# Appendix E - Guidelines

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GUIDELINES FOR TRAFFIC SIGNAL CONTROLLERS AND INSPECTION

Privately funded projects without a Cooperative Agreement - Project proponent pays costs for Department furnished controller assembly.

These costs are updated annually, if necessary, after determining the average actual cost for the Department to acquire, test, stock and ship the equipment to the local District. For additional equipment and their associated costs, please see the attached price list.

These costs should be included in the deposit prior to the issuance of the contractor's encroachment permit. In cases where there is a long lead-time before starting work, these costs may be submitted immediately prior to performing work on a signal system.

Districts should determine and charge additional fees covering the actual cost to deliver, install, inspect, and turn on traffic signal controllers.

Projects involving Cooperative Agreements - Project proponent pays costs for Department furnished controller assembly

The traffic signal controllers, and all other actual costs incurred by Caltrans, are charged against the appropriate Cooperative Agreement Expenditure Authorization. When there is Department participation in the project, the Department's share of the actual costs of the project will be reduced by the actual cost of the controllers, which include controller fee, testing costs and any other mandatory charges.

Procedures to order controller assemblies from the Department’s warehouse

To allow time for delivery to the District, controller assemblies shall be ordered from the Sacramento warehouse a minimum of 10 working days before a permittee plans to pick up an assembly in the district (controller not included). Caltrans Maintenance or Traffic staff will deliver actual controllers and auxiliary equipment to job sites at the time of a scheduled signal turn on.

Charges for Encroachment Permit projects

As each controller assembly is ordered, the districts shall instruct the Caltrans warehouse in Sacramento to charge the equipment to the Encroachment Permit Expenditure Authorization (EA) 937700, using Subjob 3EPIC and Object Code 118. A Special Designation (SD) of 7CONTROL must also be used if the permittee has paid a fee for the equipment.

Charges for Cooperative Agreement projects

For Cooperative Agreement projects, the district should instruct the warehouse to charge the equipment to the appropriate Cooperative Agreement EA, with any applicable SD identified for the project (do not use an Encroachment Permit EA or SD on these Cooperative Agreement Project
## FEES FOR TRAFFIC SIGNAL CONTROLLERS AND INSPECTION

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**Deputy Directive**

**Number:** DD-23-R2

**Refer to**

**Director's Policy:**
- DP-03, Safety and Health
- DP-06, Caltrans’ Partnerships
- DP-07, Project Delivery
- DP-08, Transportation System Management and Operations (TSMO)
- DP-10, Departmental Commitments
- DP-14, Quality in Caltrans
- DP-33, Sustainability

**Effective Date:** 12/04/2018

**Supersedes:** DD-23 R1 (2/23/2007)

**Responsible Program:** Project Delivery, Division of Design

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**TITLE**

Roles and Responsibilities for Development of Projects on the State Highway System

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**POLICY**

The California Department of Transportation (Caltrans), as owner/operator of the State Highway System (SHS), has the statutory (Government Code section 14000(c)) and inherent goal to ensure that all modifications or additions to the SHS are:

- Safe, operational, maintainable, environmentally compatible, and of good value.
- Efficient in providing multimodal movement of people and goods.
- In the best interest of the general public.
- Developed and constructed in compliance with laws and regulations that govern the use of state and federal transportation funds.
- Developed and constructed in partnership with vested stakeholders.

Caltrans meets this goal by:

- Applying quality management practices.
- Engaging in early and continuous partnerships and ensuring accountability amongst project sponsors, implementing agencies, stakeholders, Caltrans functional units, local, regional, and transit agencies, tribal governments, developers and consulting firms employed by Caltrans or its partners.
- Ensuring that all projects on or proposed for the SHS are planned, developed, and constructed efficiently and effectively resulting in a quality project in accordance with Caltrans standards and practices.

"Provide a safe, sustainable, integrated and efficient transportation system to enhance California’s economy and livability"
Ensure one implementing agency undertakes the project’s advertising, awarding, and administration of a construction contract.

- Maintaining ultimate approval authority for all projects on the SHS.
- Keeping the public informed through appropriate outreach.

**DEFINITION/BACKGROUND**

The roles and responsibilities in planning, designing, and constructing transportation projects on the SHS continue to increase in complexity due to the influx of various transportation funding sources, the ability to use alternative project delivery methods, regional transportation planning agencies’ active roles in selecting and programming transportation projects, and these agencies’ ability to contract with private architectural and engineering firms to deliver those projects. Caltrans as steward of the SHS strives to ensure the appropriate accountability and professional liability remain with project sponsors, implementing agencies, and product suppliers. Caltrans seeks to ensure the integrity of the SHS by defining the various roles and responsibilities of all parties involved, and by ensuring the quality of transportation projects. The definitions provided below are recognition of the parties’ interests related to transportation project development.

**Owner/Operator** is the entity ultimately responsible for the planning, design, construction, operation, maintenance, and liability of a facility. Government Code section 14520.3 (b) and Streets and Highways Code section 90 establishes Caltrans as the owner/operator of the SHS.

**Project** is the undertaking by a project sponsor of a transportation related construction, erection, alteration, repair, or improvement to the SHS, including all work necessary to fulfill the owner/operator’s requirements and commitments while satisfying all state and federal laws and regulations. (Public Contract Code section 10105).

**Project Sponsor** is the project advocate that acquires funding partners to ensure adequate project funding.

**Project Components** are prescribed in Government Code section 14529(b) and describe the resources during the life of a project in the State Transportation Improvement Program. Components are synonymous to phases which are used to indicate the progression of a project in the project development process.

**Implementing Agency** is an entity charged with successful completion of a project component, and assumes project management responsibilities for the component. There is only one implementing agency per component.
**Supplier** is the entity that provides a service or product to the implementing agency.

**Delegation** is the process of transferring powers, duties, obligations, or actions from one person/entity to another.

**Quality Project** is the result in the fulfillment of project responsibilities in the delivery of products and services that considers stakeholders’ interests and fulfills Caltrans’ requirements and outcomes.

**Quality Control (QC)** is the methods, means, or procedures used by a supplier to monitor and assess products or services to ensure that the final product will fulfill the established quality requirements.

**Quality Assurance (QA)** is the performance of all the planned and systematic activities that provide confidence that the product requirements will be fulfilled.

**Quality Management Plan (QMP)** is a document prepared by the implementing agency that describes by who, what, when, and how QC and QA activities will be performed for each project component as specified in the quality assurance program.

**Quality Assurance Program (QAP)** is the implementing agency’s promulgated quality related policies, procedures, and guidelines necessary to ensure the work performed for each project component results in a quality project.

**Quality Management Assessment (QMA)** is the performance of all planned systematic activities by the owner/operator that verifies the implementing agency’s QAP effectiveness and precedes the owner/operator approval.

**Quality Management Practices** are all the implementing agency’s systematic activities used to direct, control, and coordinate the development of a quality project. These activities include the QAP and QMP implementation, the performances of QC and QA activities, and quality improvements originating from QMA, QC, or QA.

**Owner/Operator Approval** is a non-delegable project related decision which can only be performed by the owner/operator.

**Stakeholder Approval** is a project related decision which can only be performed by an external individual or organization whose duties are established by law (e.g. National Environmental Policy Act (NEPA) permitting agencies, California Environmental Quality Act (CEQA) permitting agencies, railroads, or the California Transportation Commission (CTC)).
California Environmental Quality Act Lead Agency (CEQA) (Public Resources Code section 21067) is the public agency which has the principal responsibility for carrying out or approving a project which may have a significant effect on the environment.

National Environmental Policy Act Lead Agency is the public agency which ensures federal compliance and approvals for a project.

CEQA Responsible Agency (Public Resource Code section 21069) is the public agency, other than the lead agency, that has discretionary authority over a project.

RESPONSIBILITIES

Owner/ Operator:
• Performs QMA for all projects to ensure a quality project on the SHS.
• Provides owner/operator approval as needed.
• Provides written approval on risks the project sponsor is unable to mitigate or avoid.
• Fulfills the FHWA Stewardship and Oversight Agreement responsibilities.
• Fulfills NEPA lead agency role and responsibilities when assigned by FHWA.
• Fulfills CEQA lead agency role and responsibilities.
• Performs CEQA responsible agency responsibilities, when not a CEQA lead agency.

Project Sponsor:
• Secures funding for the preparation and completion of all the project components including quality management practices.
• Identifies and seeks approval for the transportation need and purpose that conforms to Caltrans Strategic Management Plan.
• Evaluates and compares project outcomes to the established project goals.
• Chooses an implementing agency for each project component.
• Mitigates project risks and does not create undue risk for the owner/operator unless necessary approvals are obtained using proper procedures.
• Ensures the project management plan is implemented, including, but not limited to, the QMP and risk management plan.

CEQA Lead Agency:
• Determines the appropriate type of environmental documentation.
• Exercises its independent judgment and analysis for the adequacy and objectivity of the CEQA environmental document.
• Reviews and approves the need and purpose for the project as it relates to the environmental documentation.

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• Reviews and approves a reasonable range of alternatives in relation to the environmental documentation.
• Reviews, comments, approves, and certifies the environmental documentation at appropriate stages of project development as prescribed in the Caltrans Standard Environmental Reference (SER).

NEPA Lead Agency:
Performed by the US Department of Transportation, Federal Highway Administration (FHWA) unless assigned to Caltrans.
• Reviews, comments, and approves the NEPA environmental documentation at appropriate stages of project development.
• Reviews and approves the need and purpose for the project as it relates to the environmental document.
• Ensures a reasonable range of alternatives are considered in relation to the environmental document.
• Reviews, comments, approves, and revalues environmental documentation at each project component.
• Ensures the project sponsor complies with the project’s environmental mitigation and other environmental commitments disclosed in the environmental document.

CEQA Responsible Agency:
• Ensures its concerns are met by providing early consultation to the CEQA lead agency.
• Participates in the CEQA process.
• Prepares and issues its own findings.
• Certifies its review and consideration of the CEQA lead agency’s CEQA document.
• Acts on or approves the project.

Implementing Agency:
• Chooses the supplier for each project component.
• Establishes and implements QAP and generates a QMP for each component.
• Delivers quality project components on time, and within budget.
• Verifies and accepts work performed by the supplier provided appropriate documentation is obtained to allow for verification and acceptance.
• Advertises, awards, and administers the construction contract.
• Ensures that all project component closeout activities are completed in a timely manner, including, but not limited to, survey control and right of way monumentation, as-built plans, environmental commitments compliance, and right-of-way.
Deputy Director, Project Delivery:
- Ensures establishment and implementation of Caltrans policies, standards, procedures, and best practices for each project component affecting project development.
- Ensures establishment of the QAP for each project component affecting Project Delivery that includes QC, QA, QMA, and owner/operator approval activities.
- Ensures allocation of capital outlay support (COS) resources for the timely delivery of quality products and services.

