



Emergency Response

Emergency conditions are defined in this document as damage to the state highway system that are recent, unexpected, and event driven. Events may include storms, floods, slides, fires, earthquakes, and unusual accidents that cause or threaten to cause a closure of a transportation facility (*California Transportation Commission Resolution G-00-11*). The Geoprofessional (GP) provides emergency response (ER) service to aid clients in the repair of damaged highway facilities due to events such as rockfall, landslides, embankment washouts, culvert distress, sinkholes, slope erosion, fire damage, debris flows, flash flood, tsunamis, scour, structure collapse, foundation damage, ground rupture, mud pots; and rapid ground settlement due to lateral spreading, mine shafts, buried wells, and unauthorized excavations by the homeless.

During ER work, the GP will rely on applicable sections of the Quality Management Plan (QMP) and Geotechnical Manual. The procedures detailed in the QMP and Geotechnical Manual may be expedited or abbreviated depending on the site conditions, severity of damage, and urgency of restoring operation. For example, when responding to collapse of a bridge on an interstate freeway in a rural area with no surrounding development, mobilization for exploratory drilling may begin while the Site Assessment Questionnaire or County Well Permit are being processed. When requesting the necessary clearances, the GP should communicate the urgency of the circumstance to Caltrans or County staff who have the authority to expedite clearances. The Underground Service Alert process may be shortened by contacting utility company executives and arranging a next day field meeting.

ER projects are dynamic and fast-paced relative to programmed projects, so it is essential to quickly address the priorities of the client. Top priorities are assuring safety, maintaining or establishing access for emergency vehicles, determining the scope of repairs required to restore the facility, developing geotechnical reports, and providing field support as repairs are constructed.

The GS Branch must become familiar with the Emergency Operations Plan and protocols for the Districts they serve. District Emergency Operations Plans are typically available through District Maintenance, the District Emergency Response Coordinator, or the District Intranet site. The GP must adhere to District protocols and paths of communication developed for emergencies.

Communication and Contacts

The District Emergency Response Coordinator typically requests emergency support from the GS Office Chief. Regardless of the source or receiver of the request, the Design Office Chief must be notified of all emergency support requests for work within their region. The Office Chief ensures coordination among staff, clients, and stakeholders. The Office Chief will notify the Deputy Division Chief of emergencies requiring GS support and provide status updates as work progresses. Emergency contact information for each GS Design Office will be provided to District staff.



The GS Branch Chief must open an ER Project Tracking Record at the first available opportunity after a request for emergency support has been received and include information on the location and nature of the emergency. The Tracking Record provides GS Management with information on projects that are actively receiving emergency support from GS, and on the scope and status of support.

Emergency Management and Support

The Districts are the owners of all emergency projects within their jurisdictions. Management of emergencies will be directed by the Districts and supported by the GS Design Offices. The emergency procedure and response vary among Districts and vary depending on the size and complexity of the emergency.

The Branch Chief should assign an experienced GP to provide emergency support and ensure immediate response to all emergencies.

The Office of Geotechnical Support will prioritize services such as exploratory drilling, laboratory testing, and LOTB drafting to emergency projects. OGS will recognize the need to expedite the delivery of geotechnical products and collaborate flexibly with GPs providing direct support to the Districts.

OGDPP will prioritize and provide expedited reviews of reports produced in support of emergency projects. For more challenging emergency efforts, OGDPP staff may be enlisted to serve as technical experts on the Project Development Team or as geotechnical design staff assigned to the project.

Emergency Response Procedures

GS's goal is to provide timely and consistent response to emergencies. Response will vary depending on the emergency condition, needs of the client, and the ER effort coordinated by the District. The GP should participate on Damage Assessment Teams (DAT) and PDTs. For non-structural damage, provide evaluations and recommendations to the District Maintenance Engineer. For damage affecting structures, provide evaluations and recommendations to Bridge Design (BD).

