3.11 TRANSPORTATION

This section evaluates the potential transportation impacts associated with implementation of the Master Plan Update. This section presents the applicable regulatory setting, environmental setting, methodology for determining potential impacts, analysis of the potential transportation impacts resulting from implementation of the Master Plan Update, proposed measures to mitigate any significant or potentially significant impacts if such impacts are identified, and an analysis of potential cumulative impacts. Consistent with CEQA Guidelines, impacts associated with bicycle, pedestrian, and transit facilities; the generation of vehicle miles traveled (VMT); transportation hazards; and emergency access are evaluated as part of this analysis.

Public and agency comments related to transportation received during the public scoping period in response to the Notice of Preparation (NOP) address the project's potential to increase VMT, conflict with adopted plans or policies, potential to increase hazards, or impact emergency access. Comments identify locations for potential review of safety conditions and encourage the use of transportation demand management measures to mitigate potential project impacts should those impacts be found significant, access for campus users and local residents, conditions for people who walk/bike/scooter on campus, and parking conditions on campus and in adjacent neighborhoods. For a complete list of public comments received during the public scoping period, refer to Appendix A.

3.11.1 Regulatory Setting

Federal

Americans with Disabilities Act

Titles I, II, III, and IV of the Americans with Disabilities Act (ADA) have been codified in title 42 of the United States Code, beginning at section 12101. Title III prohibits discrimination based on disability in "places of public accommodation" (businesses and non-profit agencies that serve the public) and "commercial facilities" (other businesses). The regulation includes Appendix A to Part 36 (Standards for Accessible Design), establishing minimum standards for ensuring accessibility when designing and constructing a new facility or altering an existing facility. The ADA requires public transit operators to meet its requirements. Transit facilities, intermodal centers, rail stations, and platforms must meet accessibility standards as set by the U.S Department of Transportation (USDOT). Accessibility standards regulate paths of travel, bus stops and shelters, curb ramps, grade crossings, parking areas, passenger drop-off areas, platform edges, etc.

State

Senate Bill 743

SB 743, adopted in 2013 and effective as of July 2020, required the Governor's Office of Planning and Research (OPR) to develop new State CEQA guidelines addressing transportation impact metrics under CEQA. As stated in the legislation, upon adoption of the new guidelines, "automobile delay, as described solely by LOS (level of service) or similar measures of vehicular capacity or traffic congestion shall not be considered a significant impact on the environment pursuant to this division, except in locations specifically identified in the guidelines, if any."

In the amended CEQA Guidelines, OPR selected VMT as the preferred transportation impact metric and applied their discretion to recommend its use statewide. The California Natural Resources Agency certified and adopted the amended CEQA Guidelines in December 2018. The amended CEQA Guidelines state that "generally, VMT is the most appropriate measure of transportation impacts" and the provisions requiring the use of VMT apply statewide as of July 1,

2020. The adoption of VMT as the appropriate metric of transportation impacts reflects the stated intent of the legislation to "promote the reduction of greenhouse gas emissions, the development of multimodal networks, and a diversity of land uses." Use of LOS alone as an impact criterion can result in many unintended consequences such as more sprawl, less walkability, more vehicle travel, and inefficient public transit. Use of VMT as am impact analysis metric helps to provide a more complete perspective of the potential effects of land use and transportation decisions.

The *Technical Advisory on Evaluating Transportation Impacts in CEQA*[1] (Technical Advisory) provides advice and recommendations to CEQA lead agencies on how to implement SB 743. This includes technical recommendations regarding the assessment of VMT, thresholds of significance, VMT mitigation measures, and screening thresholds for certain land use projects. Lead agencies may consider and use these recommendations at their discretion.

The Technical Advisory also provides guidance on impacts on transit. Specifically, the Technical Advisory suggests that lead agencies generally should not treat the addition of new transit users as an adverse impact. As an example, the Technical Advisory suggests that "an infill development may add riders to transit systems and the additional boarding and alighting may slow transit vehicles, but it also adds destinations, improving proximity and accessibility. Such development also improves regional vehicle flow by adding less vehicle travel onto the regional network."

California Department of Transportation

The California Department of Transportation (Caltrans) is the state agency responsible for the design, construction, maintenance, and operation of the California State Highway System, as well as the segments of the Interstate Highway System that lie within California. Caltrans District 7 is responsible for the operation and maintenance of State Route 22 (SR-22) and Interstate 405 (I-405) in the study area. As part of these responsibilities, Caltrans reviews local development projects subject to CEQA to assess potential impacts on the State Highway System based on technical guidance from the Caltrans Vehicle Miles Traveled-Focused Transportation Impact Study Guide and the *Traffic Safety Bulletin 20-02-R1: Interim Local Development Intergovernmental Review Safety Review Practitioners Guidance*.

Vehicle Miles Traveled-Focused Transportation Impact Study Guide

The VMT Transportation Impact Study Guide outlines how Caltrans will review land use projects with a focus on supporting state land use goals, state planning priorities, and greenhouse gas (GHG) emissions reduction goals. The VMT Transportation Impact Study Guide endorses the *Technical Advisory on Evaluating Transportation Impacts in CEQA*. The Technical Advisory serves as the basis for transportation impact analysis methodology and thresholds including the use of screening to streamline qualified projects because they help achieve the state's VMT/GHG reduction and mode shift goals.

California Department of Transportation Safety Impact Guidance

The Caltrans Safety Impact Guidance provides technical instructions on how to evaluate potential safety impacts on the State Highway System. This guidance largely focuses on the actions of Caltrans district staff in performing the analysis and providing relevant impact information to lead agencies. The interim guidance recommends that safety analyses include a review of three primary elements related to transportation safety: design standard compliance, collision history,

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

and collision risk (consistent with the Federal Highway Administration's Systemic Approach to Safety). The interim guidance does not establish specific analysis methods or significance thresholds for determining safety impacts under CEQA. Additionally, Caltrans notes that local agencies may use the interim guidance at their own discretion as a guide for review of local facilities.

Complete Streets Directive

Caltrans enacted *Complete Streets: Integrating the Transportation System* (Complete Streets Directive) in October 2008, which required cities to plan for a "balanced, multimodal transportation network that meets the needs of all users of streets." A complete street is a transportation facility that is planned, designed, operated, and maintained to provide safe mobility for all users, including bicyclists, pedestrians, transit vehicles, trucks, and motorists, appropriate to the function and context of the facility. Every complete street looks different, according to its context, community preferences, the types of road users, and their needs.

Assembly Bill 1358, The Complete Streets Act

Assembly Bill 1358, the Complete Streets Act (Government Code Sections 65040.2 and 65302), was signed into law by Governor Arnold Schwarzenegger in September 2008. As of January 1, 2011, the law requires cities and counties, when updating the part of a local general plan that addresses roadways and traffic flows, to ensure that those plans account for the needs of all roadway users. Specifically, the legislation requires cities and counties to ensure that local roads and streets adequately accommodate the needs of bicyclists, pedestrians, and transit riders, as well as motorists.

At the same time, Caltrans, which administers transportation programming for the State, unveiled a revised version of Deputy Directive 64 (DD-64-R1 October 2008), an internal policy document that explicitly embraces Complete Streets as the policy covering all phases of state highway projects, from planning to construction to maintenance and repair.

Senate Bill 375

Senate Bill (SB) 375 requires metropolitan planning organizations to prepare a sustainable communities strategy (SCS) as part of their regional transportation plans (RTP). The SCS demonstrates how the region could meet its GHG reduction targets through integrated land use, housing, and transportation planning. Specifically, the SCS must identify land use and transportation strategies that combined with the RTP project list will reduce GHG emissions from automobiles and light trucks in accordance with targets set by the California Air Resources Board (CARB).

California State University

California State University Transportation Impact Study Manual

In response to SB 743, the California State University (CSU) Office of the Chancellor prepared the *California State University Transportation Impact Study Manual*, January 2020. The CSU Transportation Impact Study Manual (TISM) provides guidance for the preparation of CEQA-compliant transportation impact analysis pursuant to SB 743 and is the operative TISM for the analysis presented in this document. The CSU TISM addresses methodology and threshold expectations for transportation impacts related to VMT, transit, bicycles, pedestrians, safety, and emergency access.

California State University Office of Fire Safety

Within the CSU Office of the Chancellor, the Office of Fire Safety is authorized to enforce all fire and panic safety provisions in the California Code of Regulations (CCR) as adopted by the Office of the State Fire Marshal (OSFM).[2,3] CCR Health and Safety Code Sections 13108 and 13146 authorize the OSFM to enforce fire and life safety provisions in the following areas:

- Plan review and approval, permitting and subsequent construction inspections of all new construction, remodel, renovation, and tenant improvement projects on/in state-owned, -leased, or -operated properties (CCR Title 24)
- Inspection of existing state-owned, -leased or -operated properties for compliance with all applicable fire and panic safety regulations (CCR Title 19)
- Investigation of origin and cause of fires/explosions in state-owned, -leased, or -operated facilities (CCR Title 19)

A Memorandum of Understanding between the CSU and the OSFM will incrementally grant Office of Fire Safety personnel responsibility to exercise enforcement for plan review and approval and subsequent construction inspections on behalf of the OSFM and in accordance with CSU policies.[4]

The California State University Owner Controlled Insurance Program Safety Manual

The CSU Owner Controlled Insurance Program Safety Manual (OCIP Safety Manual) includes standard construction management BMPs applicable to development projects on CSU property. The BMPs listed in the OCIP Safety Manual are implemented by the construction contractor and each project requires a written safety program that meets or exceeds all applicable state, county, and city laws, statutes, regulations, codes, ordinances, and order of those agencies with jurisdiction over the construction activities.[5] The OCIP Safety Manual states that worksite traffic controls must conform to the requirements published in the Caltrans California Manual on Uniform Traffic Control Devices (CA MUTCD).[6]

Regional

Southern California Association of Governments 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy

The Southern California Association of Governments (SCAG) is the designated Municipal Planning Organization (MPO) for six Southern California counties (Los Angeles, Ventura, Orange, San Bernardino, Riverside, and Imperial), and is federally mandated to develop plans for regional transportation, land use and growth management, and air quality. Long Beach is one of many local and regional jurisdictions comprising SCAG. The Regional Transportation Plan (RTP),

2 The California State University, Doing Business with the CSU: Capital Planning, Design, and Construction: Permitting and Review, available at : https://www.calstate.edu/csu-system/doing-business-with-the-csu/capital-planning-design-construction/operations-center/Pages/permitting-and-review.aspx, accessed March 15, 2023.

3 CAL FIRE, June 2022, *Memorandum of Understanding Between CAL FIRE - Office of the State Fire Marshal and The Board of Trustees of the California State University Designated Campus Fire Marshal Program*.

4 The California State University, PolicyStat, Section XI: Project Plan Development for Major Capital Construction Projects, Section 9232, Building Code Enforcement, available at: https://calstate.policystat.com/policy/6654819/latest#autoid-x65bw, accessed July 15, 2022.

5 The California State University, May 2016, *The California State University Owner Controlled Insurance Program Safety Manual*.

6 Ibid.

Regional Comprehensive Plan, and Compass Growth Vision Report identify the transportation priorities for the Southern California region. The policies and goals of the RTP, Regional Comprehensive Plan, and Compass Growth Vision Report focus on the need to coordinate land use and transportation decisions to manage travel demand.

SCAG updates its long-range (i.e., minimum 20 years) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) every four years, per federal law (Title 23 United States Code Section 134 et seq., Title 49, United States Code Section 5303 et seq., and Title 23, Code of Federal Regulations Section 450 et seq.) and state law (SB 375). SCAG's 2020-2045 RTP/SCS, also known as "Connect SoCal", was adopted in May 2020 for federal transportation conformity purposes; the plan in its entirety was formally adopted in September 2020.

The SCS is a required element of the RTP that provides a plan for meeting GHG emissions reduction targets set forth by the California Air Resources Board (CARB). It provides growth forecasts that are used in the development of air quality-related land use and transportation control strategies by the south coast air quality management district (SCAGMD). CARB has determined SCAG's reduction target for per capita vehicular emissions to be 8 percent by 2020 and 19 percent by 2035 relative to the 2005 baseline. Successfully meeting these targets will require substantial effort to reduce VMT. The 2020-2045 RTP/SCS calls for investing $635 billion over the 25-year term of the plan toward over 4,000 transportation projects, which collectively are expected to result in a 5 percent reduction in daily VMT per capita and a more than 25 percent decrease in traffic delay per capita. Investments will focus on maintaining and better managing the existing transportation network, expanding mobility choices, and increasing investment in transit and complete streets.

Of the ten goals presented in the 2020-2045 RTP/SCS, the following five are applicable to transportation:

- Goal #2: Improve mobility, accessibility, reliability, and travel safety for people and goods.
- Goal #3: Enhance the preservation, security, and resilience of the regional transportation system.
- Goal #4: Increase person and goods movement and travel choices within the transportation system.
- Goal #7: Adapt to a changing climate and support an integrated regional development pattern and transportation network.
- Goal #8: Leverage new transportation technologies and data-driven solutions that result in more efficient travel.

