



February 2024

LOCAL DEVELOPMENT REVIEW (LDR) SAFETY REVIEW PRACTITIONER'S GUIDANCE

LOCAL DEVELOPMENT REVIEW PROGRAM

**LOCAL DEVELOPMENTAL REVIEW SAFETY
REVIEW PRACTITIONERS GUIDANCE**

Table of Contents

Safety Review Screening Criteria	1
1. Purpose	1
2. Background	2
3. Scope	4
3.1 Using SHSP Challenge Areas to Determine Safety Review Context	4
3.2 Using Facility Types to Determine Safety Review Context	5
3.3 Additional Factors to Consider When Conducting Safety Reviews	7
3.4 Freeway-Congestion Safety Considerations.....	8
4. Safety Review Process, Considerations, and Roles	9
4.1 Safety Review Process and Considerations	9
4.2 Roles and Responsibilities	12
5. Process for Conducting Review	13
6. Final Steps/Other Details	16

List of Figures

Figure 1. Safety Review Determination Process	11
Figure 2. Safety Study and Review Process	15

List of Tables

Table 1 Typical CEQA Documents and Associated Comment Periods.....	4
Table 2 Facility Types, Characteristics, and Focus Areas.....	5
Table 3 Potential Safety Review Considerations by Relevant SHSP Challenge Areas.....	18

List of Acronyms and Abbreviations

Caltrans – California Department of Transportation.....	1, 2, 3, 4, 7, 8, 9, 10, 12, 13, 14, 16
CEQA – California Environmental Quality Act.....	1, 2, 3, 4, 8
CPRA – California Public Records Act.....	13
DD – Deputy Directive.....	2
DP – Director’s Policy.....	2
FHWA – Federal Highway Administration.....	2, 3, 14
GHG – Greenhouse Gas.....	4
GTS – Geo-based Tracking System.....	4, 9, 12, 16
HCM – Highway Capacity Manual.....	1
HSIP – Highway Safety Improvement Program.....	2, 10, 14
LDR – Local Development Review.....	1, 2, 3, 4, 7, 8, 9, 10, 11, 13, 14, 16
LOS – Level of Service.....	1, 9
LRSP – Local Roadway Safety Plan.....	2
NEPA – National Environmental Policy Act.....	4
OPR – Governor’s Office of Planning and Research.....	4
OTS – Office of Traffic Safety.....	2
SER – Standard Environmental Reference.....	8
SHS – State Highway System.....	1, 2, 3, 4, 7, 8, 9, 12, 13
SSAR – Systemic Safety Analysis Report.....	2
TIA – Transportation Impact Analysis.....	7, 8, 9, 10, 12, 13
TIR – Traffic Investigation Report.....	9, 12, 16
TISG – Transportation Impact Study Guide.....	1, 3
TSB – Traffic Safety Bulletin.....	1
VMT – Vehicle Miles Traveled.....	4, 8
VRU – Vulnerable Road User.....	1, 3, 6, 7, 11

Safety Review Screening Criteria

Developments are not required to go through a safety review if they meet **both** of the following criteria. Staff can refer to the **LDR Safety Review Screening Guidelines (Appendix E)** for detailed information.

- The project makes no physical modification in the State Highway System (SHS) right-of-way, and;
- The project results in zero additional trips by any mode on the SHS.

1. Purpose

This Local Development Review (LDR) Safety Review Practitioners Guidance (Guidance) provides instructions to the California Department of Transportation (Caltrans) personnel who conduct road safety reviews for proposed land use projects and plans affecting the State Highway System (SHS), within the scope of the LDR process. This Guidance replaces the guidance issued in December 2020 as part of the Traffic Safety Bulletin (TSB) #20-02-R1, titled *Interim Local Development Intergovernmental Review Safety Review Practitioners Guidance*.

This Guidance establishes the recommended transportation safety impact review process for Caltrans and lead agencies for evaluating proposed land use projects. While this Guidance is intended to be used for projects affecting the SHS, it can also be used by lead agencies, developers/applicants, and consultants as a model for analyzing the safety impacts of proposed land use projects and plans on local roadways. This Guidance prioritizes vulnerable road users (VRU)¹ and underserved communities; enhances safety for pedestrians, bicyclists, transit, and vehicular modes; and applies both reactive and systemic perspectives.

This Guidance supports the shift away from using Highway Capacity Manual Level of Service (LOS) as a metric of analysis under the California Environmental Quality Act (CEQA), in accordance with implementing *Senate Bill 743*, and complements the “[Vehicle Miles Traveled-Focused Transportation Impact Study Guide](#)” (TISG) (dated May 20, 2020). It is intended that the safety reviews described herein are complementary to the broader LDR process.

¹ FHWA defines Vulnerable Road Users as non-motorists such as a pedestrian or bicyclist. The full definition can be found here: https://highways.dot.gov/sites/fhwa.dot.gov/files/2022-10/VRU%20Safety%20Assessment%20Guidance%20FINAL_508.pdf

This Guidance aims to improve consistency and transparency of the safety review process, as part of the LDR process, and to facilitate sustainable development while improving safety on the SHS. The safety review process, as part of the LDR Program, is not intended to replace the encroachment permit review process.

2. Background

The Caltrans LDR Program is the conduit for reviewing projects and plans that could impact the SHS. The LDR Program aims to provide recommendations that encourage land use decisions to closely align with state transportation planning priorities, goals, policies, and plans for all land uses, so that these decisions do not impact the safety of the SHS. The LDR Program also evaluates studies and reports related to proposed developments, to ensure they analyze and document impacts, and that mitigation measures or project features avoid or minimize impacts to the SHS.