Deputy Director, Maintenance and Operations:
- Ensures establishment and implementation of Caltrans policies, procedures, and best practices for maintenance and operations of SHS.
- Ensures allocation of maintenance and operations support resources for the timely delivery of products and services related to project development.
- Ensures establishment and implementation of Caltrans policies, procedures, and best practices for issuance of encroachment permits.
- Ensures allocation of maintenance and operations support resources for the timely delivery of products and services including CEQA lead agency or responsible agency.

Deputy Director, Planning and Modal Programs:
- Ensures establishment and implementation of Caltrans policies, procedures, and best practices for Transportation Planning of the SHS.
- Ensures that implementation of projects on or proposed for the SHS are consistent with all Caltrans transportation planning documents.
- Provides resources for the development of project initiation documents in the project initiation phase.
- Establishes and ensures the QAP for the project initiation phase includes QC, QA, QMA, and owner/operator approval activities.
- Ensures allocation of Transportation Planning support resources for the timely delivery of products and services including CEQA lead agency or responsible agency.

Division Chiefs:
For each Division’s respective area of responsibility pertaining to the efficient and timely delivery of quality projects and services:
- Develop and implement standards, procedures, and best practices that are aligned with Caltrans’ Strategic Management Plan.
- Develop and implement guidance, tools, and training to ensure successful delivery of quality projects.
- Develop a QAP pertaining to their product and services for which Caltrans is the implementing agency and responsible agency.
• Provide statewide direction, policies and standards for activities required to ensure compliance with Caltrans policies, standards, and best practices.
• Measure and monitor critical program and project deliverables and outcomes by districts and regions in alignment with Caltrans’ Strategic Management Plan.
• Act as the approval authority for owner/operator approvals for those decisions delegated.
• Provide guidance, policies, tools, and training for QMA activities.
• Perform audit, surveillance, or process reviews for ensuring the consistent and effective application of Caltrans standards, procedures, best practices, and quality management activities.
• Implement a system of continuous quality improvement using information learned from measuring and monitoring deliverables and from process reviews.

District Directors:
• Assess the feasibility of the project sponsor’s ability to obtain funding for the proposed project component(s) before Caltrans begins work.
• Act as the Caltrans authority for any owner/operator approval for those decisions delegated.
• Concur on the project’s need and purpose relative to its public benefit and impacts to the SHS.
• Appoint a primary point of contact for each project.
• Determine and provide those activities that ensure a quality project on the SHS, including, but not limited to:
  o Implementation of the QAP for each project component for which Caltrans is the implementing agency.
  o Implementation of QMA for all project components.
• Ensure project decisions are made considering information gathered through public outreach and involvement of stakeholders.
• Enter into cooperative or highway improvement agreements as appropriate with project sponsor(s) prior to expenditure of COS resources.
• Inform stakeholders of the policies, standards, procedures, and best practices required by Caltrans and FHWA.
• Deliver on commitments made to partners and customers, based on statutory authority and available resources, and ensure the timely delivery of quality products and services for which Caltrans is the implementing agency.
• Ensure that Caltrans functional units are properly resourced to deliver quality products and services in a timely manner.
• Determine the appropriate agency to be the lead under CEQA.
• Approve and certify the CEQA environmental document if Caltrans is the CEQA lead agency or approve the project if Caltrans is the responsible agency.
• Review and approve the project report or equivalent after consideration of the CEQA.
• If assigned, approve the NEPA environmental documentation.
• Ensures all proposed projects are evaluated and prioritized for funding.

Public Information Officers:
Communicate to the public specific actions that will be taken to restore or minimize effects of all construction, maintenance, permitting, planned emergency restoration, or other activities on the SHS.

District Deputies, Office Chiefs, and Branch Chiefs:
• Provide QA for the products, and services within their functional area.
• Empower employees with the tools, resources, time, and training to deliver the products and services for which Caltrans is the implementing agency.
• Participate in the development of work plans and quality management activities defining project scope, cost, schedule, resource, and quality requirements.
• Prioritize commitments to ensure the successful delivery of both Caltrans’ and external project sponsors’ projects.
• Ensure that work does not begin without appropriate written authorization.
• Notify their District Director and/or Deputy District Directors, via established reporting relationship, of any changes, problems, or risks that could affect the scope, cost, schedule, and overall quality of projects on the SHS, or owner/operator approval.
• Apply the QAP, and develop the QMP if Caltrans is the implementing agency.
• Perform QMA, if assigned this responsibility.
• Assess and manage risk affecting the owner/operator responsibilities.

Project Managers:
• Lead the project development team on issues and risks related to quality management, scope management, schedule management, or cost management issues for each project component utilizing appropriate documentation.
• Facilitate resolutions and seek approvals for project related issues and risks affecting the quality, scope, schedule or cost.
• Ensure funding requirements are met.

Task Managers or Employees:
• Participate in the deployment of the QAP by performing quality control or quality assurance, if assigned, on work or services.
• Provide quality and timely products and services by using appropriate tools, resources, time, documentation, and training.
• Assess risk of issues affecting the owner/operator responsibilities and communicate those in a collaborative fashion to the implementing agency and stakeholders.
• Communicate to their supervisors, project managers, and impacted functional units any changes, problems, or risks by using proper and approved methods of documentation for the project.

APPLICABILITY
All employees involved with the delivery of modifications or additions to the SHS.

RYAN CHAMBERLAIN
Chief Deputy Director

Date Signed
12/4/18
CONSTRUCTION NOTES:

A MINIMUM OF 18' SHALL BE MAINTAINED OVER AND ACROSS HIGHWAY OR FREEWAY Lanes.

NETTING SHALL BE MAINTAINED OVER AND ACROSS LANES UNTIL AERIAL FACILITIES ARE PROPERLY SECURED IN PLACE.

H - SUPPORTS SHALL BE INSTALLED OUTSIDE OF STATE R/W, UNLESS PERMITTED BY THE STATE'S REPRESENTATIVE.

CHP BREAKS SHALL NOT EXCEED 5 MINUTES FOR THE PLACEMENT OF NETTING.

PLACEMENT OF AERIAL LINES: Installation or removal of overhead conductors crossing a freeway require traffic control by the California Highway Patrol (CHP) and usually occur on weekend mornings. The CHP can perform a rolling break in traffic on most highways to allow up to a five-minute clearing. These breaks are adequate for simple cable installation. Utility personnel carry the conductors across the freeway lanes and hoist them into place on the opposite side of the freeway.

On larger conductor crossings such as transmission lines, 1" or greater in diameter, districts may determine that safety nets are needed to prevent transmission lines from falling on traffic during cabling installations. Temporary safety-net support poles are placed at protected locations outside shoulders and in medians. If locations for temporary supports are not available, the utility company may use K-rail and sand barrel crash cushions. After rope nets are strung during CHP traffic breaks other work is then allowed to proceed. Placement of the aerial line may be by helicopter.
Road Box, H-20 loading when required to be installed within the pavement area.

PVC threaded cap to be removed by hand.

Small chain attached to rebar with hose clamp to restrict maximum movement on chain to allow for 3" of settlement on rod. Slot top of PVC to hold chain.

**BETONITE SEAL**

**6" DIAMETER BOREHOLE FILLED WITH SAND**

**2 - 1/2" DIAMETER PVC CASING**

3/4" REBAR driven 6" to 12" past the bottom of the borehole (SOLIDLY ANCHORED)

NOTE:

It shall be installed over the centerline of the installation, within the median, shoulder area, or within the pavement as directed by the State's Representative.

ABANDONMENT PROCEDURES

1. Remove PVC cap, rebar, and restriction chain.

2. Fill borehole with sand to 24" below bottom of Road Box when within the median or shoulder areas.

3. Fill remainder of borehole with Bentonite seal mixture.

4. Remove Road Box and back fill with an approved backfill.
LEGEND:

- Octagon Data Points required when the diameter is < 8'.
- Octagon & Triangle Data Points required when the diameter is > 8'.
- Settlement Rod may be required when the diameter is > 5'. (Settlement Rod Detail is located in Appendix E of the Encroachment Permits Manual)

EP    Edge of Pavement

ETW   Edge of Travel Way
      (Fog line, Yellow Stripe, etc.)

S     Offset Distance away from the pipe alignment, as follows:

3'   for casing pipe diameters < 30''
5'   for casing pipe diameters 30'' - 72''
10'  for casing pipe diameters 72'' - 108''
15'  for casing pipe diameters > 108''

NOTES:

Survey data is to be collected at the specific points along the casing alignment at the following times:

1. Prior to Start of Work.
2. Every two (2) hours continuously throughout the project.
3. Upon completion of the project.
4. Every two (2) months, during a six month period after the date of completion, and or As Required by the Department.
TYPICAL TRENCH DETAIL

Existing Pavement
(Existing HMA Pavement)

Existing Base

Existing Subgrade

New Pavement
(New HMA Pavement)
match existing + 1” - (MAX 7”)

New Pavement Base

New Subgrade

CLR - Clearance between product and trench wall
TW - Trench Width

UW - Width of Utility or Culvert
HMA - Hot Mix Asphalt

NEW PAVEMENT

TRENCH

TRACER WIRE
(IF REQ'D)

UW

CLR

CLR

Existing Pavement

Existing Base

Existing Subgrade

New Pavement

New Pavement Base

New Subgrade

UW - Width of Utility or Culvert
HMA - Hot Mix Asphalt

STATE OF CALIFORNIA - DEPARTMENT OF TRANSPORTATION
ENCROACHMENT PERMIT TRENCH DETAIL
TR-0153  (REV. 09/2006)

