22.6%, and 16.9% of these collisions, respectively.

Figure 10 and **Figure 11** show summary statistics of truck-involved collisions on local jurisdiction roads in Beaumont.

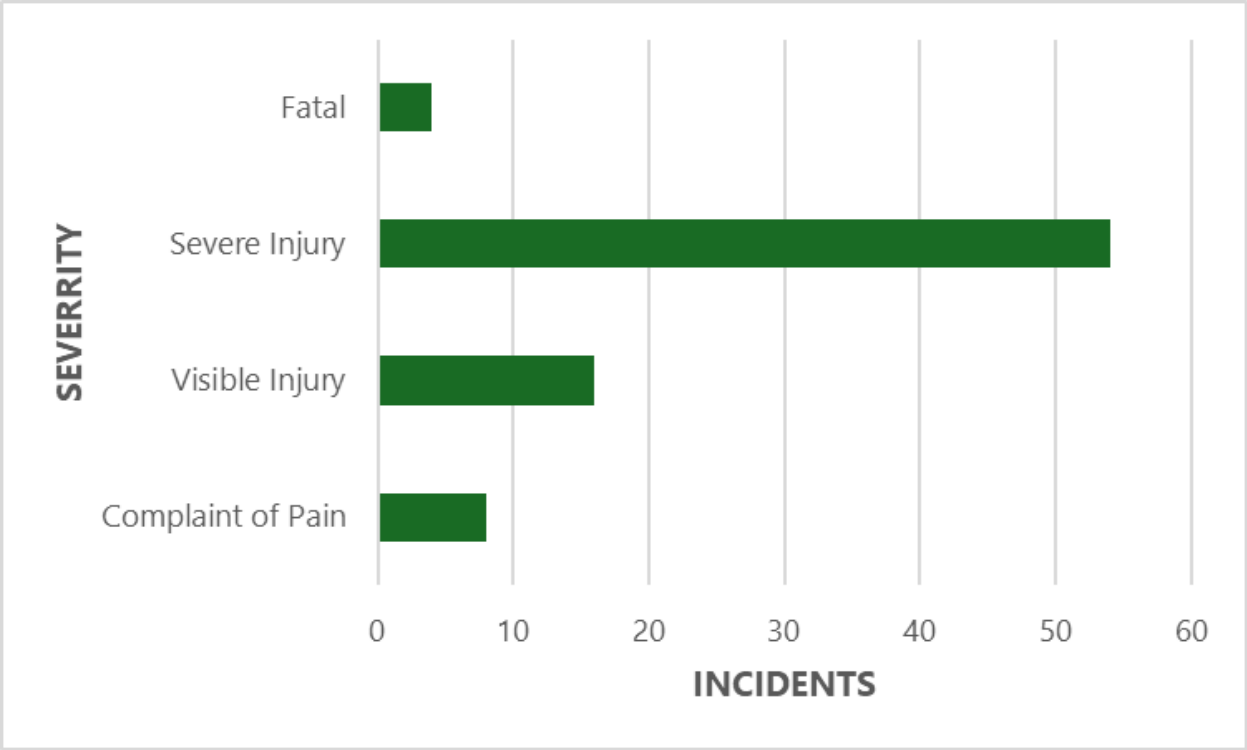
Figure 10. Truck-Involved Collisions, City of Beaumont (2019-2023), Non-State Highways



Source: Transportation Injury Mapping System (2016-2020), UC Regents

[7] Transportation Injury Mapping System (2016-2020).

Figure 11. Truck-Involved Collisions, City of Beaumont (2019-2023), Non-State Highways

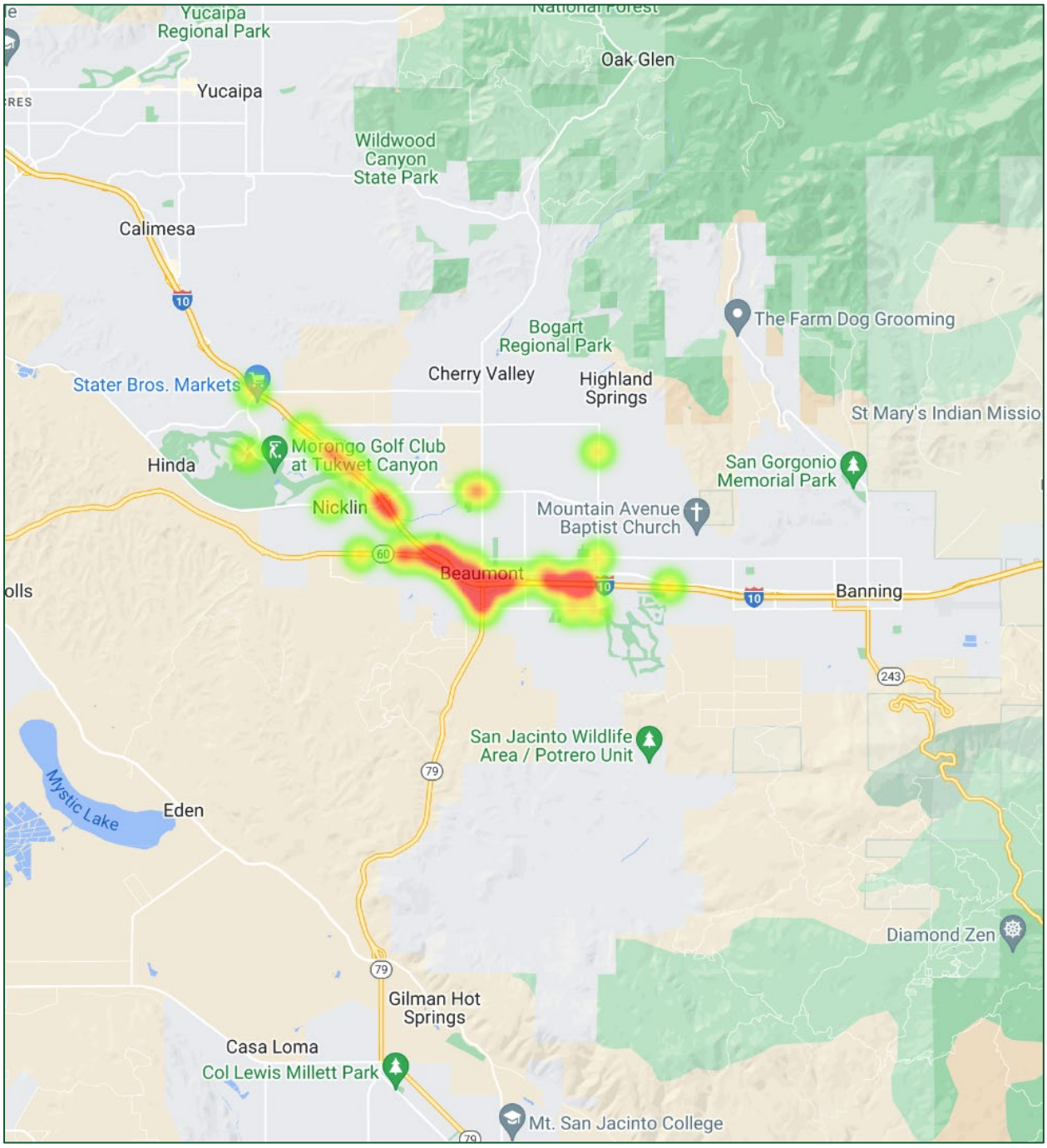


Source: Transportation Injury Mapping System (2016-2020), UC Regents

Figure 12 depicts a heatmap of all truck-involved collisions on non-state facilities across the City of Beaumont between 2019 to 2023.[8]

[8] Source: Transportation Injury Mapping System https://tims.berkeley.edu/tools/query/summary.php

Figure 12. Truck-Involved Collisions Heatmap, City of Beaumont (2019-2023)



Truck GPS Data Analysis

Available truck volume counts on local roads were limited. To understand how truck drivers access various destinations, the most popular routes, and the distribution of medium and heavy trucks on various roadways, we used a sample of truck GPS data from StreetLight Data.[9] The sample included all segments in the City of Beaumont.

The dataset includes medium trucks with Gross Vehicle Weight Rating (GVWR) between 14,000 to 33,000 pounds and heavy trucks with GVWR greater than 33,000 pounds. We did not have enough information to estimate total daily truck volumes for these locations; however, the sample data provides a good overview of the relative magnitude of truck flows and activities on various arterials. **Figure 13** shows the relative truck origins and destinations in the City of Beaumont and City of Banning.

[9] Streetlight, https://insight.streetlightdata.com

Figure 13. Truck Trip Origins and Destinations, Cities of Beaumont and Banning

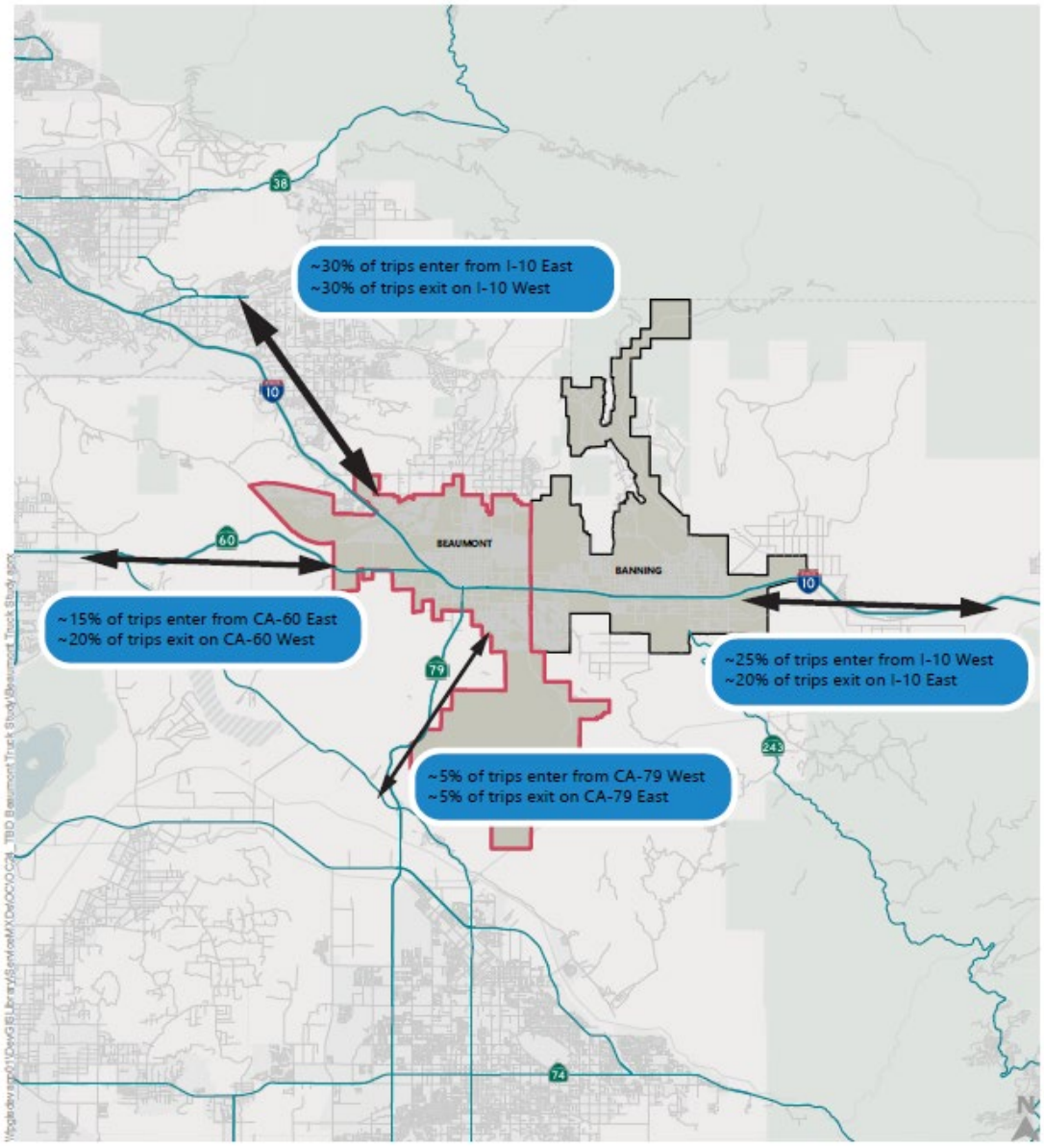


Figure 13

Truck Trip Origins and Destinations, Cities of Beaumont and Banning

Metrics for Route Assessment and Infrastructure Improvement(s)

This chapter focuses on developing metrics to assess which truck routes may or may not be appropriate for the City of Beaumont, and to prioritize routes where there are options. Our goal is to develop a set of metrics to evaluate potential alternatives for truck route network enhancements and modifications of existing routes as needed in the City of Beaumont. This study will serve as an informational guideline to help the City of Beaumont coordinate and make informed decisions based on analysis and cost estimates for potential improvements. Ultimately, it is the purview of the City of Beaumont to consider or adopt the recommendations of this study. The literature review and input from the City of Beaumont provide the initial foundation for developing metrics. As envisioned, the metrics will be used to:

- assess the use and performance of existing truck routes;
- identify and quantify the need for improvements on existing or new truck routes; and,
- identify and prioritize potential new truck routes.

Selected metrics must meet the following key criteria:

- Use accessible or collectible data and information
- Address concerns regarding safe and efficient goods movement operation in the region
- Consider impacts on communities such as emission, noise, safety, etc.
- Provide the City of Beaumont with useful data and analysis to make decisions and set priorities
- Be recognized as valid by other funding and policy-making bodies

Methodology and Process

StreetLight Data's GPS data can provide historic and real-time operations information for trucks traveling to, from, within, and through the City of Beaumont. We reviewed StreetLight Data's truck GPS data sources for 2022-2023. Conventional metrics and data sources used to analyze existing truck routes or assign new truck route designations are as follows:

- Vehicle counts from prior traffic studies
- Truck volume percentages
- Truck origin-destination (O-D) patterns
- Roadway type and width
- Conformance with Caltrans, County, or City truck routes

The recommended evaluation metrics will include both conventional measures and new measures to address private industry and potential community concerns. This study will focus on developing route recommendations based on adopted General Plan land use designations, as General Plan land use

designations are used to guide what types of developments occur in what locations. Approaches might include the following:

- Land uses served, based on zoning maps and General Plan designations
- Conformity of proposed improvements with available funding programs and categories (safety benefits, health risk assessment, equity analysis, noise impacts, vibration impacts)
- Industry/customer preferences for routes and designations, benefits to truck drivers (travel time reduction, vehicle miles of travel (VMT) reduction, fuel savings)
- Jurisdictional support, based on conformity with jurisdiction plans, policies, and priorities (ease of implementation, funding opportunities and eligibility, network connectivity score, compatibility with other jurisdictions plans, enforcement opportunities and constraints)
- Opportunity for future developments and job creation, where the route is adjacent to industrial and commercial zoning

Metrics

Existing and future land uses were analyzed with a focus on industrial uses, warehouses, distribution centers, and other freight-generating land uses. Land use information was collected from the adopted *Elevate Beaumont 2040 General Plan Update*. As noted, industrial and residential land uses have grown together over the years, and truck traffic has increased on almost all major roadways. This project will only focus on improvements to roadway designations; and land use information will only be used as input to our analysis.