Local

CSULB is an entity of the CSU, a state agency, and the campus is state-owned property; therefore, development on the campus is not subject to local policies, regulations, or ordinances governing transportation. Nonetheless, the City's regulations pertinent to transportation are described below for informational purposes only, and not as the basis for the determination of significant impact for purposes of CEQA. Some of the proposed circulation and mobility improvements could, if ultimately implemented, occur on roadways under the City of Long Beach jurisdiction. Therefore, the following City of Long Beach policies and standards would apply to those improvements.

The City of Long Beach General Plan

The Long Beach General Plan (adopted May 2013, as amended) establishes the goals, policies, and directions the City will take to achieve the vision of the community and guide the future development of the City. Select expectations related to CEQA transportation impact analysis for transit, active transportation, and safety that are relevant to this analysis are listed below.

- LU Policy 1-1: Promote sustainable development patterns and development intensities that use land efficiently and accommodate walking.
- LU Policy 5-1: Require safe, attractive and environmentally-sustainable design, construction and operation of all buildings, landscapes and parking facilities in employment and educational centers.
- LU Policy 18-2: Enhance street corridors and spaces between buildings by incorporating small green areas, native and drought-tolerant landscaping and street trees.
- LU Policy 5-2: Connect employment and higher education centers to other activity centers and adjacent neighborhoods via walking, biking and transit routes.
- LU Policy 5-3: Require employment and higher education centers to transition to walkable and bikeable campus environments with wayfinding signage, integrated open spaces and easy accessibility via roadways, transit and bicycle routes.
- LU Policy 5-4: Provide excellent transit connections to California State University at Long Beach, City colleges and all major employment and educational campuses.
- LU Policy 7-6: Promote transit-oriented development around passenger rail stations and along major transit corridors.
- LU Policy 7-11: Support infill and transit-oriented development projects by utilizing available tools, such as public-private partnerships and assistance with land assembly and consolidation.

The City of Long Beach Design Standards

The City of Long Beach maintains design standards for the transportation network related to engineering and planning. These standards are compiled in the City of Long Beach Residential Development Standards[7] and the City of Long Beach Engineering Standard Plans.[8] The design standards are used to construct a transportation network that has consistent features. This consistency provides common expectations for users to minimize potential conflicts and to establish clear right-of-way practices.

The City of Long Beach Bicycle Master Plan

The City of Long Beach Bicycle Master Plan (2016) aims to create an environment that is active, healthy, and prosperous place to live, work, and play. The Plan expands upon the Mobility Element of the Long Beach General Plan by providing further details on bicycle planning and design. Developing this system is expected to increase travel choices that contribute to active lifestyles that produce public health and environmental benefits. Policy and planned improvement

[7] City of Long Beach Development Services Department, Chapter 21.64 Transportation Demand and Trip Reduction Measures, available at: https://www.longbeach.gov/lbds/planning/current/zoning/residential-development-standards/, accessed March 15, 2023.

[8] City of Long Beach Public Works Department, City of Long Beach Engineering Standard Plan, available at: https://longbeach.gov/pw/resources/standard-plans/, accessed March 15, 2023.

expectations relevant to this transportation impact analysis are listed below.

- Goal #1: Design bicycle facilities that are accessible and comfortable for people of all ages and abilities
  - Strategy 1: Develop a comprehensive bikeway network
  - Strategy 2: Implement citywide bicycle support facilities
  - Strategy 3: Develop a multimodal transportation network that provides for local and regional mobility to meet the challenges of climate change
- Goal #2: Increase awareness and support of bicycling through programs and social equity
  - Strategy 4: Increase awareness of bicycle safety practices
  - Strategy 5: Strive for social equity
  - Strategy 6: Promote bicycle riding as a fun and easy way to travel
- Goal #3: Identify, develop, and maintain a complete and convenient bicycle network
  - Strategy 7: Identify and pursue all potential funding sources for bicycle enhancements funding
  - Strategy 8: Enhance standard operating practices for bicycle facility maintenance
  - Strategy 9: Conduct ongoing planning and evaluation for bicycle facilities

Long Beach Vision Zero

The City of Long Beach's City Council utilizes the Vision Zero traffic safety approach, approved in 2016 and local initiatives led by Safe Streets Long Beach to address roadways and pedestrian networks. Safe Streets Long Beach uses a process of data collection to mitigate traffic fatalities while promoting safe and healthy mobility for all community members. The transportation network is designed and built to comply with engineering design standards that provide common expectations to users to minimize conflicts and the potential for collisions. Traffic enforcement and education reinforce traveler expectations while emergency services respond to collisions and other safety calls.

- Goal #1: Dedicating Resources to Vision Zero Actions: Addressing the real costs of human life as a result of traffic fatalities and serious injuries. Allocating additional City resources to prevent fatal and serious collisions will save human lives and makes financial sense.
- Goal #2: Building Safe Streets: Designing streets to promote safe interactions between all road users and to minimize the severity of collisions when they do occur is paramount to achieving Long Beach's Vision Zero goal. The City of Long Beach is committed to building and operating streets that are safe for all-regardless of age, ability, or mode of transportation.
- Goal #3: Improving Data and Transparency: Collision data informed the actions this plan and will continue to play an important role in crafting effective strategies to eliminate traffic fatalities and serious injuries. The more complete and accurate the data is, the better we can respond, track, and communicate our progress.
- Goal #4: Promoting a Safety Culture: We must all contribute to a safety culture that values human life over expediency and empathy over self-interest. Everyone must think about their role in contributing to a safe transportation system.

- Goal #5: Enhancing Processes and Partnerships: There are many entities that affect and are impacted by the transportation system. This complexity demands a coordinated approach to ensure that all voices and interests are considered and that we are fully leveraging partnerships with local and regional organizations and agencies, as well as forge new ones. The City will also reexamine its own processes and identify needed changes for a more coordinated and effective approach to road safety.
- Goal #6: Equity: We will prioritize infrastructure investments in disadvantaged communities and where people are disproportionately impacted by traffic collisions. Furthermore, we will ensure that enforcement efforts, which are an important component of Vision Zero, do not have unintended consequences in low-income communities or communities of color.

3.11.2 Environmental Setting

This section describes the existing environmental setting, which is the baseline scenario upon which project-specific impacts are evaluated. The environmental setting for transportation includes baseline descriptions for roadway, transit, bicycle, and pedestrian facilities.

Roadway System

The roadway system in the vicinity of CSULB is shown in Figure 2-2 in Chapter 2, Project Description, and described below:

- Bellflower Boulevard: A north-south arterial providing access to I-405 to the north and the Pacific Coast Highway to the south. Bellflower Boulevard has five travel lanes, with a median turn lane and several segments providing on-street parking on one or both sides of the street near CSULB. Bellflower Boulevard also includes a bikeway on both sides of the street that includes a painted buffer and vertical separation through a combination of plastic bollards and parked cars. Approaching and departing intersections the protected bike lane shifts to a shared lane, with some intersections including green skip striping for mixing zones.
- Palo Verde Avenue: A north-south arterial providing access to I-405 to the north. It provides four travel lanes, with on-street parking, median turn lanes, and bike lanes on both sides of the street near campus. South of Atherton Street, Palo Verde Avenue provides access to CSULB Parking Structures 2 and 3, each of which provide approximately 1,300 parking spaces in the north campus.
- Studebaker Road: A north-south arterial providing access to I-405 northbound to the north with interchanges serving vehicles traveling to/from the north on I-405 and providing access to/from SR-22 to the south. Studebaker Road has four travel lanes in the vicinity of CSULB with limited on-street parking that is typically found along the Studebaker Road frontage road.
- Atherton Street: An east-west roadway that serves as the University's northern border and providing access to the north campus. Atherton Street has four travel lanes, alternating buffered and standard bike lanes, a raised median with turn lanes at intersections, and limited on-street parking in the vicinity of CSULB.
- 7th Street: An east-west roadway that serves as the University's southern border, providing access to the south campus. This roadway has six travel lanes, bike lanes west of West Campus Drive (the eastbound bike lanes drop between West Campus Drive and East Campus Drive), and no on-street parking. Most of 7th Street along the CSULB frontage includes a raised median with turn lanes at intersections (there is a minor

segment with a painted median between West Campus Drive and East Campus Drive). In the vicinity of CSULB, 7th Street is designated as State Route 22 (SR-22) and provides regional access to the east via the Garden Grove Freeway (SR-22), the north and south via the San Diego Freeway (I-405), and to the north via the San Gabriel River Freeway (I-605).

- Anaheim Road: An east-west roadway providing access to the center of the university's main campus to/from the east and ends at the San Gabriel River (on-campus this becomes State University Drive). This roadway has four travel lanes and no on-street parking. Most of Anaheim Road is fronted by residential land uses. East of CSULB, this street connects with Palo Verde Avenue and Studebaker Road.
- Pacific Coast Highway (PCH): A northwest-southeast arterial southwest of campus providing local and regional access. PCH has five to six travel lanes, with a median turn lane. The five-lane segment north of 7th Street includes on-street vehicle parking and bike lanes. In the vicinity of CSULB, PCH is designated as State Route 1 (SR-1).

Internal Vehicular Circulation

The internal roadway system at the campus is comprised of the following roadways:

- Merriam Way: A north-south roadway providing internal access within CSULB. Between Atherton Street and Parking Structure 1, Merriam Way has four travel lanes and then narrows to two lanes south of the parking structure (there is a short three lane segment fronting parking lot E1). North of Atherton Street, Merriam Way becomes Fanwood Avenue and provides access to the residential neighborhood north of the University. Parking is not allowed along this roadway.
- Determination Drive: A three to four-lane north-south roadway providing internal access within CSULB and surface parking lots in the north campus. Parking is not allowed along this roadway.
- Beach Drive: A four-lane east-west roadway providing internal access within CSULB. A primary campus gateway is at the Beach Drive and Bellflower Boulevard intersection at the western edge of campus. Beach Drive curves to the south and becomes West Campus Drive near the center of campus. Parking is not allowed along this roadway.
- Deukmejian Way: A two-lane north-south roadway, connecting to State University Drive just west of Palo Verde Avenue, and then shifting to an east-west roadway near the tennis courts and connecting to parking lot E3. This roadway provides internal access within CSULB and surface parking lots in the east campus. Parking is not allowed along this roadway.
- West Campus Drive: A two-lane north-south roadway providing internal access within CSULB. A primary campus gateway is at the West Campus Drive and 7th Street intersection at the southern edge of campus. Parking is not allowed along this roadway.
- East Campus Drive: A two-lane north-south roadway providing internal and through access within CSULB. A primary campus gateway is at the East Campus Drive and 7th Street intersection at the southern edge of campus. Parking is not allowed along this roadway.
- State University Drive: A two-lane east-west roadway providing access to the pick-up/drop-off turnaround area west of Palo Verde Avenue. East of Palo Verde Avenue, State University Drive becomes Anaheim Road, which provides access to Studebaker

Road and terminates at the San Gabriel River just over a half mile east of campus. Limited parking is allowed along the north side of this roadway.

Transit System

Long Beach Transit and the Orange County Transportation Authority (OCTA) provide transit service to and in the vicinity of campus, including bus routes within the campus along Beach Drive and West Campus Drive. Bus routes serving the campus also provide connections to other local and regional transit services including Metrolink, the A (Blue) Line, and C (Green) Line. The University also provides its own transit service throughout campus and nearby areas. The transit system map is illustrated in Figure 3.11-1.

Long Beach Transit routes serving the campus include the following:

- Route 81: Operates in the east-west direction along 10th Street and 7th Street from downtown Long Beach to CSULB at 30-minute headways during peak hours.
- Routes 91, 92, 93, and 94: Operate along 7th Street in the east-west direction and along Bellflower Boulevard in the north-south direction. These routes provide service from downtown Long Beach to Alondra Boulevard at 12-minute headways during peak hours.
- Routes 172, 173, and 174: Operate along the Pacific Coast Highway and Stearns Street in the east-west direction and along Palo Verde Avenue and Studebaker Road in the north-south direction. These routes provide service from downtown Long Beach to Norwalk Station at 30-minute headways during peak hours.
- Passport D: Runs mostly along Ocean Boulevard in the east-west direction. The route provides service from Catalina Landing in the west to CSULB and to Los Altos Market Center at 30-minute headways during peak hours.

OCTA routes serving the campus include the following:

- Route 1: Operates on 7th Street in the vicinity of CSULB. This route provide service from San Clemente to CSULB generally along Pacific Coast Highway at one-hour headways during peak hours.
- Route 50: Operates on 7th Street in the vicinity of CSULB. This route provides service between Orange and CSULB along 7th Street, Studebaker Road and Willow Street/Katella Avenue at headways of 20 to 30 minutes during peak hours.

CSULB provides shuttle service within campus with the Campus Connection. This shuttle promotes an alternative to the use of personal vehicles and reduces the need for students, faculty, or staff to drive on campus once they arrive and park their vehicle. The Campus Connection provides the following three shuttle routes to serve major parking facilities and the campus perimeter.