STRUCTURE BACKFILL SHALL CONFORM TO SECTION 19 - 3.06 OF THE STANDARD SPECIFICATIONS
SLURRY CEMENT BACKFILL SHALL CONFORM TO SECTION 19 - 3.062 OF THE STANDARD SPECIFICATIONS
HMA SHALL CONFORM TO SECTION 39 OF THE STANDARD SPECIFICATIONS
ALL METHODS OF COMPACTION SHALL BE BY MECHANICAL MEANS. PONDING, JETTING OR FLOODING SHALL NOT BE ALLOWED.
AGGREGATE BASE SHALL CONFORM TO SECTION 26 OF THE STANDARD SPECIFICATIONS
WHEN CLSM IS UTILIZED THE MIX DESIGN AND TEST RESULTS SHALL BE SUBMITTED TO THE STATE’S REPRESENTATIVE.
ALL WORK SHALL BE AS AUTHORIZED BY THE APPROVED ENCROACHMENT PERMIT PLANS, AND/OR AS DIRECTED BY THE STATE’S REPRESENTATIVE.
WHEN THE UW IS > 6” THEN THE MINIMUM CLR SHALL BE 6”
COLD PLANING AND RE-SURFACING OVERLAY SHALL BE PARALLEL TO THE ROADWAY AND TO THE NEAREST LANE LINE FOR THE ENTIRE LENGTH OF THE TRENCH/DISTURBED AREAS, AND/OR AS DIRECTED BY THE STATE’S REPRESENTATIVE.
WHEN COLD PLANING IS REQUIRED, THE MINIMUM SHALL BE 0.10’ OR AS DIRECTED BY THE STATE’S REPRESENTATIVE TO ACCOMODATE FIELD CONDITIONS.
COLD PLANING MAY BE REQUIRED AT THE DIRECTION OF THE STATE’S REPRESENTATIVE TO ACCOMODATE THE PLACEMENT OF STEEL PLATES.
WHEN TRENCH PLACEMENT IS WITHIN 4’ OF CURB & GUTTER, ADDITIONAL COLD PLANING MAY BE REQUIRED AT THE DISCRETION OF THE STATE’S REPRESENTATIVE.
ANY PAVEMENT MARKINGS AND/OR STRIPING REMOVED OR DAMAGED DURING CONSTRUCTION SHALL BE REPLACED AS DIRECTED BY THE STATE’S REPRESENTATIVE.
A TRACER WIRE SHALL BE PLACED ON TOP OF THE FACILITY, WHEN REQUIRED BY THE STATE’S REPRESENTATIVE.
OTHER TRENCH RELATED DETAILS ARE SHOWN IN FIGURE 6.1, CHAPTER 6 OF THE ENCROACHMENT PERMITS MANUAL.
A PAINT BINDER (TACK COAT) OF ASPHALTIC EMULSION CONFORMING TO SECTION 39-4.02, PRIME COAT & PAINT BINDER (TACK COAT) SHALL BE FURNISHED AND APPLIED.
NEW PAVEMENT BASE SHALL CONSIST OF EITHER CL. II AGGREGATE BASE, 2-SACK SLURRY CEMENT, OR CLSM. WHEN TW IS < 24,” CL. II AGGREGATE BASE IS NOT RECOMMENDED FOR BACKFILL.
NEW SUBGRADE SHALL CONSIST OF EITHER CL. II AGGREGATE BASE, 2-SACK SLURRY CEMENT, OR CLSM. WHEN TW IS < 24,” CL. II AGGREGATE BASE IS NOT RECOMMENDED FOR BACKFILL.
NEWSPAPER DISTRIBUTION GUIDELINES

For Safety Roadside Rest Areas

HEADQUARTERS OFFICE OF ENCROACHMENT PERMITS & HEADQUARTERS LANDSCAPE ARCHITECTURE PROGRAM

MAY 2009
NEWSPAPER DISTRIBUTION GUIDELINES
SPECIAL PROVISIONS & PERMIT CONDITIONS

APPLICATION SUBMITTAL

Streets and Highway Codes Section 220.5 authorizes the placement of Newspaper Vending Machines, herein after referred to as “distribution boxes,” at Safety Roadside Rest Areas (SRRA).

- Section 220.5 (c) authorizes the Department the rights of determination in which SRRA are suitable for placement of these facilities.
- Section 220.5 (d) authorizes the Department the right to determine a suitable fee.

Newspaper distribution boxes at Safety Roadside Rest Areas (SRRA) and Vista Points are permissible when a Newspaper Entity has entered into a “Newspaper Distribution Agreement,” hereinafter referred to as “Agreement”, through the District Landscape Architect.

The District Landscape Architect is responsible for all reviews, field studies, and document preparation before sending the completed package, consisting of the Agreement, the required fee/deposit and a completed Encroachment Permit Application to the District Encroachment Permits Office for permit issuance.

The Department retains all rights in determining whether or not the placement of Newspapers and distribution boxes will be allowed within any SRRA and/or Vista Point. When the Department grants permission to allow placement of these facilities, they shall be limited to a total of four units per SRRA location. A copy of the agreement, permit and guidelines shall be provided to the requestor, and a copy forwarded to Headquarters Landscape Architecture Program.

FEE / DEPOSIT

A check in the amount of four (4) hours of the encroachment standard hourly rate shall be submitted with the package to the District Permits Office. This deposit/fee will cover processing of the application, review, issuance of the permit and inspection. All permits issued for the placement of a Newspaper within a SRRA shall be issued for a period of one year.

The permittee is responsible for all actual costs of the permitting process. When there are issues of non-conformance that could result in additional time expenditures the permittee shall be required to compensate re-imbursement of that time expended.

SPECIAL PROVISIONS & CONDITIONS

Subcontracting under this permit will not be allowed for the placement of the newspapers.

The permittee is required to provide weekly maintenance checks on their distribution facility, to ensure cleanliness of the area surrounding their facility.

Storage of newspapers on State rights-of-way will not be allowed.

A copy of the newspaper is the only item that will be allowed in the window of the door on the distribution box.

The permittee is required to notify the District Landscape Architect prior to start of any work in the States’ right-of-way, to include performing weekly inspections.
Vehicles shall be parked in the parking lot when filling or re-filling of the distribution boxes.

Any three violations of the special provisions or permit conditions within the term of the permit will result in revocation of your permitted privileges.

**INSTALLATIONS & CONDITIONS**

All new installations of distribution facilities shall be installed and maintained by the permittee under the direction of the District Landscape Architect and shall be in compliance with the following criteria:

Within each Safety Roadside Rest Area (SRRA), all distribution facilities (boxes and pedestals) shall all be of the same type, model, manufacturer and color (see Attachment #1 & #2) so that a uniform appearance is maintained as directed by the District Landscape Architect and per the attachments provided.

The distribution facilities shall be located within the SRRA as directed by the District Landscape Architect, in the planted areas wherever practicable, adjacent to walkways and electroliers to reduce the exposure to vandalism and theft.

The distribution facility should be located in an area where it will be unobtrusive and not detract from other elements of the SRRA. It will be located so that it is convenient and easily accessible to the traveling public.

The front of the distribution facility should be parallel with the edge of the walkway.

The distribution boxes are to be securely fastened to square steel pedestal mounts, which are to be set in a concrete footing located within the planted area. The top of the concrete footing is to be covered with soil, mulch or ground cover to restore the area to its previous appearance to as great an extent as possible. Distribution boxes furnished with a pedestal mount equipped with a steel flange base designed to be bolted to concrete surfaces are to be used only where directed by the District Landscape Architect.

All distribution facilities shall be free of any advertisements and shall be maintained in a clean, neat and attractive condition and in good repair at all times. Any facilities (boxes, pedestals) that are damaged, in a state of disrepair, or due to wear and tear which are no longer in a presentable condition (clean, neat and attractive) shall be replaced or repaired by the permittee within (48) hours after discovery or notification by the States’ representative to do so.

All distribution facilities which have been lost, stolen or vandalized and facilities that are no longer to be used, shall be removed, replaced or repaired by the permittee within (48) hours after discovery or notification by the District Landscape Architect to do so.

Any distribution facility that is missing, vandalized or unused and is not to be replaced shall be removed, and the site shall be returned to its original condition.

**THESE GUIDELINES ARE SUBJECT TO CHANGE AT THE DISCRETION OF THE HEADQUARTERS OFFICE OF ENCROACHMENT PERMITS. IT IS THE RESPONSIBILITY OF THE PERMITTEE TO REMAIN CURRENT WITH THE SPECIAL PROVISIONS AND PERMIT CONDITIONS OF THESE GUIDELINES.**
ATTACHMENT #1

DISTRIBUTION BOXES

FACE VIEW

BEIGE COLOR

SIDE VIEW

DOUBLE BOX DIAGRAM

TOP VIEW
Of
BASE TRAY
The distribution boxes are to be securely fastened to square steel pedestal mounts, which are to be set in a concrete footing located within the planted area. The top of the concrete footing is to be covered with soil, mulch or ground cover to restore the area to its previous appearance to as great an extent as possible. Distribution boxes furnished with a pedestal mount and equipped with a steel flange base that are designed to be bolted to concrete surfaces are to be used only where directed by the Department.
The undersigned newspaper distributor, hereinafter referred to as DISTRIBUTOR, desires to place and maintain a newspaper and newspaper vending machine, hereinafter referred to as "Machine", at certain identified safety roadside rest areas owned and operated by the State of California, Department of Transportation, hereinafter referred to as STATE. DISTRIBUTOR agrees that the following conditions apply:

1. DISTRIBUTOR shall comply with the applicable provisions of the California Administrative Code and directions from the State’s representative as to the location and placement of each Machine and including its associated pedestal.

2. DISTRIBUTOR shall indemnify, protect and hold harmless the STATE, its officers and employees from all claims for injury to persons or damage to property by reason of the presence, location and/or maintenance of the Machine on STATE property, or by reason of claims based on acts of DISTRIBUTOR’S agents, employees or workers.

3. Maintenance of the Machine shall be the sole responsibility of DISTRIBUTOR, including any replacement or repair of Machine stolen or damaged by vandalism. DISTRIBUTOR shall begin to make necessary repairs within 48 hours after receipt of written or oral notification by STATE.

4. In the course of servicing a Machine, DISTRIBUTOR shall not deposit in or about any safety roadside rest area any wrapping paper, tying material or other litter, except to dispose of such material in a receptacle intended for that purpose. Any material that cannot be disposed of in available receptacles shall be immediately removed from the premises by DISTRIBUTOR.

5. If distribution of the newspaper is discontinued for thirty consecutive days, the DISTRIBUTOR shall remove the Machine and restore the site to its original condition.

6. If the Machine to be removed is on a pedestal shared with other machines, the DISTRIBUTOR shall modify the pedestal to properly accommodate the remaining machines.

7. If, after such discontinuance, or if the terms of this Agreement are violated, and DISTRIBUTOR fails to remove the Machine and restore the site within ten days after reasonable notice and demand, the STATE may thereafter remove the Machine and restore the site to its original condition and the DISTRIBUTOR agrees to reimburse the STATE for the reasonable costs of that removal and restoration.

8. The STATE reserves the right to close, temporarily or permanently, the safety roadside rest area for any reason without notification to the DISTRIBUTOR.