Table 3 contains a draft set of primary metrics recommended for consideration when evaluating truck routes. The metrics use a mix of numerical ratings, yes/no qualifiers, and relative rankings. **Table 4** contains secondary metrics found during the literature review. Some of these metrics are qualitative. These measures coupled with the discussion during the City Council discussion were used to identify the recommended truck routes.

Table 3. Truck Route Improvement Primary Metrics

Safety	Infrastructure	Access	Community Impact
Goal: Avoid intersections with heavy commute / pedestrian /cyclist traffic	**Goal:** Conformity with Caltrans requirements for California Legal trucks CVC Section 35401	**Goal:** Provide connectivity and continuity through multiple jurisdictions	**Goal:** Avoid schools (or safe routes to schools), hospitals, parks, or other areas with high pedestrian use
Metric: Number of bikes/ pedestrians and percentage of trucks	**Metric:** Yes/no match with Caltrans requirements	**Metric:** Ranking of jurisdictional continuity and access	**Metric:** Proximity to sensitive community uses
Goal: Prioritize roadways that provide the primary access to heavy freight generators	**Goal**: Have sufficient route and intersection right of way, turning radii and lane width to accommodate WB-67	**Goal:** Provide access to truck parking/staging areas, and existing or planned commercial/ industrial zones	**Goal:** Avoid residential areas
Metric: Yes/no classification as Major Arterial by the local jurisdiction; yes/no as a roadway that primarily serves truck generators	**Metric:** Yes/no availability of California Legal turning radius and 12-foot lane width in existing right-of-way	**Metric:** Relative access to existing and future truck generating land uses defined in local General Plans	**Metric:** Proximity to residential land uses and land zoned for residential uses

Note: Metrics that require additional data (e.g., ped/bike counts or truck parking inventories) have been assessed qualitatively.

Table 4. Truck Route Improvement Secondary Metrics

Operation	Infrastructure	Land use	Safety
Goal: Align routes with local jurisdiction plans and studies	**Goal:** Prioritize routes with good pavement conditions and regular maintenance	**Goal:** Minimize impact to adjacent residences	**Goal:** Minimize collisions
Metric: Yes/no alignment with local jurisdiction plans and studies	**Metric:** Pavement condition; maintenance budgets and programs	**Metric(s):** Housing density, setbacks, existence of sidewalks and bike lanes, vegetative barriers, etc.	**Metric:** Number and severity of truck-involved accidents as percentage of total traffic and truck trips

Note: Pavement condition was assessed. These metrics can be included based upon data availability.

Truck Improvement Recommendations

Methodology and Process

Based on the analysis presented earlier and performance metrics, we prepared a list of potential short- and long-term improvement projects needed for the City of Beaumont truck network. Short-term projects address existing needs or ongoing land use developments. Long-term projects are anticipated upon completion of planned Specific Plan or General Plan entitlements.

Short-term projects, roadway segments, and intersections within each roadway segment were evaluated to accommodate truck turning. We performed a high-level conceptual evaluation for roadway segments and intersections by evaluating available GIS right of way (ROW) information; identifying existing overhead utilities and signals using Google Street View; and identifying roadway improvements using aerial imagery. It should be noted that more accurate or detailed ROW information may produce different results for some roadway segments, especially within intersection areas.

The following steps summarize the process:

1. Prepared a list of potential projects for improvements (a map of projects is presented in **Appendix E**.) These projects may be needed due to future industrial or logistic developments.
2. Evaluated all projects for required infrastructure to accommodate trucks.
3. Screened short-term projects based on ROW requirements.

The goal of this task was to identify existing and potential future gaps in the local truck network. This analysis and information will help the city during its decision-making process and can be used to support potential grant applications if new truck routes are adopted by the City.

Project List

Table 5 includes a list of Tier 1 and Tier 2. Tiers are defined as follows:

Tier 1 projects: require only signage to designate as truck route or indicate restrictions
Tier 2 projects: medium- to high-cost and somewhat more difficult to implement (e.g., reconstructing curbs, medians, may require multiple jurisdiction coordination and/or ROW acquisition (e.g., improvements to the intersection of SR 60 EB off-ramp, I-10 WB on-ramp, and 6th Street)

Table 5. Truck Route Network Improvement Recommendations

Recommendation No.	Project Description

Tier 1 Projects	
T1.1	Remove Segment of Pennsylvania Avenue between I-10 and Oak Valley Parkway from Truck Priority Network.
T1.2	Remove Segment of California Avenue between 1st Street and 6th Street, and the segment of 6th Street between California Avenue and the westbound I-10 on-ramp from Truck Priority Network
T1.3	Remove Segment of 6th Street between Pennsylvania Avenue and Highland Springs Avenue from Truck Priority Network
T1.4	Remove N Highland Springs Avenue between I-10 and Cherry Valley Boulevard from Truck Priority Network
T1.5	Relocate Class II Bike Lane on W 1st Street between Veile Avenue and Beaumont Avenue
T1.6	Remove E Oak Valley Parkway between Beaumont Avenue and Cherry Avenue, and Cherry Avenue from Truck Priority Network
Tier 2 Projects	
T2.1	W 4th Street and Veile Avenue Intersection Improvements
T2.2	Add Luis Estrada Road between Veile Avenue and Beaumont Avenue/SR 79 to Truck Priority Network.
T2.3	Luis Estrada Road and Beaumont Avenue Intersection Improvements
T2.4	1st Street and Beaumont Avenue Intersection Improvements
T2.5	1st Street and Veile Roadway and Intersection Improvements
T2.6	Oak Valley Parkway and Potrero Boulevard Intersection Improvements

Infrastructure Evaluation and Cost Estimate

Existing roadway segment classifications were evaluated to see if they can accommodate trucks. The intersections were evaluated with a WB-67 design vehicle template. Evaluation of the roadway segments and intersections was done at a high conceptual level by evaluating available GIS right-of-way (ROW) information, while Google Street View was used to identify existing overhead utilities and signals, and aerial imagery was used to identify roadway improvements. It should be noted that more accurate or detailed ROW information could produce different results for some roadway segments, especially in the intersection areas.

The goal was to **identify easily implementable truck access routes.** We developed a rating system as follows:

- Easy implementation: This rating indicates minor roadway improvements required (new pavement, signal relocation, signs, curb, gutter, and sidewalk, curb ramp modifications). No ROW needs and/or utility impacts.
- Challenging implementation: This rating indicates potential ROW impacts as well as roadway improvements, utility impacts, and potential parking modifications. ROW impacts and utility impacts tend to take a little longer to implement as negotiations are required with property and utility owners.

Methodology and Assumptions for Cost Estimation

We made several assumptions to complete this preliminary review; they are as follows:

- Pavement quality and the remaining service life were not taken into consideration for cost. Any required pavement upgrade will be determined later.
- Shoulder widening was not required, except where shoulder widening is needed for truck off tracking in intersection areas.
- Minimum 12-foot travel lanes were assumed adequate for California Legal trucks.
- Construction cost estimates were only prepared for easily implementable segments. These estimates do not include soft costs such as securing environmental clearance, securing environmental permits, undertaking design, and providing construction management services.
- Truck turn templates in AutoCAD are theoretical, but commonly used to determine the general swept path of a truck. In actual application, truck drivers could make some turns currently shown as tracking over curb or into the opposite direction lanes. For this report, truck turn templates were the basis of design and implementation.

Analysis: Tier 1 Projects

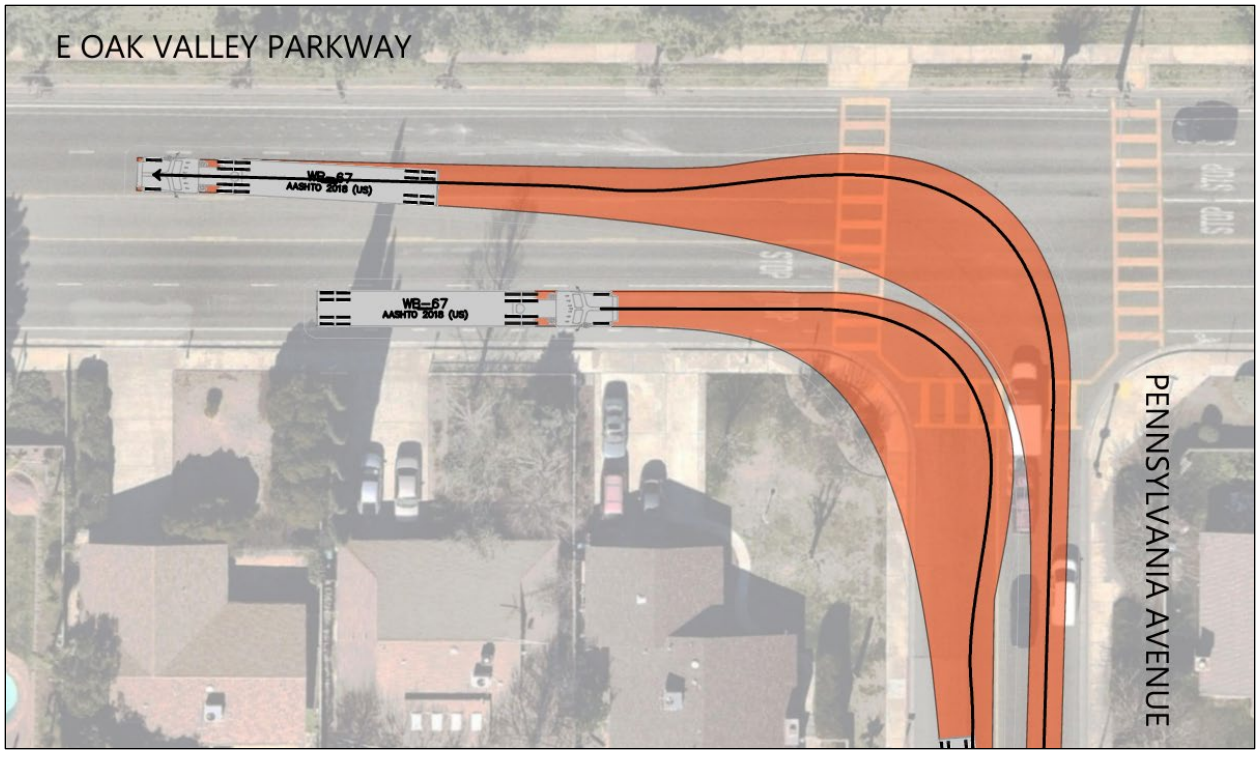
Recommendation No. T1.1: Remove Segment of Pennsylvania Avenue between I-10 and E Oak Valley Parkway from Truck Priority Network.

- As shown in **Figure 14**, the right turn movement from westbound E Oak Valley Parkway onto southbound Pennsylvania Avenue interferes with existing curb (a width of approximately 9 feet),

utilities, and traffic signal pole. To accommodate this movement, curb modification would be required at the southwest corner of the intersection, including the relocation of utilities and traffic signal pole. This may require additional right-of-way.

- The intersection of E Oak Valley Parkway and Pennsylvania Avenue is a three-way stop-controlled intersection and is within a school zone as identified by yellow crosswalks.
- Land use along Pennsylvania Avenue is primarily residential with no truck generating uses along its length.
- Pennsylvania Avenue's inclusion as part of the Truck Priority Network is incompatible with the uses along Pennsylvania Avenue and poses potential safety and environmental concerns.
- Improvements would need to be made to the intersection of E Oak Valley Parkway and Pennsylvania Avenue for trucks to safely maneuver through it with potential ROW impacts on the southeast corner of the E Oak Valley Parkway and Pennsylvania Avenue intersection.
- Consider truck restrictions on Pennsylvania Avenue and install appropriate signage.
- Implementation: Easy

Figure 14. WB-67 Truck Turning Movements – E Oak Valley Parkway and Pennsylvania Avenue



Source: Fehr & Peers, 2024

Recommendation No. T1.2: Remove Segment of California Avenue between 1st Street and 6th Street, and the segment of 6th Street between California Avenue and the westbound I-10 on-ramp from Truck Priority Network.

- California Avenue runs parallel to Veile Avenue and Beaumont Avenue/SR 79, which are also part of the Truck Priority Network. Recommend removing California Avenue from Truck Priority Network due to redundancy.
- 6th Street is the City of Beaumont's primary downtown commercial corridor. It also serves as a primary gateway to the city. It is recommended to remove 6th Street from the Truck Priority Network to preserve the character and aesthetics of Downtown Beaumont and improve safety for pedestrians and cyclists on this important corridor.
- Implementation: Easy

Recommendation No. T1.3: Remove Segment of 6th Street between Pennsylvania Avenue and Highland Springs Avenue from Truck Priority Network.

- 6th Street is the City of Beaumont's primary downtown commercial corridor. It also serves as a primary gateway to the city.
- Removal will discourage pass through truck traffic and undesired truck parking.
- Implement truck route and truck parking restrictions and install appropriate signage.
- Implementation: Easy

Recommendation No. T1.4: Remove N Highland Springs Avenue between I-10 and Cherry Valley Boulevard from Truck Priority Network.