Caltrans has set a goal to reach zero traffic-related fatalities and serious injuries in California by 2050, which is part of the Federal Highway Administration's (FHWA) nationwide zero fatalities goal. The implementation of safety review into the LDR process will be a key strategy to reducing these collisions. Caltrans encourages lead agencies to develop Local Roadway Safety Plans (LRSPs), Systemic Safety Analysis Reports (SSARs) or Vision Zero Plans that create a framework to systematically identify and analyze traffic safety issues and recommend traffic safety improvements. Caltrans also encourages lead agencies to complete traffic safety impact analyses as part of their CEQA review process.

This Guidance builds off existing Caltrans policy and guidance, such as *Director's Policy 36 (DP-36)* and *Deputy Directive 25 (DD-25)*. DP-36 outlines a vision to eliminate fatalities and serious injuries on California roadways by 2050. DD-25 outlines the purpose and goals of the LDR program.

This Guidance supports the *Strategic Highway Safety Plan (SHSP)* goals and guiding principles. The guiding principles of the SHSP are to Integrate Equity, Double Down on What Works, Accelerate Advanced Technology, and Implement [the Safe System Approach](#). The Guidance demonstrates that Caltrans can:

- Integrate equity into the safety review process by identifying improvements beneficial to underserved populations.

- Double down on what works by prioritizing countermeasures that have been proved to reduce fatalities and severe injuries.
- Implement advanced technology on roadways where appropriate.
- Support the implementation of the Safe System Approach (SSA) in the safety review process by promoting a proactive safety process and emphasizing that safety is the responsibility of both roadway owners and users.

Working in conjunction with other statewide safety plans such as the *Highway Safety Improvement Program (HSIP)*, the *California Office of Traffic Safety (OTS) Highway Safety Plan*, and the *Commercial Vehicle Safety Plan*, the SHSP provides guidance that will influence the development of goals, strategies, and performance measures for stakeholders working to improve safety throughout California, with a goal to reduce traffic fatalities to zero. The Guidance supports Section 1.2 of the TISG by providing clarity on how to perform safety analysis in a transportation impact analysis. These LDR guidelines address how to increase safety for VRUs through Proven Safety Countermeasures.²

The LDR Program focuses on projects in which Caltrans serves as a reviewing or commenting agency and is not the lead approval entity. Caltrans, through LDR, is a Responsible or Commenting Agency for CEQA and National Environmental Policy Act (NEPA). Many proposals can directly or indirectly impact the SHS even if the proposed activity, project, or plan is several miles from a state facility. Off-system projects of Statewide, Regional, or Areawide Significance (See CEQA Section 15026), can impact the SHS as well as generate additional vehicle miles traveled (VMT) and increase greenhouse gas (GHG) emissions. Agencies overseeing the development of these projects submit documentation to Caltrans directly or, if acting under CEQA, via the Governor's Office of Planning and Research (OPR) State Clearinghouse website, which regularly notifies Responsible or Commenting State Agencies via email. Project information may include environmental documents, land use plans, public notices, and other CEQA/NEPA and non-CEQA/NEPA documents. **Table 1** shows some example CEQA documents often involved with the LDR process and their timelines for review.

² Caltrans' Proven Safety Countermeasures can be found here: <https://dot.ca.gov/programs/safety-programs/proven-safety-countermeasures>. FHWA's Proven Safety Countermeasures can be found here: <https://highways.dot.gov/safety/proven-safety-countermeasures>

Table 1 Typical CEQA Documents and Associated Comment Periods

Document	Comment Period
Initial Study (IS)	30-day
Notice of Preparation (for DEIR)	30-day
Negative Declaration (ND)	20-to-30-day (as specified)
Environmental Impact Report (EIR)	30-to-60-day (as specified)

Caltrans' Division of Transportation Planning maintains a centralized statewide database known as the Geo-based Tracking System (GTS) that maps and stores local development projects, plans, documents, and staff recommendations.

3. Scope

The scope of the safety review is dependent on multiple factors, including the type of state highway facility affected and the relative impact of the development to the SHS. The level of impact can vary according to the proximity, scale, type of development, amount of multimodal traffic using or crossing the state facility or through direct modification of state facilities to accommodate new access, new traffic patterns, or increased traffic volume. The land use context of the facility also impacts the likely mode splits and types of conflict that will probably be introduced. The following sections outline how to use Caltrans safety challenge areas and facility types to determine the context of the safety review.

3.1 Using SHSP Challenge Areas to Determine Safety Review Context

As part of the SHSP, Caltrans has identified several safety challenge areas statewide that the Caltrans district traffic safety reviewer should consider when conducting a safety review.

The following six challenge areas were identified as high priorities in California as they represent the greatest opportunity to reduce fatalities and severe injuries:

- Lane Departures
- Impaired Driving
- Speed Management
- Pedestrians
- Bicyclists
- Intersection

The Caltrans district traffic safety reviewer should be familiar with the safety challenge areas, and the current and past initiatives related to those SHSP challenge areas. The *California SHSP Action Tracking Tool* is available for Caltrans staff to review the monitoring program results of the current statewide safety initiatives. The table titled "Potential Safety Review Considerations by SHSP Challenge Area" on page 18 of **Appendix A** outlines potential factors that safety reviewers consider depending on roadway and local area context, organized by SHSP challenge area. Not all considerations will be appropriate for all projects and locations.

3.2 Using Facility Types to Determine Safety Review Context

The type of facility can be used to determine the context of the review. The focus areas listed in **Table 2** are not intended to limit the appropriate scope of a context sensitive safety review, but to set an expectation of the most probable impacts to a given type of facility. **Table 2** summarizes the different facility types, relevant characteristics, and areas of focus during a safety review along the specific facility types. Special attention should be paid at all locations to the impacts of pedestrians, bicyclists, and transit users. Where possible, the facilities utilized by these groups should be maintained or improved.