9. This Agreement shall commence on _____________ 20____, and shall terminate on _______________ 20____

The parties agree that only the following newspaper may be distributed:

<table>
<thead>
<tr>
<th>NAME OF REST AREA(S)</th>
<th>TRAVEL DIRECTION</th>
<th>NEWSPAPER NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>COMPANY NAME</th>
<th>CONTACT PERSON</th>
<th>PHONE NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDRESS</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

DISTRIBUTOR’S SIGNATURE

<table>
<thead>
<tr>
<th>DISTRICT USE ONLY</th>
</tr>
</thead>
<tbody>
<tr>
<td>DISTRICT SRRA COORDINATOR / DISTRICT LANDSCAPE ARCHITECT NAME</td>
</tr>
<tr>
<td>DISTRICT SRRA COORDINATOR / DISTRICT LANDSCAPE ARCHITECT NAME</td>
</tr>
</tbody>
</table>
GENERAL

The California Department of Transportation (Caltrans) and the California Highway Patrol (CHP) share responsibility for operating the state highway system safely and efficiently. Because of the shared responsibilities, planned lane closures impact both Caltrans and CHP. Minimizing motorist delay while maintaining the quality of work and public and worker safety are key goals during planned lane closures.

PLANNED LANE CLOSURE POLICY

Transportation Management Plans (TMPs), including contingency plans, are required for all construction, maintenance, encroachment permit, planned emergency restoration, or other planned activities. TMPs define the actions necessary to ensure a safe workzone that minimizes impacts to motorists. Caltrans District offices will seek input from local CHP personnel for the development of significant TMPs.

When planned lane closures are necessary, some of the techniques or considerations when developing a TMP may include:

1. Consideration of lane closure hour restriction.
2. Use of Construction/Maintenance Zone Enhanced Enforcement Program (COZEEP/MAZEEP).
3. Use of Freeway Service Patrol for workzone.
4. Consideration of predictable heavy congestion, such as commute hours and holidays.
5. Detour routes.
6. Reduced lane widths.
7. Consideration of impact on adjacent roads.

Decisions on how to handle public safety situations should be made collaboratively between Caltrans and CHP at pre-job meetings and/or when they
occur. More information on termination of lane closures is contained under Joint Responsibilities.

A. JOINT RESPONSIBILITIES

1. **Lane Closure Review Committees.** When a planned lane closure-related traffic delay is expected to exceed 30 minutes, a Caltrans District Lane Closure Review Committee (DLCRC) review and approval is required. The DLCRC will include a local designated CHP representative. The DLCRC decides when to submit lane closure requests that are of an interregional, statewide, environmental, or otherwise of a sensitive nature to the Caltrans headquarters Lane Closure Review Committee (HLCRC) for their approval. The HLCRC includes a designated CHP headquarters representative.

2. **Contingency Plans.** Contingency plans will be developed to address construction process problems, and those for unexpected traffic issues. A contingency plan addresses specific actions that will be taken to restore or minimize effects on traffic when traffic congestion or delay exceeds the original estimates. The contingency plans will prescribe actions for likely problems and provide the criteria “triggers” for initiating the planned actions. The CHP and Caltrans will collaborate in the development of contingency plans and will:
   
   a. Commit personnel and resources, as available, to ensure the efficient execution of the plan.
   
   b. Ensure the plan provides that clearly designated responsible personnel, with the authority to act, will be available at all times during closure.
   
   c. Coordinate and collaborate with other commands and agencies as required.
   
   d. Ensure local authorities and allied agencies as appropriate are participants in the plan and are willing to act.
   
   e. Ensure the TMCs are part of the plan, including interregional TMC participation.

3. **Termination of Highway Lane Closures.** Either department may terminate a lane closure because of safety concerns (e.g., unacceptable smoke or dust that restricts motorist visibility, development of inclement weather, potential for flooding). Whenever possible, a closure should be terminated collaboratively between Caltrans and the CHP.

When a CHP field representative determines a lane closure should be terminated
because of safety concerns or unacceptable traffic congestion, the following protocol should be used:

a. Notify a CHP supervisor.

b. Contact the Caltrans person responsible for overseeing field work. If mutual agreement to terminate the closure is not reached, the CHP supervisor should notify the Area commander or designee, who will contact the appropriate Caltrans manager to mutually resolve the issue. If the decision is made to terminate the closure, the CHP and Caltrans representatives shall:

1. Advise the TMC or Caltrans Maintenance Dispatch as appropriate.

2. Notify all other applicable entities (e.g., highway contractor).

When a Caltrans field representative or District Traffic Manager (DTM) determines a lane closure should be terminated because of safety concerns or unacceptable traffic congestion on the immediate and/or adjacent highway/roadway system, the following protocol should be used:

a. Notify the Caltrans person responsible for overseeing field work, Maintenance Dispatch, CHP Communication Center, and TMC.

b. Notify all other applicable entities (e.g., highway contractor).

4. Evaluation. For some major TMPs, it is expected that evaluations will be done as a joint CHP/Caltrans activity, and include any other participants such as allied agencies.

B. CHP’S RESPONSIBILITIES

CHP Division and Area commanders, or their designees, will collaborate and cooperate with responsible Caltrans personnel to minimize traffic congestion (e.g., vehicle queuing, stopping, slow bumper-to-bumper vehicles) resulting from planned lane closures. CHP Division and Area commanders will work with the appropriate Caltrans District Division Chief, DTM, Resident Engineer, Maintenance Region Manager, or person(s) designated by the District Director to ensure the CHP’s concerns are adequately addressed in the TMPs and contingency plans.

Area commanders or their designees participating on, and/or reviewing and commenting on project-specific TMPs and contingency plans will:
1. Review the plans in a timely manner to ensure CHP concerns, including motorist and worker safety, are adequately addressed.

2. Provide notification to appropriate CHP commands of all impending planned lane closures and status of associated TMPs.

3. Notify respective CHP Division commanders of agreed upon traffic queues (distance and amount of time for stop-and-go vehicles) during the lane closures and any significant issues concerning traffic control that were not resolved in the TMP.

4. Verify that TMCs have been notified and are part of impending projects, TMPs, and contingency plans.

5. Ensure the commitment of CHP personnel and resources to COZEEP/MAZEEP, directing traffic, and traffic monitoring is clearly and accurately described in TMPs and contingency plans.

C. CALTRANS’ RESPONSIBILITIES

The Caltrans TMP Coordinator will confer with the respective CHP Area commanders to determine criteria and procedures for notification of planned highway lane closures and changes to TMPs.

Depending on the project and impact on traffic, Caltrans may include CHP in the development and review of TMPs.

1. Caltrans should designate a responsible representative for each lane closure.

2. Caltrans should ensure the contractor is able and prepared to comply with the TMP and contingency plan as they relate to its performance of work.

D. SPECIAL EVENTS ON STATE HIGHWAYS

Special events include, but are not limited to, activities such as parades, marathons, bikeathons, walkathons, marches, triathlons, and other activities. Filming operations are covered under separate guidelines.

An encroachment permit for special events is required whenever any activity is conducted within a state highway right-of-way which interferes with the unrestricted movement of traffic, requires special traffic control, and/or cannot be conducted in such a manner as to fall under the permissible uses of a highway as authorized in the California Vehicle Code (CVC). Activities which do not
interfere with traffic and which conform to the CVC do not require a permit.

Preliminary and operational meetings should be held with Caltrans, CHP, and special event representatives for all proposed special events before a permit is issued. When appropriate, other local authorities and law enforcement agencies should be invited to attend the meetings. The purpose of these meetings is to define permit conditions, which generally include:

1. Highway location feasibility.
2. Traffic control and facility needs.
3. CHP and Caltrans personnel required for event.
4. Timing of event.
5. Preventing damage to state property.
6. Safety considerations, which includes preventing traffic hazards and determining the least amount of impact to traffic.

Operational decisions and/or emergency situations may require the roadway to be reopened immediately. This decision should be made by the state representative in charge (Caltrans or CHP). CHP and Caltrans may bill the permit-holder for all costs incurred.

WILL KEMPTON, Director
Department of Transportation

M. L. BROWN, Commissioner
Department of California
Highway Patrol

12/20/05

Date

Date
6735. Preparation, signing, and sealing of civil engineering documents
(a) All civil (including structural and geotechnical) engineering plans, calculations, specifications, and reports (hereinafter referred to as "documents") shall be prepared by, or under the responsible charge of, a licensed civil engineer and shall include his or her name and license number. Interim documents shall include a notation as to the intended purpose of the document, such as "preliminary," "not for construction," "for plan check only," or "for review only." All civil engineering plans and specifications that are permitted or that are to be released for construction shall bear the signature and seal or stamp of the licensee and the date of signing and sealing or stamping. All final civil engineering calculations and reports shall bear the signature and seal or stamp of the licensee, and the date of signing and sealing or stamping. If civil engineering plans are required to be signed and sealed or stamped and have multiple sheets, the signature, seal or stamp, and date of signing and sealing or stamping, shall appear on each sheet of the plans. If civil engineering specifications, calculations, and reports are required to be signed and sealed or stamped and have multiple pages, the signature, seal or stamp, and date of signing and sealing or stamping shall appear at a minimum on the title sheet, cover sheet, or signature sheet.

6746. Exemption - communications companies under the Public Utilities Commission
Plans, specifications, reports and documents relating to communication lines and equipment prepared by employees of communications companies which come under the jurisdiction of the Public Utilities Commission, and by employees of contractors while engaged in work on communication equipment for communications companies which come under the jurisdiction of the Public Utilities Commission, are not subject to the provisions of this chapter.

6746.1. Exemption - employees of the communications industry
The provisions of this act pertaining to licensure of professional engineers other than civil engineers, do not apply to employees in the communication industry, nor to the employees of contractors while engaged in work on communication equipment. However, those employees may not use any of the titles listed in Section 6732, 6736, and 6736.1, unless licensed.

6747. Exemption – industrial corporations and public utilities
(a) This chapter, except for those provisions that apply to civil engineers and civil engineering, shall not apply to the performance of engineering work by a manufacturing, mining, public utility, research and development, or other industrial corporation, or by employees of that corporation, provided that work is in connection with, or incidental to, the products, systems, or services of that corporation or its affiliates.
(b) For purposes of this section, "employees" also includes consultants, temporary employees, contract employees, and those persons hired pursuant to third-party contracts.
Memorandum

To: DIRECTOR
DEPUTY DIRECTORS
DISTRICT DIRECTORS
DIVISION CHIEFS

From: MALCOLM DOUGHERTY
Interim Chief Engineer

Date: December 22, 2009

Subject: Inclusion of Expiration Date on Engineering and Land Surveying Documents

Assembly Bill 645, which becomes effective January 1, 2010, deletes the requirement to include the license expiration date on engineering and land surveying documents.