- On-Campus West Shuttle: provides service from the south campus to the north campus along western campus roadways. The route begins at the 7th Street pick-up/drop-off area, continues north along West Campus Drive and west along Beach Drive, and then continues into the north campus on Determination Drive, Merriam Way, and Atherton Street. Two shuttles are provided along this route with operation from 7:00 AM to midnight Monday through Thursday and from 7:00 AM to 5:00 PM on Fridays. The Off-Campus West Express also provides service between 7:30 AM and 3:00 PM Monday through Thursday.

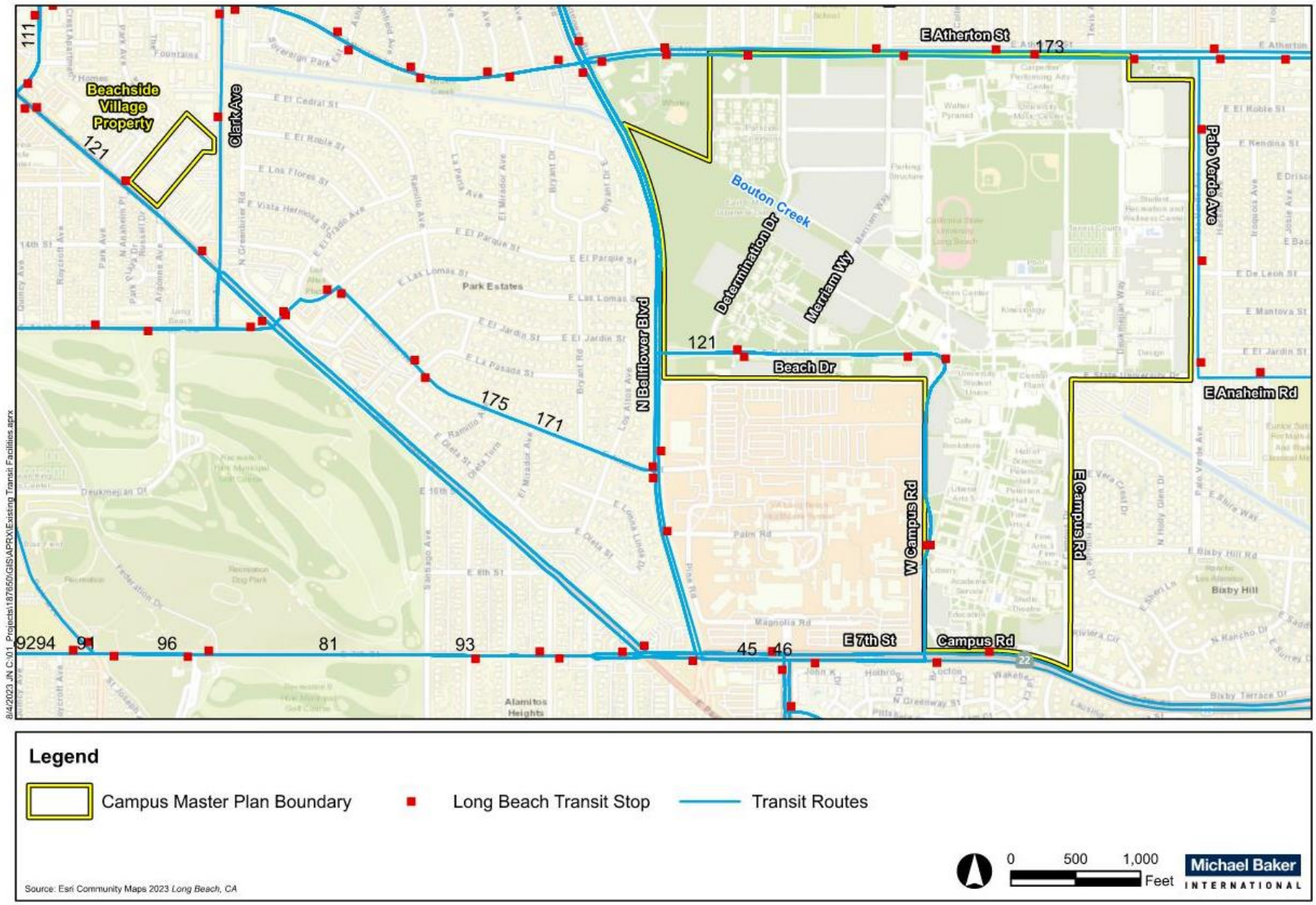

Figure 3.11-1: Existing Transit Facilities

- East Campus Shuttle: Provides service from the south campus to the north campus along the eastern campus roadways. The route begins at the 7th Street pick-up/drop-off area, continues north-along East Campus Drive and east along State University Drive, and then continues into the north campus on Palo Verde Avenue, Atherton Street, and Merriam Way. Two shuttles are provided along this route with operation from 7:00 AM to midnight Monday through Thursday and 7:00 AM to 5:00 PM on Fridays.
- On-Campus Tripper: Provides a complete loop around campus. The route begins at the 7th Street pick-up/drop-off area, continues north along West Campus Drive and west along Beach Drive, and then continues into the north campus on Determination Drive, and uses existing surface lots and internal roadways to travel east to Palo Verde Avenue. The route then continues south on Palo Verde Avenue to State University Drive and then south on East Campus Drive. One shuttle is provided along this route with operation from 7:00 AM to 7:00 PM Monday through Thursday and 7:00 AM to 5:00 PM on Fridays.
- Beachside Shuttle: Transports off-campus Beachside Village residents to/from the CSULB main campus. One shuttle is provided along this route with operation from 7:00 AM to 11:00 PM Monday through Thursday and 7:00 AM to 4:00 PM on Fridays.

Bicycle and Pedestrian System

Bicycle and pedestrian facilities within the study area are designated according to the following five classifications:

- Class I Bikeway (Bike Path) – A completely separate ROW for the exclusive use of bicycles and pedestrians, with vehicle and pedestrian crossflows minimized.
- Class II Bikeway (Bike Lane) – A restricted ROW designated for the use of bicycles, with a striped lane on a street or a highway. Vehicle parking along with vehicle and pedestrian crossflows are permitted.
- Class III Bikeway (Bike Route) – A ROW designated by signs or pavement markings for shared use with pedestrians and motor vehicles.
- Class IV Bikeway (Separated Bikeway) – A ROW for the exclusive use of bicycles which provides a required separation between the bikeway and through vehicular activity.
- Sidewalks are typically concrete walkways raised above the level of the adjacent roadway for the exclusive use of pedestrians.

Within the study area, designated bicycle facilities include:

- Bellflower Boulevard: bicycle facilities include bike lanes and parking protected bikeways, which are provided in north and southbound directions
- Atherton Street: bicycle facilities include bike lanes and buffered bike lanes, which are provided in east and westbound directions
- 7th Street: bicycle facilities include bike lanes, which are provided in east and westbound directions between Bellflower Boulevard and West Campus Drive
- Palo Verde Avenue: bicycle facilities include bike lanes, which are provided in north and southbound directions north of Anaheim Road
- Studebaker Road: bicycle facilities include bike lanes, which are provided in north and southbound directions north of Anaheim Road

The existing and planned bicycle facilities are illustrated in Figure 3.11-2.

Pedestrian facilities include sidewalks, marked crosswalks, and signalized pedestrian crossings. Sidewalks are generally provided on both sides of all external perimeter roads around the CSULB main campus, with the exception of 7th Street, which provides sidewalks along the south side of the roadway only, with pedestrian circulation occurring within the campus boundary instead of on sidewalks along the north side of the roadway.

Safety

Caltrans approaches safety through three primary elements as discussed in the regulatory setting: design standard compliance, collision history, and collision risk. The agency has standardized traffic safety investigations and is responsible for safety of State Route 1 (SR-1, PCH), State Route 22 (SR-22, 7th Street), and Interstate 405 (I-405, San Diego Freeway) and its interchanges in the study area per *Traffic Safety Bulletin 20-02-R1*.

The City of Long Beach, Caltrans and CSULB are the owners and operators of the transportation network in the immediate study area. These agencies have developed their transportation networks consistent with design standards and monitor collision data to address safety concerns. Design standards are used to provide consistent expectations and experiences for transportation network users to help minimize potential conflicts that could contribute to collisions. When new developments occur, they are expected to comply with all applicable design standards as part of constructing or modifying the transportation system.

The City of Long Beach utilizes the Vision Zero traffic safety approach to eliminate all traffic fatalities, approved in 2016, and local initiatives led by Safe Streets Long Beach to address roadways and pedestrian networks. Safe Streets Long Beach uses a process of data collection to mitigate traffic fatalities while promoting safe and healthy mobility for all community members. The transportation network is designed and built to comply with engineering design standards that provide common expectations to users to minimize conflicts and the potential for collisions.

Collision History

A traffic collision is defined as any event where a vehicle strikes any object while moving. That object could be another car, a pedestrian, or something fixed in place like a light post. When collisions cause damage or injury, the details are recorded by the local law enforcement agency and loaded into the California Highway Patrol Statewide Integrated Traffic Records System (SWITRS). The Transportation Injury Mapping System (TIMS) uses SWITRS data to show an area's High Injury Network (HIN). A HIN consists of streets with a high concentration of traffic collisions that result in severe injuries and deaths, with an emphasis on those involving people walking and bicycling.

The City of Long Beach Vision Zero Plan identifies 7th Street between East Campus Drive/Margo Avenue and Studebaker Road and PCH south of 8th Street, as high-injury corridors for motor vehicles and motorcycles. No roadways in within one mile of the CSULB main campus or Beachside Village property have been identified by Long Beach as part of the HIN for pedestrians and bicyclists.

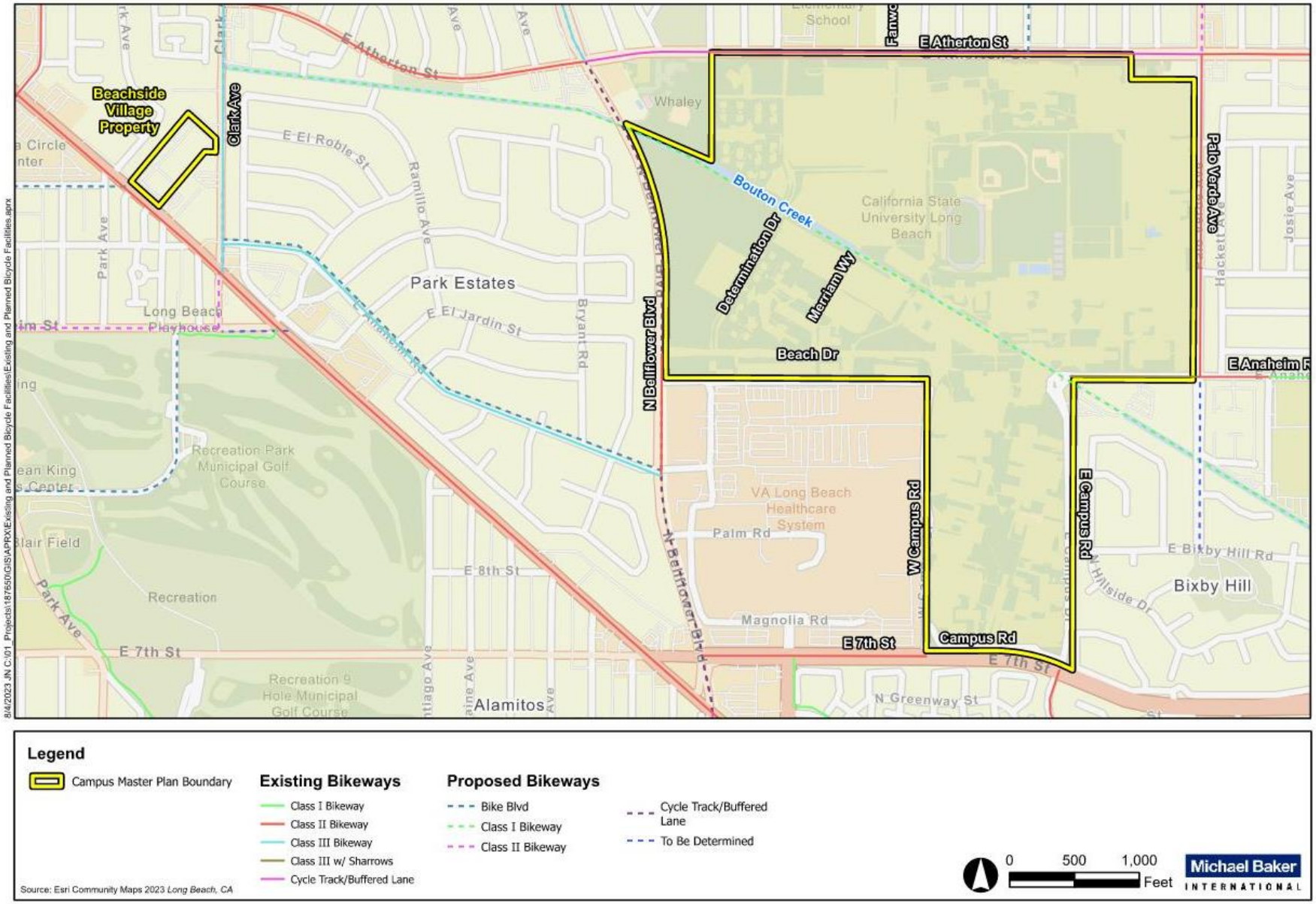

Figure 3.11-2: Existing and Planned Bicycle Facilities

A collision analysis using data collected from SWITRS was conducted for streets and intersections on the perimeter of the campus and in the area roughly bounded by Bellflower Boulevard, Atherton Street, Studebaker Road and 7th Street. Based on the most recently available 5-year collision data (between 2016 and 2020), 150 collisions occurred in this area, including people driving, walking, and biking. Of the total number of collisions, 19 resulted in serious injury and two resulted in fatalities. This data is summarized in Table 3.11-1 and Table 3.11-2.