Typical steps for emergency response:

A. Initial request and preparation for field work

1. Receive request from client. Use the checklists presented at the end of this module as a guide to gathering pertinent information. Review relevant portions of the Geotechnical Manual to determine information gathering requirements on specific features.
2. Notify the appropriate persons (e.g., Branch Chief, Office Chief) that an emergency support request was received. In conjunction with the Office Chief, the Branch Chief assigns staff to respond to the emergency. When emergency support is anticipated, such as before an approaching storm, the Branch Chief should predesignate staff to respond to anticipated emergency sites.
3. The Branch Chief or designee creates a Project Tracking Record, completes the information found in the GS Storm Damage Status spreadsheet as thoroughly as possible, and updates the Tracking Record throughout the project.
4. Gather pertinent information such as as-built plans, utility plans, drainage plans, right-of-way maps, Google Earth views, and archived geotechnical documents relevant to the site.
5. Create and begin electronic file storage according to Section 10.3 Project Records Management System of the Quality Management Plan (QMP).
6. Obtain a state vehicle and gather field gear. Wear personal protective equipment at the site and carry your Caltrans ID badge. The GP should travel to the site in a State vehicle because law enforcement and Caltrans Maintenance will more readily let you through road closures, and you will be more readily identified by those who are monitoring the site or who need to interact with you.

B. Initial field visit

7. At the site, sign in if necessary. Meet, record, and interview contacts. Question Maintenance staff on site history and behavior. Thoroughly review the site. Take photos and measurements of the site and affected features. Make sketches (with dimensions) of distress features, site layout, and cross sections. Consider possible detours (some detour options may influence your recommendations). If a Contractor has been retained, determine the Contractor's capabilities. Anticipate pressure to provide quick recommendations or preliminary design, and only offer recommendations after thorough site review and evaluation. It may be necessary to delay repair recommendations until after a formal site investigation.
8. Determine if the road should be opened or closed. Consider the safety of the public, Caltrans forces, and construction crews. Consider construction activities necessary for repair that minimize or avoid disrupting live traffic. Discuss with the District the possibility, duration and implications of construction repairs during night shift. Consider the duration of repair activities.



9. Determine the effect or severity of the emergency: e.g., scour failure of a bridge on a major freeway or interstate is far more consequential than washout of a rural highway with low Average Daily Transit and available local street detours. Obtain the needed geotechnical resources using appropriate means given the urgency and magnitude of the situation.
10. While in field, consider potential repair strategies. Use the Relocation-Avoidance/Stabilization/Protection evaluation protocol as outlined in the Landslide module. Consider repair strategies that align with Contractor's capabilities. Consider immediate action vs. permanent restoration. Convey immediate repair recommendations to the Caltrans person in charge (likely a Resident Engineer (RE)). Stay at the site as necessary to provide support and oversee immediate repairs. If necessary, get support from your supervisor or other team members.

C. Preparation/ back in office

11. The determination of both immediate and long-term repair strategies may not be possible in the field. Back at the office, develop and evaluate repair alternatives with your supervisor and team members. Recognize that GS often takes the lead in developing repair strategies, particularly for embankments, retaining walls, slope stability, and rockfall. Consider all stakeholder interests and site constraints. A decision matrix (see Landslide module) may be useful. Interact with the PDT. While some ER guidelines promote the concept of "replace in kind," repaired features should conform to current design standards (e.g., shoulder width). Betterments may be permitted if they prevent recurrence.
12. Determine additional work including subsurface investigation, surveying, instrumentation, and monitoring. Typical site investigation requirements may be abbreviated if the highway or freeway is closed because of the emergency condition. Consider the investigative resources and equipment that are available. If an emergency event has caused the closure of a major freeway or interstate with no reasonable detour, the site investigation may proceed concurrently with some construction activities or may be minimized using conservative design assumptions. Develop a site investigation commensurate with the conditions being considered.
13. Determine which functional units will be involved including District Maintenance, Design, Hydraulics, Right-of-Way, Traffic, Environmental, and Construction. Contact the stakeholders and consider repair strategies that best address their concerns. Coordinate through a single focal point such as the District Emergency Response Coordinator, Project Manager, or Project Engineer.
14. If a structure solution is necessary, inform DES functional units such as Structure Maintenance and Investigations, BD, and Structure Construction.
15. Determine GS deliverables. Develop and provide appropriate draft or preliminary reports to client as necessary to expedite project progress.