The Department has considered the impending changes and has determined that engineering and survey documents prepared for the Department’s use or for construction on the State Highway System will continue to include the expiration date on the seal or stamp.

The current business practice of including the expiration date is consistent with the Department’s quality management policies and its desire to perpetuate only the highest quality engineering and surveying documents.

Please refer any questions on this policy to Terry Abbott or Linda Fong.

"Caltrans improves mobility across California"
KIOSK
ADVERTISING/ DISPLAY GUIDELINES
For Safety Roadside Rest Areas
HEADQUARTERS LANDSCAPE ARCHITECTURE PROGRAM
MAY 2009
**KIOSK ADVERTISING GUIDELINES**

**SUBMITTAL**

*This program is “optional” at the discretion of the District Office.*

Requests for placement of an advertisement/display within a Traveler/Tourist Information Center, hereinafter referred to as “Kiosk,” shall be submitted by the responsible person (City, County, Chamber of Commerce, Organization or Business Owner) for that activity, service or facility, hereinafter referred to as the “Requestor,” to the District’s Representative.

Kiosk Advertising Guidelines are established from Barclays California Code of Regulations, Title 21: Public Works, Division 2: Department of Transportation, Chapter 20: Permissible Activity and Use of Safety Roadside Rest Areas (SRRA) and Vista Points in and along California State Highways, which authorize the placement of commercial advertisements/displays within kiosks.

- Article 2, Section 2204 (b) authorizes the placement of commercial displays under an agreement within Traveler Information Centers for a cost.
- Article 2, Section 2204 (d) defines Traveler Information Centers as kiosks.
- Article 2, Section 2204 (f) authorizes the Department to place Public Information displays/advertisements determined to be of a specific value, interest or assistance to the traveling public, for a cost.

Streets and Highway Codes Section 220.5 authorizes the placement of kiosks, within Safety Roadside Rest Areas (SRRA), and the following advertisements/displays are allowed for placement at no cost:

- Section 220 authorizes the placement of agricultural displays.
- Section 221 authorizes the placement of information regarding missing children.

Forty-percent (40%) of the kiosk space is devoted to non-commercial public information. The remaining sixty-percent (60%) may be utilized as follows:

Placement of an advertisement/display can be monthly, quarterly or semi-annual.

The format and content of the advertisement/display will be provided for review and consideration. The District SRRA Coordinator or District Landscape Architect is responsible for review, approval and processing of the submitted request.

Upon approval in writing from the Department, the advertisement/display can not be changed or altered in any way without the written consent of the Department.

Displays approved for placement can only provide public information regarding:

- local and state points of interest
- local communities and community service facilities
- location of recreational areas and facilities (campgrounds, etc)
- identification of local automotive service stations
• food
• lodging
• traveler service related facilities

**FEE**

The entire fee of the agreement, per advertisement/display, is required due upon written approval of the request. Payment of the fee shall be by personal or company check, money order or cashier’s check, made out to the Department of Transportation.

Districts will assess the fee for the placement of the “advertising/display” based upon the following criteria:

1. Location of the SRRA
2. Distance of the SRRA in relation to the District Office (round-trip travel time, etc.)
3. Size of the advertising/display
4. Other district resources expended

The assessed advertising fee is subject to change at the end of the existing agreement period entered into by the requestor and the Department, at the discretion of the Department.

**CONDITIONS OF INSTALLATION**

Installation or removal of the advertisement/display upon any kiosk will solely be the responsibility of the Department. Under no circumstances can the requestor install, replace, repair, alter or remove the advertisement/display.

The Department reserves all rights, as stipulated within Barclays California Code of Regulations:

- to reject or refuse at its sole discretion any advertisement/display which is false or misleading, which may misinform, or which does not qualify as traveler information under the Department’s rules and regulations.
- to reject, refuse or remove any advertisement/display which does not conform to the Department’s specifications, which is deemed unsightly or in a bad state of repair.
- to cancel the agreement at any time, upon ten-days written notification.
- any delay in the placement of an advertisement/display or interruption of the display time caused by the Department shall not constitute a breach of the agreement. In its discretion, the Department may extend the term of the agreement or provide a pro rata credit equal to the period of delay or interruption. Such extension or credit shall be the only damages recoverable.
- to close the Safety Roadside Rest Area for any reason without notification, temporarily or permanently, or to cancel the agreement. The requestor shall have no claim for damages, or extension of the agreement by reasons of such removal, disruption, discontinuance or termination.

The Requestor is responsible for the production of the advertisement/display at their sole cost and expense.

The Requestor is responsible at their own cost and expense for, the restoration, repair or replacement of any advertisement/display which is lost, stolen, defaced, damaged, or destroyed through no fault of
the Department, or which is deemed by the Department to be in a faded, or deteriorated condition, regardless of the cause.

In this event, if the requestor fails to provide an acceptable replacement of the advertisement/display within thirty-days of notification, the Department may cancel the agreement.

The advertisement/display will be of a professional quality, printed on LEXAN or a comparable material pre-approved by the District SRRA Coordinator or District Landscape Architect, able to withstand adverse conditions, such as direct sunlight, rain or snow and able to endure the length of the agreement. The minimal size of the advertisement/display allowed shall be no less than 10” x 14,” and a maximum size of 14” x 20.” Advertisement/displays not enclosed within a protective casing shall be durable, and protected with an anti-graffiti coating.

SPECIAL PROVISIONS

Sub-contracting or third party agreements will not be allowed for the request or placement of an advertisement/display. The requestor is required to be solely responsible for the service or facility, listed within the advertisement/display.

The requestor assumes full and complete responsibility and liability for the content of the advertisement/display, and shall agree to save, defend, indemnify and hold the State, the Department, its officers, agents and employees harmless against any and all demands, claims, liability, damages and causes of action, including attorney’s fees and all costs of any legal action occasioned by or resulting from injuries or losses to any person, firm or corporation, however occurring, resulting from their reliance on the person’s or company’s advertisement/display or from the form, content or representations contained therein.

THESE GUIDELINES ARE SUBJECT OF CHANGE AT THE DISCRETION OF THE DEPARTMENT. IT IS THE REQUESTOR’S RESPONSIBILITY TO REMAIN CURRENT WITH THESE GUIDELINES.
The undersigned requests to place an advertisement/display within the Traveler/Tourist Information Center, hereinafter referred to as “kiosk” within the Safety Roadside Rest Area, and hereby agrees to the following conditions:

I have read the Kiosk Advertising/Display Guidelines, and conditions contained herein and agree to comply. And, understand that any failure to do so will result in termination of this agreement.

The requestor assumes full and complete responsibility and liability for the content of the advertisement/display, and shall agree to save, defend, indemnify and hold the State, the department, its officers, agents and employees harmless against any and all demands, claims, liability, damages and causes of action, including attorney’s fees and all costs of any legal action occasioned by or resulting from injuries or losses to any person, firm or corporation, however occurring, resulting from their reliance on the person’s or company’s advertisement/display or from the form, content or representations contained therein.

The name on the agreement shall be that of the responsible party for that service or facility. Sub-contracting or third-party agreements will not be allowed for the placement of an advertisement/display. The requestor is required to be solely responsible for the service or facility, listed within the advertisement/display.

The advertisement/display shall be of a professional quality, printed on LEXAN or a comparable material pre-approved by the SRRA Coordinator, able to withstand adverse conditions, such as direct sunlight, rain or snow and able to endure the length of the agreement. The minimal size of the advertisement/display allowed shall be no less than 10” x 14,” and a maximum size of 14” x 20.” Advertisement/displays not enclosed within a protective casing shall be durable, and protected with an anti-graffiti coating.

The requestor is responsible for the production of the advertisement/display at their sole cost and expense.

The format and content of the advertisement/display shall be provided for review. Upon approval in writing from the department, the advertisement/display shall not be changed or altered in any way without the written consent of the Department.

The requestor is seeking placement in the following SRRA:

<table>
<thead>
<tr>
<th>NAME OF BUSINESS OR ORGANIZATION</th>
<th>OWNER OR REPRESENTATIVES NAME</th>
<th>PHONE NUMBER</th>
</tr>
</thead>
<tbody>
<tr>
<td>ADDRESS</td>
<td>E-MAIL ADDRESS</td>
<td></td>
</tr>
</tbody>
</table>

OWNER OR REPRESENTATIVES SIGNATURE

<table>
<thead>
<tr>
<th>NAME OF SAFETY ROADSIDE REST AREA</th>
<th>DIRECTION</th>
<th>TYPE OF ADVERTISEMENT/DISPLAY</th>
<th>FEE ASSESSED</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>@ SEMI-ANNUALLY</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>TOTAL:</td>
</tr>
</tbody>
</table>

DISTRICT USE ONLY

APPROVAL:

YES

NO

COMMENTS: __________________________

CASHIER

INITIALS BY ___________ DATE ___________ CASH ☐ MONEY ORDER ☐

CHECK ☐ OTHER ☐

AGREEMENT PERIOD

BEGINNING DATE ___________ ENDING DATE ___________

DISTRICT REPRESENTATIVES NAME ______________ PHONE NUMBER ___________

DISTRICT REPRESENTATIVES SIGNATURE ___________________ E-MAIL ADDRESS ___________
Memorandum

To: DEPUTY DISTRICT DIRECTORS
   for Planning

DEPUTY DISTRICT DIRECTORS
   for Operations

From: BRIAN J. SMITH
   Deputy Director
   Planning and Modal Programs

Date: August 2, 2004

LAWRENCE H. ORCUTT
   Acting Deputy Director
   Maintenance and Operations

Subject: Guidelines for Submitting Transportation Information from a Reporting or Monitoring Program to the California Department of Transportation (Department), Revised July 9, 2004

The California Environmental Quality Act (CEQA), (Public Resources Code [PRC] Section 21081.6) requires that public agencies adopt a reporting or monitoring program when they include environmental impact mitigation as a condition of project approval. PRC Section 21081.7 requires that public agencies submit such information to the Department if the project is of statewide, regional or area-wide significance; in addition, 21081.7 requires that the Department adopt guidelines for the submittal of such information.

In February 2003, the Department issued Guidelines for Submitting Transportation Information From a Reporting or Monitoring Program to the Department (Guidelines).

We revised the Guidelines, effective July 9, 2004, in response to comments and questions that we received following distribution of the February 2003 edition. The new Guidelines seek to clarify the procedures for the Department and public agencies by providing a bit more detail to the steps that we are asking them to take. In addition, we have modified the Checklist/Certification form to more easily accommodate its purposes.

The revised Guidelines are enclosed, as is a sample cover letter for use in forwarding them from district Intergovernmental Review (IGR) units to local public agencies.