Table 3.11-1: Number of Collisions in Project Vicinity (2016-2020)

Collision Type	Total	Number of Fatalities
Vehicle-Vehicle	130	2
Vehicle-Pedestrian	12	0
Vehicle-Bicycle	8	0
Total	**150**	**2**

Source: California Highway Patrol, Statewide Integrated Traffic Records System, available at: https://iswitrs.chp.ca.gov/Reports/jsp/index.jsp, accessed March 15, 2023.

Table 3.11-2 provides a breakdown of the types of crashes among the 150 total collisions recorded. Over half of the total collisions were either a rear-end or broadside (103 of 150 collisions). The remainder are relatively evenly split among other types, except for "Overturned," which has a count of zero.

Table 3.11-2: Type of Crashes in Project Vicinity (2016-2020)

Type of Crash	Quantity	Percentage of Total
Not Stated	3	2
Head-On	9	6
Sideswipe	12	8
Rear End	63	42
Broadside	40	26.67
Hit Object	8	5.33
Overturned	0	0
Vehicle/Pedestrian	11	7.33
Other	4	2.67

Source: California Highway Patrol, Statewide Integrated Traffic Records System, available at: https://iswitrs.chp.ca.gov/Reports/jsp/index.jsp, accessed March 15, 2023.

7th Street had the highest number of vehicle collisions at 77 over the five-year period. The locations with the most collisions included intersections with Bellflower Boulevard, Channel Drive, West Campus Drive, and East Campus Drive. There was one collision that resulted in a fatality at 7th Street and Bellflower Boulevard. There were 10 collisions over the 5-year period that involved people either walking or biking along this segment of 7th Street at key intersections used to access the campus.

Atherton Street had the second highest number of vehicle collisions at 35 collisions over the five-year period. The locations with the most collisions included intersections with Bellflower Boulevard, Palo Verde Avenue, and several other smaller streets such as Fanwood Avenue and

McNab Avenue. Several collisions occurred on the Atherton frontage street between Fanwood and Palo Verde Avenue. There were 6 collisions over the 5-year period that involved people either walking or biking along this segment of Atherton Street and key intersections used to access the campus.

Bellflower Boulevard had the third highest number of vehicle collisions at 32 collisions over the five-year period. The locations with the most collisions included intersections with Palm Road, Anaheim Street, Beach Drive, and Atherton Street. There was one collision that resulted in a fatality at Palm Road. There were 3 collisions over the five-year period that involved people walking (no collisions involving someone biking) along this segment of Bellflower Boulevard and key intersections used to access the campus.

Immediately adjacent to and east of the CSULB main campus, the campus border is composed of Palo Verde Avenue, State University Drive, and East Campus Drive. These roadways have a smaller concentration of collisions, compared to other segments described, with a total of six collisions.

A cluster of rear-end collisions was reported along 7th Street at Bellflower Boulevard, Channel Drive, and West Campus Drive. There are no discernable existing hazards in the vicinity of the CSULB main campus due to the roadway and driveway configurations of the campus.

Transportation Demand Management

CSULB has implemented a variety of transportation demand management (TDM) measures to both reduce reliance on single occupancy vehicle travel for the campus population, as well as to spread the peak load of vehicles needing to park on campus. Existing measures include:[9]

- Transit pass subsidies for Long Beach Transit
- Increased parking fees to manage peak demand
- Schedule adjustment to spread some of the peak load to off-peak time periods
- Increase in online learning to reduce travel to the campus
- Priority parking for clean air vehicles
- Electric vehicle chargers
- Bicycle parking

Emerging Transportation Technology and Travel Options

Transportation and mobility are being transformed through several forces ranging from new technologies, different personal preferences, and the unique effects of the COVID-19 pandemic, the combination of which could alter traditional travel demand relationships in the near term and long term. These disruptive trends increase uncertainty in forecasting future travel conditions, especially considering that new technologies such as automated vehicles may operate on future transportation networks once all phases of the project are complete and operational. Information about how technology is affecting and will affect travel is accumulating over time.

Furthermore, the COVID-19 pandemic and subsequent actions by federal, state, and local governments to curtail mobility and encourage physical distancing (i.e., limit in-person economic

[9] California State University, Long Beach, 2022, *CSULB Parking & Transportation Services Annual Report 2021-2022*.

and social interactions) may have long-term effects on travel demand. While travel activity will likely stabilize after the pandemic has subsided, it is possible that some of these temporary changes will influence people's travel choices into the future, including either accelerating or diminishing some of the emerging trends in transportation that were already underway prior to the pandemic. Some of the emergent changes already influencing travel behavior that could accelerate in the future include the following:

- Substituting internet shopping and home delivery for some shopping or meal-related travel.
- Substituting participating on social media platforms for social/recreational travel.
- Substituting telework for in-office work/commute travel.
- Substituting telemedicine appointments for eligible in-person medical appointments.
- Using new travel modes and choices. Transportation network companies such as Uber and Lyft, car sharing, bicycle/scooter sharing, and on-demand micro-transit services have increased the options available to travelers in the Long Beach area and have contributed to changes in traditional travel demand relationships.

3.11.3 Methodology

Proposed Mobility & Circulation Improvements

As discussed in Chapter 2, Project Description, the Master Plan Update includes proposed enhancements to mobility and circulation for multiple transportation modes. The majority of these enhancements would occur within the CSULB main campus, but a subset has the potential to include activities at the perimeter of the CSULB main campus on roadways under the City of Long Beach jurisdiction. The following details the proposed enhancements for each mode and denotes those which could affect perimeter roadways. No mobility or circulation improvements are proposed at the Beachside Village property.

Pedestrian Network Improvements

Pedestrian amenities throughout the CSULB main campus include sidewalks and paths that provide key connections to academic buildings, housing, and other student services. The Master Plan Update proposes improvements to the existing pedestrian network on the campus to promote safety, comfort, access, and direct connections between uses. To accomplish this, three sets of improvements are proposed, the first of which includes filling network gaps, which primarily occur through and adjacent to parking lots, as well as through the sports field section of campus. In these areas, new sidewalks and paths are recommended. Specific proposed improvements to fill network gaps include the following:

- Provide a more formalized space for both pedestrians and bicyclists between parking lots G7 and G8 for safer connections to, from and across these lots; and
- Provide additional north-south and east-west pedestrian corridors adjacent to Jack Rose Track and the Baseball Field to facilitate more direct travel through these areas.

The second set of improvements involves proposed enhancements for widened sidewalks, upgrades compliant with the Americans with Disabilities Act (ADA), traffic calming to provide shared space for pedestrians, and new paved pathways to support new buildings. Specific proposed improvements include the following:

- Open the north end of the Bouton Creek Path to pedestrians, bicycles, scooters, and skateboards to provide a continuous connection from student housing and parking within the West District of campus to the center of campus;
- Create an enhanced connection between the proposed Faculty and Staff Housing project along State University Drive to the center of campus; and
- Convert Deukmejian Way to a shared space where private vehicles are limited through access controls, and pedestrians, bicyclists, and other non-motorized travelers can use the full roadway space. This shared space would connect the proposed new Faculty and Staff Housing, College of Engineering, athletics fields, and the proposed new Kinesiology building.

The third set of improvements would include enhancements to existing pedestrian crossings and the creation of new crossings. The targeted crossings would be located internal to the campus, as well as along the edges of the campus that connect with the surrounding community. Specific proposed improvements to pedestrian crossings include the following:

- Provide new crosswalks at signalized intersections around the campus perimeter, including Palo Verde Avenue and Rendina Street, Atherton Street and Merriam Way, Bellflower Boulevard and Beach Drive, and 7th Street and West Campus Drive. These proposed enhancements would involve new crosswalk striping on external perimeter intersections under City of Long Beach jurisdiction.
- Provide new pedestrian crossings to connect the campus with off-campus destinations at Bouton Creek and Bellflower Boulevard, Atherton Street and Determination Drive, and Palo Verde Avenue and Deleon Street. These proposed enhancements would involve new crosswalk striping, and pedestrian signal enhancements on external perimeter intersections under City of Long Beach jurisdiction.
- Determination Drive and Bouton Creek: Widen the existing crosswalk to facilitate pedestrian and bicyclist diagonal crossing, upgrade crosswalk markings and yield signage, add yield pavement markings, and install new lighting. Installation of a rectangular rapid flashing beacon or a raised crossing may be considered as a future phase.
- Merriam Way north of Parking Lot G3: Upgrade signage and striping at the existing crosswalk, add lighting, and consider staffed traffic control to facilitate crossings during peak periods.
- Palo Verde Parking Garages: Widen the existing crosswalk between the two garages, add yield to pedestrian signage, yield pavement markings, and lighting. Installation of a rectangular rapid flashing beacon may be considered as a future phase.
- Palo Verde North Diagonal Crossing: Upgrade the existing crosswalk marking to high-visibility markings and add yield to pedestrian signage, yield pavement markings, and lighting. Installation of a rectangular rapid flashing beacon or repositioning of the crosswalk to 90 degrees may be considered as a future phase.
- East Campus Drive Crossing at Hardfact Hill: Refresh the existing crosswalk markings and install a rectangular rapid flashing beacon.

In addition to the three sets of improvements discussed above, “night walk” overlays would be identified for primary pedestrian pathways to provide connections between the campus districts after dark. The identified night walk overlay pathways would have unique paving materials and

lighting, and physical separation of modes where possible for pedestrian paths used after 8:00 p.m.

Bicycle and All-Wheel Network Improvements

One of the goals of the Master Plan Update is to provide improvements to help the CSULB campus become less reliant on vehicular mobility. Proposed improvements to the bicycle and all-wheel network would provide safer and more comfortable options, enabling bicycle use internally within the campus, as well as provide connections for trips to and from campus. Proposed improvements to the bicycle and all-wheel network include the following:

- Bouton Creek Path: Several improvements are proposed along Bouton Creek, including:
    - A new shared use bicycle and pedestrian path following the existing route of Bouton Creek diagonally through the campus;
    - An enhanced crossing at Bellflower Boulevard. This proposed enhancement would involve new striping and potentially signalization on Bellflower Boulevard, an external perimeter roadway under City of Long Beach jurisdiction.
    - A newly constructed path south of Bouton Creek and west of Determination Drive;
    - An enhanced diagonal crossing at Determination Drive to facilitate crossing from the south side of the creek to the north side;
    - Between Determination Drive and Merriam Way, use of the existing pedestrian path for a shared use facility, which would be widened to at least 15 feet;
    - East of Merriam Way, splitting the Bouton Creek bicycle facility from the existing pedestrian pathway, to create a 15-foot-wide bicycle facility within current parking lot space south of the College of Business;
    - A marked bicycle route that continues through the center of campus with another proposed enhanced crossing across State University Drive' and
    - Future improvements: a path on the north side of Bouton Creek or a pre-fabricated bridge to help enhance connections between the bicycle facility and Parkside housing.
- Parking Lots G7/G8 Shared Use Pathway: A 15-foot-wide shared pedestrian and bicycle facility with vertical separation from vehicles is proposed for the drive aisle space between parking lots G7 and G8 to provide east-west connections in the West District. To accommodate this improvement, the road would be converted to one-way traffic.
- Determination Drive Two-Way On-Street Protected Bike Lane: A new facility is proposed on the east side of Determination Drive south of Bouton Creek, replacing one northbound travel lane, and on the west side of Determination Drive north of Bouton Creek, replacing one southbound travel lane, with a proposed diagonal crossover point at the creek crossing. The proposed placement of this facility would help minimize conflicts at driveways and keep bicyclists on the side of the street nearest to destinations. The use of temporary materials for the vertical separation barrier, such as planters, would ensure flexibility if this space is needed for vehicles during move-in or special event days at the campus.
- Beach Drive Two-Way Off-Street Bike Path: A new facility is proposed for the north side of Beach Drive and would require widening the north sidewalk in most locations. This facility would also include both pedestrian and bicycle crossing improvements at Bellflower

Boulevard (which would involve new/modified striping on Bellflower Boulevard, an external perimeter roadway under City of Long Beach jurisdiction), Determination Drive, Merriam Way, Brotman Drive, and the existing pedestrian crossing signal to allow bicyclists to access the proposed north/south bicycle facility on the west side of West Campus Drive. A new bus boarding island is also proposed for the north side of Beach Drive at the stop between Determination Drive and Merriam Way, to help minimize bus and bike conflicts. The bicycle facility would be built either at a "half step" elevation between the sidewalk and roadway, or at the same elevation of the sidewalk. A third "split elevation" option, with the westbound bike facility at sidewalk height and the eastbound facility at roadway height may be considered.