Table 2 Facility Types, Characteristics, and Focus Areas

Facility Type	Relevant Characteristics	Safety Review Focus Areas
Rural two-lane conventional highways	Higher speeds with lower volumes, likely do not have significant bicycle or pedestrian volumes	Speed control, access management (driveways, intersections, and roundabouts), prevention of lane departures via alignment standards or delineation/signing, roadside clear recovery zone concepts, and providing rural area appropriate accommodations for bicycles and pedestrians
Suburban or urban conventional highways that may include a center two-way left-turn lane	Higher volumes and may include more multimodal traffic	Speed management, access management, accommodations for bicycles and pedestrians, traffic control devices (driveways/intersections/roundabouts), and conflict avoidance

Facility Type	Relevant Characteristics	Safety Review Focus Areas
Expressways that have been built for higher speeds and higher traffic volumes	Often accommodate bicycles and pedestrians, these facilities have high levels of traffic stress and are not comfortable for VRUs	Access management (acceleration/deceleration lanes or ramps), traffic control devices, conflict avoidance, appropriate speed control, and safer accommodation for bicycles and pedestrians, particularly at crossings
Rural multi-lane conventional highways	High volumes and high speeds	Speed management, access management (intersections and roundabouts), prevention of lane departures via alignment standards or delineation/signing, roadside clear recovery zone concepts, and providing rural area appropriate accommodations for bicycles and pedestrians, particularly at crossings
Multi-lane suburban and urban conventional highways	Higher speeds and will also include bicycle and pedestrian amenities	Speed management, accommodations for bicycles and pedestrians, traffic control devices (intersections and roundabouts), and conflict avoidance, particularly at intersections and driveways
Rural divided conventional highways (with separate alignments)	These highways often operate similarly to expressways	Access management (intersections, driveways, and roundabouts), conflict avoidance, appropriate speed control, and safer accommodation for bicycles and pedestrians, particularly at crossings
Urban divided conventional highways (with separate alignments)	Typically operate at lower speeds than rural counterparts but faster than other urban corridors	Speed management, accommodations for bicycles and pedestrians, traffic control devices (intersections and roundabouts), and conflict avoidance, particularly at intersections and driveways

Facility Type	Relevant Characteristics	Safety Review Focus Areas
Limited access freeway facilities	Designed to operate as free-flowing traffic at high speed, some freeways do permit bicycle and pedestrian access due to the lack of alternative routes, these facilities are not designed to be multimodal facilities	Points of controlled access (ramps), conflict avoidance (weaving, entering, existing maneuvers, ramp crossings), correlation between collisions and design standards such as widths and alignment, where appropriate, separation of VRUs users from vehicular traffic, and prevention of wrong-way driving

3.3 Additional Factors to Consider When Conducting Safety Reviews

The specific impact of developments to the SHS can also be determined by reviewing the following:

- Proximity of the development to the state highway facility.
- The number of multimodal trips added to the state highway facility or multimodal trips that need to cross the facility as the result of the development.
- The number of automobiles, heavy vehicles (trucks), bicycle, and pedestrian trips added to the state highway facility.
- Modification of access (including driveways and street parking), control, capacity, traffic patterns, or lane configuration to state highway facilities.
- Number of conflict points created or removed due to the development.

If an SHS facility is studied as part of a development's Transportation Impact Analysis (TIA), then a safety review is part of the LDR process and district Traffic Safety will be one of the functional reviewers.

If the initial TIA submitted to Caltrans by the developer does not include a safety analysis that provides the necessary information or considerations, the district LDR coordinator should request a safety analysis be included in the TIA, before completing the LDR review process.

Due to the varied nature of development, the difficulty of separating existing safety performance from that caused by development-related traffic, and the specific contexts of facilities across the state, there is no defined threshold of

significance for assessing safety impacts. Instead, at the TIA scoping meeting, the developer/applicant, local agency, and safety reviewer must determine what safety mitigations are required through a reasonable and realistic review of the actual impacts each development will have on the SHS. The significance of impacts should be determined with careful judgment on the part of a public agency and based, to the greatest extent possible, on scientific and factual data consistent with Caltrans' CEQA guidance contained in Caltrans' Standard Environmental Reference (SER), Chapter 36, "Environmental Impact Report," the CEQA guidelines found in the California Code of Regulations, Title 14, Division 6, Chapter 3, Article 5, Section 15064(f), "Determining the Significance of the Environmental Effects Caused by a Project.", the California Association of Environmental Professionals CEQA Statute & Guidelines document, and the Highway Design Manual.

Automobile congestion or delay itself does not constitute a significant environmental impact (Public Resources Code, §21099(b)(2)), and traffic safety should not be used as a proxy for road capacity.

3.4 Freeway Congestion Safety Considerations

Freeway congestion-related crashes should not be the focus of the LDR safety review. The intent of the Guidance is to provide an outline for when queuing should be reviewed for traffic safety impacts. A review does not necessitate the need for traffic safety mitigation but is to evaluate whether a significant safety impact based on speed differential may occur. Subsequently, the significance of that traffic safety impact by the project must be determined on a case-by-case basis. The Guidance recognizes the fluid nature of freeway exit ramp queuing, and the difficulty in developing a nexus to any one project.

When there are potential safety impacts, Traffic Operations may perform or review a freeway queuing analysis, pursuant to **Appendix B**. If a potential safety impact is identified, Traffic Operations will bring it to the attention of the Safety Reviewer. See **Appendix B**, "Freeway Exit-Ramp Queuing Analysis," for additional information based on the City of Los Angeles Interim Guidance for Freeway Safety Analysis.

4. Safety Review Process, Considerations, and Roles

4.1 Safety Review Process and Considerations

When the safety reviewer uses engineering judgement to determine that no safety review is necessary, the safety reviewer will document why the safety review is not needed in the GTS and the Type IR TIR (if one is opened). This documentation should specify the reason why the safety review is not needed. Refer to Safety Review Screening Criteria previously mentioned in this Guidance.

