



SCOPE OF SERVICES

The below Scope of Work has been prepared for the La Palma Avenue Improvement Feasibility Study.

TASK 1: PROJECT MANAGEMENT AND COORDINATION

1.1. PROJECT MEETINGS

Upon receiving the Notice to Proceed (NTP), LIN Consulting will schedule and lead a kick-off meeting to occur within 10 business days with the City of Yorba Linda, the team, and other agencies. At this meeting, LCI will establish protocols, contacts, standards, and requirements that will be followed for the project. During this meeting, LCI will request all the necessary information or data needed by its team. This information may include items such as: as-built plans, documents, templates, models, reports, and studies that are relevant to the project. In addition, we will seek contact information from stakeholder agencies. We will also confirm the general scope of work and schedule of the project, redefining them as needed.

LCI has budgeted six (6) PDT meetings via video conference at approximately 1 hour each, including one (1) in-person kick-off meeting.

LCI takes great pride in its ability to coordinate PDT meetings, as well as stakeholder meetings. We will prepare meeting agendas and meeting minutes as required, using LCI's streamlined Action Item-Meeting Minute agenda format, which includes identifying responsible parties and completion dates. Meeting minutes will be prepared and distributed to all participants for review and confirmation of the action items.

1.2. QUALITY ASSURANCE/QUALITY CONTROL

LCI has a proven track record of providing quality engineering services to public agencies for over 20 years and is committed to delivering excellence. Our engineers will be able to fulfill this directive by enforcing our Quality Assurance and Quality Control (QA/QC) program as early and as strenuously as possible during the project development phase. LCI's Quality Assurance plan policy, dated February 1, 2018, is followed for every project and by all planning and engineering staff.

1.3. PROJECT SCHEDULE, COORDINATION, AND REPORTING

To provide the City with an organized and efficient work effort, LCI has allotted time for the Senior Project Manager to manage and coordinate day-to-day tasks of the project, which includes cost tracking. LCI will maintain a Project Workplan that will be updated regularly with cost, scope, fee, and progress. We will conduct weekly in-house staff meetings to keep the project on schedule and update the staffing plan if additional resources are needed to meet the project schedule. We will also produce updated project schedules for PDT meetings, and provide project progress reporting narratives in invoices. Project schedules will be maintained in Microsoft Project Gantt chart format, and will use the Critical Path Method (CPM) to factor in resources, deliverable dates and identify critical path tasks.

TASK 1 DELIVERABLES:

- One (1) Kick-off Meeting in person at City Hall
- Six (6) monthly meetings via video conference

LIN Consulting, Inc.

Traffic, Civil, and Electrical Consulting Engineers



- Monthly invoices and progress reports

TASK 2: FIELD REVIEW AND DATA COLLECTION

2.1. FIELD VISIT AND DATA COLLECTION

The limits of the study and subsequent modeling will stretch from west of Via Lomas de Yorba East all the way east to Camino de Bryant, and then south to Gypsum Canyon at the eastbound SR-91 off-ramp. Using gathered as-built plans and available aerial imagery as a base map, LCI will conduct site visits and field reviews as necessary to verify existing geometric features, structures, drainage, signage, striping, and other features. LCI will document the conditions observed during these site visits through photos, videos, field notes, and field measurements when appropriate. LCI will visually evaluate existing ADA compliance of existing curb ramps and pole locations clearances in relation to the path of travel.

Since fresh traffic data or data after the COVID-19 shutdowns does not currently exist in the area, the LCI Team will order the following turning movement counts:

- Via Lomas de Yorba East & La Palma Ave
- Shopping Center East Driveway & La Palma Ave
- Access Road & La Palma Ave
- Corbit Pl & La Palma Ave
- Bryant Ranch Rd-Gypsum Canyon Rd & La Palma Ave
- Gypsum Canyon Rd & Featherly Park-WB 91 Off-ramp
- Gypsum Canyon Rd & EB 91 Off-ramp
- Gypsum Canyon Rd & Santa Ana Canyon Rd

In addition, the following ADT counts will be taken with vehicle classifications:

- La Palma Ave, Via Lomas de Yorba East to Gypsum Canyon Rd
- La Palma, Gypsum Canyon Rd to Cam. Bryant
- Gypsum Canyon Rd, La Palma Ave to Featherly Park-WB 91 Off-ramp

Upon review of the available Caltrans PeMS data, it appears that it is possible to extract ADT count data from most of the ramps and freeway segments in the study area. However, for those locations where the detector health is not greater than 90% (considered unreliable), LCI will request from Caltrans their most recent traffic census count information. If this information is not available, LCI will use traffic counts as collected in the 241/91 Express Lane Connector Traffic Study.

LCI will also collect queue length data for La Palma Ave eastbound and Gypsum Canyon Rd southbound, for use in calibrating the traffic model.