- West Campus Drive Two-Way Off-Street Bike Path: This facility is proposed for the west side of West Campus Drive, providing a new separated bicycle facility option that runs the full length of the South District. In locations with constrained width, narrowing the roadway to the space currently dedicated to a southbound Class II bicycle lane may be necessary.
- Additional Improvements: additional proposed improvements could include new bicycle route signage, pavement striping and markings, and widening pathways where shared bicycle/pedestrian spaces are currently narrower than 15 feet.

Transit Network Improvements

The existing on-campus shuttle system provides a full loop around the campus. The east and west loops require transfer points at the northern and southern ends of campus. Several improvements are proposed to simplify the current service, including simplifying campus routes to full clockwise and counterclockwise loops; improving frequency to 15-minute peak headways in each direction to address capacity concerns; staffing shuttle stops to alleviate confusion about shuttle service and help build ridership among new students; and providing an on-demand shuttle service or ride-hailing subsidy to provide service to Beachside Village and other off-campus locations.

In the long term, CSULB may consider multiple mobility hub locations on campus to help serve as key transfer points for different modes, different transit lines and destinations for services. Future mobility hubs would serve as a location where existing mobility services would converge.

Vehicular Network Improvements

In order to increase safety and comfort for pedestrians and bicyclists on the CSULB campus, the following improvements to the vehicular network are proposed:

- Determination Drive: To provide space for the two-way bicycle facility, a reduction to one vehicular travel lane is recommended in the northbound direction south of Bouton Creek and in the southbound direction north of Bouton Creek.
- Beach Drive: To provide space for the two-way bicycle facility, a reduction to one vehicular travel lane is recommended in each direction, with the addition of a center turn-lane.
- West Campus Drive: No changes are proposed to vehicle travel lanes. Traffic calming elements, such as speed lumps/cushions, are recommended.
- East Campus Drive: No changes are proposed to vehicle travel lanes. Traffic calming elements, such as speed lumps/cushions, are recommended.
- Deukmejian Way: Limit vehicle access to parking pass holders, pick-up/drop-off, and campus vehicles to create a shared use road. At the intersection of Deukmejian Way,

consider simplifying intersection geometry by moving the crosswalk and stop sign west of south leg driveway and limiting south leg driveway to right-in/right-out vehicular circulation only.

- Palo Verde Avenue: The City of Long Beach preliminary plan along Palo Verde Avenue includes the reduction of one vehicular travel lane in each direction, providing a parking-protected bicycle lane in the northbound direction and angled parking with a bike lane in the southbound direction. The provision of angled parking on the side of the street adjacent to the campus would provide a greater opportunity for on-street parking to serve the campus, without people needing to cross Palo Verde Avenue. The City's preliminary plans also call for lane reductions and safety enhancements, such as a protected corner, at the intersection with Anaheim Road/State University Drive. This intersection is currently all-way stop controlled. It should be noted that this project would be implemented by the City of Long Beach entirely in its own jurisdiction and would not be implemented by CSULB under the Master Plan Update and is listed here due to its adjacency to the CSULB main campus.

Additionally, pedestrian and bicycle focused gateway improvements are proposed for campus entry points along Bellflower Boulevard, 7th Street, Palo Verde Avenue, and Atherton Street. Due to its proximity to surface parking lots on the campus, Atherton Street is envisioned as the primary vehicular entry point for the campus, specifically at Merriam Way and Carfax Avenue. The current entry point at Determination Drive is proposed to be deprioritized for vehicles due to the proposed bicycle and pedestrian improvements at this location. The following improvements to campus entry points are proposed:

- Determination Drive: Consider right-in/right-out only.
- Merriam Way: Work with the City of Long Beach on potential signalization improvements and install advanced vehicle wayfinding signage.
- Carfax Avenue: Upgrade pavement markings and consider right-in/right-out only or signal warrant with the City of Long Beach.

The ultimate operation and design of the above campus entry points along Atherton Street could involve new striping and/or signal modifications on an external perimeter roadway under City of Long Beach jurisdiction.

Parking and Transportation Demand Management

Changes related to building and facility improvements proposed under the Master Plan Update would require the shifting of some existing parking space locations. However, no net change in parking spaces is anticipated, and replacement parking lots proposed at the current sites of the College of Education and International House buildings would allow for additional space for bicycle and pedestrian amenities.

TDM measures would be implemented to reduce the demand for parking on campus, reduce vehicle trips, prioritize pedestrian and bicycle movement, and encourage greater use of transit, pedestrian, and bicycle travel. While CSULB has implemented several TDM strategies and maintains a TDM plan, the plan will be updated. Additional TDM measures considered under the Master Plan Update include, but are not limited to:

- Increasing on-campus housing opportunities;
- Incentivizing student residents to not have a car on campus;
- Distributing class and work schedules to spread the peak demand on campus;
- Providing additional on-campus amenities (e.g., childcare, post office, etc.); and
- Enhancing transit, shuttle, bicycle, and pedestrian amenities on the campus

Transportation Impact Analysis Methodology

The transportation impact analysis methodology ranges from quantitative forecasting of VMT to qualitative assessments of how the implementation of the Master Plan Update may disrupt existing facilities or services for transit, pedestrians, and bicyclists. A summary of the methodology used to determine impacts for each aspect of transportation analyzed in this section is provided below.

Transit Service

Development under the Master Plan Update was qualitatively evaluated to determine how it would affect existing and planned transit service within a two-mile radius of the CSULB main campus and Beachside Village property consistent with the CSU TISM Guidelines, which require all transit services within two miles to be mapped. A significant impact would occur if implementation of the Master Plan Update would cause a disruption to existing transit service or interfere with future transit service or planned service expansion. Disruption includes causing delays or interruptions to service. Per the *Technical Advisory on Evaluation Transportation Impacts in CEQA* prepared by the Governor's Office of Planning and Research, creating new demand for transit is not considered an impact.

Bicycle and Pedestrian Facilities

Similar to transit impacts, the development under the Master Plan Update was qualitatively evaluated to determine how it would affect existing and planned bicycle and pedestrian networks. A significant impact would occur if implementation of the Master Plan Update would disrupt existing bicycle and pedestrian facilities or interfere with expansions of the bicycle and pedestrian networks contained in adopted plans.

Roadway Network

To evaluate potential project (i.e., Master Plan Update) impacts on VMT, the daily VMT metrics described in Table 3.11-3 are evaluated and compared against baseline conditions. These metrics generally involve the tracing or accounting of vehicle trips and their length within a specific study boundary or from a specific trip generation source such as the CSULB main campus. As required by the CSU TISM, all metrics are estimated or forecasted using the travel demand model.

Table 3.11-3: Vehicle Miles Traveled Metric Definition and Visualization

Metric	Definition	Visualization
Total Network VMT	All vehicle-trips (i.e., passenger and commercial vehicles) assigned on the network within a specific geographic boundary (i.e., model-wide, region-wide, city-wide). Vehicle volume on each link is multiplied by link distance.	
Total VMT generated by a project	All vehicle-trips are traced to/from the project site. For the proposed project, this metric captures all passenger and commercial vehicle VMT generated by the residents, workers, students, and visitors to the site.	
Household VMT per resident	All automobile (i.e., passenger cars and light-duty trucks) vehicle-trips are traced back to the residence of the trip-maker. For the proposed project, this metric captures the VMT generated by all residents living in on-campus housing.	
University Work Tour VMT per employee	All automobile trips which are part of home-work tours (i.e., the total miles traveled between primary start and end locations inclusive of stops between) or work-based tours are counted. For the proposed project, this metric captures the employee VMT when traveling to/from campus.	

Table 3.11-3: Vehicle Miles Traveled Metric Definition and Visualization

Metric	Definition	Visualization
School Tour VMT per student	All automobile trips which are part of home-school tours or school-based tours are counted. For the proposed project, this metric captures the student VMT when traveling to/from campus.	
VMT per Service Population	The service population is comprised of resident on-campus students, commuter students, resident on-campus employees, commuter employees and other residents. To avoid double counting, all on-campus residents are counted only once.	

The latest SCAG model produces 2016 VMT estimates and 2035 VMT forecasts based on the 2020 RTP/SCS. Because the analysis for the Master Plan Update uses a baseline year of 2019, estimates for 2019 were developed by interpolating between 2016 and 2035. The SCAG model is an activity/tour-based model (ABM) that simulates daily travel for every individual in the region, accounting for land use, transportation, and demographic factors that influence travel behavior. SCAG recently updated and developed the ABM as part of its 2020 RTP/SCS. As part of this update, SCAG conducted a validation and calibration of the 2016 base year travel model that included using household travel surveys, transit boarding data, on-board transit surveys, traffic count data, and VMT estimates from annual Highway Performance Monitoring Systems data to verify that the SCAG model reasonably replicated observed travel behavior. Per the SCAG 2020 RTP/SCS model validation report, the travel demand model has been validated to accurately reflect average trip distance and trip generation for college/university trips at the regional level, based on such household travel surveys.

Table 3.11-4 contains the baseline (2019) VMT estimates from the SCAG ABM model for the daily VMT metrics described above except total VMT generated by a project, which is only reported in the impact section below. As discussed in Chapter 2, Project Description, academic year 2019-2020 is being used as the baseline for this analysis because it is the most recent year of pre-pandemic in-person campus operations.

Table 3.11-4: Baseline (2019) Daily VMT Summary

VMT Metric	Los Angeles County	CSULB
Total Daily Network VMT	221,379,289	N/A
Total Daily Home-Based VMT	N/A	585,756

Notes: NA = Not Applicable

Source: Southern California Association of Governments, Activity Based Model, available at: https://scag.ca.gov/activity-based-model, accessed March 15, 2023.

VMT is analyzed to determine how implementation of the Master Plan Update would change demand for vehicle travel. The effect of project-generated VMT is analyzed in the baseline and cumulative scenarios and the project's effect on regional VMT is analyzed in the cumulative scenario. These changes are measured using outputs from the SCAG ABM. This is consistent with the CSU TISM Guidelines, which states that the regional travel forecasting model is "the 'best' tool presently available to estimate VMT at all CSU campus locations."

Model inputs for the Master Plan Update included on-campus students, off-campus (commuter) students and on-campus employees, off-campus employees (commuters) and other residents. Although the Beachside Village residential community is located approximately 0.6 miles west of the main campus, frequent shuttle service is provided from the Beachside Village property to the main campus and is used by the majority of Beachside Village residents as reflected in the 2019 Sustainable Transportation Survey. As such, the students residing at Beachside Village were considered on-campus residents for purposes of this analysis.

VMT outputs were produced for baseline conditions; baseline plus project; cumulative conditions, which accounts for ambient growth through the horizon year without considering the Master Plan Update; and cumulative plus project scenarios, consistent with the CSU TISM Guidelines. Analysis of the Master Plan Update relative to baseline conditions is used to determine whether the Master Plan Update would result in a project-level significant VMT impact, independent of the effects of regional growth and travel pattern changes due to increases in transit and other circulation system improvements. The SCAG ABM has a base year of 2016 and a long-term horizon year of 2045, as well as forecasts for interim years that include 2035. Baseline conditions for the transportation analysis in 2019-2020 were developed through interpolation between the 2016 and 2035 model forecasts. The cumulative no project scenario reflects the 2035 horizon year for the 2020 RTP/SCS with the removal of the growth allocated to the main campus and Beachside Village property. The cumulative plus project scenario adds projected growth in the campus population to the 2035 scenario. For purposes of the VMT analysis, "project" (e.g., "without project" and "plus project") describes all development proposed under the Master Plan Update.

Prior to using the SCAG ABM model forecasts to develop the VMT forecasts in Table 3.11-5 below, the vehicle trip lengths for implementation of the Master Plan Update were compared against 2019 estimates for the campus using StreetLight mobile device data. StreetLight Data is a mobile device "big data" provider. They apply proprietary machine-learning algorithms to measure travel patterns and make them available on-demand via StreetLight InSight®. StreetLight provides data for a wide variety of transportation studies including volume, counts, Origin-Destination and more. StreetLight algorithmically transforms trillions of location data point samples into contextualized, aggregated, and normalized travel pattern data. StreetLight Data collects all of its transportation data as Location Based Services data which are services based on the location of a mobile device. StreetLight Data provide samples of actual travel to/from CSULB and are a statistically valid estimate of travel data made by actual campus users. These data were compared to the outputs of the SCAG ABM.

The SCAG ABM produced a higher estimate of 11.5 miles per trip in the baseline scenario versus 9.2 miles per trip from the StreetLight data. Thus, the estimates of VMT produced by the model are slightly higher and therefore conservative. The geographic distribution produced by the model was comparable to that of the StreetLight data.

The specific VMT metrics include the following for the purposes of identifying transportation impacts and as inputs for the air quality, greenhouse gas (GHG), and energy impact analyses.

The transportation impact metric is italicized and is consistent with what is in the CSU TISM. The significance criteria proposed for the Master Plan Update are taken directly from the CSU TISM.

- Total Network Vehicle Trips (VT)
- Total VMT generated by the project
- *Total VMT per service population*

In this case, the development under the Master Plan Update is anticipated to result in the addition of approximately 5,350 headcount on-campus students composed of both commuter students and students living on campus, 1,602 new student beds, approximately 848 headcount employees, and approximately 285 headcount faculty/staff household members, and so it was analyzed as a mixed-use project.