Please direct questions to Tom Neumann, Chief, Office of Community Planning at Calnet 8-461-6882, or Paul Cavanaugh, Chief, Encroachment Permit Branch at Calnet 8-464-6232.

Enclosures: 1. Guidelines, including “Checklist/Certification” form
             2. Sample cover letter.

“Caltrans improves mobility across California”
c: Joan Sollenberger, DOTP
   Karla Sutliff, DOTO
   District Directors
   Paul Cavanaugh, DOTO, Encroachment Permit Branch
   Maxine Ferguson, Legal Division
   Robert Wiswell, Division of Aeronautics
   District IGR Coordinators
   Tom Neumann, DOTP, OCP
   Terri Pencovic, DOTP, OCP, IGR
Guidelines for Submitting Transportation Information from a Reporting or Monitoring Program to the California Department of Transportation

for a

Project of Statewide, Regional, or Areawide Significance

California Department of Transportation

July 9, 2004
GUIDELINES FOR SUBMITTING TRANSPORTATION INFORMATION FROM A REPORTING OR MONITORING PROGRAM TO THE CALIFORNIA DEPARTMENT OF TRANSPORTATION (DEPARTMENT)

INTRODUCTION

The California Environmental Quality Act (CEQA) requires, under Public Resources Code (PRC) Section 21081.6, the adoption of reporting or monitoring programs when public agencies include environmental impact mitigation as a condition of project approval. Reporting or monitoring takes place after project approval to ensure implementation of the project in accordance with mitigation adopted during the CEQA review process.

Assembly Bill 1807 (effective January 1, 2001) amended the PRC in a number of ways. Section 21080.4 was amended to add a requirement that lead agencies submit Notices of Preparation (NOPs) to the Governor’s Office of Planning and Research when they determine that an environmental impact report will be required to approve a project.

Section 21081.7 was amended with two additional provisions. The first provision required that transportation information resulting from a reporting or monitoring program adopted by a public agency in accordance with Section 21081.6 be submitted to the Department of Transportation (Department) when a project has impacts that are of statewide, regional, or area-wide significance. The second provision required that the Department adopt guidelines for the submittal of those reporting or monitoring programs.

PURPOSE

The purpose of these guidelines is to establish clear and consistent statewide procedures to be used by both Department District Intergovernmental Review (IGR) Program Coordinators to identify the scope and timing of transportation information needed from lead agencies, and public agencies when submitting transportation information to the Department, in accordance with Section 21081.7.
PROCEDURES

A. The District IGR Program Managers and/or Coordinators shall:

1. Prior to implementation of mitigation measures:

   a. Notify the CEQA lead agency by letter during “early consultation,” the Notice of Preparation (NOP) stage, or the Initial Study (IS) phase of the CEQA review process that the transportation information included in the reporting or monitoring program will need to be provided to the Department following project mitigation agreement.

   b. Provide the name, address, and telephone number of the District IGR contact to the lead agency.

   c. Provide, as an enclosure to the notification letter, a copy of these “Guidelines” and the Department’s “CEQA Lead Agency Checklist/Certification” form. (Part 1 of the form, Checklist, is to be signed by the lead agency following project approval, and a copy submitted to the District along with the transportation reporting or monitoring information. Part 2 of the form, Certification, is to be signed by the lead agency and the District upon implementation of all agreed-upon mitigation measures.)

2. Following implementation of mitigation measures as identified in Part 1, Checklist, of the CEQA Lead Agency Checklist/Certification form, and certification of implementation by the lead agency in Part 2, Certification:

   Ensure sign off of Part 2, indicating that the mitigation measures have been implemented.

   1) If the project required encroachment onto a state highway, obtain the District Permit Engineer’s signature in Part 2.

   2) If the project did not involve encroachment onto a state highway, the District IGR Coordinator shall sign Part 2.
3) The District IGR Coordinator shall: (a) Retain the original document; (b) forward a copy to the District Permit Engineer (if the Permit Engineer signed Part 2); (c) forward a copy to the Department’s Headquarters IGR Program Manager; and, (d) send a copy to the lead agency.

B. The CEQA lead agency shall:

1. Following project approval:

Submit the following information to the Department District IGR contact:

1) Name, address, and telephone number of the CEQA lead agency contact responsible for the mitigation reporting or monitoring program.

2) Location and custodian of the documents or other material, which constitute the record of proceedings upon which the lead agency’s decision to approve the project is based.

3) Assurances that the Department can obtain copies of the aforementioned documents and materials, if needed, to clarify details or resolve issues related to the mitigation adopted.

4) Detailed information on impact assessment methods, the type of mitigation, specific location, and implementation schedule for each transportation impact mitigation measure included in the reporting or monitoring program.

5) A copy of the “CEQA Lead Agency Checklist/Certification” form, with Part 1, Checklist, signed and dated, and the reporting or monitoring program transportation information attached or enclosed. The CEQA lead agency, at its discretion, may submit the complete reporting or monitoring program with the required transportation information highlighted.
2. Following implementation of mitigation measures:


   b. Forward the "CEQA Lead Agency Checklist/Certification" form, with appropriate completion documents attached, to the District IGR contact, certifying that the mitigation measures agreed upon and identified in the reporting or monitoring program have been implemented, and that all other reporting requirements have been adhered to, in accordance with PRC Sections 21081.6 and 21081.7.

**APPROVED:**

BRIAN J. SMITH  
Deputy Director  
Planning and Modal Programs  
8-7-04

L. H. ORCUTT  
Acting Deputy Director  
Maintenance and Operations  
7-9-04
CEQA LEAD AGENCY CHECKLIST/CERTIFICATION
TRANSPORTATION INFORMATION FROM A REPORTING OR MONITORING PROGRAM

Part 1 - Checklist

Project Name: ____________________________________________
Lead Agency: ____________________________________________
Lead Agency Contact (Name, Title, Agency, Address & Phone): ________________________________

State Clearinghouse (SCH) File #/s: ________________________________
Document Type/s: ____________________________________________
Findings & Approval Date/s: ________________________________

Project Proponent (Name, Title, Company, Address & Phone): ____________________________________________

For each specific Transportation Related Mitigation Measure associated with this Project, The following information items are included in the attached materials:

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
|     |    | Location/Custodian Of CEQA Documents, Proceedings, Records
|     |    | Description Of How To Obtain Copies Of Above Documents
|     |    | Mitigation Measure Name & Identifying Number
|     |    | Detailed Description of Measure & its Purpose (attach blueprints if necessary)
|     |    | Measure Location Description, Latitude/Longitude, & Vicinity Map
|     |    | Location of Impacted State Highway Component (County, Route, Postmile)
|     |    | Caltrans Encroachment Permit Number (if one was needed)
|     |    | Copy of Other Agency Permits required for this Measure (if needed)
|     |    | Completion Criteria (including detailed performance objectives)
|     |    | Implementation Schedule
|     |    | Estimated Monetary Value of Completed Measure & % Local Agency Funded
|     |    | Responsible Contractor (Name, Company, Address & Phone)

The above project mitigation measures will be implemented as indicated in the adopted reporting or monitoring program, and the California Department of Transportation will be notified upon implementation.

CEQA Lead Agency ________________________________ Date ________________________________

Part 2 - Certification

We certify that the agreed upon mitigation measures have been implemented, and all other requirements have been adhered to, in accordance with PRC Sections 21081.6 and 21081.7. Attached: 1. Completion evaluation (including field inspection reports); 2. Photograph of completed measure.

Signature & Date: ____________________________________________
Name: ____________________________________________
Title: ____________________________________________

CEQA Lead Agency ________________________________ California Department of Transportation

* This form is to be used by public agencies to submit their mitigation reporting or monitoring programs to the California Department of Transportation (Department) when a CEQA project has been found to have transportation or circulation impacts that are of statewide, regional, or area-wide significance. Copies of this form, and the Department Guidelines developed pursuant to PRC Section 21081.7, can be downloaded from our website (http://www.dot.ca.gov/hq/tnp/offices/ocp/igr_guidelines_procedures.htm). Completed form with attached materials may be post-mailed, e-mailed, or faxed to the appropriate Department District Planning Office, Attention: Intergovernmental Review (IGR) Coordinator.  [Form Version 07/2004]
GUIDELINES

for the placement of

TRAVELER DISCOUNT BOOKLETS

In

AMTRAK-CALIFORNIA STATIONS

&

SAFETY ROADSIDE REST AREAS

OCTOBER 2007
**Definition**

Periodical vendors, herein referred to as Coupon Booklet Vendors (CBV), offer discount coupons for lodging and entertainment to the traveling public.

**Written Agreement**

The Department’s representative for Amtrak-California Stations will be the Chief of the Rail Marketing Branch, Division of Rail.

The Department’s representative for Safety Roadside Rest Areas (SRRA) will be the District Rest Area Coordinator.

CBV companies requesting to place their coupon booklet(s) within Amtrak-California Stations and SRRA are first required to enter into a written agreement with the Department, administered by the Headquarters Office of Encroachment Permits.

This written agreement shall stipulate the reserving of four full-pages for departmental campaign advertisements within their respective publications, to be administered by the Statewide Events & Awards Coordinator, in the Headquarters Office of External Affairs.

The Department’s advertisements will consist of Slow for the Cone Zone, Amtrak-California, California Highway Information Network (CHIN) and Don’t Trash California. These campaign advertisements shall be effectively placed in the booklets upon finalization of the written agreement.

The location of placement of the Department’s campaign advertisements within the publications is at the discretion of the CBV, so long as the pages appear either before the first page of lodging coupons or, after the final page of lodging coupons.

The CBV agree to endeavor to place the Department’s campaign advertisements together, facing each other whenever the paid composition of the publication permits.

When, and if constraints are imposed upon the CBV by the placement of paid advertising, the CBV shall still be obligated to provide the advertisements at their discretion within the areas of the publications as prescribed above.

The Department retains the right and privilege to prescribe the content of the four full-page advertisements during the course of the written agreement and thereafter.

Each CBV will deliver 2 copies of each new publication printed to the Statewide Events & Awards Coordinator, HQ Office of External Affairs, and 2 copies of each new publication printed to the Chief, Rail Marketing Branch, Division of Rail, 1120 N Street, MS-74, Sacramento, California 95814.

**Application Submittal**

Upon confirmation of the revised agreement, each CBV will only be required to submit one standard encroachment permit application, for the issuance of one statewide biennial permit allowing the continual distribution and maintenance of their facilities. In the box labeled “description of work to be performed”, the applicant shall state the intent for the “placement and maintenance of Traveler Discount Coupon Booklets, and/or facilities.”
In the event that placement is sought where there are no existing facilities, as a new installation, will require the CBV to submit an exempt encroachment permit rider request, and the CBV shall be responsible for all costs incurred with the installation of new facilities.