16. Working with District and Structure partners, decide on the final repair strategy and help the team to determine if the work will proceed by Emergency Force Account, Emergency Limited Bid, or as a Design Project (PS&E). Relatively small repairs and projects may involve relatively few stakeholders and functional units while large repairs and projects may involve a Project Development Team.
17. Finalize reports. Document decisions that lead to the selected repair strategy. Document reasons why geotechnically preferred strategies were not implemented (e.g., environmental considerations). Provide cost estimates (see Cost Estimating section below) for solutions that may not be familiar to clients, such as reinforced embankments, rockfall protection systems, or debris flow barriers. Given the accelerated delivery schedules and urgency of repair, some emergency projects may be constructed based on the findings and recommendations contained in preliminary geotechnical reports. Final geotechnical reports may be prepared near the completion of construction to document site conditions that were discovered, and designs that were implemented, as emergency repairs progressed.
18. Provide construction support through completion of all geotechnically significant project components. For many emergencies there are no formal Project Plans or Special Provisions. Other emergencies will have only abbreviated Project Plans. The RE and Construction Inspectors may direct the Contractor's work with the support of the GP. Often, REs and Inspectors have little or no prior emergency support experience while the GP may have worked on numerous emergency projects. In this circumstance, the GP will add valuable experience and confidence to the team.
19. Continue support until construction is complete to ensure proper construction, function, and protection of geotechnical elements of the repair (e.g., ensure culverts do not outlet onto new fill slopes).
20. Document progress and decisions in Project Tracking throughout the emergency effort.

Emergency Response to Regional Events

Events such as earthquakes, heavy and/or prolonged rainfall, or fires may adversely affect numerous structures, roadways, and slopes throughout a wide region. The District Emergency Response Coordinator will coordinate the Caltrans response during widespread emergency efforts. One GP will coordinate the GS emergency response effort and serve as the GS Emergency Response Coordinator. The GS Emergency Response Coordinator serves as the focal point of communication among the District, GP, supervisors, managers, and DES Management. The GS Storm Damage Status spreadsheet is attached to assist with coordination and communication of the GS effort.

During large scale emergency events, experienced GPs from unaffected regions may assist the local staff; the Office Chiefs from all GS offices will work cooperatively as necessary to effectively staff the emergency effort. Some GPs may assist in the field while other staff perform analyses and produce reports at their home office. GPs



providing field response to large scale emergencies must be prepared for difficult conditions that include numerous closed routes, difficult site access, difficulty finding lodging, shortages of equipment and material, frustrated citizens, long work hours, and physical hazards.

GS Emergency Support Products

Just as the GS emergency response will vary based on several factors, the products provided to GS clients will vary. The emergency effort may unfold rapidly, recommendations may be conveyed verbally, and communication can often be haphazard or misinterpreted. Verbal communication should be followed by written documentation either by email or memorandum. Final emergency assessments and recommendations must be documented and conveyed in a report. Preliminary or draft reports help facilitate communication and progress during the response effort.

Maintenance Support

For work performed as Maintenance Support Tasks M2 and M3, prepare a Maintenance Support memorandum using an abbreviated GDR as determined by the Branch Chief. At a minimum, the report should include an introduction, description (with history), assessment, recommendations, and cost information that is not otherwise readily available. The report should be titled Maintenance Support, followed by a few-word description of the emergency condition (e.g., Maintenance Support: Interstate 8/Hill Street Landslide). The Maintenance Support memorandum should be completed as soon as possible after the support request and site review.

Design Support

For non-structure emergency work performed as a Capital Project, prepare a more detailed Maintenance Support memorandum, or GDR as determined by the Branch Chief.