Because the model has a base year of 2016 and an interim horizon year of 2035, those are the years for which estimates of the service population components were required. The master plan estimates were developed in terms of full-time-equivalents (FTEs). Because the model requires that these estimates be input as headcount (HC) students and HC employees the base and future year estimates were converted to HC by applying a factor of 1.2 HC per FTE, based on actual ratios of students and employees over the past decade.

The service population comprises resident on-campus students, commuter students, resident on-campus employees, commuter employees and other residents. Per the CSU Guidelines, VMT per service population includes all VMT that is part of home-based tours for students, employees and residents. For example, if an employee were to drop off a child at school on the way to campus, all of the VMT from the home to the school to the campus would be counted. This is different from site-generated VMT, which includes only those trips which begin or end at the campus. Students have been included in the service population. Students who reside on campus were included in both the campus and County populations but were not double-counted both as students and residents in the calculation of service population.

A significant VMT impact is determined according to the following thresholds, which are specified in the CSU TISM:

- Program/Project Level Impacts
    - Mixed-Use: Total VMT/service population exceeds a level of 15 percent below baseline countywide average.
- Cumulative Level Impacts
    - Mixed-Use: Total VMT/service population under the “with Project” condition exceeds the Countywide average under the 2035 condition associated with the SCAG RTP/SCS.

Per the CSU TISM Guidelines, the following project types would generally not be required to complete a full VMT assessment; that is, a project determined to fall within one of these categories would typically be considered to have a less that significant impact related to VMT for CEQA purposes:

- Local serving retail that is less than 50,000 sq. ft., or retail that is located wholly within the core of a CSU campus;
- Childcare centers that serve students, faculty, and staff families;
- Student services facilities;
- Healthcare centers serving students, faculty, and staff;
- Recreation/fitness/wellness centers that serve students, faculty, and staff;
- On-campus housing serving students, faculty, and staff; and
- Projects generating fewer than 110 vehicle trips per day, as noted in the OPR Technical Advisory.

Hazards (Safety)

Development under the Master Plan Update was evaluated to determine whether it would cause, or contribute to, a hazard that could result in harm to travelers. A hazard may include a geometric design feature or a change in the volume, mix, or speed of multi-modal traffic attributable to the proposed improvements under the Master Plan Update that is inconsistent with applicable design standards such as the State of California Department of Transportation Standard Specifications, the CA MUTCD, and other standards as applicable. City of Long Beach standards are applicable to mobility improvements that are on city streets. A significant impact would occur if the project modifies the existing transportation network in a manner inconsistent with applicable design standards.

Emergency Access

Development under the Master Plan Update was qualitatively evaluated to assess how it would influence emergency access to and from the regional network. A significant impact would occur if implementation of the Master Plan Update would modify the existing transportation network in a manner inconsistent with applicable design standards. It is presumed that modifications that do not meet applicable design standards to a transportation facility that could be used by emergency responders would likely increase emergency access times to or from the regional transportation network.

Thresholds of Significance

The significance thresholds used to evaluate the impacts of the Master Plan Update related to transportation are based on Appendix G of the CEQA Guidelines. Based on Appendix G, a project would have a significant impact related to transportation if it would:

- Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle, and pedestrian facilities?
- Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- Result in inadequate emergency access?

3.11.4 Impact Analysis

The impact analysis below is organized into a program-level analysis and a project-level analysis. For the program-level analysis, the Master Plan Update is evaluated as an overall program of development over a multi-year planning horizon for the CSULB campus. For the project-level analysis, near- and mid-term development projects that would be implemented under the Master Plan Update are analyzed.

TRA-1 Would the project conflict with a program, plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?

Program-Level Analysis for Master Plan Update

Construction

Construction activities would largely occur within the boundaries of the CSULB main campus and the Beachside Village property, and would include demolition, renovation, and for new facilities proposed on the campus, site preparation and building and other infrastructure construction. Major components of site preparation would involve demolition of existing buildings and removal of existing site elements, excavation and grading of the site, and construction of necessary infrastructure and facilities. A variety of equipment would be required for the site preparation stage, including bulldozers, grading machines, cranes, and dump trucks, which would be used for the removal and deposition of cut and fill material on the site. Major elements of facility construction could include foundation construction, pouring concrete, framing, and other construction activities. Mobility and circulation improvements could involve roadway and crosswalk restriping, or sidewalk and bus stop reconstruction.

Staging, work zone, and construction laydown areas would generally be accommodated within the boundaries of the CSULB main campus and the Beachside Village property. To address construction traffic that could affect external roadways, the CSU standard construction BMPs outlined in the CSU OICP Safety Manual require that construction contractors implement construction traffic control plans. Additionally, some proposed mobility and circulation improvements could include changes to roadway striping and crosswalks on the perimeter of the CSULB main campus and could introduce new signals or modifications to existing traffic signals. Any proposed improvements that would affect roadway design under City of Long Beach jurisdiction would be subject to review and approval by the City of Long Beach and would be subject to the City's requirements for the preparation of temporary construction traffic control plans. Construction traffic control plans would include, among other components, appropriate traffic control devices, such as signage and temporary roadway closures, if necessary, and construction working hours.

With adherence to existing standards and requirements, safe access to the pedestrian, bicycle, transit, and street facilities within and adjacent to the CSULB main campus and Beachside Village property would be maintained during construction activities associated with development under the Master Plan Update. Therefore, development under the Master Plan Update would not conflict with plans, ordinances, or policies addressing the circulation system and impacts would be less than significant.

Operation

Transit Facilities

Development under the Master Plan Update does not include any transportation network modifications that would permanently disrupt the existing transit routes and bus stops of Long

Beach Transit either within the boundaries of the main campus and Beachside Village property or on surrounding roadways. The proposed circulation and mobility improvements include enhancements to some existing bus stops within the main campus, as well as enhancements to pedestrian and bicycle connections to transit. The Master Plan Update proposes changes within the main campus to the routes and headways of shuttles operated by the university, which would enhance connections to Long Beach Transit operated services. As such, development under the Master Plan Update would not conflict with plans, ordinances, or policies addressing transit facilities. Therefore, the impact would be less than significant during operation.

Roadway Facilities

The mobility and circulation improvements proposed under the Master Plan Update are focused primarily on enhancing pedestrian, bicycle and transit mobility and circulation. Changes to roadway facilities internal to the main campus, including limited lane restriping and repurposing, would be done in support of the implementation of facility improvements for other modes of transportation. No changes to roadway facilities on streets under City of Long Beach jurisdiction are proposed, other than changes at campus driveway locations on Atherton Street, which are intended to reduce vehicle conflicts and enhance safety. None of these intersection changes would interfere with existing roadway facilities or preclude changes to external roadway facilities as proposed by the City of Long Beach. Additionally, no substantive change to vehicle travel patterns are expected to result from the proposed improvements. As such, development under the Master Plan Update would not conflict with plans, ordinances, or policies addressing roadway facilities. Therefore, the impact would be less than significant during operation.

Bicycle Facilities

Development under the Master Plan Update would not disrupt existing and planned bicycle facilities in the study area. Future changes to roadways, bicycle facilities, and pedestrian facilities planned in the surrounding area are identified in the City of Long Beach Bicycle Master Plan, the City's Vision Zero Plan, and the City of Long Beach General Plan Mobility Element. Of these plans, the Long Beach Bicycle Master Plan contains the most detail in the vicinity of the CSULB main campus and Beachside Village property. Figures 6-1 through 6-6 in that document show on-street- and off-street facilities for walking and bicycling along the major roadways bordering the CSULB main campus and Beachside Village property, including Atherton Street, Bellflower Boulevard, PCH, 7th Street, Studebaker Road, Anaheim Road, and Palo Verde Avenue. The Master Plan Update would not interfere with any of these planned facilities, and it proposes facilities within the main campus that connect with and complement the external facilities by promoting use of non-auto travel modes. As such, development under the Master Plan Update would not conflict with plans, ordinances, or policies addressing bicycle facilities. Therefore, the impact would be less than significant during operation.

Pedestrian Facilities

The mobility and circulation improvements proposed for pedestrian facilities comprise network gap closures, widening and other enhancements to existing pedestrian pathways, and new and enhanced crosswalks. Each of these is included in the proposed Master Plan Update as part of a comprehensive, structured program of improvements. They would be constructed in compliance with requirements of the Americans with Disability Act and would further Goal #2 of the SCAG 2020-2045 RTP/SCS by improving mobility, accessibility, reliability, and travel safety for people and goods. The pedestrian goals stated in the Master Plan Update include completing the continuous mobility network, addressing safety infrastructure and enhancing the existing campus

aesthetic. These facilities would support travel within the main campus and represent part of the overall coordinated development on the main campus that would be governed by the Master Plan Update.

The Master Plan Update does not include any network modifications that would permanently disrupt existing external pedestrian facilities, nor planned facilities as detailed in the City's Bicycle Master Plan, Vision Zero Plan, and the General Plan Mobility Element. As such, development under the Master Plan Update would not conflict with plans, ordinances, or policies addressing pedestrian facilities. Therefore, the impact would be less than significant during operation.

Project-Level Analysis for Near- and Mid-Term Development Projects

Construction

Construction activities associated with the proposed near- and mid-term development projects would result in similar impacts to those described above at the program level for implementation of the Master Plan Update. To address construction traffic that could affect external roadways, the CSU standard construction BMPs outlined in the CSU OICP Safety Manual require that construction contractors implement construction traffic control plans.

Additionally, a subset of the proposed mobility and circulation improvements propose changes to roadway striping and crosswalks on the perimeter of the CSULB main campus and could introduce new signals or modifications to existing traffic signals. The proposed improvements that have the potential to affect external roadways include the following:

- Provide new crosswalks at signalized intersections around the campus perimeter, including Palo Verde Avenue and Rendina Street, Atherton Street and Merriam Way, Bellflower Boulevard and Beach Drive, and 7th Street and West Campus Drive. These enhancements would involve new crosswalk striping on external perimeter intersections under City of Long Beach jurisdiction.
- Provide new pedestrian crossings to connect the campus with off-campus destinations at Bouton Creek and Bellflower Boulevard, Atherton Street and Determination Drive, and Palo Verde Avenue and Deleon Street. These enhancements would involve new crosswalk striping, and pedestrian signal enhancements on external perimeter intersections under City of Long Beach jurisdiction.
- An enhanced crossing is proposed at Bellflower Boulevard. This enhancement would involve new striping and potentially signalization on Bellflower Boulevard, an external perimeter roadway under City of Long Beach jurisdiction.
- Beach Drive Two-Way Off-Street Bike Path: A new facility is proposed for the north side of Beach Drive and would require widening the north sidewalk in most locations. This facility would also include both pedestrian and bicycle crossing improvements at Bellflower Boulevard (which would involve new/modified striping on Bellflower Boulevard, an external perimeter roadway under City of Long Beach jurisdiction), Determination Drive, Merriam Way, Brotman Drive, and the existing pedestrian crossing signal to allow bicyclists to access the proposed north/south bicycle facility on the west side of West Campus Drive. A new bus boarding island is also proposed for the north side of Beach Drive at the stop between Determination Drive and Merriam Way, to help minimize bus and bike conflicts.
- The ultimate operation and design of proposed improvements at the following campus entry points along Atherton Street could involve new striping and/or signal modifications on an external perimeter roadway under City of Long Beach jurisdiction:

- Determination Drive: Consider right-in/right-out only.
- Merriam Way: Work with the City of Long Beach on potential signalization improvements and install advanced vehicle wayfinding signage.
- Carfax Avenue: Upgrade pavement markings and consider right-in/right-out only or signal warrant with the City of Long Beach.

These improvements would be subject to review and approval by the City of Long Beach and would be subject to the City's requirements for the preparation of temporary construction traffic control plans. Construction traffic control plans would include, among other components, appropriate traffic control devices, such as signage and temporary roadway closures, if necessary, and construction working hours.

With adherence to existing standards and requirements regarding the preparation of construction traffic control plans in coordination with the City of Long Beach, safe access to the pedestrian, bicycle, transit, and street facilities within and adjacent to the CSULB main campus and Beachside Village property would be maintained during construction activities associated with development of the near- and mid-term development projects. Therefore, construction of the near- and mid-term development projects would not conflict with plans, ordinances, or policies addressing the circulation system and impacts would be less than significant.

Operation

To determine the near- and mid-term development projects' consistency with local pedestrian plans, a conflict would occur if the projects or any part of the projects would fail to provide safe pedestrian connections between campus buildings and adjacent streets and transit facilities, disrupt existing or planned pedestrian or bicycle facilities, or conflict with applicable plans, guidelines, or policies.

Transit Facilities

Similar to the program-level analysis of the Master Plan Update above, the near- and mid-term development projects do not include any transportation network modifications that would permanently disrupt the existing transit routes and bus stops of Long Beach Transit either within the boundaries of the main campus and Beachside Village property or on surrounding roadways. Proposed improvements to the existing shuttle system would enhance the existing service provided to the on-campus population, such as simplifying campus routes and improving frequency. As such, operation of the near- and mid-term development projects would not conflict with plans, ordinances, or policies addressing transit facilities. Therefore, the impact would be less than significant.