**Permit Fee**

All permits are to be issued “exempt” for periodical distribution, and shall be issued as biennial permits (2-years).

**Special Provisions**

The Department will allow for the placement of these booklets for each year following as long as the respective parties adhere to the conditions of the written agreement entered into:

District 11 Encroachment Permit Office will issue a statewide biennial “CU” encroachment permit, listing the specific Amtrak-California Stations and SRRA locations statewide, following the permit special provisions, on the following pages of the permit. All respective districts will receive cc: copies of the statewide permits issued.

Require the placement of a laminated placard depicting the cover of the booklet to be placed within the window of the display box.

The CBV booklets will be allowed in the Department's Headquarters building, on the sixth floor outside of the cafeteria area and in Amtrak-California Stations stipulated within their permit, to be placed within facilities provided by the CBV.

**Permit Conditions**

Subcontracting under this permit will not be allowed for the placement of the coupon booklets.

The CBV is required to provide weekly maintenance checks on all distribution facilities, to ensure cleanliness of the area surrounding their facilities and to ensure that the traveling public is provided with current information at no cost to the public.

Storage of coupon booklets upon State rights-of-way or within the Amtrak-California termini will not be allowed.

The CBV is required to notify the Department’s representative a minimum of two days prior to entry into any of the locations stipulated within their respective permit and/or the States’ rights-of-way.

Any combination of three violations of the special provisions or permit conditions within the term (two-years) of the permit will result in suspension and/or revocation of your permitted privileges.

**Installation Conditions**

All new installations of distribution facilities shall be installed and maintained by the CBV under the direction of the Department’s representative and shall be in compliance with the following criteria:

Upon completion on the installation of the distribution facilities located within an Amtrak-California Station or SRRA, said facilities inherently become the property of the State of California.

Within each Amtrak-California Station or SRRA, all distribution facilities (boxes and pedestals) shall all be of the same type, model, manufacturer and color (see Attachment #1 & #2) to ensure a uniform appearance is maintained as directed by the Department’s representative and per the attachments provided.
The color for new distribution facilities shall be consistent at a location but may be a color other than Beige, as determined by the Department’s representative.

The distribution facility should be located in an area where it will be unobtrusive and not detract from other elements of the SRRA.

The distribution facility should be located within the planted areas wherever practicable, adjacent to walkways and electrolyers to reduce the exposure to vandalism and theft, or as directed by the Department’s representative.

It will be located so that it is convenient and easily accessible to the traveling public, as directed by the Department’s representative.

The front of the distribution facility should be parallel with the edge of the walkway.

The maximum number of distribution boxes shall not exceed four (a double stack of two) in any SRRA.

The distribution boxes located within SRRA are to be securely fastened to square steel pedestal mounts, which are to be set in a concrete footing located within the planted area. The top of the concrete footing is to be covered with soil, mulch or ground cover to restore the area to its previous appearance to as great an extent as possible. Distribution boxes furnished with a pedestal mount equipped with a steel flange base designed to be bolted to concrete surfaces are to be used only where directed by the Department’s representative.

All distribution facilities shall be free of any advertisements (see Attachment #3) and shall be maintained in a clean, neat and attractive condition and in good repair at all times. Any facilities (boxes, pedestals, and racks) that are damaged, in a state of disrepair, or due to wear and tear which are no longer in a presentable condition (clean, neat and attractive) shall be replaced or repaired by the CBV as soon as practicable after discovery or notification by the Department’s representative to do so.

All distribution facilities which have been lost, stolen or vandalized and facilities that are no longer to be used, shall be removed, replaced or repaired by the CBV as soon as practicable after discovery or notification by the Department’s representative to do so.

The CBV is responsible for removal of the remaining facilities when any distribution facility is missing, vandalized or unused, and there is not intent to replace it in kind. The site shall be returned to its original condition.

**THESE GUIDELINES ARE SUBJECT TO CHANGE AT THE DISCRETION OF THE HEADQUARTERS OFFICE OF ENCROACHMENT PERMITS. IT IS THE RESPONSIBILITY OF THE PERMITTEE TO REMAIN CURRENT WITH THE SPECIAL PROVISIONS AND PERMIT CONDITIONS OF THESE GUIDELINES.**
ATTACHMENT #1

COUPON BOOK DISTRIBUTION BOXES

FACE VIEW

BEIGE COLOR

SIDE VIEW

DOUBLE BOX DIAGRAM

TOP VIEW

Of

BASE TRAY
The distribution boxes are to be securely fastened to square steel pedestal mounts, which are to be set in a concrete footing located within the planted area. The top of the concrete footing is to be covered with soil, mulch or ground cover to restore the area to its previous appearance to as great an extent as possible. Distribution boxes furnished with a pedestal mount and equipped with a steel flange base that are designed to be bolted to concrete surfaces are to be used only where directed by the Department.
This illustration shows the appearance in how the placements of these distribution facilities are to appear in the Safety Roadside Rest Areas. Also shown is what is acceptable for placement in the door window and what is NOT.
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PROCEDURAL REQUIREMENTS FOR DESIGN AND CALCULATIONS OF STRUCTURAL AND SUB-STRUCTURAL PROJECTS

All submittals shall be stamped by a Registered Structural Engineer, or a Registered Civil Engineer, with a minimum of five years’ experience in structural design and preparation of calculations, proof of experience is required by use of Encroachment Permits form “Certification of Structural Experience” (form TR-0133) to be included within the project package submittal.

STRUCTURAL DESIGN AND CALCULATIONS

All Structural Project submittals (structures and structural falsework) will require review by Structures Maintenance, for construction under an encroachment permit and require the following:

Designed plans and specifications, calculations and details (structural and falsework).

A geotechnical investigation and soil analysis by a licensed geotechnical engineer is required. It shall provide identification of any locations of difficulty, changes in soil formation, or mixed face conditions that could present or create ground loss, exploratory soil corings and logs are required along the alignment of the project.

Construction or Structures Construction may provide oversight.

SUB-STRUCTURAL DESIGN AND CALCULATIONS

Sub-structural projects may consist of, but are not limited to, drainage boxes & systems, tunneling projects (mechanical or manual tunnel excavations for the placement of tunnel supports), and Trenchless Technologies for the installation of utilities when the diameter is 30” or larger (jack & bore, micro-tunneling, horizontal directional drilling, or pipe-ramming).

When the distance between the tunnel and an existing structure is less than twenty times its diameter, it shall be sent to Structures Maintenance for review of the potential lateral loading effects to the pilings and foundation.

Otherwise, Sub-structural Project submittals, listed below and submitted with the “Certification of Experience” (form TR-0133) do not require review by Structures Maintenance or Underground Structures.

- Micro-tunneling projects.
- Bore & Jack, HDD, or Pipe Ramming (hole-diameter is 30” or larger and requiring structural/sub-structural design, investigations and calculations)
- Tunneling for the placement of tunnel support systems (rib & lagging, or steel liner plate requiring structural/sub-structural design, investigations and calculations).
- Drainage boxes and systems.

All Sub-structural Project submittals require the following:

The District Encroachment Permits Office is responsible for verification of the Registered Engineer’s stamp, validation of the date of expiration against the dated plan set and calculations. The permit office engineer shall validate the RE’s stamp at the web site listed below, by entering the RE’s number. A copy of the results shall be printed and included within the permit file. The encroachment permit may be issued, upon completion of the normal review process (Traffic, Environmental, R/W, etc.).
• Designed plans and specifications, calculations and details (liner plates, rib & lagging, bracing, etc.).
• A geotechnical investigation and soil analysis by a licensed geotechnical engineer is required. It shall provide identification of any locations of difficulty, changes in soil formation, or mixed face conditions that could present or create ground loss, exploratory soil corings and logs are required along the alignment of the project.
• When the length of the tunnel is greater than four hundred feet (> 400’), alignment holes may be required. Alignment holes shall be drilled at a maximum spacing of two-hundred feet (200’) and a casing of four to six inches (4” to 6”) in diameter installed vertically, to a depth necessary for the installed casing to extend into the tunnel excavation. When alignment holes fall within the pavement area of the roadway, the pavement shall be saw-cut, a cover shall be placed over the end of the casing at grade, and the space around the casing within the roadway filled with concrete (EXCEPT in controlled access right-of-way).

PROJECT OWNER’S RESPONSIBILITIES

On projects deemed by the Department as requiring full time inspection, the project owner is responsible for providing a third-party full-time inspector.

A full-time Safety Engineer: A Registered Structural or Civil Engineer, with a minimum of five years’ experience in design or inspection of Sub-structural Projects (tunnels). Proof of experience shall be submitted on Encroachment Permits form “Certification of Structural Experience” (form TR-0133) or

A full-time Safety Representative: State certified by Department of Industrial Relations, Cal/OSHA Mining & Tunnel Unit, proof of certification is required. California Code of Regulations 8406(f), (h)

CONTRACTOR’S RESPONSIBILITIES

Prior to issuance of the “DP” permit the following shall be submitted:
• Proof of experience, as stipulated by the District Office, in respect to diameter and length of proposed project.
• Tunnel support system construction plans and specifications, calculations and details, method of construction, to include the adequacy of the shield and liner material stamped by a Registered Structural Engineer, or a Registered Civil Engineer, with a minimum of five (5) years’ experience in sub-structural design and preparation of calculations.
• “Notice of Materials to be used” (form CEM-3101).
• Method of construction plan.
• A Licensed Surveyor.
• Proof of rib expanders and/or liner supports.
• Working schedule of the project.
• Contingency plan for dealing with ground loss work.
• Shaft; soil stability at portals and ground improvement plan.
• Dewatering plans for entry and exit shafts/pits, if needed.
• Installation and monitoring of SWPPP or WPCP facilities and conditions.
• Shoring design for entry and exit shafts/pits.
• Survey control plan: lasers, laser mounting, laser checking.
• Ground surface settlement monuments and subsurface settlement monuments monitoring program plan.
  • Buried points
TUNNELING PROJECTS

All projects will vary in their own characteristics. General similarities are listed below to provide a general understanding of these types of projects.

Establishment of a survey-grid line and existing elevation points shall be over the centerline and wing points of the installation.

Designed plans and specifications, calculations and details (liner plates, rib & lagging, bracing, etc.) shall be stamped by a Registered Structural Engineer, or a Registered Civil Engineer, with a minimum of five (5) years’ experience in sub-structural design of tunnels. Proof of experience shall be submitted on “Certification of Structural Experience” (form TR-0133) in conjunction with project package submittal.