- There are no truck generating land uses proposed along the western edge of N Highland Springs Avenue north of E 8th Street / W Wilson Street in the City of Beaumont. This area of the City of Beaumont is primarily residential.
- N Highland Springs Avenue's inclusion as part of the Truck Priority Network is incompatible with the uses along Pennsylvania Avenue and poses potential safety and environmental concerns.
- Removal will discourage pass through truck traffic and undesired truck parking.
- Implement truck route and truck parking restrictions and install appropriate signage.
- Implementation: Easy

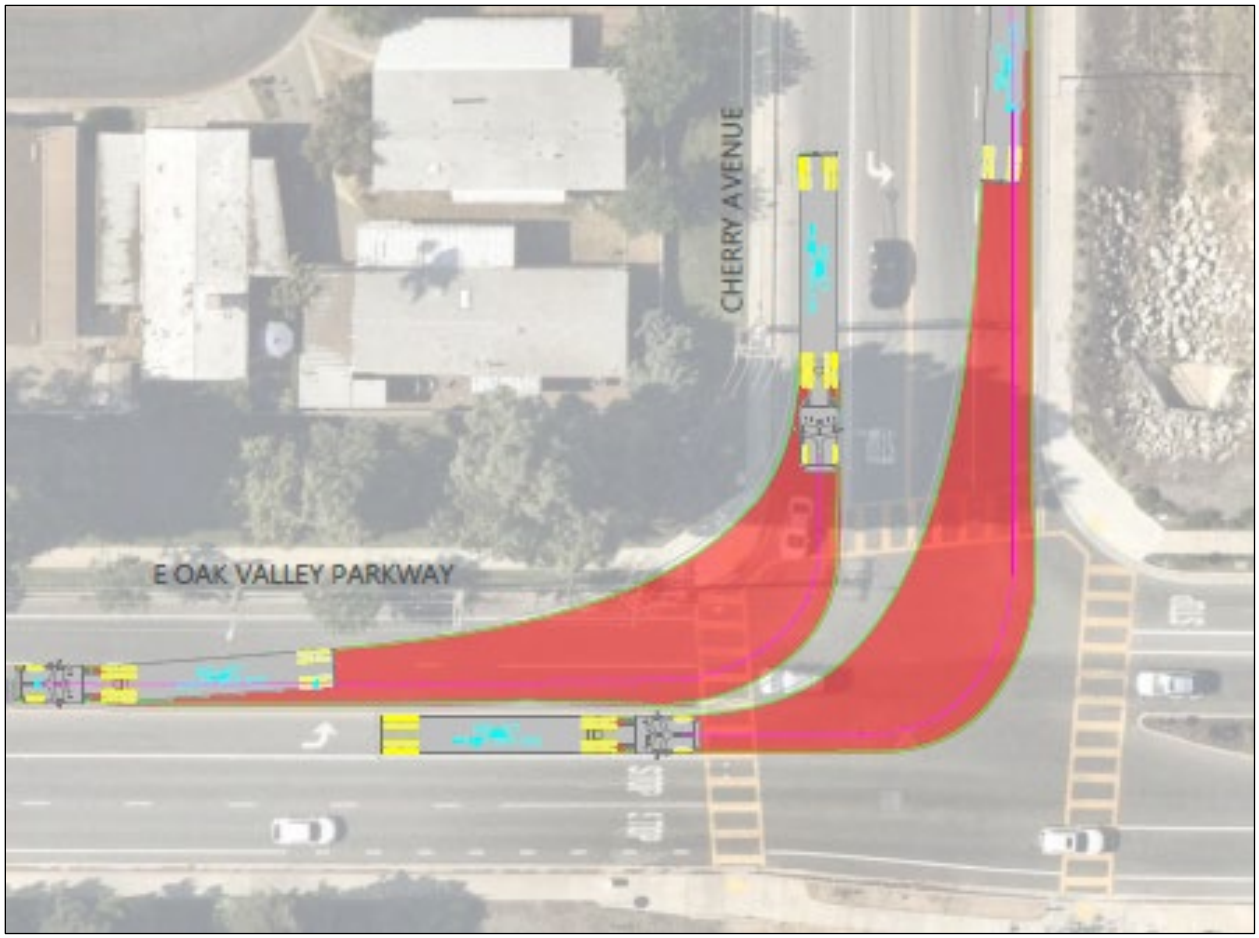
- **Recommendation No. T1.5:** Relocate Class II Bike Lane on W 1st Street between Veile Avenue and Beaumont Avenue.

- Recommend eliminating the existing Class II bike lane on W 1st Street to reduce potential conflicts with trucks along this segment of the Truck Priority Network.
- Direct bicyclists to W 4th Avenue which runs parallel to W 1st Street and is not part of the proposed Truck Priority Network. Implement truck restrictions, install appropriate signage on 4th Street, and remove bike lane striping and signage from 1st Street.
- Implementation: Easy

Recommendation No. T1.6: Remove E Oak Valley Parkway between Beaumont Avenue and Cherry Avenue, and Cherry Avenue from Truck Priority Network.

- As shown in **Figure 15**, there are potential ROW impacts at the northwest corner of the E Oak Valley Parkway and Cherry Avenue intersection.
- There are no truck generating land uses proposed along Oak Valley Parkway east of Beaumont Avenue or along Cherry Avenue. This area of the City of Beaumont is primarily residential.
- The inclusion of these segments of Oak Valley Parkway and Cherry Avenue as part of the Truck Priority Network are incompatible with the land uses and pose potential safety and environmental concerns.
- Cherry Avenue runs parallel to Beaumont Avenue. Trucks traveling to or from north of Oak Valley Parkway can use Beaumont Avenue as a designated truck route.
- Implementation: Easy

Figure 15. WB-67 Truck Turning Movements – E Oak Valley Parkway and Cherry Avenue



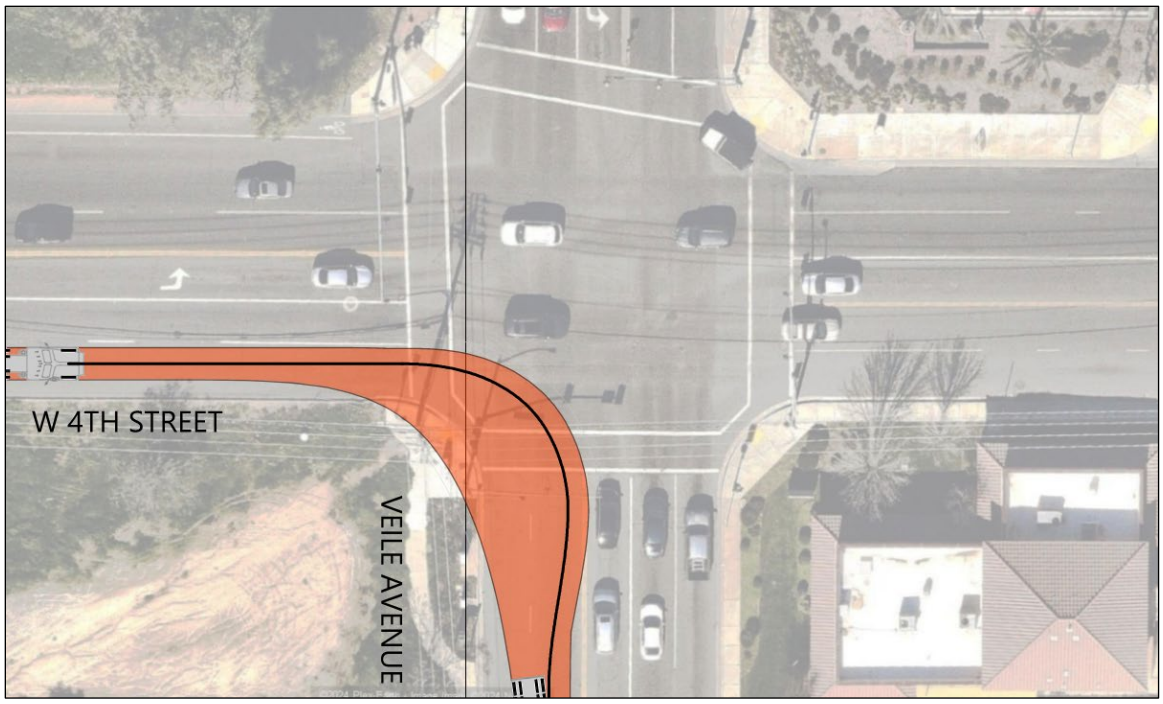
Source: Fehr & Peers, 2024

Analysis: Tier 2 Projects

Recommendation No. T2.1: W 4th Street and Veile Avenue Intersection Improvements.

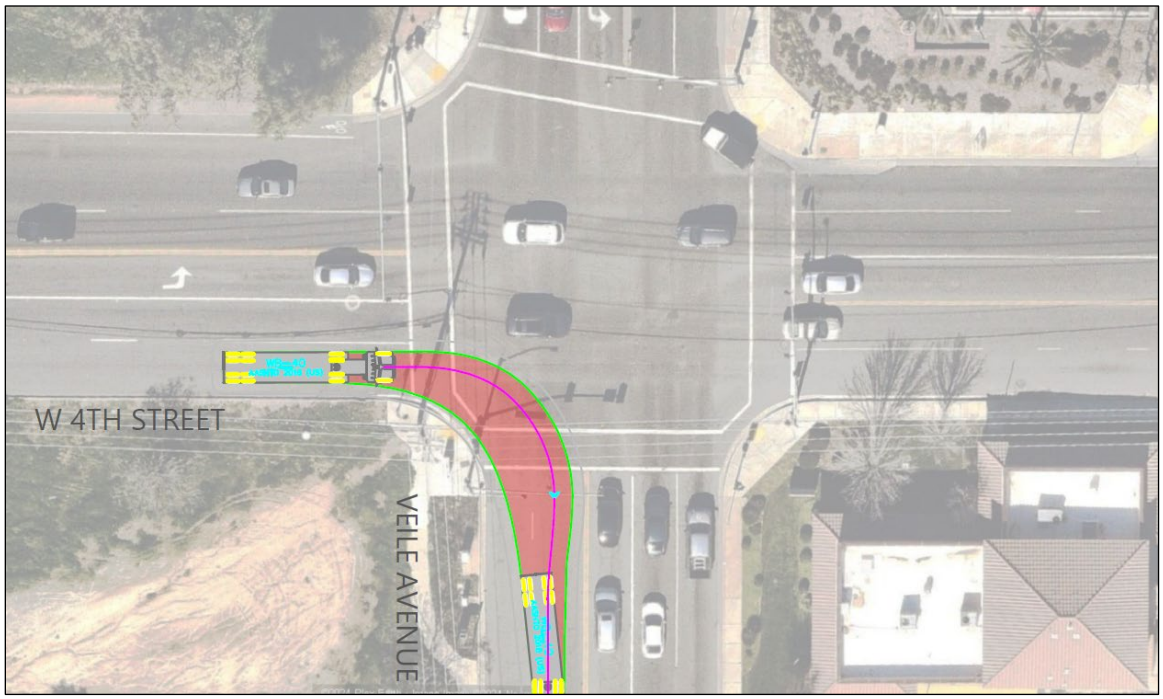
- Potential ROW impacts at the southwest corner of W 4th Street and Veile Avenue intersection.
- As shown in **Figure 16**, the right turn movement for a WB-67 onto southbound Veile Avenue from westbound W 4th Street interferes with existing curb (a width of approximately 7 feet), utilities, and traffic signal pole. To accommodate this movement, curb modification would be required at the southwest corner of the intersection, including the relocation of utilities and traffic signal pole. This may require additional right-of-way.
- The largest truck that can be accommodated without improvements is a WB-40 (**Figure 17**).
- Vehicle maneuver encroaches into an opposing lane of northbound traffic on Veile Avenue. Roadway striping modification would be required.
- The southwest corner is the future location of the City's Transit Corporation Yard and will include the widening and necessary turn radii to accommodate trucks as part of the CIP improvements.
- Implementation: Challenging

Figure 16. WB-67 Truck Turning Movement – W 4th Street and Veile Avenue



Source: Fehr & Peers, 2024

Figure 17. WB-40 Truck Turning Movement – W 4th Street and Veile Avenue



Source: Fehr & Peers, 2024

Recommendation No. T2.2: Add Luis Estrada Road between Veile Avenue and Beaumont Avenue/SR 79 to Truck Priority Network.

- Potential ROW impacts at the southeast corner of Luis Estrada Road and Veile Avenue intersection.
- Luis Estrada Road is a frontage road that runs parallel to and just south of I-10. Land uses along Luis Estrada Road include industrial, manufacturing, and a service station. Land uses are compatible for truck priority route designation.
- Currently, the right turn movement onto south-eastbound Luis Estrada Road from north-eastbound Veile Avenue would interfere with the existing curb (a width of approximately 8 feet) as shown in **Figure 18**. To accommodate this movement, curb modification would be required at the southeast corner of the intersection. This may require additional right of way. Additionally, the maneuver encroaches into an opposing lane in the north-westbound direction on Luis Estrada Road. Roadway striping modification would be required.
- The largest truck that can be accommodated without improvements is a WB-40 (**Figure 19**).
- Luis Estrada Road will need to be improved to standards that support heavy truck use.
- If implemented with proposed closure of Veile Avenue between Luis Estrada Road and 6th Street, the city may be able to mitigate ROW impacts through other intersection modifications or reconfiguration (striping, corner cul-de-sac) that allows the turning movement to stay within the existing roadway widths/ROW.
- Implementation: Challenging

Figure 18. WB-67 Truck Turning Movement – Luis Estrada Road and Veile Avenue

Source: Fehr & Peers, 2024

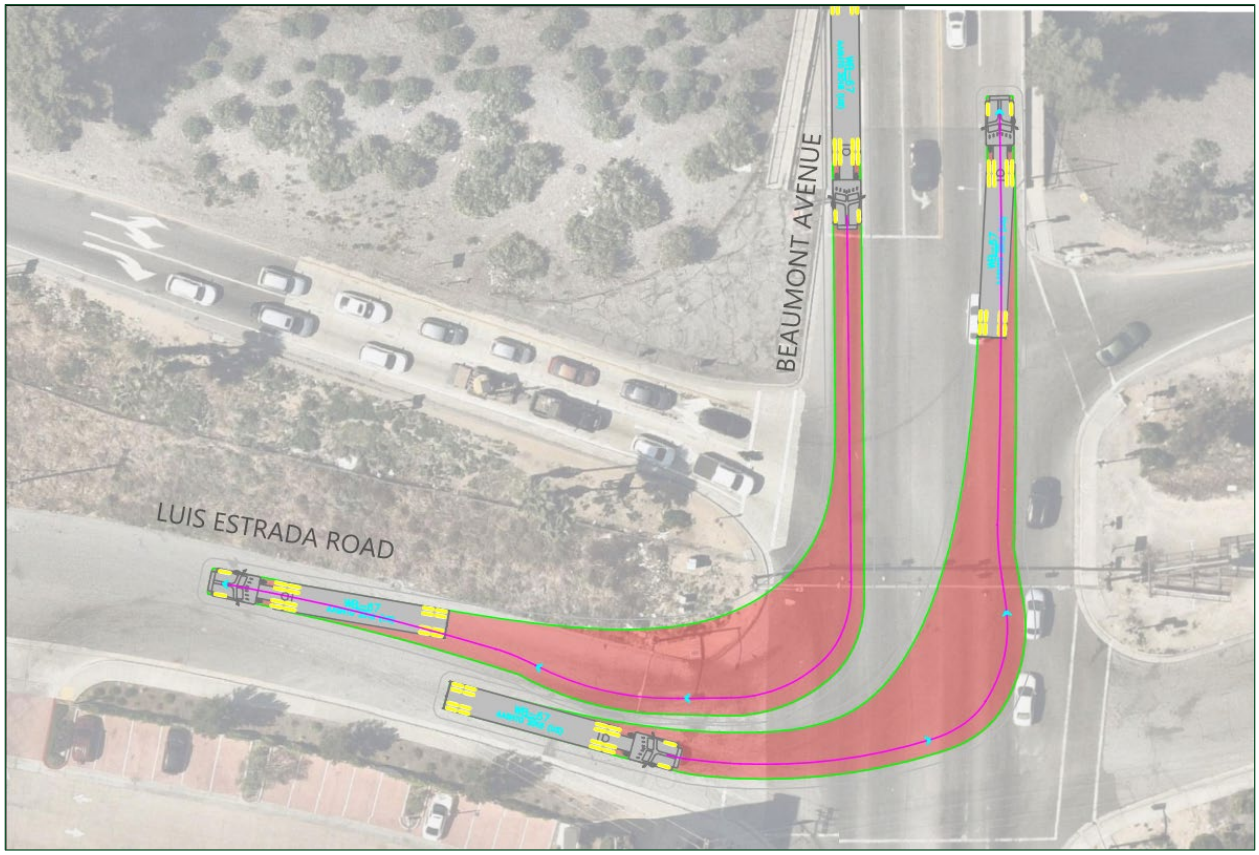
Figure 19. WB-40 Truck Turning Movement – Luis Estrada Road and Veile Avenue

Source: Fehr & Peers, 2024

Recommendation No. T2.3: Luis Estrada Road and Beaumont Avenue Intersection Improvements.