For structure work follow the *Structure Design Emergency Director's Order Project Delivery Procedure – Projects Requiring Division of Engineering Services*. BD will participate in the ER efforts involving the design and construction of new structures in two distinct ways:

- 1) BD will review non-standard retaining wall plans developed by contractors and their design consultants. GS may provide geotechnical information or reports for the design of retaining walls to the emergency contractors and design consultants.
- 2) BD will provide a complete design package for the construction of new structures (retaining walls and bridges). GS will provide preliminary or final Foundation Reports as necessary. Preliminary information, evaluations, and opinions of GPs will factor heavily into appropriate structure type selection. BD team members can proceed with the design process as investigative information and final reports are developed by GS.



Construction Support

GS provides construction support to the Maintenance Engineer, Structure Construction Representative, or RE charged with administering emergency repairs. The GP should be at the project site to act as a technical resource and to assure proper construction of geotechnically significant features, whether constructed with or without the benefit of plans and special provisions. The GP will not serve as a permanent Construction Inspector but may fill in as a temporary inspector under special arrangement with the District.

Construction support involves observations, direction, agreements, and verbal communications in the field which require follow-up documentation in an email or memo. The documentation provided by the GP should summarize any conversation in the field and be specific enough to produce the desired outcome. The correspondence should also have enough information to act as a stand-alone document.

Cost Estimating

This section provides guidance on providing cost estimates in support of Emergency Projects. Processes and procedures for Emergency Projects are presented in the [Caltrans Emergency Work Guidance for Director's Orders and Emergency Contracts](#). GPs working on Emergency Projects do so as a member of the collaborative multifunctional DAT and may provide consultation for emergency construction cost estimates. A summary of the Department's cost estimating policies and practices, including important links and resources, is provided in *Cost Estimating* module. The GP's primary responsibility to the DAT's cost estimate is to provide site conditions, scope of work recommendations, field measurements, geotechnical calculations in support of recommendations, support cost estimates (i.e., resources), and unit cost estimates for select items only.

The scope of work recommended may include both standard items and non-standard items:

- Standard items include work that utilizes uniform coded contract items that are readily available within the Basic Engineering Estimating System and the Contract Cost Database. Avoid providing unit cost estimates for standard items and instead provide accurate field measurements and describe the relevant site conditions that impact the recommended standard work (e.g., site characterization, difficult access, safety). Other functional units are more familiar with administration of standard items and are responsible for accurate cost estimates.
- Provide unit cost estimates only for specialty items of which GS may be considered the primary Subject Matter Experts. These items include work that GS is listed as the non-Standard Special Provision owners and includes rockfall systems,



compaction grouting, EPS geofoam blocks, trenchless methods for culverts and utility installation, and ground anchor testing.

- Select standard items also have Standard Specifications that are owned by GS and considered specialty items, such as Rock Excavation, Geosynthetic Reinforced Embankment, and Prefabricated Vertical Drains. The GP may be considered the primary Subject Matter Expert for these items during cost estimating and should be prepared to provide unit cost estimates.

Many of the specialty non-standard and standard items have available unit cost data included on the [Contract Cost Database](#) under non-uniform item numbers, descriptions, and units of measurement. Determine whether the work has unit cost data available on the Contract Cost Database and direct the DAT to the pertinent available data along with the unit of measurement most applicable to the project and how site conditions may impact the unit cost. [Contract Cost Database training](#) is available within the *Cost Estimating* module and the database's help page has a detailed description on how to use the database. Typical item descriptions are provided in Table 1 that can be used to search the database for relevant emergency work items.

In cases where unit cost data is not available on the database, contact GS Senior Emergency Response Specialists or other Subject Matter Experts within GS to confirm the lack of available data. If cost data is not available, notify the DAT and consider requesting estimates from contractors. When requesting informal cost estimates from specialty contractors, communicate that the estimates are not bids but cost estimates for project funding purposes. Coordinate requests and correspondence with the GS Senior Emergency Response Specialists or other Subject Matter Experts within the design office.

The GP may be aware of similar projects with similar items of work in which the cost data was not included on the Contract Cost Database. In these cases, share all available project information and archived information with the DAT to assist in developing the cost estimate for the work.