If a safety review is determined to be necessary during the initial scoping review, the safety reviewer will provide a request and scope to the district LDR coordinator for the safety analysis to be included in the TIA and will provide the requested safety analysis procedure. This includes the application form for the developer to request the appropriate Caltrans safety database information to conduct their analysis. The district LDR coordinator will forward the requested information to the lead agency or developer/applicant. The Caltrans Safety Data Request form can be found in **Appendix C**. Requesting additional information for safety reviews does not stop the clock on the CEQA review timeframe that is set by the local agency.

In some cases, Caltrans may not require a safety analysis to be completed by the developer/applicant, and in such cases, district staff may conduct the safety analysis. The process for developing a safety analysis is included in **Appendix D**.

The developer/applicant would complete its TIA including the appropriate safety study, and work with the local agency to submit it to the Caltrans LDR team for review.

The safety reviewer will first determine that the safety analysis was conducted according to the requested scope, and if not, will request updated information as appropriate. If the study was conducted according to the requested scope, the review team will verify that the analysis findings are correct and consistent with the inputs and proposed project elements. The reviewer will also compare the proposed development plan to existing Caltrans and local safety plans for consistency and best practices.

The district safety reviewer should use the latest HSIP Guidelines from Caltrans Division of Safety Programs to identify existing safety issues. Existing traffic safety issues on the SHS should be investigated via Type O investigation for resolution by Caltrans. Locations with existing safety issues that may be affected by the proposed development project should be reviewed for additional or alternate safety improvements to mitigate the increased conflicts.

Mitigation strategies for these safety impacts should not be vehicular capacity-increasing. Mitigations should not prioritize vehicle operations over pedestrian and bicycle safety. Other mitigation strategies should not degrade safety, mobility, or accessibility for VRUs.

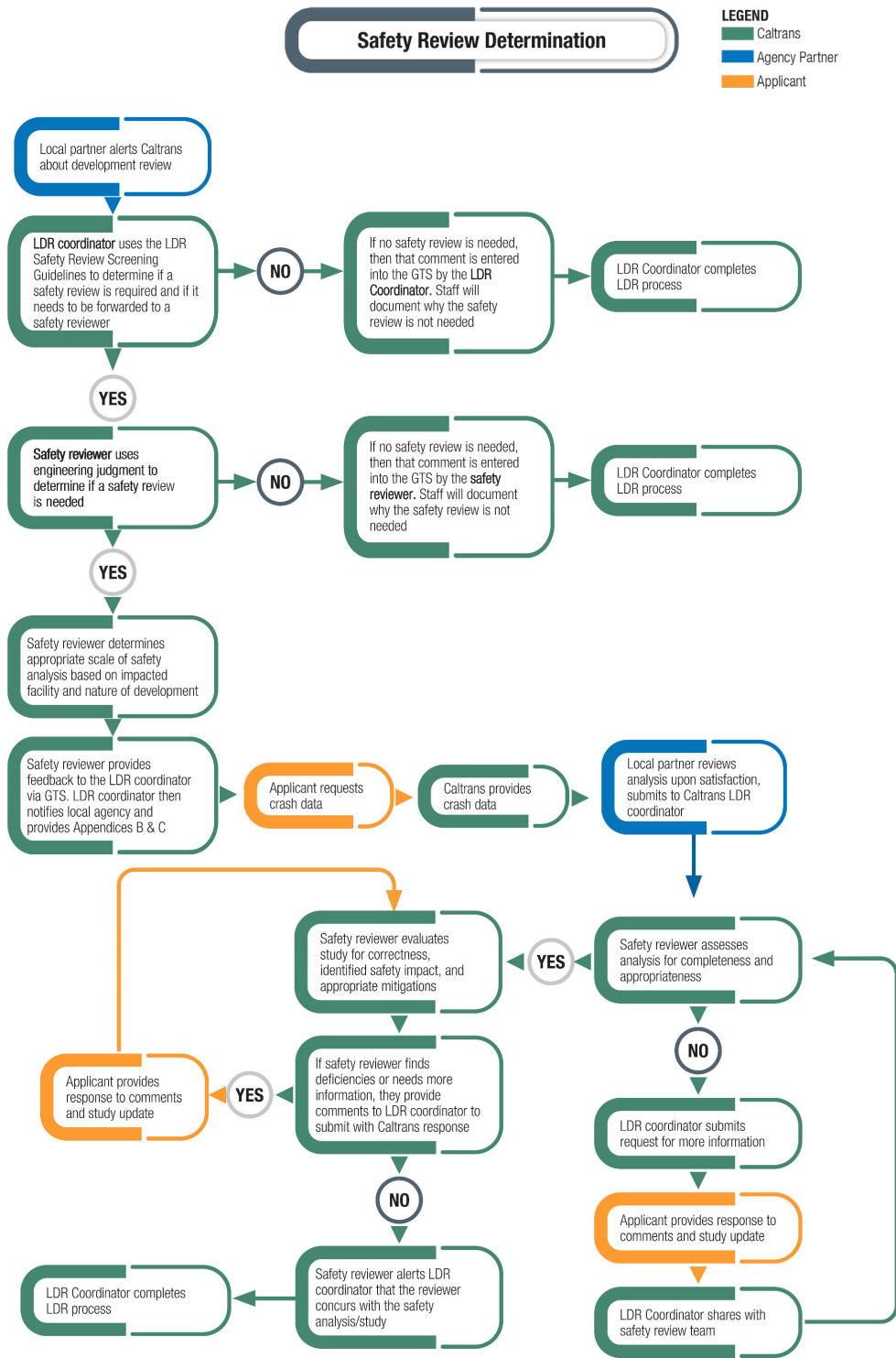
If significant safety impacts are identified in the TIA, the reviewer will evaluate the proposed mitigations to ensure consistency with current best practices, and that they are appropriately addressing the safety impact. For mitigation to be appropriate, the reviewer must identify a direct causal connection between the project and the impact.

The safety reviewer will then work with the LDR coordinator to incorporate any comments or requests into a response

letter from Caltrans to the lead agency.

The safety review determination process is shown in **Figure 1**.