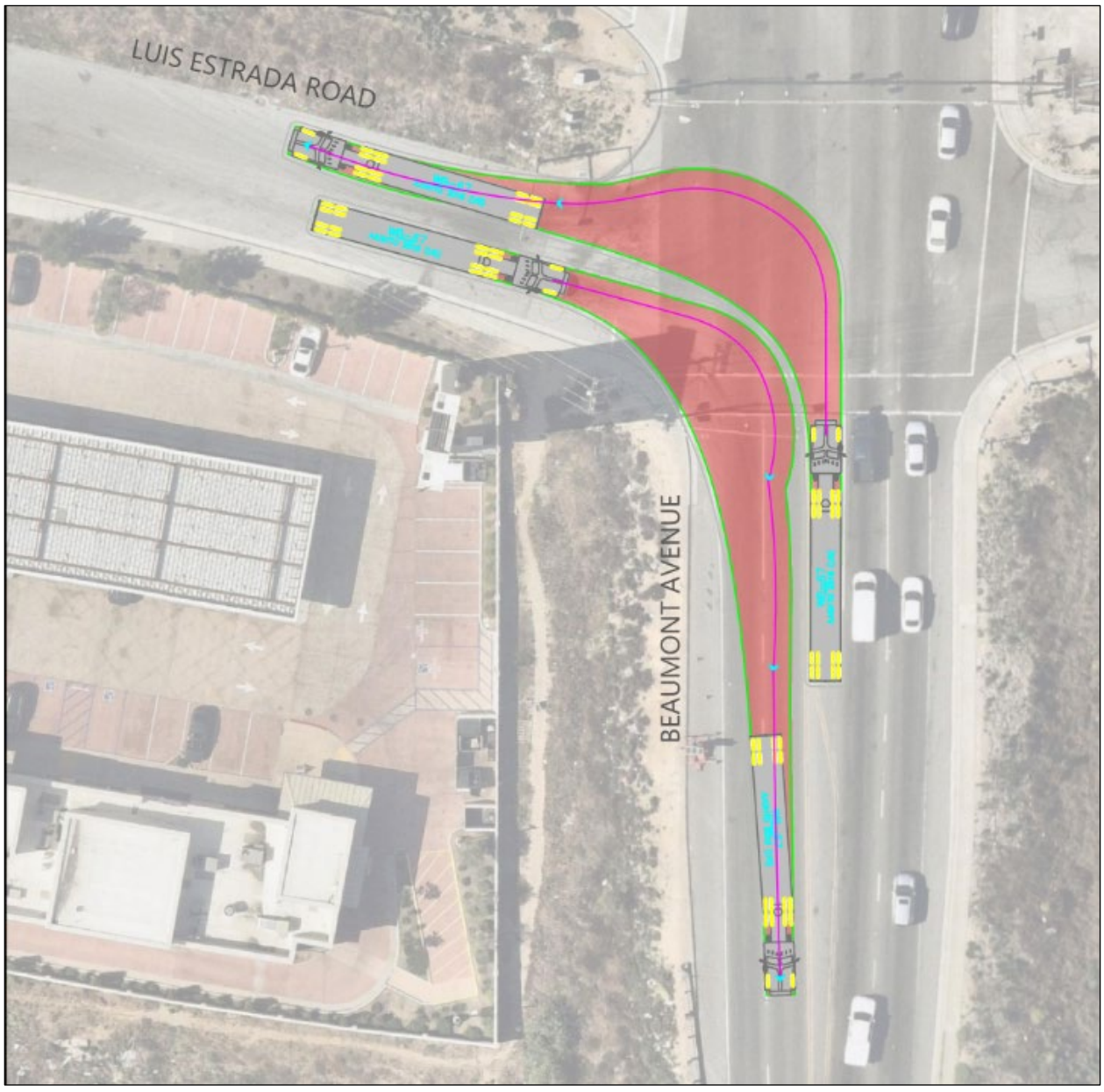
- Potential ROW impacts at the northwest corner of Luis Estrada Road and Beaumont Avenue intersection.
- As shown in **Figure 20**, the right turn movement onto westbound Luis Estrada Road from southbound Beaumont Avenue interferes with the existing curb (a width of approximately 12 feet) and utilities. To accommodate this movement, curb modification would be required at the northwest corner of the intersection. This may require additional right-of-way and coordination with Caltrans.
- As shown in **Figure 21**, the left turn movement from northbound Beaumont Avenue to westbound Luis Estrada Road and the right turn movement from eastbound Luis Estrada Road to southbound Beaumont Avenue do not have issues.
- The largest truck that can be accommodated without improvements is a WB-40 (**Figure 22**).
- Implementation: Challenging

Figure 20. WB-67 Truck Turning Movements – Luis Estrada Road to/from Beaumont Avenue north



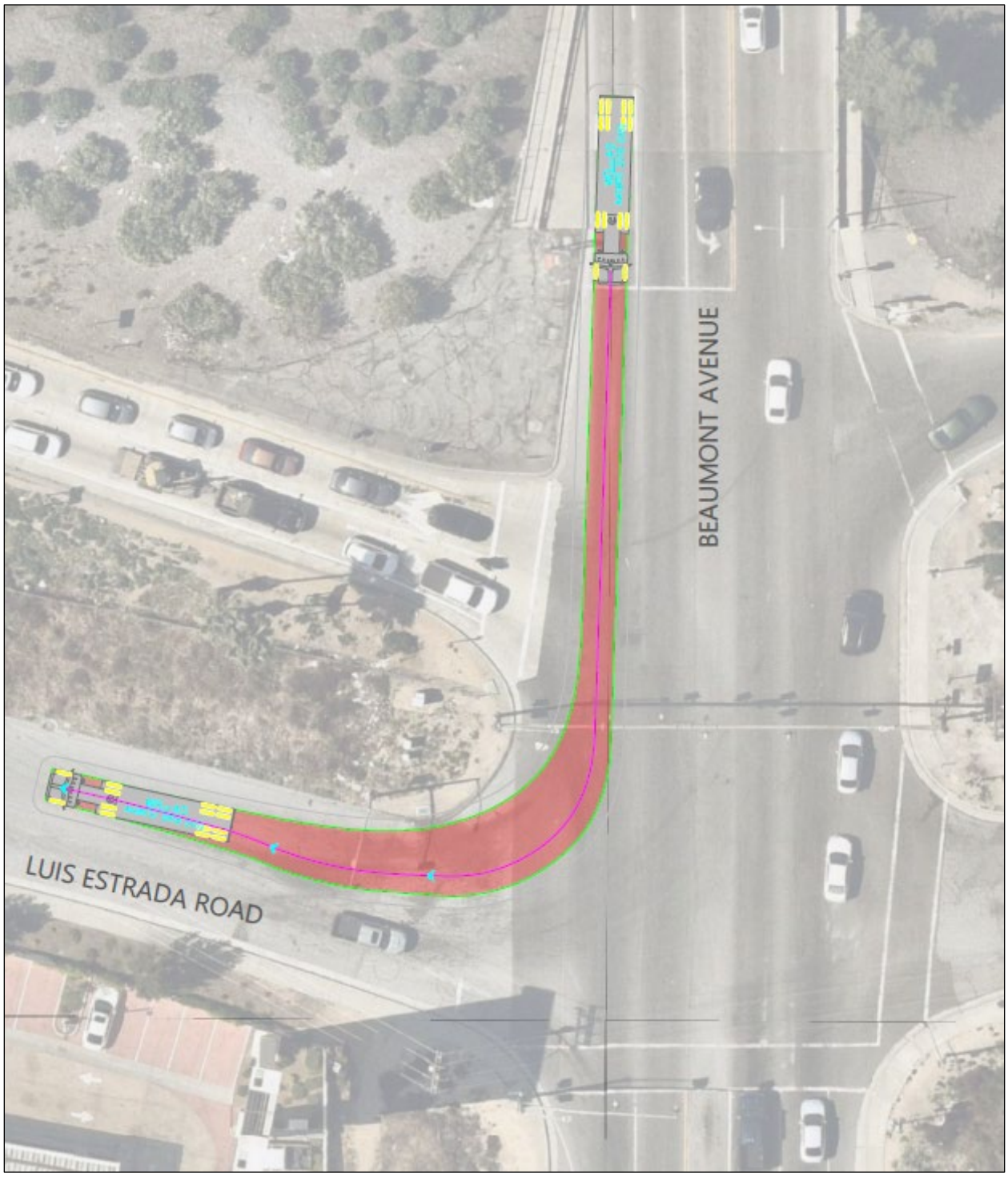
Source: Fehr & Peers, 2024

Figure 21. WB-67 Truck Turning Movements – Luis Estrada Road to/from Beaumont Avenue south



Source: Fehr & Peers, 2024

Figure 22. WB-40 Truck Turning Movement – Luis Estrada Road from Beaumont Avenue north

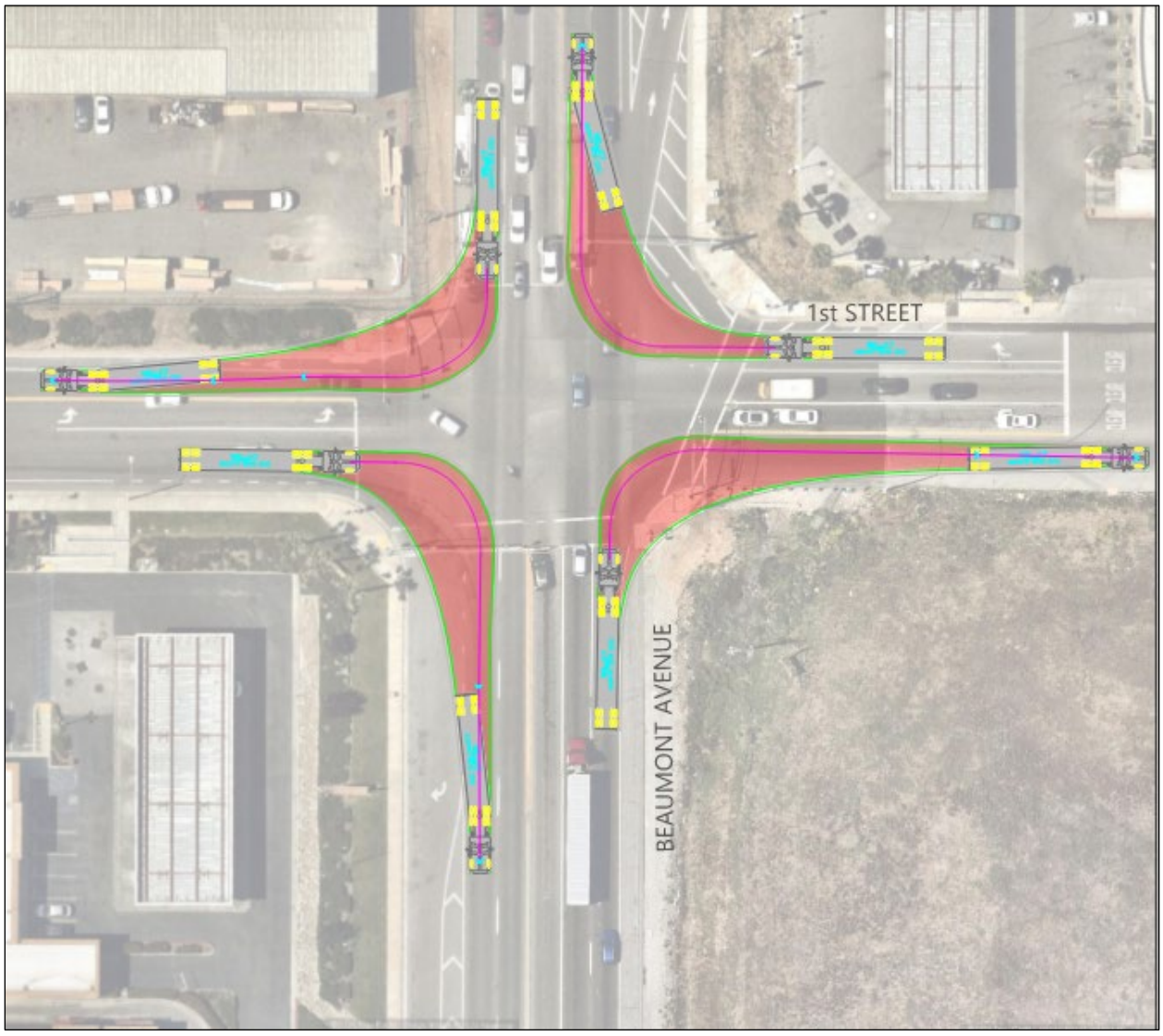


Source: Fehr & Peers, 2024

Recommendation No. T2.4: 1st Street and Beaumont Avenue Intersection Improvements.