Unit cost estimates for specialty geotechnical items should be provided to construction, maintenance, and DAT personnel along with the unit of measurement, preferred item description, recommended dimensions, description of unit cost source and age of source data, and/or direct access to the cost data via the database or spreadsheet. Other functional units are responsible for applying cost risk factors and contingencies consistent with the Department's cost estimating policies. Describe how site conditions or other unique circumstances may impact the cost, i.e., more or less expensive.

GS 2022 Unit Cost Estimates

Unit cost estimates for select items applicable to geotechnical emergency projects are provided in Table 2. The data were sourced from the Contract Cost Database in 2022 to



capture the best available data. Use the table with caution as it is sensitive to variations in quantity (i.e., number of units), site conditions, contractor availability, unit of measurement, and design. Furthermore, the source data were not distinguished based on whether the contract included Time Related Overhead or Mobilization costs and include data up to more than ten years old. The GP should first assess the unit and quantity of their emergency work and determine if it is comparable to the data provided in Table 2. Generally, the average adjusted price per unit or weighted average adjusted price per unit is preferred unless recommended work involves quantities that are significantly different (e.g., order of magnitude) than the average number of units reported in Table 2. Consider using the maximum unit price or scaling the average and/or weighted average unit price up to x2.00 for recommended work where site conditions are uniquely challenging (e.g., safety, access, etc.) or has low total quantity (order of magnitude less quantity than reported in Table 2). The use of Table 2 does not relieve the GP or DAT members from performing a detailed search of the Contract Cost Database for data uniquely applicable to their project. The GP's cost estimate should be provided to the DAT with supporting information, methodology, and without any emergency contingencies added.

Table 1: Useful Contract Cost Database Search Terms

Item Description
Geosynthetic Reinforced Embankment
Compaction Grouting
Polyurethane (i.e., injection/densification)
EPS Block
Expanded Polystyrene Block
Trenchless
Draperies
Cable Net
Attenuator
Elevated
Anchored
Rockfall
Rock Bolt
Rock Anchor
Rock Dowel
Scaling
Rock Excavation
Controlled Blasting
Mesh System
Debris Flow Barrier
Slope Inclinometer
Monitoring Well
Prefabricated Vertical Drain



Table 2: Preliminary Unit Cost Estimates

Preferred Item Description	Unit	Avg. No Units	Avg. Adjusted Price/Unit (\$)	Weighted Avg. Adjusted Price/Unit (\$)	Min. Price/Unit (\$)	Max. Price/Unit (\$)	Notes
Cable Net Drapery System	SQFT	102919	8.81	8.90	6.52	12.11	Typical Panel 12' wide, add contingency for undulating slopes
Double Twisted Wire Mesh Drapery System	SQFT	48642	5.64	5.41	2.98	13.52	Typical Panel 12' wide, add contingency for undulating slopes
Anchored Cable Net Drapery System							Use 1.0x CNDS plus cost of rock dowel qty
Anchored Twisted Wire Mesh Drapery System							Use 1.0x DTWMS plus cost of rock dowel qty
Cable Net Attenuator System							Use 1.25x CNDS
Double Twisted Wire Mesh Attenuator System							Use 1.25x of DTWMS
Elevated Cable Net Drapery System							Use 1.25x CNDS
Elevated Double Twisted Wire Mesh Drapery System							Use 1.25x of DTWMS
Rock Dowels	EA	580	1145.37	867.47	623.19	1722.32	Will vary depending on dowel dimensions and access
Rock Bolts	LF	2360	103.84	92.55	91.40	116.28	
Rock Bolts	EA	162	2152.61	1361.03	830.22	5446.76	Will vary depending on bolt dimensions and access
Rock Anchor	LF	1435	130.81	146.72	75.88	231.05	
Rock Anchor	EA	19	2435.83	2205.78	2188.96	2925.53	Will vary depending on bolt dimensions and access
Rock Scaling	SQFT	57000	1.42	1.04	0.28	2.91	Limited data, estimate conservatively
Rock Scaling	Day	4	8632.92	8673.79	8031.52	9234.33	Limited data, estimate conservatively
Rock Scaling	CY	20	500.00	500.00	500.00	500.00	Limited data, estimate conservatively
Rock Excavation	CY	1955	325.23	92.12	27.41	3080.68	Low volumes (<10,000 CY)
Rock Excavation	CY	81754	35.73	21.66	7.10	142.33	High volumes (>10,000 CY)
Temporary Flexible Rockfall Fence	LF	933	61.73	43.49	5.99	103.53	Also described as Barrier
Flexible Debris Flow Barrier	LS	50' x 14'	115615.00	NA	73325.00	202631.00	Not sourced from database
Geosynthetic Reinforced Embankment	SQFT	17073	32.22	35.64	7.80	67.61	Materials; combine geogrid materials and fill
Geosynthetic Reinforced Embankment	CY	7542	58.83	37.14	20.30	160.35	Fill; combine geogrid materials and fill
Gabion	CY	486	418.56	275.12	128.28	964.41	combine with geogrid materials and fill for non-standard MSE
Trenchless Culvert Installation	LF	268	1741.08	1281.75	224.34	7000.00	Estimate for all culverts, varies by diameter and design
Slope Inclinator	LF	310	186.49	170.39	136.60	216.53	Consider using CT drillers first
Monitoring Well	EA	7	8680.45	10913.38	2718.77	18667.33	Consider using CT drillers first
Compaction Grouting	CF	37731	31.74	34.37	3.18	77.92	
Soil Densification (High Density Polyurethane)	LB	52812	5.67	5.58	2.27	14.16	
Lightweight Fill (Expanded Polystyrene Block)	CY	10285	217.82	183.53	124.83	585.85	
Prefabricated Vertical Drain	LF	220861	2.64	1.38	0.84	9.06	