Figure 1. Safety Review Determination Process



4.2 Roles and Responsibilities

The roles and responsibilities for each party involved in the safety review process are outlined below.

The Caltrans district LDR coordinator is responsible for the following activities:

- Serve as primary point of contact with lead agency and developer/applicant as necessary. Tasks include scheduling meetings, requests for additional information, and other general correspondence
- Use the Safety Review Screening Criteria to determine if the proposed project needs to be forwarded to the safety reviewer
- Request that a safety analysis be performed, if the safety reviewer determine that it is needed, and if not included in the initial submittal
- Shares submitted materials with safety review team to receive a determination if a safety review is needed
- Provide a letter on Caltrans letterhead with scope of required safety review methodology to the lead agency and developer/applicant
- Provide a request form for Caltrans safety crash data summary (Appendix C) to the local agency to forward to the developer/applicant
- Provide safety reviewer's comments/recommendations to the lead agency

The safety reviewer is responsible for the following activities:

- Consult with Traffic Operations, Planning, and/or Design and Maintenance when pertinent to consider access management, intersection controls, capacity, travel patterns, or lane configuration on state highway facilities
- Review existing Caltrans and local safety plans for consistency and best practices, use Caltrans' latest HSIP Guidelines from the Division of Safety Programs to identify existing safety issues
- Determine if safety analysis is required and define the scope of the safety analysis
- Review safety analysis as it relates to the SHS, evaluate proposed mitigation(s) for appropriateness in addressing the safety concern(s) and for compliance with best practices

- Provide Caltrans safety database crash data summary for safety analysis to the LDR coordinator upon receiving a completed request form in Appendix C and a California Public Records Act (CPRA) request if required
- Review whether Caltrans safety database information was interpreted correctly in the TIA
- Review Caltrans current and proposed projects for any planned safety improvements in the project area
- Review the projected safety impacts for consistency with engineering standards
- Compile the results of the safety analysis into a Traffic Investigation Report (TIR) and send comments/recommendations to the district LDR coordinator for the project, via GTS

Traffic Operations is responsible for the following activities:

- Review or perform needed operational analyses (e.g., freeway exit-ramp and/or intersection queuing analysis)
- Collaborate with Planning and safety reviewer regarding access management, intersection controls, capacity, travel patterns, or lane configuration on state highway facilities

The developer/applicant is responsible for the following activities:

- Request Caltrans crash data summary for the involved SHS facilities
- Conduct a transportation impact analysis that includes a safety review

The Lead agency is responsible for the following activities:

- Determine that the safety analysis complies with local requirements
- Review overall analysis and trip generation and VMT estimates
- Ensure the project is consistent with the lead agency's current plans and local growth priorities

5. Process for Conducting Review

The LDR coordinator will work with the safety reviewer to assess the potential safety impact of the project, and whether a safety review is needed. If it appears that a safety review will be needed, the safety reviewer completes a Phase 1 screen (see **Figure 2**).

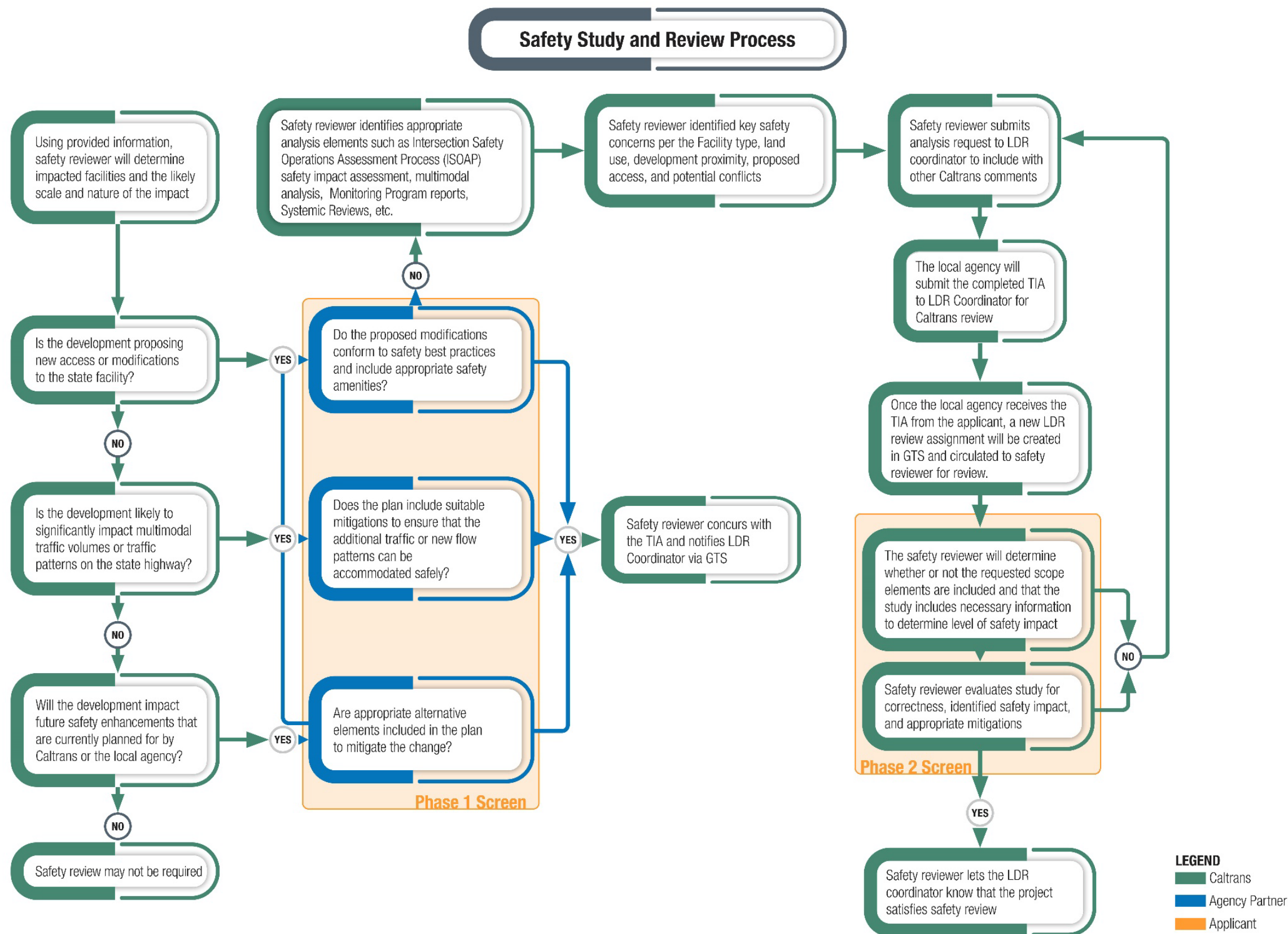
A Phase 1 screen includes the following steps:

- Check if the proposed modifications conform to safety best practices and include appropriate safety countermeasures
- Determine if the plan includes suitable mitigations to address the safety impacts

The Phase 1 screening aims to provide any initial suggestions that would make the development more likely to meet safety goals (such as reducing fatalities, serious injuries, and conflicts with pedestrians and bicyclists). If the project appears to not have the necessary considerations to manage safety risks, the safety reviewer will define the scope and recommend a safety analysis process (as shown in **Appendix D**) to include with Caltrans' response. Upon receipt of the completed TIA with the recommended safety analysis, the safety reviewer will conduct a Phase 2 screen (see **Figure 2**).

The Phase 2 screen assesses the completeness, correctness, and appropriateness of the study's proposed safety mitigations. Safety data used in this process can be from Caltrans safety database data, results from the Monitoring Program and Table C/Wet Table C Reports, or any systemic review of the area or facility (such as a Local Road Safety Plan or District Safety Plan). Safety reviewers can refer to the Caltrans State Highway Safety Improvement Program (HSIP) Guidelines and *FHWA Proven Safety Countermeasures* for current safety countermeasures for appropriate mitigations/alternatives. **Figure 2** outlines the LDR safety review process.

Figure 2. Safety Study and Review Process



6. Final Steps

Once the safety review process has been completed, the methods and results of the safety analysis are documented in the Type IR TIR, after which the recommendations are submitted to the district LDR coordinator via GTS. The safety reviewer will assist the district LDR coordinator with incorporating safety-related comments into the comment letter that will be sent to the lead agency.











Satisfactory completion of the LDR review process, including this safety review, is required before Caltrans issues encroachment permits to the developer/applicant or its contractors.

Caltrans will evaluate the LDR review process and Type IR investigations guidance in 2026 to determine if additional updates are needed.

Appendix A

Potential Safety Review Considerations by Strategic Highway Safety Plan (SHSP) Challenge Area

Table 3 Potential Safety Review Considerations by Relevant SHSP Challenge Areas

	Facility Access	Active Transportation Environment	Mode Split	Vehicle Speed	Traffic Control	Traffic Volume	New Conflicts
 Bicycles	Accommodations for bikes at intersections, including bike detection, bike specific signal heads, bicycle leading interval, phase separations to prevent conflicting movements. Consider direct and exclusive bicycle access route(s) between the project and the SHS. Trail crossing(s) to facilitate access, as needed.	Reduce Level of Traffic Stress (LTS) and consider on-site amenities (secure bike parking) to encourage customers and employees to commute by bicycle.	Will the project generate or reduce the ratio of bike trips to vehicle trips?	Increase separation distance or width of bicycle lane where vehicle speeds are 35 MPH or higher.	Accommodations for bikes at intersections, including bike detection, bike specific signal heads, bicycle leading interval, phase separations to prevent conflicting movements.	Is there additional exposure for bicyclists?	Will new traffic patterns (driveways) conflict with an existing bikeway or bike lane?
 Impaired Driving	Reduce the number of high severity conflict points (left turns across high speed traffic) between the project and SHS.	Are separate pedestrian and bicycle facilities available along desired paths of travel?	Alternative modal access (walking, transit, taxi/ridesharing)	Roadways with appropriate design speed	Minimize driver workload when navigating related intersections	Consider how off-peak traffic volumes affect roadway conflicts. Does reduced congestion off-peak increase prevailing traffic speeds and crash risk? Is it more difficult, or easier, for pedestrians and bikes to cross?	Highlight new conflict points that cannot otherwise be eliminated (Green conflict zones for bikeways, intersection lane markings to guide turning movements)
 Intersections	Encourage project is using local roads for project access, rather than direct access to the SHS via driveways, to reduce conflict points on the SHS.	Accommodations for bikes and pedestrians, including Leading Pedestrian Intervals, high visibility crosswalks, pedestrian countdown heads. See FHWA Proven Safety Countermeasures for Pedestrian/Bicyclists and Intersections	Consider separate access points for vehicles from the other modes. Consider protected intersection designs.	Consider eliminating conflict points (crossing or turning movements) and adding speed management features.	Traffic Operations follows ICE process if appropriate to identify appropriate traffic control	Determine if roadway accounts for vehicle movements on all approaches	Traffic Operations follows ICE process if appropriate to identify any additional conflict created
 Lane Departures	Site access points are designed to safely accommodate anticipated vehicle speeds	Pedestrian and bicycle facilities have adequate separation from vehicular traffic	Design speed appropriate for expected mode split	Facility design speed is appropriate for access density, curvature, and anticipated traffic patterns	Traffic control is appropriate for design speed and adequate warning indicators are included in the design	Design speed appropriate for expected volume	Design does not introduce conflicts that might require high speed maneuvers
 Pedestrians	Consider direct and exclusive pedestrian access route(s) between the project and the SHS. Pedestrian crossing(s) to facilitate access, as needed.	Take note of existing pedestrian desire paths, and consider shortest distance/paths between project and transit stops, and other pedestrian attractors (coffee shops, restaurants, convenience stores) for improvements.	Determine if there will be an increase or decrease in pedestrian volume	Separation from vehicle traffic, especially where vehicle speeds are high. Consider traffic calming measures, where appropriate	Accommodations for pedestrians at intersections with traffic control, including crosswalks and sidewalks	Identify areas with increased exposure for pedestrians	New traffic pattern where vehicles cross sidewalks or crosswalks
 Speed Management	Design speed appropriate for access type and quantity	Appropriate separation for bicycles and pedestrians, such as raised crosswalk, separated bicycle lanes, and raised sidewalks	Design speed appropriate for expected mode split	Strategies to manage vehicle speed, including speed feedback signs, reduced lane widths, and changes to roadway design	Identify the traffic control appropriate for speed	Design speed appropriate for expected volume	Minimize driver workload and conflict as appropriate for design speed
 Aging Drivers	Avoid uncontrolled conflict points in areas with high senior populations	Provide ADA accessible facilities for pedestrians (curb ramps, crosswalks, countdown heads)	Facility design that encourages walking and slower vehicles	Design speed is appropriate for context and land use	Provide advanced warning and minimize driver workload at intersections	Appropriate traffic control and access management for volume	Eliminate or reduce unprotected left turn movements at project access points where possible.
 Commercial Vehicles	Does Commercial Vehicle (Truck) project generated trips warrant a separate access point from all other modes? Increased length acceleration and deceleration lanes needed?	Eliminate or reduce conflicts between modes by considering Speed Management, Ped/Bike, and Intersection FHWA proven safety counter-measure categories.	Identify if the development will result in an increase or decrease in commercial vehicle traffic	Design speed appropriate for expected truck volume	Traffic control and intersection design and signage directs commercial vehicles to appropriate routes and facilities	Design is appropriate for expected freight volume	Design eliminates or reduces potential for right-turn conflicts with commercial vehicles.
 Distracted Driving	Access points include redundant signage and markers to attract driver attention	Active transportation facilities are well marked and separated from vehicular traffic - including raised sidewalks, raised crosswalks, separated bicycle lanes, and curb bulb-outs	Identify if the development will result in an increase or decrease in vulnerable road user traffic	Design speed is appropriate and traffic control devices are clearly visible	Traffic control includes redundancy to capture driver attention - including additional signal heads or signage	Facility design and signage captures driver attention even when volume is low	Access points include redundant signage and marker to attract driver attention
 Young Drivers	Avoid uncontrolled conflict in areas such as high schools with inexperienced drivers	Provide well marked facilities for pedestrians and bicycles	Facility design encourages walking and slower driving	Design speed is appropriate for context and land use	Provide advanced warning and minimize driver workload	Appropriate traffic control and access management for volume	Avoid uncontrolled conflict in areas such as high schools with inexperienced drivers