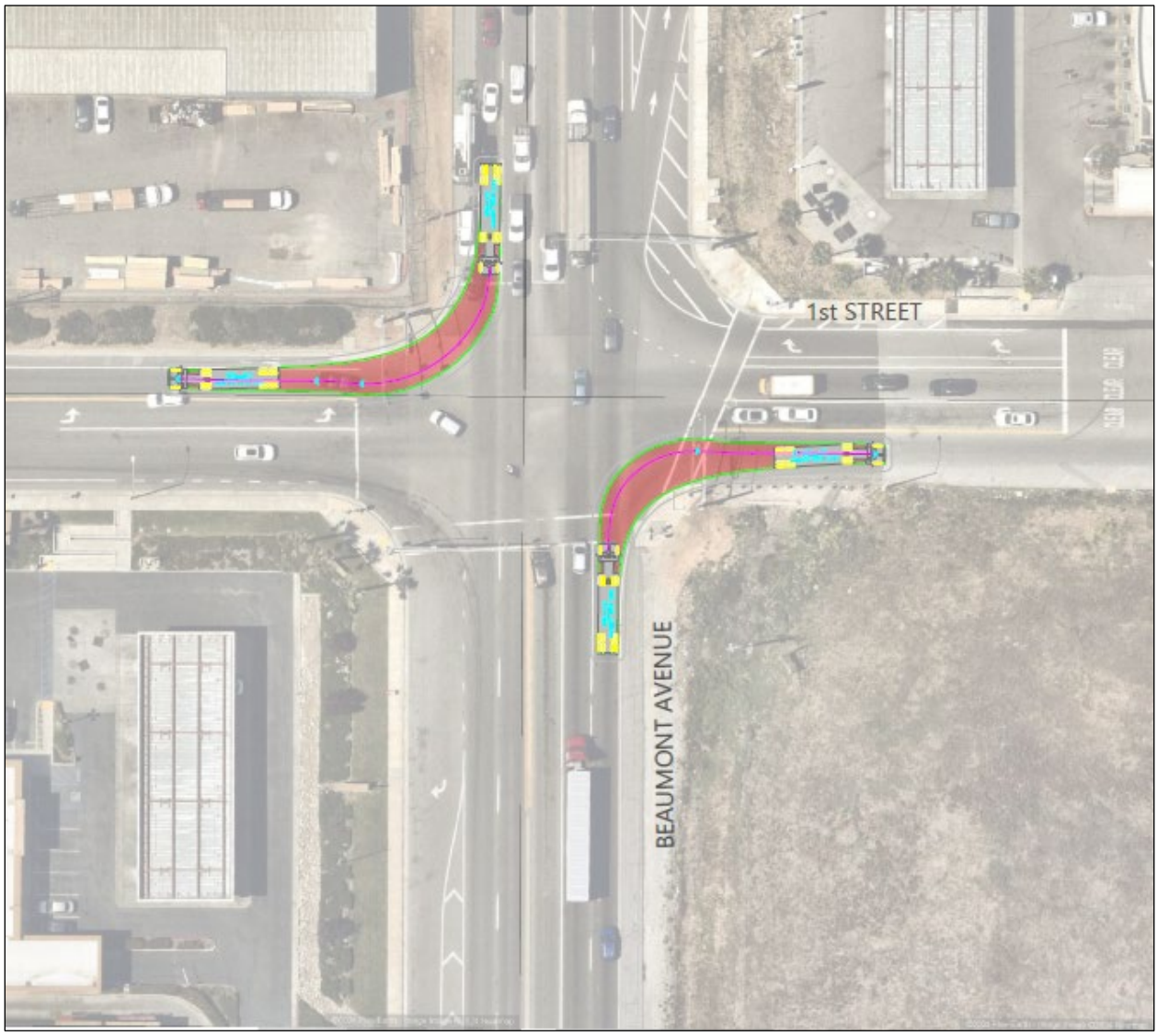
- Potential ROW impacts at the northwest and southeast corners of 1st Street and Beaumont Avenue intersection.
- As shown in **Figure 23**, the right turn movement onto westbound 1st Street from southbound Beaumont Avenue interferes with the existing curb (a width of approximately 11 feet) and traffic signal. To accommodate this movement, curb modification and relocation of traffic signal would be required at the northwest corner of the intersection. This may require additional right-of-way.
- As shown in **Figure 23**, the right turn movement onto eastbound 1st Street from northbound Beaumont Avenue interferes with the existing curb (a width of approximately 11 feet) and traffic signal. To accommodate this movement, curb modification and relocation of traffic signal would be required at the southeast corner of the intersection. This may require additional right-of-way.
- The largest truck that can be accommodated without improvements is a WB-40 (**Figure 24**).
- Implementation: Challenging

Figure 23. WB-67 Truck Turning Movements – 1st Street and Beaumont Avenue



Source: Fehr & Peers, 2024

Figure 24. WB-40 Truck Turning Movements – 1st Street and Beaumont Avenue



Source: Fehr & Peers, 2024

Recommendation No. T2.5: 1st Street and Veile Avenue Intersection Improvements.

- Potential ROW impacts at the northeast corner of 1st Street and Veile Avenue intersection.
- As shown in **Figure 25**, the right turn movement from westbound 1st Street to northbound Veile Avenue does not have sufficient roadway to complete the movement (a width of approximately 8 feet). To accommodate this movement, curb and street modification would be required at the northeast corner of the intersection. This may require additional right-of-way.
- The left turn movement from westbound 1st Street to southbound Veile does not have sufficient roadway to complete the movement. To accommodate this movement, future streetscape improvements must be implemented. This may require additional right-of-way.

- The largest truck that can be accommodated without improvements is a WB-40 (**Figure 26**).
- Implementation: Challenging

Figure 25. WB-67 Truck Turning Movements – 1st Street and Veile Avenue

Source: Fehr & Peers, 2024

Figure 26. WB-40 Truck Turning Movement – 1st Street and Veile Avenue

Source: Fehr & Peers, 2024

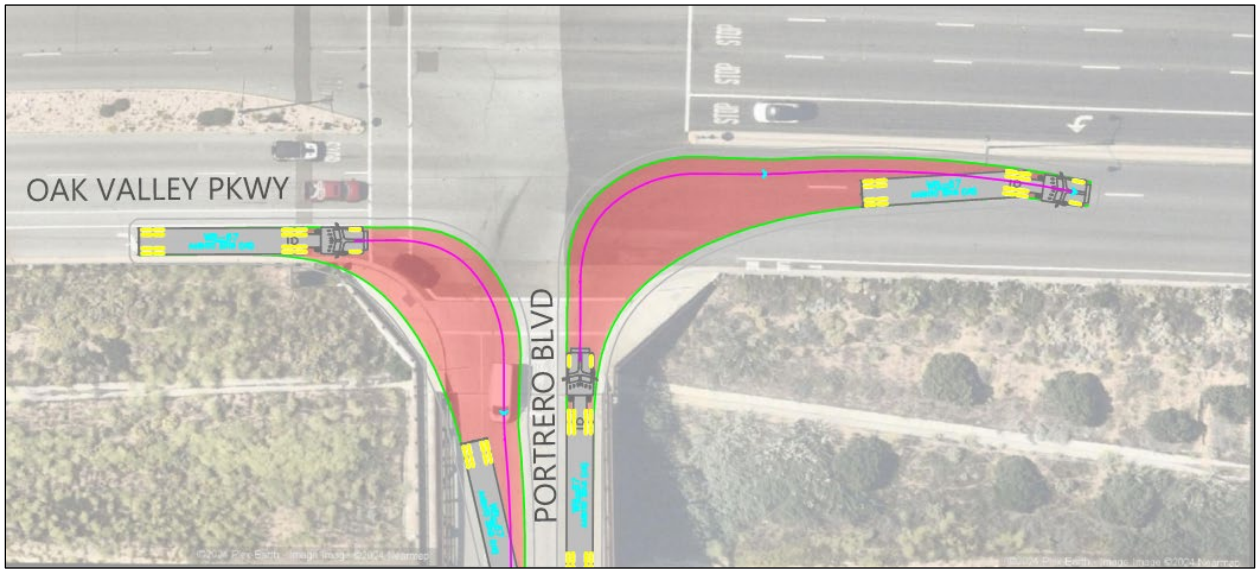
Recommendation No. T2.6: W Oak Valley Parkway and Potrero Boulevard Intersection Improvements.

- Potential ROW impacts at the southwest corner of W Oak Valley Parkway and Potrero Boulevard intersection.
- As shown in **Figure 27**, the right turn movement from eastbound W Oak Valley Parkway to southbound Potrero Boulevard interferes with the existing curb (a width of approximately 6 feet)

and bridge. To accommodate this movement, curb and bridge modification would be required at the southwest corner of the intersection. This may require additional right-of-way.

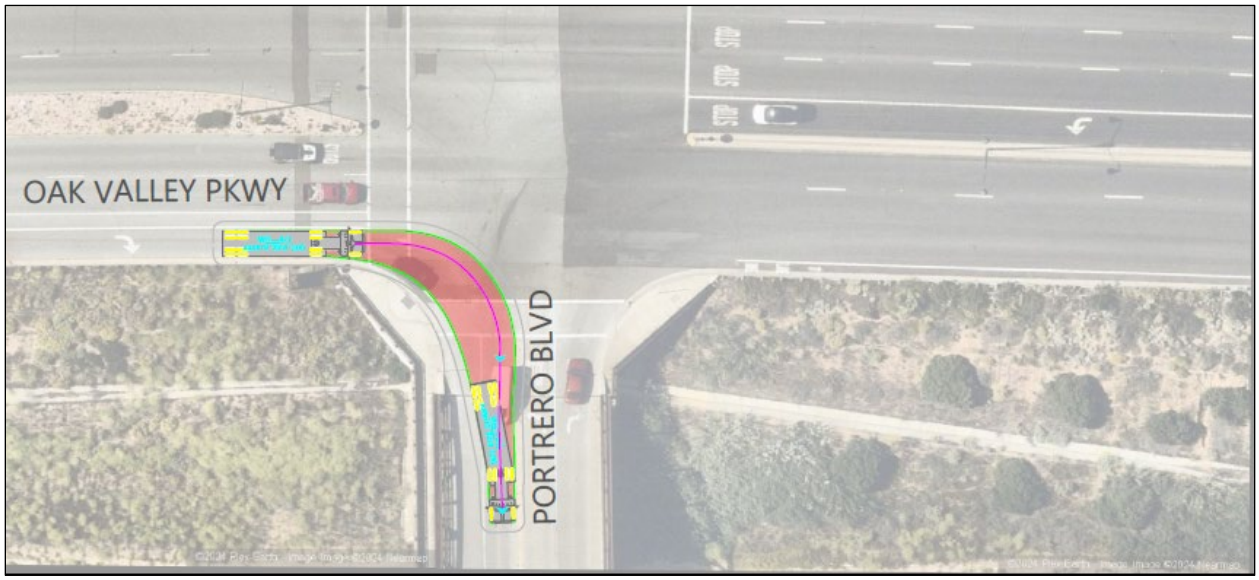
- The largest truck that can be accommodated without improvements is a WB-40 (**Figure 28**).
- Implementation: Challenging

Figure 27. WB-67 Truck Turning Movements – W Oak Valley Parkway and Potrero Boulevard



Source: Fehr & Peers, 2024

Figure 28. WB-40 Truck Turning Movement – W Oak Valley Parkway and Potrero Boulevard

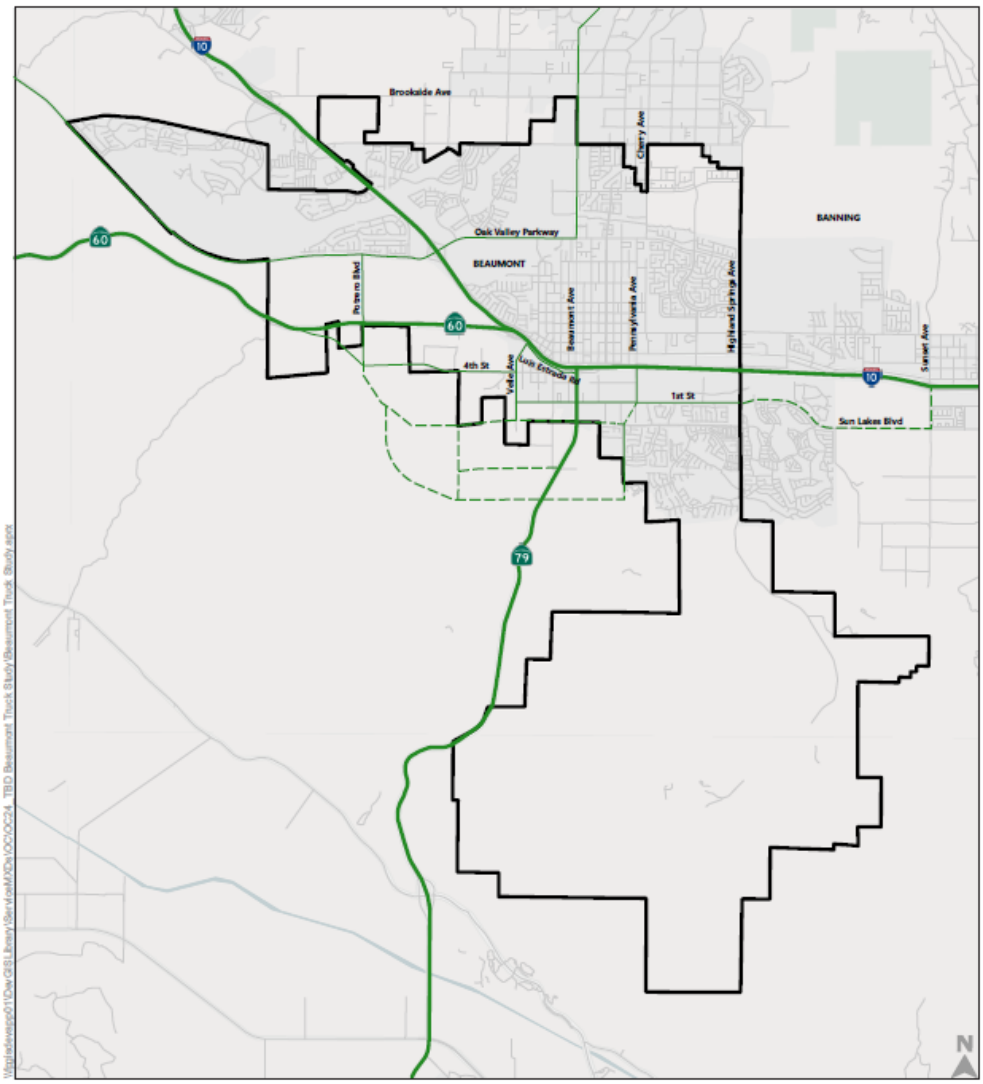


Source: Fehr & Peers, 2024

Summary

The recommended Truck Priority Network is presented in **Figure 29**, reflecting the recommendations described above. The truck turning exhibits are presented in **Appendix F**.

Figure 29. Recommended Truck Priority Network for City of Beaumont



City Boundary
Truck Priority
Potential Roadway with Truck Priority

Figure 29

City of Beaumont Recommended Truck Priority Network

Other Recommendations

To effectuate the findings and recommendations for the Truck Routes, the City of Beaumont can explore requiring all new future industrial projects, as a condition of approval, to contribute to the build out and maintenance of the recommended Truck Routes through different mechanisms, including funding up front improvements and committing to long-term operational programs to ensure the effectiveness of the Truck Routes.

Long Term Operations: Worker Education / Enforcement of Trucking and Parking Requirements

As a condition of approval for industrial projects, require implementation of a continuous and consistent education program for local truck drivers and facility operators. The education program could include:

- Preparing a map of designated City truck routes that can be made available digitally and printed for distribution and posting at industrial facilities, tuck amenity facilities, and truck service areas. Maps should also identify truck route and parking restrictions in the City.
- Installing permanent signage in multiple languages, including English and Spanish, to inform truck drivers of on-site amenities and facility rules (parking restrictions, noise mitigation measures, permitted hours and location of loading activities, etc.)
- If applicable, operational GHG and Criteria Pollutant Emissions Reduction Measures
- If applicable, standards for operational air quality

It is recommended that the education program would be provided in multiple languages, including English and Spanish, and include prominently posted signage throughout the facility, including a requirement to include in tenant leases obligating tenants to inform employees, temporary workers, contractors, and third-party truckers of the rules by posting the rules in lounges provided at their warehouses. The educational information would be provided to all tenants in paper form (e.g., a pamphlet) on request and at least annually for inclusion in lounges.

Preparation of a Pavement Impact Study

In support of the Truck Route Study, it is recommended that the City consider assessing the impacts of truck movements on pavement, and especially along the designated truck routes. The process and analysis would depend on factors including: (1) pavement type, (2), pavement layer thickness, (3) pavement condition, (4) truck traffic, (5) truck weight, and (6) axel load distribution.