Definitions

State Highway Operation and Protection Program (SHOPP):

SHOPP is the “fix it first” program that funds emergency repair, repair and preservation, safety improvements, and some operational improvements on the state highway system.

SHOPP Major Damage Program:

To expedite emergency projects so that normal operation of a transportation facility may be resumed, Caltrans has implemented the SHOPP Major Damage Program to allow exceptions to the formal advertising, bidding, and award requirements of the State Contract Act. GS involvement in emergency projects may occur in response to a major disaster or in response to a localized condition. The complexity of the District response will vary according to the magnitude of the emergency.

During or soon after a major disaster, the District Emergency Response Coordinator begins the initial disaster assessment to estimate the scope of damage, scope of repair work, cost of repair and ER funding eligibility. These first evaluations are usually based on rapid inspections and the resulting cost estimates are summarized by the Headquarters Major Damage Coordinator (Division of Maintenance) and/or by the Division of Local Assistance Emergency Response Coordinator and are used by the Governor to justify a State of Emergency declaration.

After the Division Administrator indicates there will be a positive natural disaster determination, the District Major Damage Coordinator organizes teams to conduct detailed damage assessments. Independent assessments may be conducted by a Damage Assessment Team comprised of knowledgeable Department staff.

Damage Assessment Form (DAF):

The DAF is the U.S. Department of Transportation Federal Highway Administration (FHWA) – California Division – Title 23 Damage Assessment Form. The DAF may be used by assessment teams to document site-specific repair estimates used to develop supporting material for programming purposes. The District Major Damage Coordinator keeps the original version of the DAF and copies are given to the FHWA, the Office of Federal Resources (OFR) Emergency Response Coordinator, and the Headquarters Major Damage Coordinator.

Maintenance Support Task M2:

Maintenance Support Task M2 (charging code M2) is used to respond to District Maintenance requests for non-emergency roadside work (i.e. slopes, drainage/vegetation) and rock scaling assessment. Maintenance Support Task M2 is not for use with storm damage or emergency related issues. Project I.D. 0000020717. When



first contacted and prior to site review, it may not be clear if GS support will be emergency or non-emergency.