Roadway Facilities

The near- and mid-term development projects would not interfere with existing or planned exterior roadways. A new driveway would be introduced onto Palo Verde Avenue for the proposed Facility and Staff Housing project. However, this new driveway would be required to be designed to meet City of Long Beach standards and would not interfere with the existing roadway facility nor preclude future roadway changes proposed by the City of Long Beach. As such, operation of the near- and mid-term development projects would not conflict with plans, ordinances, or policies addressing roadway facilities. Therefore, the impact would be less than significant.

Bicycle Facilities

The near- and mid-term development projects include the following proposed improvements to bicycle facilities: Deukmejian Way shared space conversion; bicycle facility improvements along Bouton Creek Path; Parking Lots G7/G8 Shared Use Pathway; Determination Drive Two-Way On-Street Protected Bike Lane; Beach Drive Two-Way Off-Street Bike Path; and West Campus Drive Two-Way Off-Street Bike Path. Proposed bicycle facility improvements would primarily be implemented within the boundaries of the main campus, with the exception of the proposed improvements at Beach Drive, which would involve new/modified striping on Bellflower Boulevard.

Similar to the program-level analysis of the Master Plan Update above, the proposed bicycle facility improvements would not interfere with any planned facilities, and the proposed improvements within the main campus would connect with and complement external facilities by promoting use of non-auto travel modes. As such, operation of the near- and mid-term development projects would not conflict with plans, ordinances, or policies addressing bicycle facilities. Therefore, the impact would be less than significant.

Pedestrian Facilities

The near- and mid-term development projects include the following proposed improvements to pedestrian facilities: north-south and east-west pedestrian corridors adjacent to Jack Rose Track and the Baseball Field; new pedestrian connections between the proposed Faculty and Staff Housing project and the interior portions of the main campus; Deukmejian Way shared space conversion; new crosswalks at signalized intersections around the campus perimeter; new pedestrian crossing to connect the main campus with off-campus destinations; pedestrian facility improvements along Bouton Creek Path, at Merriam Way, Palo Verde Garages, Palo Verde North Diagonal Crossing, and East Campus Drive Crossing at Hardfact Hill; Parking Lots G7/G8 Shared Use Pathway; and Beach Drive Two-Way Off-Street Bike Path.

These facilities would support travel within the main campus and represent part of the overall coordinated development on the main campus that would be governed by the Master Plan Update. Similar to the program-level analysis of the Master Plan Update above, the near- and mid-term development projects do not include any network modifications that would permanently disrupt existing external pedestrian facilities, nor planned facilities as detailed in the City's Bicycle Master Plan, Vision Zero Plan, and the General Plan Mobility Element. The near- and mid-term development projects would not interfere with existing or planned pedestrian facilities and, instead, would enhance pedestrian circulation within the campus core and connections to adjacent land uses, which is a beneficial effect on the pedestrian circulation and access. As such, operation of the near- and mid-term development projects would not conflict with plans, ordinances, or policies addressing pedestrian facilities. Therefore, the impact would be less than significant.

TRA-2 Would the project conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)??

Program-Level Analysis for Master Plan Update

Construction

Due to the temporary nature of construction traffic associated with the Master Plan Update, a substantial increase in VMT would not be anticipated to result from construction. Given the temporary nature of construction industry jobs, the relatively large regional construction industry, and the total number of construction workers needed during any construction phase, it is likely

that the labor force from within the region would be sufficient to complete the majority of construction without a substantial influx of new workers and their families and would not result in a substantial increase in VMT. Additionally, the Governor's Office of Planning and Research specifically directs lead agencies that CEQA transportation impact analysis for VMT should consider automobile VMT only and not commercial truck VMT. Therefore, development under the Master Plan Update would not conflict or be inconsistent with CEQA Guidelines Section 15064.3. The impact would be less than significant during construction.

Operation

As discussed in Section 3.11.3, four scenarios are analyzed to determine potential VMT impacts, including baseline conditions; baseline plus project; cumulative no project; and cumulative plus project. The analysis of these scenarios is required per the CSU TISM Guidelines. The baseline plus project scenario evaluates the effects of the proposed project (growth in campus population associated with the Master Plan Update) on the baseline environmental setting. While this scenario is theoretical, as it essentially analyzes the effect of buildout occurring all at once under baseline conditions, rather than occurring over time to the anticipated buildout date, its purpose is to isolate the impact of the project itself. This scenario is needed to eliminate the effects of regional growth and different assumptions about future travel patterns and circulation system improvements in the future scenarios, which is accounted for in the cumulative plus project scenario described below.

Table 3.11-5 contains the specific project land use related inputs for the SCAG ABM model for the baseline year 2019 and the horizon year 2035. Table 3.11-6 summarizes the vehicle trip generation estimate under the Master Plan Update. Table 3.11-7 summarizes the VMT forecasts for the three impact analysis scenarios.

Table 3.11-5: Project Campus Population Summary Inputs to SCAG ABM for CSULB

Campus Service Population	2019 (Baseline Year)	2035 (Horizon Year)
Commuter Students (HC)	31,643	35,391
On-Campus Students (HC)	3,008	4,610
Commuter Employees (HC)	4,469	5,032
On-Campus Employees (HC)	13	298
On-Campus Employee Family Members (HC)	13	298
Total Campus Service Population	**39,146**	**45,629**

Table 3.11-6: Estimated Total Site-Generated Daily Vehicle Trips

Daily Vehicle Trips	2019 (Baseline Year)	2035 (Horizon Year)
Daily Vehicle Trips without Project	33,237	31,434
Daily Vehicle Trips with Project	46,644	44,113

Source: Fehr & Peers, 2023.

Table 3.11-7: Daily VMT Forecast Summary

VMT Metric	LA County	CSULB
Total Daily Network VMT		
Baseline	221,379,289	N/A
Baseline plus project	221,292,443	N/A
Cumulative	220,635,854	N/A
Cumulative plus project	220,549,301	N/A
Total Daily Home-Based VMT		
Baseline	N/A	585,756
Baseline plus project	N/A	704,035
Cumulative	N/A	521,028
Cumulative plus project	N/A	627,225
VMT per Service Population		
Baseline	21.4	15.0
Baseline plus project	21.4	15.4
Cumulative	19.3	13.3
Cumulative plus project	19.3	13.7
Applicable VMT Threshold per Service Population[a]		*18.2*
Threshold Exceeded in Any Analysis Scenario?		***No***

Note: N/A = Not Applicable

a. Calculated as 85 percent of the VMT per Service Population under the baseline scenario for LA County: 21.4 x 0.85 = 18.2.

Source: Southern California Association of Governments, Activity Based Model, available at: https://scag.ca.gov/activity-based-model, accessed March 15, 2023; Fehr & Peers, 2023.

To assess the effect of project-generated VMT under baseline and cumulative conditions, the project's VMT performance was compared against Los Angeles County for VMT per service population. To assess the project's effect on regional VMT, total network VMT was analyzed under cumulative conditions. The total VMT, reflecting buildout of the Master Plan Update, was calculated and then divided by the campus service population (provided in Table 3.11-5), which is inclusive of students, residents, and employees at CSULB. For example, the baseline VMT per service population for the campus is calculated to be 15.0 based on 585,756 VMT divided by the service population of 39,146. This results in the estimate of the VMT per capita (total VMT per service population), which is then compared to the countywide VMT per capita (total VMT per service population). As discussed in section 3.11.3 above, the per capita VMT associated with the Master Plan Update must be at least 15 percent below the baseline countywide average to be considered a less than significant VMT impact. As such, the applicable threshold is calculated as 18.2 VMT per service population (or 85 percent of 21.4 in the baseline scenario, as shown in Table 3.11-7).

Under baseline plus project conditions, the VMT per service population for the Master Plan Update (15.4) is higher than under the cumulative plus project scenario (13.7) due to the effects of changes in future travel patterns anticipated in the model, such as growth in public transit usage, increased telecommuting, etc. Project-generated VMT would increase under the cumulative plus project scenario relative to the cumulative no project scenario, increasing trips in the vicinity of the main campus. However, total network VMT would be reduced, indicating that the implementation of the Master Plan Update would result in more efficient travel patterns across

the region. There are several reasons why the Master Plan Update is projected to reduce total network VMT: growth in a campus well served by public transit allows for more students, faculty, and staff to travel in VMT efficient ways that would be less likely if they needed to travel to campuses further from transit; the increase in on-campus housing (both for students and faculty/staff) allows those students and faculty/staff to eliminate commute related VMT altogether; and growth in hybrid learning opportunities allows for campus growth without increasing the need for travel that would generate net new Total VMT.

As shown in Table 3.11-7, the Master Plan Update would generate VMT per service population at a level below the applicable threshold of 18.2 VMT per service population. Therefore, the impact would be less than significant.

Project-Level Analysis for Near- and Mid-Term Development Projects

Construction

Construction activities associated with the proposed individual near- and mid-term development projects would result in similar VMT impacts to those described above at the program level for implementation of the Master Plan Update. Construction traffic associated with the near- and mid-term development projects is not expected to generate a substantial increase in VMT from construction. Given the temporary nature of construction industry jobs, the relatively large regional construction industry, and the total number of construction workers needed during any construction phase, it is likely that the labor force from within the region would be sufficient to complete the majority of Project construction without a substantial influx of new workers and their families and would not result in a substantial increase in VMT. Additionally, the Governor's Office of Planning and Research specifically directs lead agencies that CEQA transportation impact analysis for VMT should consider automobile VMT only, and not commercial truck VMT. Therefore, construction of the near- and mid-term development projects would not conflict or be inconsistent with CEQA Guidelines Section 15064.3. The impact would be less than significant.

Operation

The near- and mid-term development projects include replacement, renovation, and new development projects. The replacement and renovation projects would improve the quality and usability of these facilities but would not lead to the increase in the campus population, which is the primary contributor to increased VMT on campus. Of the near- and mid-term development projects categorized as new development, the proposed Faculty and Staff Housing project and the proposed 7th Street Community Outreach Facility are not anticipated to generate an increase in VMT. Consistent with the CSU TISM, on-campus housing can be screened out from requiring VMT analysis and can be presumed to be less than significant, as it can reduce or eliminate commuting-related VMT for students and staff because they would now live on campus. The 7th Street Community Outreach Facility is intended to serve as a facility for community engagement. By its nature it is focused on the local community (both internal and immediately adjacent to campus) and so would not generate substantial VMT and can therefore also be presumed to be less than significant. Additionally, this facility would not generate additional employment beyond the campus faculty/staff population already analyzed in the program-level above for the Master Plan, which concluded that the increase in VMT would be less than significant.

Furthermore, the evaluation of the potential for VMT related to implementation of the Master Plan Update in the program-level analysis above determined that the impact would be less than significant. The program-level analysis of VMT above accounts for all development across the CSULB main campus and the Beachside Village property through the horizon year, as the model is based on total population, rather than individual development projects. As such, the near- and

mid-term development projects are accounted for in the modeling and would likewise be expected to have a less than significant transportation impact related to VMT.

TRA-3 Would the project substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Program-Level Analysis for Master Plan Update

Construction

As previously discussed, staging, work zone, and construction laydown areas would generally be accommodated within the boundaries of the CSULB main campus and the Beachside Village property. While facilities have not been designed, nor are specific construction plans and phasing known, proposed mobility improvements could include temporary lane or roadway closures for short durations to restripe roadways and crosswalks, reconstruct sidewalks, stripe and construct bicycle facilities, etc. In order to address construction traffic that could affect external roadways, including temporary geometric design, the CSU standard construction BMPs outlined in the CSU OICP Safety Manual require that construction contractors implement construction traffic control plans. Additionally, some proposed mobility and circulation improvements could include changes to roadway striping and crosswalks on the perimeter of the CSULB main campus and could introduce new signals or modifications to existing traffic signals. Any proposed improvements that would affect roadway design under City of Long Beach jurisdiction would be subject to review and approval by the City of Long Beach and would be subject to the City's requirements for the preparation of temporary construction traffic control plans. Construction traffic control plans would include, among other components, appropriate traffic control devices, such as signage and temporary roadway closures, if necessary, and construction working hours.

With adherence to existing standards and requirements, safe pedestrian, bicycle, transit and street facilities would be maintained during construction activities associated with development under the Master Plan Update. As such, development under the Master Plan Update would not result in increased hazards due to geometric design feature or incompatible uses. Therefore, impacts would be less than significant during construction.

Operation

All roadway, bicycle, and pedestrian facilities would be required to be constructed consistent with the State of California Department of Transportation Standard Specifications, the CA MUTCD, as well as City of Long Beach Design Standards, and other standards as applicable.

The Master Plan Update does not include new major/primary entrances or major modifications to existing campus entrances from the City of Long Beach, however, some modification of existing roadways, including bicycle, pedestrian, and transit improvements would be necessary as the Master Plan Update is implemented. No roads are anticipated to be closed; however, some proposed improvements would reconfigure lanes on internal roadways. These types of improvements are not expected to materially affect internal vehicular circulation on the main campus, nor are they expected to lead to increased vehicular queueing that could spillback onto external roadways. The pedestrian and bicycle mobility improvements supported by these changes would reduce vehicle/pedestrian and vehicle/bicycle conflict locations, thereby enhancing safety.