To understand pavement structure, the City would need to provide coring information to develop best estimates of pavement thickness along truck routes, roadway as-builts, and/or conduct visual assessments. Analysis could use the 1993 AASHTO *Guide for Design of Pavement Structures* to assess pavement damage from heavy and typical truck traffic. Furthermore, Average Daily Traffic ("ADT") estimates would also need to be collected.

Pavement impact is an exponential function of axle load and rises rapidly with added weight.

- Pavement impact is measured in "ESALs" - Equivalent Single Axle Loads of 18,000 lb.
- For each truck, total impact is the sum of ESALs for all axles.
- Cars and pickups with axle loads of <5,000 lb. have essentially no impact.

ESAL is a concept developed from data collected at the American Association of State Highway Officials (AASHO) Road Test to establish a damage relationship for comparing the effects of different axle configurations carrying different loads. One ESAL represents the passing of an 18,000 lb. single axle with dual tires over a pavement surface. Each of the trucks traveling over this route has multiple axle sets of varying weights, and the ESAL factor for a given truck is the sum of the ESAL loading of all its axles.[10]

Finally, the last factor in the truck route pavement damage assessment would be to understand individual vehicle loading of different classifications of trucks.

The findings from a pavement impact study can be used to determine the appropriate type of pavement to deploy on the City's Truck Route Network, justify leveraging specialty fees or assessments on future industrial development projects in the City, and/or provide information necessary for establishing a EFID to ensure truck routes are properly maintained to support the City's industrial users over the longrun.

Roadway/Truck Route Impact Fee

A tool the city can use to mitigate the impact of the growth in the industrial and trucking industry in the City is to establish a Roadway/Truck Route Impact Fee. Studies have indicated truck traffic can cause more damage to roadways than passenger vehicles. The fee could be leveraged on new industrial projects to fund the enhancement of roadway pavement to accommodate project-generated trucks on the City's truck route roadway network.

To adopt a Roadway/Truck Route Impact Fee, the City would need to prepare an impact fee nexus study pursuant to the requirements of the California Mitigation Fee Act (Government Code Section 66000).

Tax Increment Financing

Tax Increment Financing (TIF) freeze property tax revenues, or other types of revenues, that flow from a project area to the city, county, and other taxing entities at the "base level" of the current year. Additional tax revenue in future years, also known as the increment, is diverted to a separate fund, which can be used to pay for improvements directly or to pay back bonds issued against the anticipated TIF revenue.[11] TIFs are used to fund and finance public facilities and other improvements, like in redevelopment districts where up-front investments are needed for constructing horizontal infrastructure to enable

[10] The Tioga Group, Fehr & Peers, NCE. (2020). *Evaluation of the Oakland Port/City Heavy Container Permit Program.* Prepared for The Port of Oakland.

[11] "Enhanced Infrastructure Financing District (EFID)," scag.ca.gov, Southern California Association of Governments (SCAG), accessed July 31, 2024, https://scag.ca.gov/post/enhanced-infrastructure-financing-district-eifd.

development.[12] The city can establish a TIF assessment district to fund construction of new roadways within a defined geography to support industrial uses and development. TIF tools currently available are further described below.

Enhanced Infrastructure Financing Districts (EFID)

As described in the 2020 *Report on the Use of Tax Increment Financing,* EFIDs were enabled in 2024 following California's dissolution of redevelopment agencies. EFIDs do not require voting requirements and have an expanded list of eligible projects that can utilize the EFID funding. The City can initiate an EFID and prepare an infrastructure financing plan which would govern the EFID. Each participating taxing authority may choose to contribute a portion of its share of the general one-percent property tax as well as the property tax in lieu of a vehicle license fees (VLF). EFIDs can fund the purchase, construction, or improvement of any real property with a useful life of at least 15 years.[13]

Infrastructure and Revitalization Financing Districts (IRFDs)

Infrastructure and Revitalization Financing Districts (IRFD) are a type of special district designed to help finance public infrastructure projects and stimulate economic development in a defined geographic area. IRFDs are established to finance the development or improvement of public infrastructure such as roads, parks, utilities, and other essential facilities. IRFDs typically use a combination of public and private financing. An IRFD might issue bonds or use other financial instruments to raise the necessary funds for infrastructure projects. The district can generate revenue to repay its debts through various means, including tax increment financing and special assessments. Establishing an IRFD and issuing bonds would require a two-thirds voting requirement of residents and property owners.

[12] Strategic Economics. (2020). *Report on the Use of Tax Increment Financing.* Report prepared for the State of California Office of Planning and Research.
[13] ibid

Funding Sources

The recommended improvements are low-cost projects that benefit local users of truck networks and communities. These projects may not be competitive for discretionary federal or state grant programs. On the other hand, the Tier 2 projects have broader multimodal and regional benefits and are more competitive. In this section we describe available funding programs that might be applicable. In some cases, these improvements may be needed pursuant to providing truck access to proposed development. As such, conditions of approval for truck-served development projects could include implementation of truck route improvements listed herein. Aside from developer/user-generated revenue sources, the City can also utilize other local and regional funding sources as described below.

Local and Regional Fund Sources

Local Signage and Striping Program

The City of Beaumont allocates maintenance funding to update local signage and striping. This includes regular on-going maintenance due to wear and tear on the transportation system and design guidance updates to meet current standards. Unfortunately, most cities struggle with allocating adequate budget for maintenance and need to prioritize their maintenance projects strictly each year.

Streets & Bridges Impact Fee

The City of Beaumont allocates funding from its Streets & Bridges Impact Fee to finance the construction of improvements needed to maintain traffic movement and safety on City streets. The fees are levied on new projects to accommodate traffic generated by new developments in the City.

Traffic Signal Impact Fee

The City of Beaumont allocates funding from its Traffic Signal Impact Fee to finance the construction of traffic signals and improvements needed to maintain traffic movement and safety on City streets. The fees are levied on new projects to accommodate traffic generated by new developments in the City.

Railroad Crossing Facility Impact Fee

The City of Beaumont allocates funding from its Railroad Crossing Facility Impact Fee to finance the construction of railroad crossings, traffic signals, and improvements needed to maintain traffic movement and safety on City streets. The fees are levied on new projects to accommodate traffic generated by new developments in the City.

Transportation Uniform Mitigation Fee (TUMF)

TUMF is a county-wide, multi-jurisdiction capital improvement funding program intended to cover a portion of the costs for new transportation facilities required to serve new development within Riverside County. TUMF funding can be applied to projects on the TUMF capital project list.

Measure A, Local Streets and Roads Repair

Measure A is a half-cent sales tax for transportation projects of regional significance in Riverside County. Jurisdictions receive funding for local streets and roads repair.[14] For more information, please refer to RCTC Measure A webpage.

Surface Transportation Block Grant (STBG)

The Surface Transportation Block Grant Program (STBG) promotes flexibility in state and local transportation decisions and provides flexible funding to best address state and local transportation needs.[15] STBG is a federal discretionary funding program, administered by SCAG and RCTC.

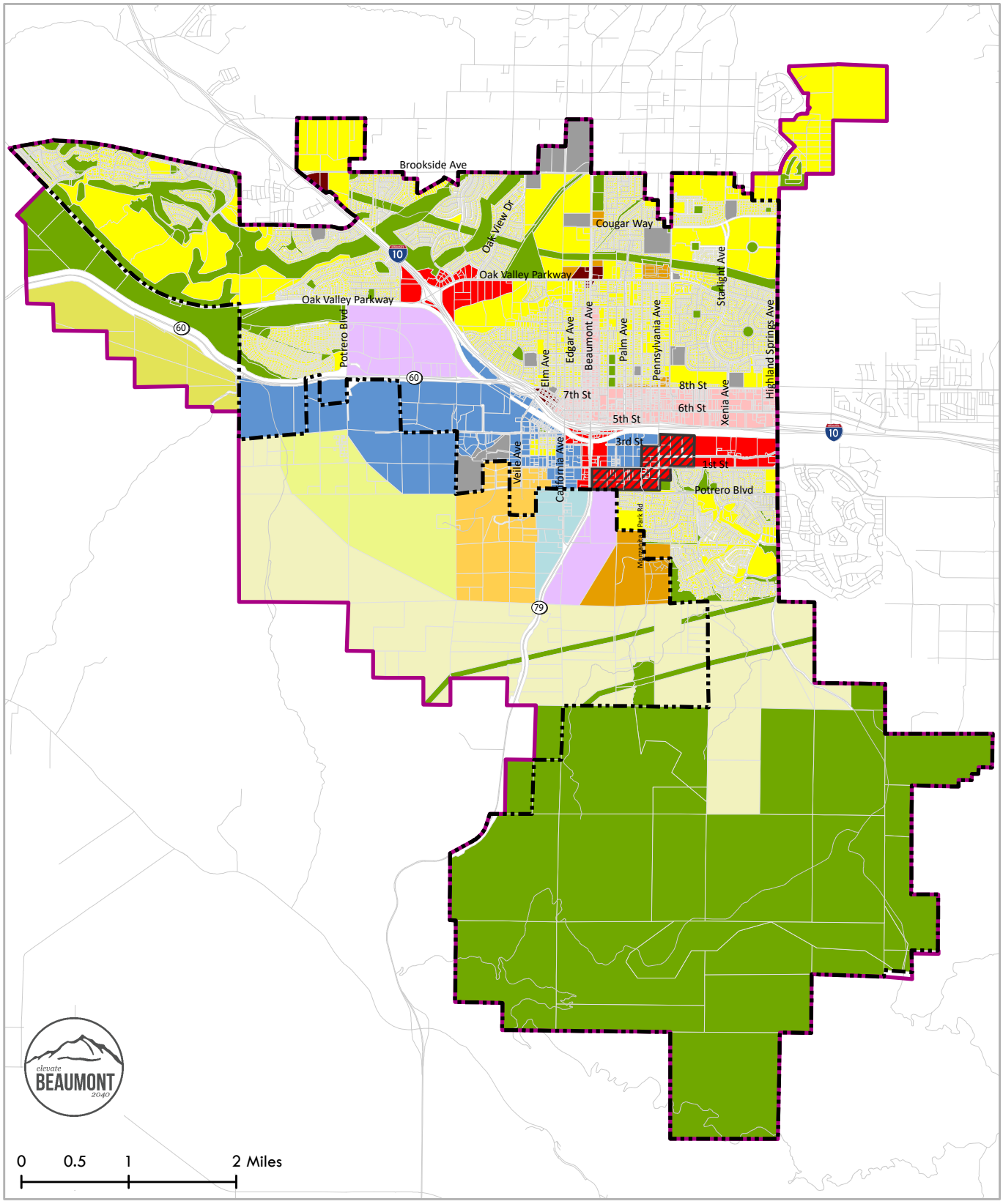
State and Federal Fund Sources

MPOs and local agencies are eligible to compete for discretionary transportation funds from various state and federal agencies. The proposed truck routing improvements would best compete for discretionary funding sources administered by USDOT or Caltrans. Many of the federal programs focus on capital grants with a minimum value of $1 million, whereas the state provides funding for smaller projects through funding authorizations such as SB1[16]. The City of Beaumont will need to coordinate with SCAG and RCTC to jointly pursue future state and federal funding opportunities as they become available.

[14] Riverside County Transportation Commission, *https://www.rctc.org/measure-a-provides-needed-local-support*
[15] Federal Highway Administration, https://www.fhwa.dot.gov/specialfunding/stp/
[16] California Transportation Commission, https://catc.ca.gov/-/media/ctc-media/documents/deputy-approved/guidelines/05052020-revised-final-adopted-2020-lpp-guidelines.pdf

Appendix

Appendix A. General Plan Land Use Designations



LAND USE DESIGNATIONS

- City Boundary
- Sphere of Influence
- TOD Overlay
- Open Space
- Employment District
- Industrial
- High Density Residential
- Traditional Neighborhood
- Single Family Residential
- Rural Residential 1
- Rural Residential 10
- Rural Residential 40
- Urban Village
- Downtown Mixed Use
- General Commercial
- Neighborhood Commercial
- Public Facilities

Table 3.3 Land Use Designations

LAND USE DESIGNATION	ZONING DISTRICT	DESCRIPTION	DENSITY/ INTENSITY
RESIDENTIAL DESIGNATIONS			
Rural Residential 40 (RR40)	RR	Single family detached homes on 40 acre lots in a rural mountainous setting	Minimum 40 acre lots
Rural Residential 10 (RR10)	Not within City Limits	Single family detached homes on 10 acre lots in a rural setting	Minimum 10 acre lots
Rural Residential 1 (RR1)	Per County Zoning	Single family detached homes on 1 acre lots in a hillside setting	Minimum 1 acre lots
Single Family Residential (SFR)	R-SF	Single-family residential (attached or detached) Neighborhood commercial in specified locations	Maximum 4 du/acre Maximum FAR 0.35
Traditional Neighborhood (TN)	R-TN	Single-family detached houses and small-scale multi-family housing Neighborhood commercial in specified locations	Average Density 6 du/ acre Maximum 12 du/acre Maximum FAR 0.35
High-Density Residential (HDR)	R-MF	Multi-family housing (townhomes, condominiums, apartments, etc.) Neighborhood commercial in specified locations	Minimum 12 du/acre Maximum 30 du/acre Maximum FAR 0.35
NON-RESIDENTIAL DESIGNATIONS			
Neighborhood Commercial (NC)	C-N	Range of neighborhood supportive retail and service-oriented land uses, including markets, restaurants, and similar uses to serve walk-in traffic.	FAR up to 1.0
General Commercial (GC)	C-C	Variety of "big box" and "large format" retailers in commercial shopping centers that serve adjacent neighborhoods.	FAR up to 0.75
Employment District (ED)	Not within City Limits	Employment uses for market-supported light industrial, research and development, creative office and maker space type uses.	FAR 0.5 to 1.0
Industrial (I)	M	Range of industrial uses, including "stand-alone" industrial activities, general and light industrial, research parks, private trade schools, colleges, and business parks.	FAR 0.25 to 0.75
MIXED-USE DESIGNATIONS			
Downtown Mixed Use (DMX)	See Chapter 11	Mixed-use buildings with active ground floor retail uses, upper level professional office, service activities in conjunction with multifamily residential uses and live/work units.	0-22 du/acre; FAR up to 0.5
Urban Village (UV)	UV	Variety of specialized land uses, including a regional serving commercial, higher density residential development, educational uses and abundant open space and recreation amenities.	12-24 du/acre; FAR up to 1.0
Transit Oriented District Overlay (TOD Overlay)	TOD Overlay	Residential and supportive employment and commercial uses near the future transit station.	18-30 du/acre; FAR up to 1.0
OTHER/ PUBLIC DESIGNATIONS			
Public Facilities (PF)	PF	Public and/or civic use, including Civic Center, city yard, libraries, and K-12 public schools.	FAR up to 1.0
Open Space (OS)	R-C	Passive and active parks, trails, golf courses, community centers, supportive maintenance sheds, etc.	n/a