Maintenance Support Task M3:

Maintenance Support Task M3 (charging code M3) is used to respond to District Maintenance requests for preliminary geotechnical investigation for storm damage or other emergency situations (including scaling assessments) where development of a capital outlay Project ID will not occur or is not known. When a Capital Project ID has not been established in the district, Division or Engineering Services can use Project ID 0000000999 for up to 2 weeks. Time sheet corrections are submitted once the Capital Project ID is established.

Director's Order:

A Director's Order is a formal document approving the use of the special authority granted to the Director by state law to set aside normal procedures for the advertising, bidding, and award of certain types of contracts when there is an emergency or other urgent situation. The purpose of a Director's Order is to contract for emergency work more quickly than through the normal contract approval process. The Director's Order speeds up reopening and reconstruction of damaged transportation facilities.

A District Director's Order is issued by a District Director for project costs less than or equal to \$281,000. A Caltrans Director's Order is issued by the Caltrans Director for project costs greater than \$281,000.

Emergency Opening:

An Emergency Opening consists of temporary or partial repairs made during or immediately after a disaster intended to: 1) allow essential traffic, 2) minimize the spread of damage, and/or 3) protect the remaining facilities. Emergency Opening work typically starts after a Director's Order (SHOPP 130 program and Deputy Directive DD-26-R2). Repairs required to restore the facility to pre-disaster conditions are considered Permanent Restoration. However, Permanent Restoration work done under Emergency Opening procedures per [FHWA policy](#), may be eligible as part of an Emergency Opening project.

Federal authorization is not required before beginning emergency opening work, including Preliminary Engineering, Right of Way, and Construction. However, once FHWA acknowledges that a Disaster declaration is justified, the District submits an Emergency Opening – Federal Funds Authorization Request (EO-FFAR) form to the OFR Area Engineer. The OFR Area Engineer will submit an authorization request (E-76) to FHWA for the Emergency Opening phases and its approval will be retroactive to the Disaster Declaration Date.



Permanent Restoration:

Permanent Restoration involves repairs needed after emergency openings to restore the highway to its pre-disaster condition. This phase of work usually requires the preparation of plans, specifications and estimates for design (SHOPP 131 program). The replacement of bridges, construction of retaining structures, highway relocations or the addition of significant protective measures are usually considered permanent restoration. Any additional features or changes in character from that of the pre-disaster facility are generally not eligible for ER funding unless justified by economy of construction, prevention of future recurring damage, or technical necessity.

Permanent restoration construction projects must be federally approved (E-76) for construction by the end of the second federal fiscal year following the year in which the disaster occurred. These projects have priority over all non-emergency SHOPP projects in the District.

Emergency Force Account (EFA):

Force account means a basis of payment for the direct performance of highway construction work with payment based on the actual cost of labor, equipment, and materials furnished and consideration for overhead and profit.

EFA contracts are used for emergencies requiring immediate action because of road closure or danger to public safety. An example of an EFA contract is the repair of a highway section washed away by a mudslide. EFA contracts do not require bids.

Caltrans interprets Force Account to mean a solicited time-and-materials contract pursuant to the Extra Work provisions of the Standard Specifications. Caltrans does not include work by its own employees in its definition of Force Account.

Caltrans Force Account contracts are not advertised. Any contractor that has the necessary equipment and expertise to perform the emergency work may be hired; there is no pre-qualification process. Payment for labor, materials and equipment used are paid for pursuant to Chapter 9 of the Caltrans Standard Specifications. Plans are not required (rough plans, if possible, are recommended). Work proceeds at the direction of the (RE). The RE may prescribe means and methods to the Contractor.

Emergency Limited Bid (ELB):

An ELB contract is a modified type of force account contract that includes a competitive bidding element. The ELB method of contracting generally is used for permanent restoration emergency work and occasionally for emergency opening work. These contracts are used for emergency work, even when the facility is stable. ELB contracts require bids from at least three contractors. Contractors compete based on markup rates of the prime contractor's labor, equipment rental, and materials.



Caltrans Districts obtain the required approvals for emergency work and select contractors to perform emergency work under EFA and ELB contracts. Contractor selection is based on several factors such as, proper licensing and registration, ability and expertise, proximity to the site, willingness to mobilize quickly, or by lowest bid. Caltrans maintains a list of potential contractors available for emergency work. Contractors may register on the Caltrans Contractor Registry.