2.2. REVIEW EXISTING AERIALS AND PARCEL MAPS

LCI will obtain aerial imagery for the project area either from the City, County, or as available from public sources (with orthorectified imagery being preferred) for use in creating a conceptual base map in AutoCAD 2021 format. No new flights are proposed. LCI will also obtain Assessor Parcel Maps right of way data, to estimate the location of the right of way based on available information and field assessments, and prepare an AutoCAD drawing file.



2.3. REVIEW AS-BUILTS, DESIGN, OR CONSTRUCTION PLANS

LCI will request and review available as-built designs, particularly for the traffic signal at Bryant Ranch Rd-Gypsum Canyon Rd & La Palma Ave intersection. LCI will also request design plans for projects currently in design or in construction. These plans will be used to update the base map where necessary and during conceptual design.

2.4. REVIEW PLANNED PROJECTS AND STUDIES

LCI will research (and request when necessary) all known studies and reports which pertain to the study area. Where information exists that is particularly useful or detrimental to the study, LCI will bring this to the City's attention for potential direction.

2.5. REQUEST AND REVIEW EXISTING MODELS

LCI will request to be provided to the City the OCTAM model as well as the VISSIM model used for the SR-241/SR-91 Tolled Express Lanes Connector traffic analysis, as well as the model used for the SR-91 Implementation Plan. The VISSIM model for the SR-241/SR-91 Tolled Express Lanes Connector traffic analysis is of particular importance, as it will be used to estimate the available capacity of each on-ramp and its impact on Gypsum Canyon Rd and La Palma Ave traffic throughput.

TASK 2 DELIVERABLES

- Field review notes and photos
- Traffic turning movement counts at up to seven (7) intersections for a total of 2 AM and peak period hours
- ADT with classification counts for up to three (3) locations
- As-builts, design plans
- Projects/studies
- Available models

TASK 3: PUBLIC ENGAGEMENT

The LIN Team will work with City staff to engage the nearby community and key transportation stakeholders. The public engagement process will be structured to gain targeted input from the Bryant Ranch community, Yorba Linda Villages, Villa del Rio, Bryant at Yorba Linda, and Legacy at Bryant Ranch, regarding the La Palma Avenue and Gypsum Canyon Road corridors and provide feedback on proposed roadway modifications. The results of the outreach and engagement activities will be summarized and incorporated into the project documentation.

3.1. COMMUNITY OUTREACH

Two targeted surveys will be created that mirror the timeframe and materials for the public meetings. The survey will be designed for the City to share through its social media platforms, such as the city website, Facebook, Twitter, or NextDoor accounts. This approach will provide an opportunity for input from individuals that are not able to attend the public meetings; plus, can also be used to record input from attendees at the meetings. It is anticipated that the first survey will focus on existing travel patterns, circulation conditions and access challenges, whereas the second survey will solicit feedback on recommendations.



The LCI Team will attend up to two (2) community outreach meetings, which may be scheduled during evenings or weekends. Each meeting will include the consultant Project Manager and a design engineer (upon request, a Spanish-speaking staff member will accompany the consultant team). Up to one (1) presentation will be produced for purposes of discussion. It is assumed that the City will schedule and notice these meetings. The first meeting will be to collect input on operational issues and ask community for ideas. The final meeting will be to go back to community with viable alternatives. The nearby housing tracts and businesses will be the primary group to engage for the meetings. These meetings will be planned commensurate with the targeted surveys discussed previously.

3.2. STAKEHOLDER ENGAGEMENT

Prior to sharing information at public meetings, the LIN Team will work with City staff to share findings and proposed recommendations with agencies that have shared or nearby roadway facilities along these corridors. The stakeholder group will be identified by City staff, but may include the County of Orange, City of Anaheim, Orange County Transportation Authority (OCTA), and Caltrans. At two times in the project schedule that align with preparation for public meetings, relevant materials summarizing the project status will be prepared for the stakeholder group and they would be given a review period for comment and feedback. It is anticipated that the City will recommend the members of the stakeholder group and lead the coordination and scheduling with the members.

3.3. PUBLIC MEETINGS

LCI will attend up to four (4) public process hearing meetings to share the project with elected and appointed officials on the Traffic Commission and the City Council.

The first of these meetings will be with the Traffic Commission to present scope and workplan of the study, and solicit feedback from the Commission and public. Upon review of any revised or additional requested scope, LCI will work with the City to provide recommendations for producing the requested components within the project budget (e.g., reducing scope in some areas to account for increased scope in others).

The remaining public meetings will be targeted to occur soon after each of the community outreach meetings. LCI will prepare up to one (1) 15-minute presentation for each meeting.