Appendix B. City of Banning

CITY OF BANNING
GENERAL PLAN LAND USE & ZONING

Legend

General Plan & Zoning

- Specific Plan
- Specific Plan - Little Europe
- Specific Plan - Loma Linda
- Specific Plan - Pardee Butterfield
- Specific Plan - Rancho San Gorgonio
- Specific Plan - Sun Lakes
- Specific Plan - Sun Lakes North
- Airport Industrial
- Business Park
- Downtown Commercial
- General Commercial
- High Density Residential (11-18 du/ac)
- High Density Residential-20/Affordable Housing Opportunity (20-24 du/ac)
- Highway Serving Commercial
- Industrial
- Industrial-Mineral Resources
- Low Density Residential (0-5 du/ac)
- Medium Density Residential (0-10 du/ac)
- Mobile Home Parks
- Open Space - Hillside Preservation
- Open Space - Parks
- Open Space - Resources
- Professional Office
- Public Facilities - Airport
- Public Facilities - Cemetery
- Public Facilities - Fire Station
- Public Facilities - Government
- Public Facilities - Hospital
- Public Facilities - School
- Public Facilities - Railroad/Interstate
- Ranch/Agriculture (10 ac min.)
- Ranch/Agriculture - Hillside (10 ac min.)
- Rural Residential (0-1 du/ac)
- Rural Residential - Hillside (0-1 du/ac)
- Very Low Density Residential (0-2 du/ac)

Banning City Boundary

BLUFF ST
GRAND AVE
CHERRY VALLEY BLVD
BROOKSIDE AVE
HIGHLAND SPRINGS AVE
SUNSET AVE
GILMAN ST
BLUFF ST
INDIAN SCHOOL LN
MORONGO RD
COTTONWOOD RD
8TH ST
6TH ST
1ST ST
WILSON ST
HIGHLAND HOME RD
SUNRISE AVE
16TH ST
8TH ST
SAN GORGONIO AVE
WILSON ST
BLANCHARD ST
RAMSEY ST
SUNSET AVE
22ND ST
RAMSEY ST
HIGHLAND SPRINGS AVE
SUNLAKES BLVD
LINCOLN ST
HARGRAVE ST
LINCOLN ST
WESTWARD AVE
HATHAWAY ST
WESLEY ST

N
W E
S

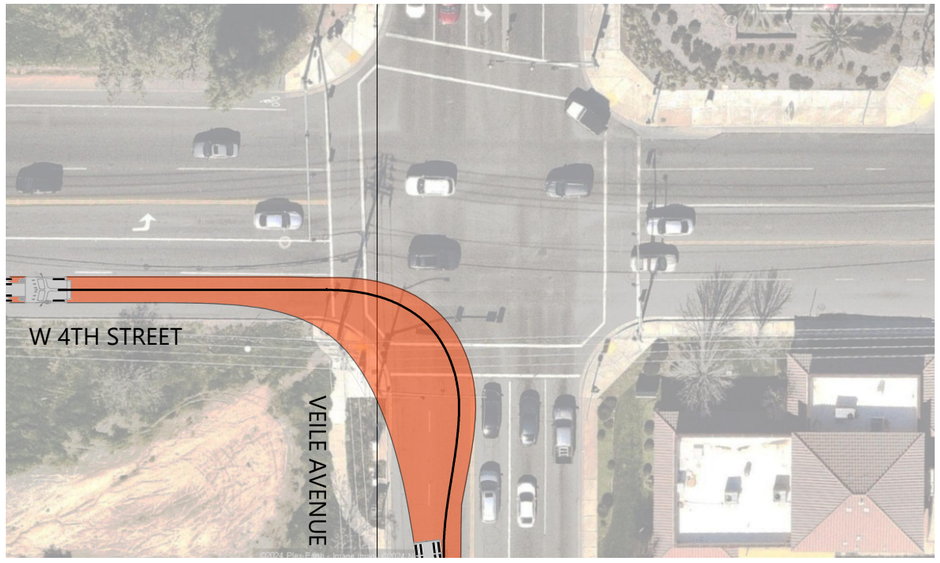
0 1,000 2,000 3,000 4,000 5,000
Feet

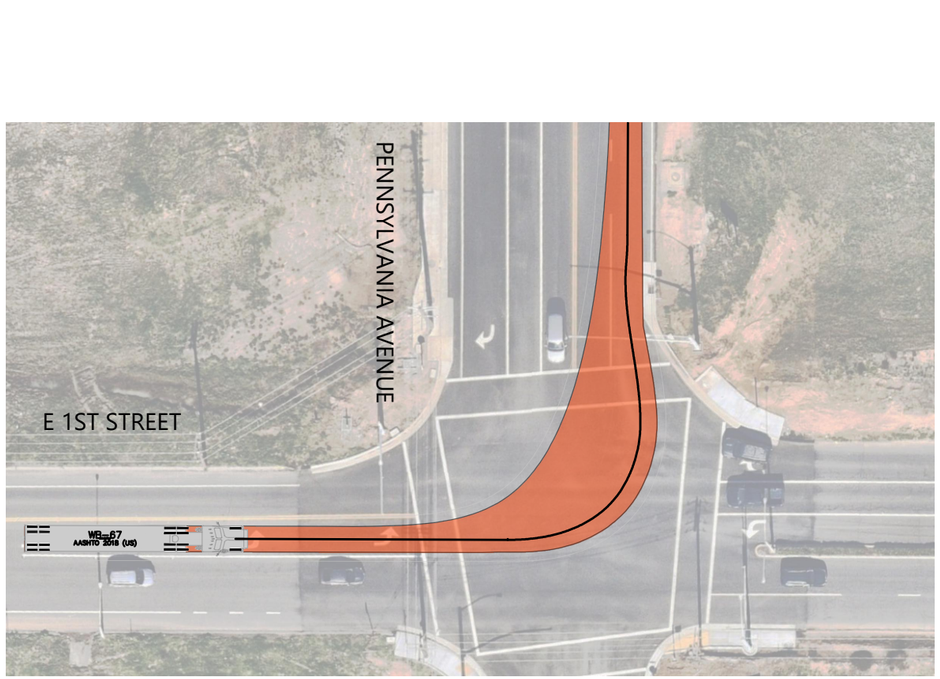
WILLDAN Engineering | extending your reach

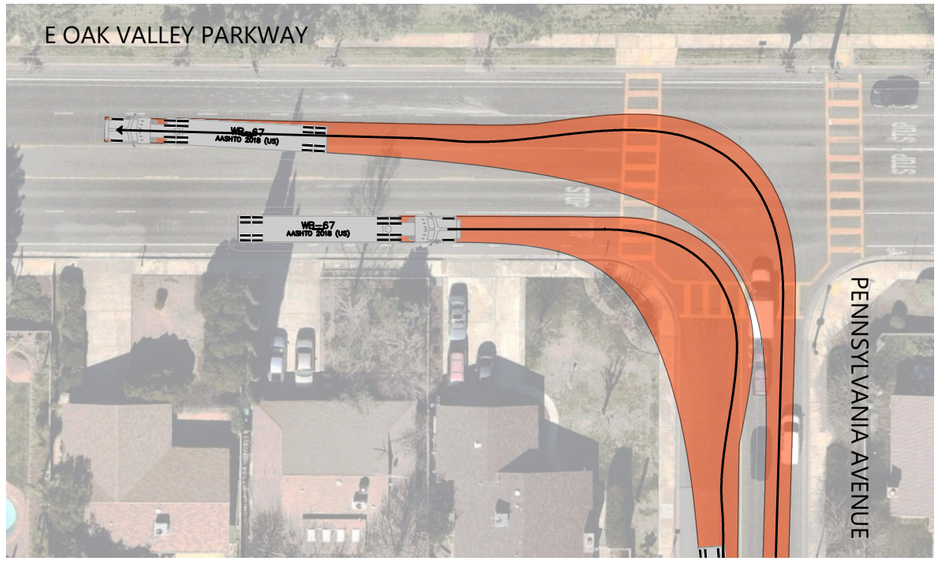
6/14/2021

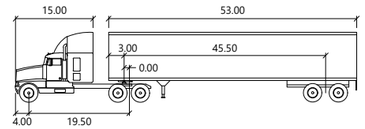
Appendix C. Riverside County

Appendix D. Truck Turning Exhibits









WB-67

feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		

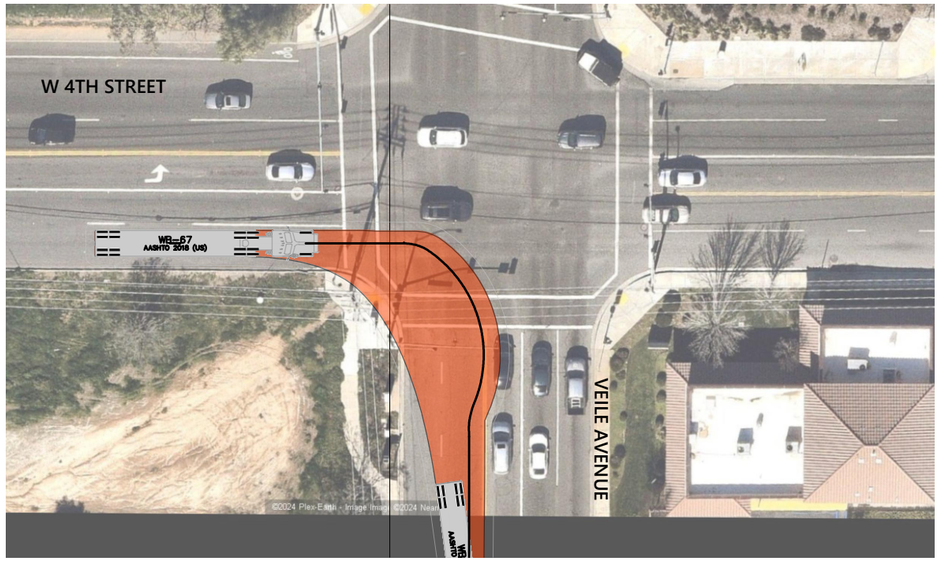
N

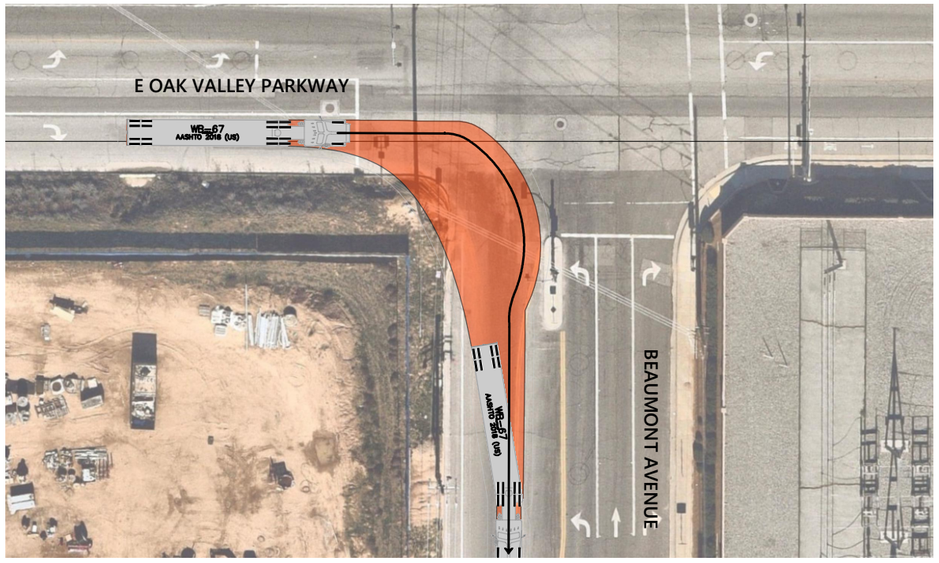
1:50

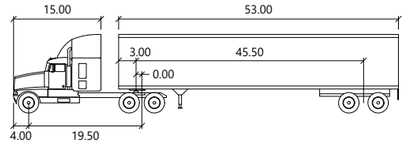
Figure 1

City of Beaumont
Truck Routes: Select Turning Movements
WB-67 Design Vehicle

CONCEPTUAL - NOT FOR CONSTRUCTION. ADDITIONAL
DETAILED ANALYSIS AND ENGINEERING DESIGN REQUIRED.