Project Initiation Report (PIR)/Project Initiation Document (PID):

A PIR or PID is an engineering document or technical report that documents the scope, cost, and schedule of a project. The PIR is based on the project scoping effort. The PIR is a record of the purpose-and-need for the project, and the approach that will be taken to meet or reduce transportation deficiencies. It is a record of the existing information, initial assumptions, identified risks, and constraints that drove the development of the project work plan. A PIR is used to obtain approval for inclusion of a project into a programming document or to get conceptual approval of a project-funded-by-others.

Emergency Checklists

The GP should review relevant sections of the Geotechnical Manual when responding to emergencies involving specific highway features (e.g. review the Rockfall portion of the manual when responding to a rockfall emergency). The following checklists are provided to assist in the gathering of information needed for the ER effort:

Preliminary Information

- Name, title, and contact information of requestor
- District-County-Route-Postmile
- EA or ID if available
- Name of Site/Event
- Names, titles, and contact information of involved office and field staff
- Current closures and travel restrictions
- Available/potential detours
- Nature of emergency
- Site or event history
- As-built plans
- Aerial photos



Recommended field equipment and provisions:

- Personal Protection Equipment
- Base map
- Field notebook
- Aerial photos
- Clinometer
- Range Finder
- Pocket measuring tape
- 100 to 200 ft measuring tape
- Brunton or Clar Stratum Compass
- Camera
- Geological rock hammer/pick
- Sample bags and shovel
- Survey marking tape (multiple colors)
- Wooden stakes/lath
- Handheld GPS
- Binoculars
- Flashlight
- Water and Food
- Gas Meter
- Climbing Gear

Landslide/Slope failure:

- Potential detours/alternate routes
- Geologic map
- Right-of-way plan/map
- Base map
- Material types, estimated strengths
- Slide type



- Estimated thickness
- Create landslide map: slide boundary, scarps, cracks, slope angles, erosion, ponds, seeps and springs
- Create cross section(s)
- An assessment of the likely slide behavior, mechanism, and influencing factors
- Preliminary field evaluation of mitigation alternatives and risk.
- Scope and Cost Estimates

Washout:

- Height, length, and volume of embankment
- Material type, estimated strength
- Slope angle
- Potential detours
- Cause (plugged culvert, overtopped dike, etc.)
- Culvert size, type
- Potential material sources

Rock Fall:

- Slope Assessment Form
- Right of Way plans/maps
- Rock type
- Type of failure, e.g., Slide/Topple/Wedge
- Discontinuity type, orientation, and spacing
- Range of block sizes
- Rock fall volume
- Rock weathering
- Slope angle
- Fall height
- Surface water
- Seeps



- Impact points
- Runout

Sinkhole:

- As-built drainage plans
- As-built utility plans
- Sinkhole drawing with dimensions
- Culvert size, condition, perforations, cavities
- Pavement structural section
- Pavement undermining
- Storm data
- Alternative path to reroute drainage temporarily or permanently
- Cause

Burn Area:

- Right of Way plan/map
- Presence of debris flow geomorphology
- Culvert size and condition below burned watershed
- Inlet basin size and condition
- Bridge channel condition below burned watershed
- Size and slope of watershed
- Burned Area Emergency Response (BAER) Report

Questions the GP should anticipate during emergencies:

- What is the effect on the roadway? On private property?
- How big was the event? What caused it? Did anyone witness the event? Were there injuries?
- Were any utilities damaged?
- Can we open the road? What needs to be done to open the road?
- Is it safe?
- Is it done moving? How fast will it progress?



- What are some immediate management strategies?
- Do we need a barrier (Temporary Barrier System, temporary rock fence, etc.)?
- Do we need a spotter?
- Do we need a light plant?
- Do we need signs?
- Do we need closures windows? (times, such as night, the section would be closed to traffic or perhaps limited to only local traffic)
- What is the recommended repair? How much will it cost? How long will it take?