TASK 3 DELIVERABLES:

- Attendance at up to two (2) outreach meetings
- Attendance at up to four (4) City Council or Traffic Commission meetings
 - One (1) of these meetings shall be with the Traffic Commission to present the scope of the project, solicit feedback from the Commission, and provide scope update recommendations to the City
- Two (2) targeted surveys in digital format
- One (1) presentation in Powerpoint format, for each meeting

TASK 4: OPERATIONAL ANALYSIS

4.1. PREPARE BASE MODEL IN SYNCHRO, EXAMINE PINCH POINTS



The LIN Team will develop a Synchro model to analyze intersection operations and traffic flows. In addition to the primary intersection of La Palma Avenue and Gypsum Canyon Road, the network will include the traffic signals at Featherly Park/Westbound SR-91 off-ramp and Via Lomas de Yorba East & La Palma, and the constrained on-ramp capacity from the Eastbound SR-91 on-ramp. The ramp capacity will also be estimated using information from previous VISSIM modeling efforts that were completed and confirmation of ramp meter rates. This approach will allow the LIN Team to perform a queuing evaluation that will help calibrate spillover lengths and the practical capacity of the roadways and intersections.

The Synchro model will be developed for the weekday AM and PM peak hours for each of the following scenarios:

- Existing conditions
- Near-Term conditions (10 year), accounting for completion of the SR-91 / SR-241 interchange improvements, including trip generation/distribution/assignment for projects approved or proposed within 1/2 mile.
- Future Year conditions (recommend aligning with the 2020 RTP-SCS Horizon Year of 2045), representing long-term growth in traffic volumes and other roadway improvements planned and programmed by the City and OCTA

It is assumed that the geometry and signal operation information for each baseline scenario will be available from existing sources and no new data collection is required. The LIN Team will be able to extract the Future Year volumes from the OCTA travel demand model (OCTAM), which is based on 2045 conditions. It should be noted that the existing condition results will be validated through observed field conditions, and near-term volumes will be estimated based on growth between the existing year and horizon year.

The LCI Team will use these models to identify pinch points along the path between La Palma Avenue and eastbound SR-91 Freeway, for detailed review of root causes and potential solutions.

4.2. CONCEPT ANALYSIS

The Synchro models and ramp capacity and queues assessment will be utilized during development of the concept designs concurrent with Task 5.3 to inform potential operational changes associated with the designs. Performance metrics, such as total vehicular delay, intersection level of service, intersection queuing, and ramp queuing results will be documented and comparisons to No Project conditions will be produced for up to five alternatives for the near-term future year and scenarios. VMT statistics will also be extracted for use in determining overall measured effectiveness.

A visual simulation of the corridor, using VISSIM, is not included in this task but is included as an optional task. Additionally, VMT calculations for this exercise are assumed to not intended for CEQA approval purposes.

TASK 4 DELIVERABLES:

- Base existing calibrated and validated AM and PM peak hour models, in Synchro format
- Near-term AM and PM peak hour models, in Synchro format
- Future (Horizon Year) AM and PM peak hour models, in Synchro format

TASK 5: CONCEPTUAL DESIGN

5.1. PREPARE BASE MAP



The LIN Team will draw major features from aerial imagery, field visit, and as-builts/plans to form a base map for conceptual design purposes. LIN will also use available Assessor Parcel Maps and other parcel maps readily available to estimate the location of right of way based on field observations. LIN will also use documents readily available to attempt to identify easements and other recorded agreements between agencies.

5.2. EXAMINE CONSTRAINTS AND OPPORTUNITIES

The LIN Team will review the information collected and from stakeholder input to develop a matrix of constraints and opportunities available in the project area. Examples of constraints include, but are not limited to major environmental or regulatory permitting issues and institutional constraints such as neighborhood acceptance. Opportunities also are presented which may allow certain aspects of the conceptual designs to be implemented earlier, or along with other larger projects. Examples include modifications to traffic signals to span a near-term problem, or land use opportunities.

5.3. CONCEPTUAL DESIGN LAYOUTS

The LIN Team will present a layered approach to conceptual design development. As evident by the conceptual operations analyses, LIN will identify a list of countermeasures for each bottleneck location identified. Next, each conceptual design, that will be assessed whether it is a potential immediate-term, near-term, or long term project. Each measure can be considered an element of larger conceptual designs. Initially, up to five (5) draft conceptual designs will be considered and vetted against constraints and opportunities presented. Upon review with the City, the public, elected and appointed officials, and stakeholders, up to three (3) conceptual designs will be refined. Conceptual designs will be developed to a 15% level, which may be used to vet major design issues, identify other issues to be resolved in the next phase, and provide an order-of-magnitude cost estimate.

It is assumed at this time that no major utilities need be identified that would materially affect the conceptual designs. If major utilities are identified, LIN will attempt to work through these as constraints or add as a line item cost. However, ordering and inputting utility maps at this time is premature and not included in this effort, as most minor utility relocations can be avoided or are considered part of the contingency estimate.