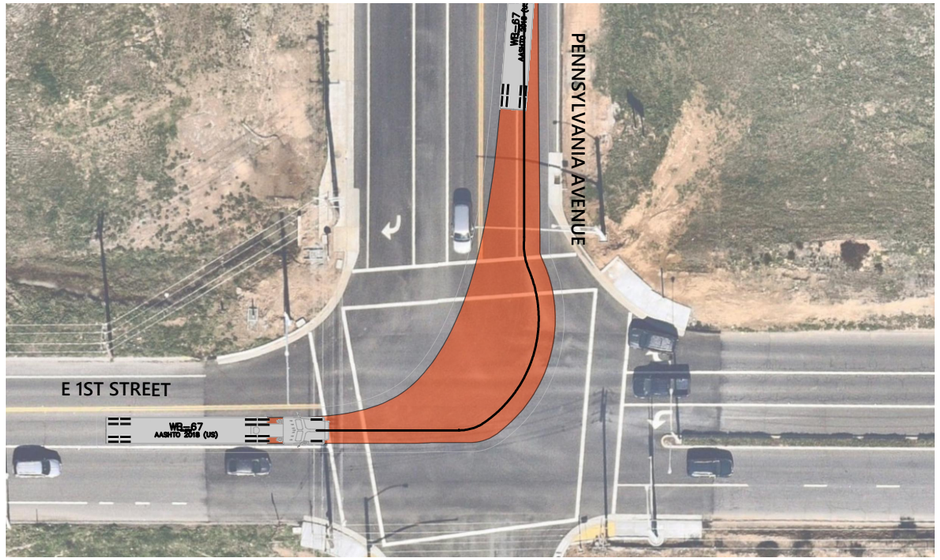


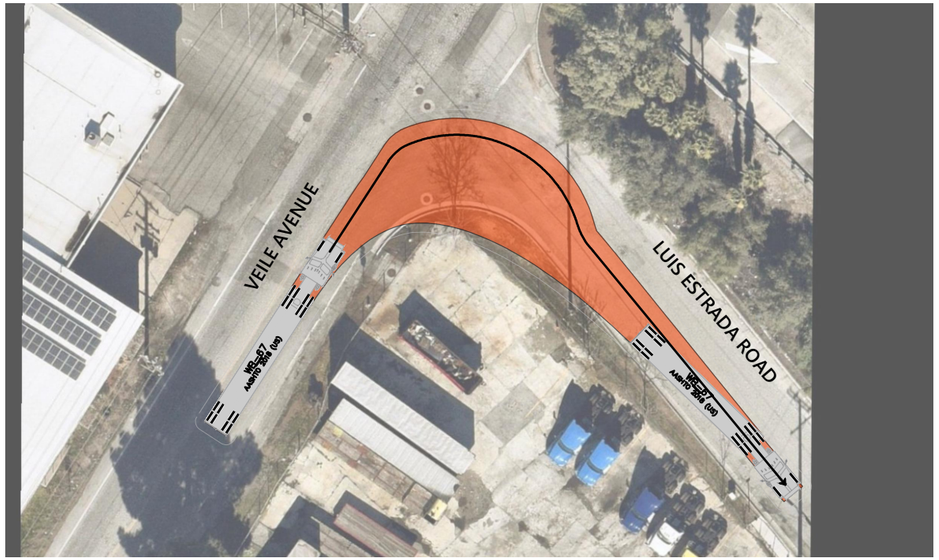


WB-67

feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		



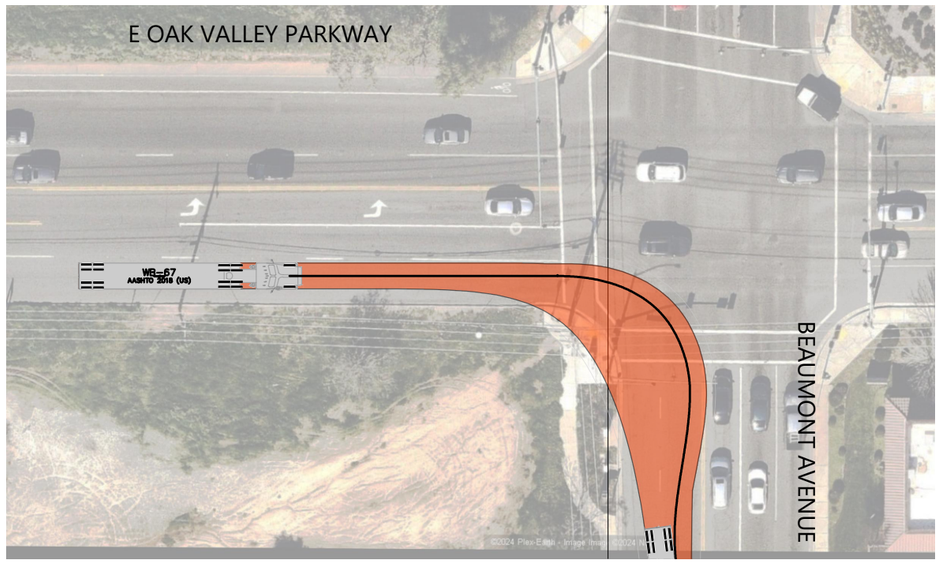


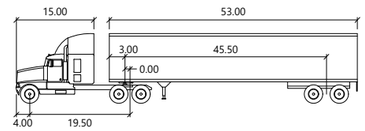
N
1:50

Figure 1

City of Beaumont
Truck Routes: Select Turning Movements
WB-67 Design Vehicle

CONCEPTUAL - NOT FOR CONSTRUCTION. ADDITIONAL
DETAILED ANALYSIS AND ENGINEERING DESIGN REQUIRED.





WB-67

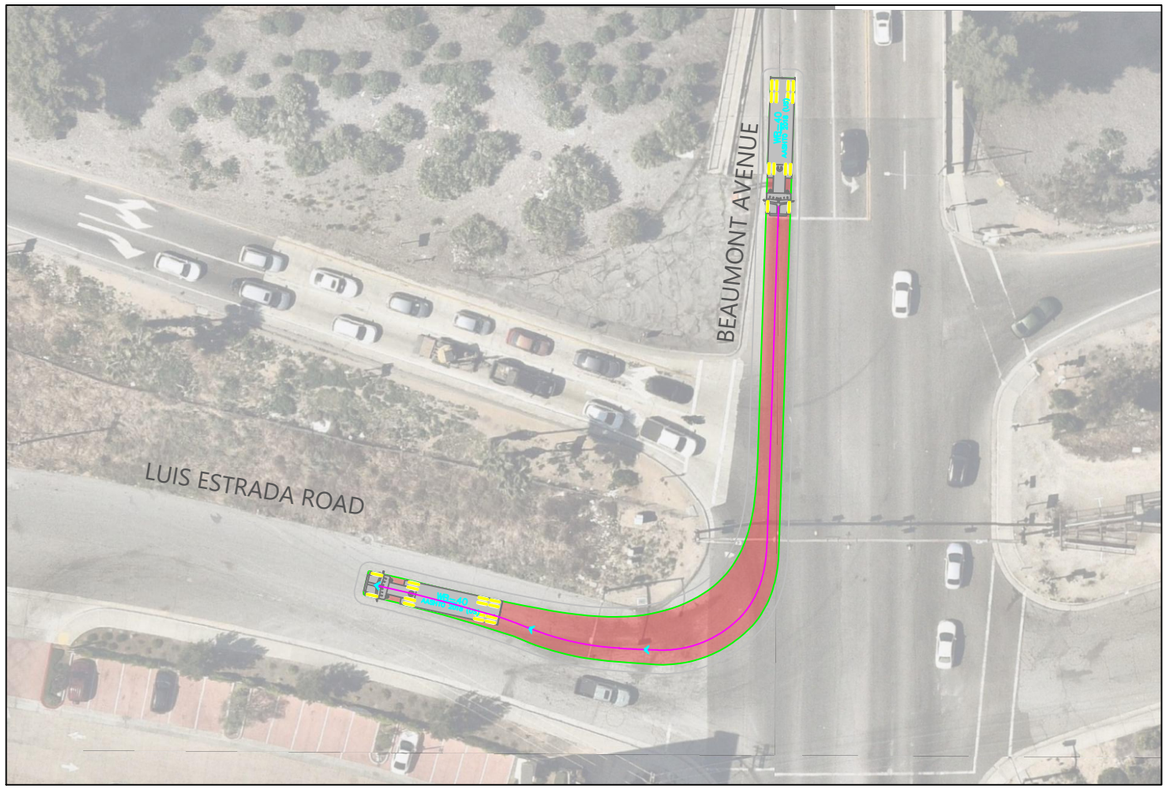
feet			
Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.50	Steering Angle	: 28.4
Tractor Track	: 8.00	Articulating Angle	: 75.0
Trailer Track	: 8.50		

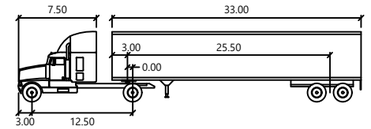
N
1:50

Figure 2

City of Beaumont
Truck Routes: Select Turning Movements
WB-67 Design Vehicle

CONCEPTUAL - NOT FOR CONSTRUCTION. ADDITIONAL
DETAILED ANALYSIS AND ENGINEERING DESIGN REQUIRED.





WB-40

feet

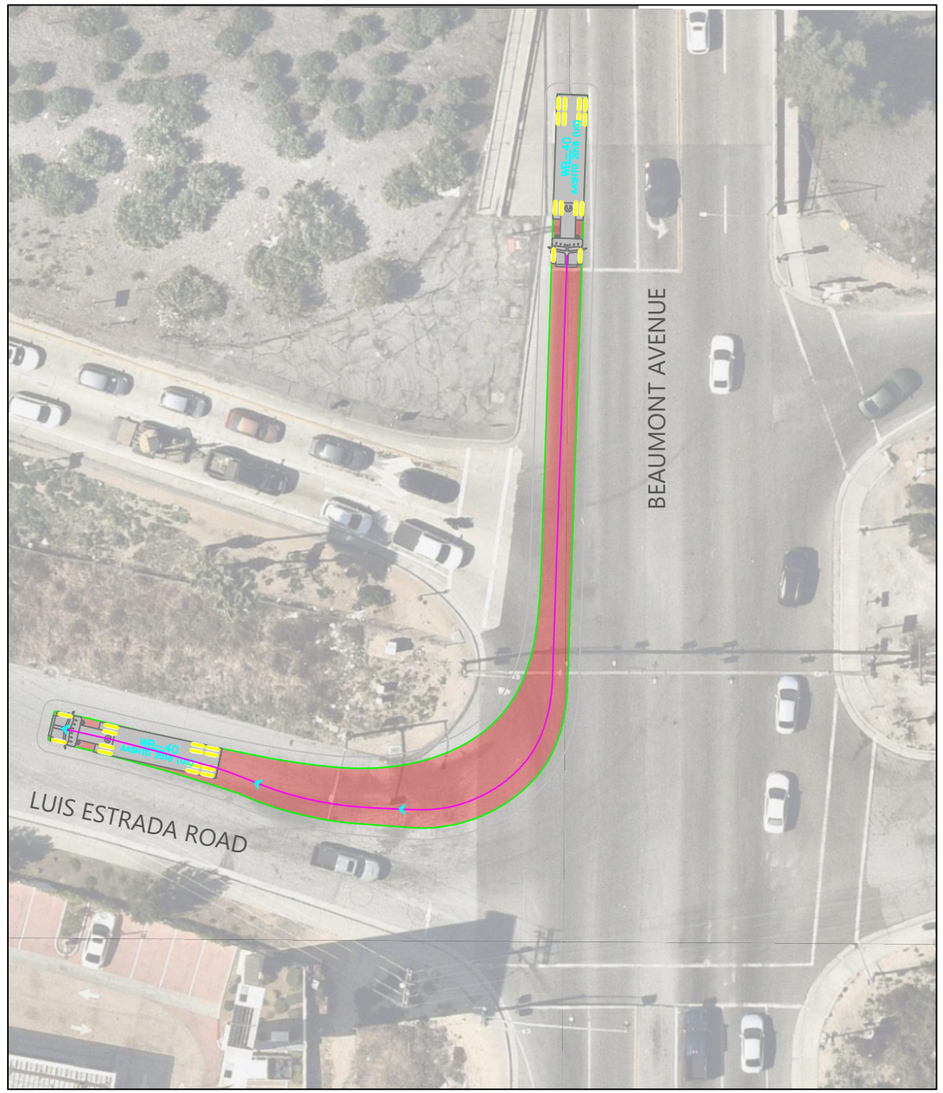
Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.00	Steering Angle	: 20.3
Tractor Track	: 8.00	Articulating Angle	: 70.0
Trailer Track	: 8.00		

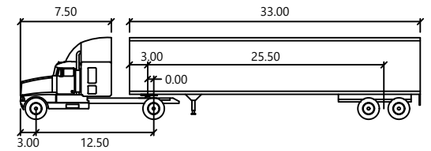
N
1:50

Figure 9

City of Beaumont
Truck Routes: Select Turning Movements
WB-67 Design Vehicle

CONCEPTUAL - NOT FOR CONSTRUCTION. ADDITIONAL
DETAILED ANALYSIS AND ENGINEERING DESIGN REQUIRED.





WB-40

feet

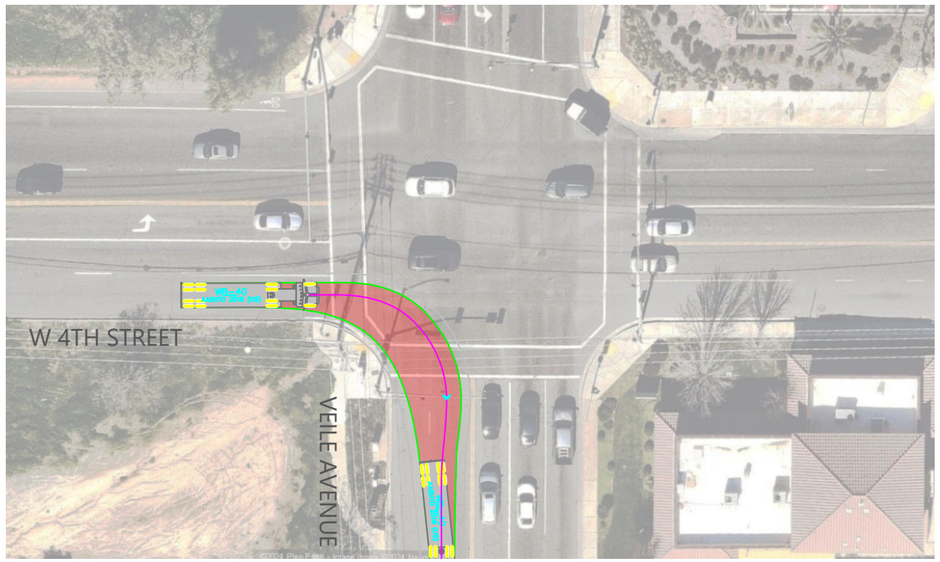
Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.00	Steering Angle	: 20.3
Tractor Track	: 8.00	Articulating Angle	: 70.0
Trailer Track	: 8.00		

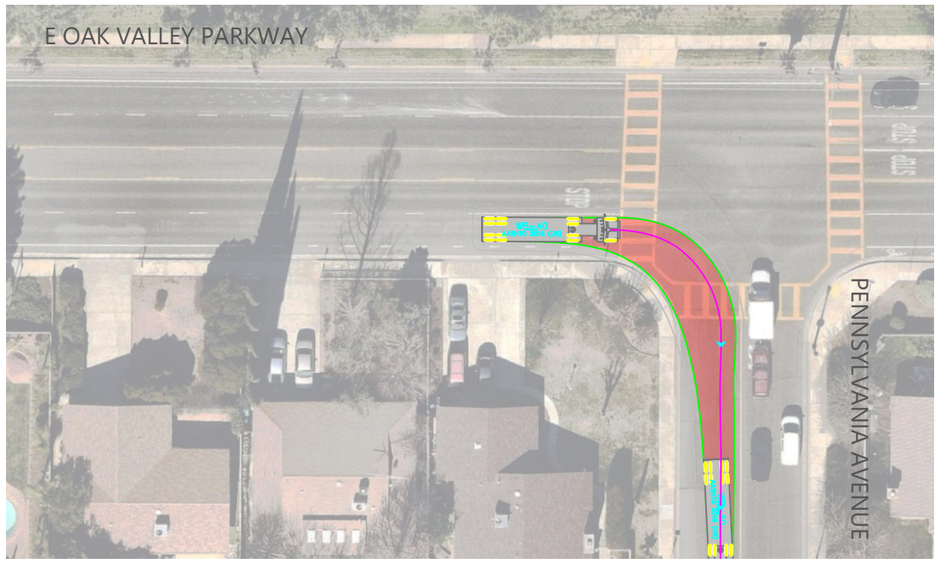
N
1:50

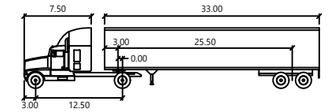
Figure 8

City of Beaumont
Truck Routes: Select Turning Movements
WB-67 Design Vehicle

CONCEPTUAL - NOT FOR CONSTRUCTION. ADDITIONAL
DETAILED ANALYSIS AND ENGINEERING DESIGN REQUIRED.







WB-40

feet

Tractor Width	: 8.00	Lock to Lock Time	: 6.0
Trailer Width	: 8.00	Steering Angle	: 20.3
Tractor Track	: 8.00	Articulating Angle	: 70.0
Trailer Track	: 8.00		

N
1:50

Figure 7

City of Beaumont
Truck Routes: Select Turning Movements
WB-67 Design Vehicle

CONCEPTUAL - NOT FOR CONSTRUCTION. ADDITIONAL
DETAILED ANALYSIS AND ENGINEERING DESIGN REQUIRED.