Roadway improvements or modifications of facilities would be constructed in accordance with all applicable design and safety standards, including the ADA Standards for Accessible Design, the

CA MUTCD and other Caltrans design standards, and for improvements that would occur on external roadways under the jurisdiction of the City of Long Beach, the City's applicable engineering design standards. Designing consistent with standards, would allow for the safe and efficient movement of various modes of travel to, from, and through the campus.

Development under the Master Plan Update would not substantially change the mix, volume, or speeds of traffic on the existing roadway network. The CSULB main campus and Beachside Village property are located within an existing highly-urbanized area and the proposed improvements are consistent with the existing uses on the CSULB main campus (no mobility or circulation improvements are proposed at the Beachside Village property). The land uses under the Master Plan Update would be developed within the existing complementary urban transportation network, which is similar to the surrounding urban transportation network. As such the volume, mix, and speeds of traffic would remain consistent with an urban context, and implementation of the Master Plan Update would not cause a new hazard. Individual improvements developed under the Master Plan Update would be built in compliance with applicable standards and therefore would not cause or contribute to hazards because of a design feature or incompatible uses. Therefore, the impact would be less than significant.

Project-Level Analysis for Near- and Mid-Term Development Projects

Construction

Construction activities associated with the proposed near- and mid-term development projects would result in similar impacts to those described above at the program level for implementation of the Master Plan Update. Staging, work zone, and construction laydown areas would generally be accommodated within the boundaries of the CSULB main campus and the Beachside Village property. Specific construction plans and phasing are unknown at this time, however, proposed mobility improvements could include temporary lane or roadway closures for short durations to restripe roadways and crosswalks, reconstruct sidewalks, stripe and construct bicycle facilities, etc. To address construction traffic that could affect external roadways, including temporary geometric design, the CSU standard construction BMPs outlined in the CSU OICP Safety Manual require that construction contractors implement construction traffic control plans.

As previously discussed, a subset of the proposed mobility and circulation improvements propose changes to roadway striping and crosswalks on the perimeter of the CSULB main campus and could introduce new signals or modifications to existing traffic signals. Additionally, the proposed Faculty and Staff Housing project is anticipated to create a new access point onto a roadway under City of Long Beach jurisdiction. This project would introduce a new driveway entrance onto Palo Verde Avenue, the construction of which would require a temporary pedestrian detour as a section of the sidewalk would be closed. It could also include the temporary closure of one lane of traffic on Southbound Palo Verde Avenue. These proposed improvements that would affect roadway design under City of Long Beach jurisdiction would be subject to review and approval by the City of Long Beach and would be subject to the City's requirements for the preparation of temporary construction traffic control plans. Construction traffic control plans would include, among other components, appropriate traffic control devices, such as signage and temporary roadway closures, if necessary, and construction working hours. With adherence to existing standards and requirements, construction of the near- and mid-term development projects would not result in increased hazards due to geometric design feature or incompatible uses. Therefore, impacts would be less than significant during construction.

Operation

The near- and mid-term development projects do not include new major/primary entrances or major modifications to existing campus entrances from the City of Long Beach, however, some modification of existing roadways, including bicycle, pedestrian, and transit improvements would be implemented. No roads would be closed; however, the following improvements would reconfigure lanes on internal roadways:

- Determination Drive: To provide space for the two-way bicycle facility, a reduction to one vehicular travel lane is recommended in the northbound direction south of Bouton Creek and in the southbound direction north of Bouton Creek.
- Beach Drive: To provide space for the two-way bicycle facility, a reduction to one vehicular travel lane is recommended in each direction, with the addition of a center turn-lane.
- G7/G8 Shared Use Pathway: A 15-foot-wide shared pedestrian and bicycle facility with vertical separation from vehicles is proposed for the drive aisle space between parking lots G7 and G8 to provide east-west connections on lower campus. To accommodate this improvement, the road would be converted to one-way traffic.
- Deukmejian Way: Limit vehicle access to parking pass holders, pick-up/drop-of, and campus vehicles to create a shared use road. At the intersection of Deukmejian Way, consider simplifying intersection geometry by moving the crosswalk and stop sign west of south leg driveway and limiting south leg driveway to right-in/right-out vehicular circulation only.

These improvements are not expected to materially affect internal vehicular circulation on the main campus, nor are they expected to lead to increased vehicular queueing that could spillback onto external roadways. The pedestrian and bicycle mobility improvements supported by these changes would reduce vehicle/pedestrian and vehicle/bicycle conflict locations, thereby enhancing safety.

For vehicle access to the main campus, the following improvements to campus entry points are proposed:

- Determination Drive: Consider right-in/right-out only.
- Merriam Way: Work with the City of Long Beach on potential signalization improvements and install advanced vehicle wayfinding signage.
- Carfax Avenue: Upgrade pavement markings and consider right-in/right-out only or signal warrant with the City of Long Beach.

These improvements, would have the benefit of reducing intersections with vehicle left turn conflicts, thereby reducing the potential for crashes involving left turning vehicles. Converting driveways to right-in/right-out would shift left turning vehicles to an adjacent intersection (likely the intersection of Merriam Way and Atherton Street) where there is left turn signal phasing and ample left turn storage.

The proposed Faculty and Staff Housing project would permanently alter geometric design with the implementation of the new driveway access point on Palo Verde Avenue. This entrance would be approximately 250 feet north of the intersection of State University Drive and Anaheim Road. The location of this new driveway would be consistent with the basic locational requirements in Long Beach Municipal Code Section 12.41.251 (D) 1, which requires a minimum of 90 feet of

spacing from any intersection. The design of this driveway would meet applicable design and safety standards, including the ADA Standards for Accessible Design, the CA MUTCD and the relevant City of Long Beach engineering design standards. Designing consistent with existing standards would allow for the safe and efficient movement of various modes of travel to, from, and through the campus at this location. All individual near and mid-term development projects would be built in compliance with applicable standards. Additionally, some proposed mobility and circulation improvements would enhance safety. As such, the near- and mid-term development projects would not cause or contribute to hazards because of a design feature or incompatible uses. Therefore, the impact would be less than significant during operation.

TRA-4 Would the project result in inadequate emergency access?

Program-Level Analysis for Master Plan Update

Construction

Ease of access and travel time are critical for first responders when traveling in emergency vehicles. Obstructions in the roadway, detours, and excessive delays due to congestion are among the factors that can affect emergency response time. Construction activities associated with development under the Master Plan Update could potentially hinder emergency access within and through the main campus and the Beachside Village property, depending on the locations of work zones and laydown areas. While facilities under the Master Plan Update have not been designed, nor are specific construction plans and phasing known, the need to maintain access for emergency vehicles is among the considerations when developing traffic control plans. As previously discussed, the CSU standard construction BMPs outlined in the CSU OICP Safety Manual require that construction contractors implement construction traffic control plans. Additionally, any proposed improvements that would affect roadway design under City of Long Beach jurisdiction would be subject to review and approval by the City of Long Beach and would be subject to the City's requirements for the preparation of temporary construction traffic control plans. Furthermore, all projects are required to follow the CSU standards set forth in PolicyStat, which requires the State Fire Marshal to review all projects prior to implementation.

With adherence to existing standards and requirements, emergency access would be maintained during all construction activities associated with development under the Master Plan Update. Therefore, the impact would be less than significant during construction.

Operation

As discussed above in the assessment of hazards under Threshold TRA-3, all proposed modifications to the transportation network would be implemented in compliance with the design standards applicable to the CSU and to the City of Long Beach (for facilities on roadways under City of Long Beach jurisdiction). Additionally, all projects are required to follow the CSU standards set forth in PolicyStat, which requires the State Fire Marshal to review all projects prior to implementation. The standards also include compliance with the CSU Emergency Management policy, which states, "*This policy requires each campus to develop and maintain an emergency management program that can be activated when a hazardous condition, natural or man-made disaster reaches, or has the potential for reaching, proportions beyond the capacity of routine campus operations*."

With implementation of the Master Plan Update, most vehicle traffic would have limited access to the campus core, however, emergency vehicles would have unlimited access to campus streets otherwise restricted to pedestrians, bicyclists, transit vehicles, and service vehicles, even after implementation of the proposed mobility and circulation improvements. As such, emergency and

service vehicles would continue to have unlimited access to the campus, similar to existing conditions. The required California State Fire Marshal review includes a plan review and approval followed by periodic field inspections concluding with issuance of a certificate of occupancy to provide for adequate emergency access and building safety features. Compliance with these standards is intended to provide for adequate on-site emergency access. Therefore, development under Master Plan Update would be designed to meet applicable emergency access and design standards, and adequate emergency access would be provided during operation. With adherence to existing standards, impact related to emergency access would be less than significant during operation.

Project-Level Analysis for Near- and Mid-Term Development Projects

Construction

Construction activities associated with the proposed near- and mid-term development projects would result in similar impacts to those described above at the program level for implementation of the Master Plan Update. Construction activities associated with the near- and mid-term development projects could potentially hinder emergency access within and through the main campus and the Beachside Village property, depending on the locations of work zones and laydown areas. Specific construction plans and phasing are unknown at this time; however, the need to maintain access for emergency vehicles is among the considerations when developing traffic control plans. As previously discussed, the CSU standard construction BMPs outlined in the CSU OICP Safety Manual require that construction contractors implement construction traffic control plans. Additionally, any proposed improvements that would affect roadway design under City of Long Beach jurisdiction would be subject to review and approval by the City of Long Beach and would be subject to the City's requirements for the preparation of temporary construction traffic control plans. Furthermore, all projects are required to follow the CSU standards set forth in PolicyStat, which requires the State Fire Marshal to review all projects prior to implementation.

With adherence to existing standards and requirements, emergency access would be maintained during all construction activities associated with the near- and mid-term development projects. Therefore, the impact would be less than significant during construction.

Operation

The near- and mid-term development projects would generally not affect emergency access during construction. The proposed mobility and circulation improvements, the new driveway on Palo Verde Avenue associated with the proposed Faculty and Staff Housing Project, and access routes for each proposed facility would be designed to provide for adequate emergency access. Additionally existing CSU standards set forth in PolicyStat include State Fire Marshal review to confirm policies emergency access and building safety features. With adherence to existing standards and requirements, impacts related to emergency access would be less than significant during operation.

3.11.5 Mitigation Measures

No mitigation measures are required.

3.11.6 Level of Significance After Mitigation

Development under the Master Plan Update would result in less than significant impacts to transportation.

3.11.7 Cumulative Impacts

Construction activities associated with development under the Master Plan Update could affect external roadways. Consistent with the CSU standard construction BMPs outlined in the CSU OICP Safety Manual, construction traffic control plans would be implemented to address construction traffic. Additionally, similar to the Master Plan Update, any proposed improvements from related projects that would affect roadway design under City of Long Beach jurisdiction would be subject to review and approval by the City of Long Beach and would be subject to the City's requirements for the preparation of temporary construction traffic control plans. The construction traffic control plans would include, among other components, appropriate traffic control devices, such as signage and temporary roadway closures, if necessary, and construction working hours. Additionally, all projects are required to follow the CSU standards set forth in PolicyStat, which requires the State Fire Marshal to review all projects prior to implementation. With adherence to existing standards and requirements, construction impacts related to conflict with applicable plans addressing circulation; increased hazards due to geometric design or incompatible uses; and emergency access would be minimized. Therefore, implementation of the Master Plan Update would not contribute to cumulatively significant impacts during construction.

Implementation of the Master Plan Update would not conflict with programs, plans, ordinances or policies addressing the circulation system during operation. Additionally, similar to the Master Plan Update, design and construction documents for related projects would be required to be reviewed and approved for adequate emergency access by the local agency building and fire departments. Therefore, implementation of the Master Plan Update would not contribute to cumulatively significant impacts related to consistency with applicable plans or emergency access during operation.

Proposed mobility and circulation improvements under the Master Plan Update would include modifications to pedestrian and bicycle mobility facilities and campus entry points, which could change geometric lane design for facilities interfacing with adjacent off-campus facilities. However, as discussed, these proposed improvements would reduce vehicle/pedestrian and vehicle/bicycle conflict locations and vehicle left-turn conflicts, thereby enhancing safety in the area. As such, implementation of the Master Plan Update would contribute to a cumulatively beneficial impact related to geometric design features during operation.

Cumulative VMT impacts associated with implementation of the Master Plan Update combined with future ambient growth were assessed under the cumulative with project scenario. As discussed, the Master Plan Update under the cumulative with project scenario would not increase the total countywide VMT per service population from what is projected under the "No Project" condition. The overall or net effect of the Master Plan Update on regional total VMT would result in a reduction of cumulative countywide VMT from 220,635,854 to 220,549,301. This reduction of 86,553 daily VMT is a benefit to the region that would contribute to lower energy consumption and decreased total emissions. As such, implementation of the Master Plan Update would contribute to a cumulatively beneficial impact with respect to VMT.