TASK 5 DELIVERABLES:

- Base map with right of way drawn from Assessor Parcel maps and other available maps
- Base map with major features drawn from aerial imagery, as-builts, and other plans
- Opportunities and constraints matrix
- Up to five (5) draft conceptual design roll plot layouts, for internal review with City and stakeholders
- Up to three (3) draft conceptual design plans for viable alternatives, including estimated programmatic costs, prepared to 1" = 100' or appropriate scale on 11" x 17", assumed up to nine (9) sheets total
- Up to three (3) final conceptual design plans for viable alternatives, including estimated programmatic costs, prepared to 1" = 100' or appropriate scale on 11" x 17", assumed up to nine (9) sheets total

TASK 6: PROJECT FUNDING

6.1. COST ESTIMATES

The LIN Team will prepare a concept-level order of magnitude cost estimate using 2020 cost data available, indexed to the anticipated year of implementation. The COVID-19 situation has drastically affected material and



labor costs, as well as anticipated inflation. Cost estimates will factor major quantities and other cost drivers, as well as establish a contingency for miscellaneous project costs. LIN will also prepare an estimate for programmatic purposes, to environmentally clear, design, and manage construction of the project. Up to three (3) conceptual cost estimates will be prepared, for viable alternatives.

6.2. IDENTIFY FUNDING OPPORTUNITIES

LCI will prepare a list of funding opportunities and strategies, for the City to consider for the proposed preferred alternative. Such opportunities include working with OCTA to program the preferred alternative into a measure M2 project, incorporation into a larger future OCTA project, identifying grant opportunities that would partially or fully allow construction of the preferred alternative (e.g., programming into SB1). A matrix will be developed which will show each of these funding strategies compared to a scoring matrix of factors to consider such as:

- Grant source competitiveness
- Grant Application process complexity
- Legislative involvement
- % of each conceptual design component that could be funded
- Federal-aid involvement (e.g., NEPA approval)

TASK 3 DELIVERABLES:

- Concept-level (order of magnitude) cost estimates for up to three (3) alternatives
- List of funding opportunities, with scoring matrix

TASK 7: PROJECT STUDY REPORT

LCI understands that the City desires to move quickly on the project. LCI also understands that the City would like a solid basis for moving forward on the preferred alternative, and that design issues will be identified and resolved in the next phase of the project. Therefore, we will prepare a brief Draft Project Study Report and Final Project Study Report for the study. The project study report will generally be in Caltrans-compliant "Project Study Report Equivalent" format. The report will contain items studied as part of this study, and provide a general assessment of environmental and other institutional constraints, as well as recommendations for future study, public hearings, and recommended alternatives or preferred alternative.

The reports will contain the following at a minimum (with a maximum target of 10 pages for brevity, not including attachments):

Introduction and Background

- Project History
- Existing Facility

Need and Purpose

- Problem, Deficiencies, Justification
- Regional & System Planning
- Traffic & Issues Identified

Alternatives Considered

- Viable Alternatives
- Rejected Alternatives

Considerations requiring Discussion



- Resource Conservation
- Right of Way Issues
- Environmental Issues

Other Considerations (as appropriate)

Estimate and Funding Strategy

Delivery Schedule

Known Risks

Conclusion and Recommendations

TASK 7 DELIVERABLES:

- Draft Project Study Report
- Pre-final Project Study Report
- Final Project Study Report

TASK 8: PREPARE VISSIM MODEL

The LIN Team will develop one (1) VISSIM model of the weekday PM peak hour under the future year scenario for the City-recommended preferred improvement alternative. The modeling will begin with producing a base VISSIM model which emulates existing conditions and draws on the speed and capacity information as presented in the 241/91 Express Lanes Connector Traffic Study. The base model will be calibrated and validated using data collected in the field. From the base model, a future condition VISSIM model will be created. This VISSIM model will visually show anticipated traffic flow along La Palma Ave between Mercado del Rio and Camino de Bryant and along Gypsum Canyon Road between La Palma Ave and Santa Ana Canyon Rd. The VISSIM model will include corridor-specific inputs that allows the microsimulation tool to include interactions between ramp capacity, ramp meters, traffic signal operations, roadway capacities, and vehicle mix (including trucks). Travel time along the corridors will be documented and compared to existing VISSIM model travel times available from existing sources for calibration and validation. The simulation will conform with FHWA modeling guidelines and be made available in a video format for use by City staff. Upon City approval, the model will be capable of being shown to stakeholders and the public.

TASK 8 DELIVERABLES:

- VISSIM base model of existing conditions including calibration and validation
- VISSIM model for one (1) scenario, in the PM condition