Appendix B

Freeway Exit-Ramp Queuing Analysis

If the Project adds two or more car lengths to the ramp queue that will extend into the freeway mainline, then the location must be reviewed for traffic safety impacts. This review must evaluate speed differential between the off-ramp queue and the mainline of the freeway during the same period.

The review for traffic safety impacts is needed to determine if traffic safety mitigation is necessary. Not all instances of freeway off-ramp queueing require traffic safety mitigation.

Traffic safety mitigation shall not be requested under conditions where queuing already exists on a freeway exit ramp. This includes:

- Conditions where freeway exit-ramp queuing currently extends onto the mainline;
- Where queuing currently exceeds the length of a freeway auxiliary lane; or
- Where freeway traffic volumes currently cause freeway exit ramp turning lanes to exceed capacity.

Traffic safety mitigation may be requested if freeway exit ramp queuing does not occur under the existing condition, but project-generated traffic volumes will cause a queue to extend onto the freeway mainline, creating a speed differential of 30 mph or greater. Speed differentials in congestion related rear-end collisions that are 30 mph or greater have shown the potential to increase severe injury and fatal injuries exponentially as the speed differential increases above the 30-mph threshold³.

The speed differential should be determined by identifying the operating speed of the freeway mainline lanes during the corresponding period during which the ramp is expected to experience project-related queue overflow. To determine the speed differential using a data-based approach, Caltrans Performance

³ Current Understanding of the Effects of Congestion on Traffic Accidents, Angus Eugene Retallack and Bertram Ostendorf, 2019, and Relationships Between Crash Casualties and Crash Attributes, SAE International, 1997.

Measurement System (PeMS) data should be used to identify freeway operating speed(s) during the applicable period.

If reliable PeMS data are not available for the subject location(s), other sources of speed data including location-based data collection services from available sources could be used. If no reliable data can be obtained to determine speed differentials, then no traffic safety impact mitigation shall be requested.

If the speed differential between the mainline lane speeds and the ramp traffic is less than 30 mph, the project would be considered to cause a less-than-significant safety impact and no traffic safety impact mitigation shall be requested.

If the speed differential is 30 mph or more, then there is a potential safety impact. To offset this potential condition, the traffic safety review should consider requesting the following preferred traffic safety impact mitigation strategies:

- Transportation demand management program(s) to reduce the project's trip generation, which may include increased transit access, commute trip reductions such as rideshare programs, shared mobility facilities (bicycle or vehicular), increased bicycle and pedestrian infrastructure;
- Investments to existing active transportation infrastructure, or transit system amenities (or expansion) to reduce the project's trip generation; and/or
- Potential change(s) to the ramp terminal operations including, but not limited to lane reassignment, traffic signalization, signal phasing or timing modifications, turn lane extensions to accommodate the additional project traffic.

These traffic safety mitigations require Caltrans and the lead agency to coordinate early in the LDR process to discuss options, potential traffic safety mitigation, and agreement between Caltrans and the lead agency of the proposed traffic safety impact mitigation measure(s).

Appendix C

Caltrans Safety Data Request Form



Crash Data on State Highway System Request Form

Please complete this form to request crash data on the State Highway System (SHS):

1. Internal requesters shall submit this form to the respective District Traffic Safety office.
2. External requesters WORKING with Caltrans on SHS projects shall submit this form to Caltrans Engineers assigned to the projects or to the appropriate Caltrans District Public Information Office.
3. External requesters NOT WORKING on SHS projects may submit this form with a CPRA request. It is highly recommended to provide the necessary information on the form for Caltrans to process the request promptly. CPRA link:

[https://caltrans.mycusthelp.com/WEBAPP/rs/\(S\(h2yg4jgtjvs3zld55xux1qsd\)\)/support/home.aspx](https://caltrans.mycusthelp.com/WEBAPP/rs/(S(h2yg4jgtjvs3zld55xux1qsd))/support/home.aspx)

Per Caltrans' records retention policy for Traffic Safety and Traffic Accident Surveillance and Analysis System, crash data is only available for the most recent 10 complete calendar years plus the current year.

Requester Information:

Date Requested: <input type="text"/>		
Name	Title	Division/Office:
Address	Phone	Email

Crash Data Requested: Use the space below to describe your request and the basic data element desired. Data will be provided in PDF format only.

Request Date Range: Start Date: <input type="text"/> End Date: <input type="text"/> <input type="checkbox"/> 1 year <input type="checkbox"/> 3 years <input type="checkbox"/> 5 years <input type="checkbox"/> 10 years or Other (specify): <input type="text"/>	<input type="checkbox"/> Crash Count (# of crashes) <input type="checkbox"/> Crash Rate
Severity Level: <input type="checkbox"/> All or: <input type="checkbox"/> Fatal <input type="checkbox"/> Serious Injury <input type="checkbox"/> Minor Injury <input type="checkbox"/> Possible Injury <input type="checkbox"/> PDO	
How data will be used (include any federal or state program): <input type="checkbox"/> DSDD or Other (specify): <input type="text"/> Project EA# (if available): <input type="text"/>	
Location Description (*please include District, County, Route and Postmile info or lat/long): Location Tool Link: https://postmile.dot.ca.gov/PMQT/PostmileQueryTool.html? <input type="text"/>	

*If a request is for multiple locations, a separate listing can be attached to the form if needed.

If you have questions using this form, please contact crash.requests@dot.ca.gov

Last Modified: 12/1/22

Appendix D

Safety Analysis Process



SAFETY ANALYSIS PROCESS



Step 1: Data Collection

Crash Data:

3-5 years of most recent data including study areas crashes, injuries, and fatalities. This data set should include crash rates.

Volume:

Current multimodal volume on the study corridor. This should include crossing counts for bicycle, pedestrians, and a mode split breakdown.

Monitoring Reports:

This should check if the study segment **or intersections have been flagged in safety monitoring reports**. If so, note what issues and recommendations have **been identified**



Step 2: Existing Conditions

Crash Rates:



Number of Crashes per Million Vehicle Miles Traveled



Number of Injuries per Million Vehicle Miles Traveled



Number of Fatalities per Million Vehicle Miles Traveled

Current Plans:

Identify any improvements from the Local Roadway Safety Plan (LRSP) or other relevant plans. Check for alternate corridor concepts in the TCR.

Known Deficiencies:

Identify facilities safety needs as noted in reference plans.



Step 3: Project Assessment

Volume:

Note expected changes in multimodal volume that would be caused by the project.

Mode Split:

Identify changes in mode split that the project is expected to make.

Physical Changes:

Identify proposed modifications to the State Facility.



Step 4: Impact Assessment

Crash Rates:

Will overall rates of injury/fatal crashes increase with proposed project? Safety reviewers can reference the TASAS rate group ADT

Modal or Vehicle Conflicts:

Will new traffic flows introduce new, or exacerbate existing conflicts between vehicles, pedestrians, and bicycles? Will the project create new unprotected vehicle movement across the State Facility?

Standards:

Are proposed changes inclusive of appropriate safety enhancements and consistent with current design standards?



Step 5: Mitigations

Site Layout and Access:

Are there alternative access and layout opportunities that could **reduce a conflict and collision potential for vehicles, bicycles, and pedestrians?**

Off-Site Improvements:

Are additional off-site improvements that would help **site-related traffic get to and from the site more safely for all road users?**

Appendix E

Safety Review Screening Guidelines

Local Development Review (LDR) Safety Review Screening Guidelines

Document Purpose

The purpose of this document is to guide LDR staff in screening a project that is subject to an LDR to determine if it needs to be forwarded to the safety reviewer. LDR staff should obtain project information from the lead agency and applicant and review the criteria below to determine if a safety review is required. The decision whether a safety review is needed and reasoning behind the decision should be recorded in the LDR Geo-based Tracking System (GTS).

Safety Review Screening Criteria

Developments are not required to go through a safety review if they meet **both** of the following criteria:

- The project makes no physical modification in the State Highway System (SHS) right-of-way
 - Examples of physical modifications to the SHS right-of-way can include:
 - Installation of driveways, intersections, roundabouts, or other access points onto the SHS right-of-way
 - Installation of bicycle or pedestrian infrastructure on the SHS right-of-way
 - Installation of features such as signage, buildings, utility structures, or foliage on the SHS right-of-way
- The project results in zero additional trips by any mode on the SHS (Utility projects, underground infrastructure, etc.)
 - This criterion should not only consider vehicle trips, but also trips made by pedestrians, bicyclists, and transit users
 - The project is not expected to need a transportation impact review process or does not produce any new trips

If the project meets both criteria above, the LDR coordinator may not need to route the document to the traffic safety reviewer. The LDR coordinator should document this decision and process in the GTS with supporting documentation.

If the project does not meet both criteria above, the LDR coordinator should consult with the safety reviewer to determine the extent of the required safety review. The LDR coordinator should document this decision and process in the GTS with supporting documentation.