A geotechnical investigation and soil analysis by a licensed geotechnical engineer/engineering geologist is required. It shall provide identification of any locations of difficulty, changes in soil formation, or mixed face conditions that could present or create ground loss, exploratory soil corings and logs are required along the tunnel alignment at intervals of twenty-five to one-hundred feet {25’ to 100’}.

When the length of the tunnel is greater than four hundred feet (> 400’), alignment holes may be required. Alignment holes shall be drilled at a maximum spacing of two-hundred feet (200’) and a casing of four to six inches (4” to 6”) in diameter installed vertically, to a depth necessary for the installed casing to extend into the tunnel excavation. When alignment holes fall within the pavement area of the roadway, the pavement shall be saw-cut, a cover shall be placed over the end of the casing at grade, and the space around the casing within the roadway filled with concrete (EXCEPT in controlled access right-of-way).

CAL/OSHA REQUIREMENTS

The California Code of Regulations (CCR) mandates the following requirements for Tunneling Projects.

- The Owner or Local Entity proposing the construction of the tunnel shall make a full submittal to the Department of Industrial Relations, Cal/OSHA, to determine tunnel classification. CCR 8422
- Development of a check-in/check-out procedure to ensure an accurate account of personnel underground in the event of an emergency. CCR 8410
- Development of an Emergency Plan, that outlines duties and responsibilities of all personnel on the project during an emergency. The plan shall include ventilation controls, firefighting equipment, rescue procedures, evacuation plans and communications. CCR 8426
- Cal/OSHA requires a State of California certified person performing the duties of gas tester or safety representative to be certified by passing a written and an oral examination administered by the Cal/OSHA Mining & Tunneling Unit. CCR 8406(f), (h)
- A certified safety representative shall direct the required safety and health program and must be on-site while employees are engaged in operations during which the Tunnel Safety Orders (TSO) apply. CCR 8406(f)
- The certified safety representative must have knowledge in underground safety, must be able to recognize hazards, and must have the authority to correct unsafe conditions and procedures subject to the TSO. CCR 8406(f)

A State of California certified gas tester is required for the following operations:

- All classifications other than non-gassy
- Projects during which diesel equipment is used underground
- Hazardous underground gas conditions. CCR 8470
TUNNEL

Tunnel construction is accomplished by the method of Hand-mining, or by Mechanical means, and the use of a protective shield.

Continuous monitoring and observation of the ground surface above the tunnel is required. In some cases, it may be required to survey and record elevations along the survey grid line, several times a day, or daily.

Generally, when tunneling in good ground, tunnels with a diameter of less than eight-feet (< 8’) and less than three-hundred feet to four-hundred feet (300’ to 400’) in length may be holed-through (excavated completely) before concreting the interior of the tunnel, when placement of pre-fabricated or pre-cast pipe is to be installed. When this is proposed, hole-through (unsupported length) before concreting of the interior of the tunnel, it shall be justified by the original subsurface geotechnical investigation and design.

Tunnel lining and bracing should consist of steel ribs and steel spreaders (dutchmen) with wood, concrete, or steel lagging, or with bolted steel liner plates.

Fireproof materials should be utilized in all construction of plant structures, above ground, within one hundred feet (100’) of the shaft or tunnel. The use of flammable materials or wood shoring would require that adequate fire protection be provided.

Ventilation systems shall be established and provide a minimum of two hundred (200) cfm per worker.

- All equipment shall maintain a minimum clearance of twenty-five feet (25’) from opening.
- An established contingency plan in the event of ground loss.
- Cranes utilized in operations shall maintain minimum required clearances.

TUNNEL SHIELD

- The face of the shield shall be provided with a hood or an approved grid system.
- The excavation face shall have a sufficient length to allow for the installation of one (1) complete ring of liner plates, or one (1) complete set of ribs and lagging before advancing.
- The contractor shall submit details and design information of the shield.

TUNNEL LINING

Tunnel lining and bracing should consist of steel ribs and steel spreaders with wood lagging and concrete, or steel lagging, or with bolted steel liner plates.

The tunnel liner and bracing shall be designed (calculations provided) of an adequate strength based upon the geotechnical investigation, soil analysis, loading, and the diameter and depth of cover to provide adequate support of the tunnel.

- A ring expander shall be used to expand the rib continuously outward and upward.
- Liner plates shall be designed based on joint strength, minimum stiffness, critical buckling of the liner plate wall, and deflection or flattening of the tunnel section.
- On tunnels with a diameter greater than ten feet (> 10’), the placement of ribs inside of liner plate may be required.
- When the geotechnical investigation has determined that silts and fine sands exist, that may flow under pressure, all liner plates shall include a neoprene gasket adhered to each flange face.
LAGGING

Generally started at spring line and continue upwards towards the crown. Lag spacing consists of three methods:

1. Wedging – done by driving a block of wood between the earth and the lag at each end, or by driving a wedge between the rib and the lag.
2. Stops – by welding small angles to the ribs outer flange to prevent sliding.
3. Clamps – which are applied to wood or steel lags.

If the spacing of lags between ribs is used in tunnel construction, packing between lags with filler may be required.

- Lags are boards or steel plates placed longitudinally against the roof and walls of the tunnel excavation.
- Steel lagging may consist of channel, liner plate or corrugated metal.
- Steel lagging thickness shall be designed on strength based upon the geotechnical investigation, soil analysis, and loading.
- Wood lagging thickness shall be designed on strength based upon the geotechnical investigation, soil analysis, loading. Generally wooden lags common size is three-inches by six-inches (3” x 6”), and the length is cut according to the spacing of the ribs.
- A minimum of one liner plate per ring with a two-inch (2”) diameter coupling for grouting is required.

CONSTRUCTION OF SHAFTS / PITS

Shafts / pits should be constructed of a proper size and shape, and equipped as to allow work to be carried on safely.

- Shafts must be constructed of driven steel sheet pilings, steel bracing and tight wood, or steel lagging or steel liner plates and ribs.
- The removal of spoils should be accomplished by mechanical means (muck box).
- All shafts must be provided with guardrail and a toeboard.
- When ladders are utilized within the shaft or pit, cages and/or safety devices must be provided on depths of 15 feet to 20 feet, platforms must be provided at depths of greater than 20 feet.
- Ventilation systems must be established and provide a minimum of 200 cfm per worker.
- All equipment must maintain a minimum clearance of 25 feet from openings.
- Upon completion of project all shafts, pits and drifts that are not part of the finished product must be backfilled.

PLACEMENT OF SHAFTS / PITS

Shafts /Pits must be:

- Preferred to be located as far from the traveled way as feasible. At minimum, should be located 10 feet from the edge of pavement in rural areas, or at least 5 feet beyond the concrete curb and gutter or AC dike in urban areas, or at least 5 feet beyond the toe of slope of embankments.
- Located outside of access-controlled right-of-way.
- Adequately fenced or have a Type-K barrier placed around them at a 10:1 taper or as otherwise directed.
• Shored according to Cal-OSHA minimum requirements. Located within 15 feet of traffic lanes on a State highway must not extend more than 36 inches above the pavement grade unless otherwise authorized by the State representative. Reflectors must be affixed to the sides facing traffic, and placement around the perimeter of a 6-foot chain link fence during non-working hours.
• Are only allowed within access-controlled right-of-way for direct access-controlled right-of-way crossings that are excessively long or that have restricted space available outside the right-of-way.
• They must not affect State facilities or create a hazard to the traveling public. When placement is approved within access-controlled right-of-way, damaged State facilities must be replaced or repaired according to State Standard Specifications.
• Must have crushed-rock and sump areas to clear groundwater and water used to clean. They must be lined with filter fabric when groundwater is found and pumping is required.

EXCAVATION

In some locations Soil Stabilization may be required. It may become necessary at the direction of the Engineer to either pressure grout or freeze the soil area of the project to control water, to prevent loss of ground, to prevent settlement or displacement of an embankment. When required, a Registered Geotechnical Engineer shall prepare and stamp the plans determining the material and method for use.

In some projects masonry sections are installed, the amount of excavation of the tunnel should not exceed the amount needed for placement of a full masonry section after all lining is in place.

All excavated material shall be considered as unclassified material.

• In the event of any ground movement over or adjacent to construction, all work shall be suspended, except that which will assist in making the construction site secure and prevent any further additional movement of the ground.
• Excavation should not be advanced beyond the edge of the shield, except in rock.
• The geotechnical engineer/engineering geologist shall determine the allowable amount of tunnel length unsupported by bracing, based on the geotechnical investigation and design.
• All voids between the excavation and the liner shall be grouted after setting of ribs and lagging, if not expanded to full contact with the surrounding ground, as determined by the Safety Engineer.
• A log shall be maintained of all surrounding utilities and facilities.

DEWATERING

When ground water is anticipated, pumps of sufficient capacity to handle the flow shall be maintained at the site. Observation shall be maintained to detect any settlement, displacement or washing of fines into the pit, shaft or tunnel.

GROUTING

Grouting should be kept close to the heading (working front of tunnel). It may be required to add pea-gravel and fly ash to the grout. The pea-gravel would assist in consolidation and the filling of the voids, fly-ash works as a lubricant allowing the grout to free-flow.

• The use of grout stops may be utilized if necessary or if required by the Safety Engineer.
• Grouting shall be performed when ordered by the Safety Engineer.
• At no time shall progression of the tunnel exceed six feet (6’) beyond the grouting of the exterior void.
• Pressure on the grouting gauge should not exceed the capacity of the lining, sufficient to fill all voids.
• A gauge shall be provided which will accurately indicate working pressure and shall be monitored constantly during grouting procedures.
• Grouting shall start at the lowest point and proceed upwards simultaneously on alternating sides.
• When grouting is complete at that location a threaded plug shall be installed into the coupling.

**MATERIALS**

“Notice of Materials to be used” (form CEM-3101) is required.

- The manufacturer shall provide a Certificate of Compliance, to ensure tensile and yield strengths.
- Steel lagging may consist of channel, liner plate or corrugated metal.
- Steel lagging thickness shall be designed on strength based upon the geotechnical investigation, soil analysis, and loading.
- Wood lagging thickness shall be designed on strength based upon the geotechnical investigation, soil analysis, loading. Generally wooden lags common size is three-inches by six-inches (3”x 6”), and the length is cut according to the spacing of the ribs.
- When the geotechnical investigation has determined that silts and fine sands exist, that may flow under pressure, all liner plates shall include a neoprene gasket adhered to each flange face.
- Ensure Manufacturer’s Specification Data Sheets (MSDS) are provided stipulating recommended:
  - Specifications of steel spreaders (spacing, tolerances).
  - Specifications of steel rib (section lengths, spacing, etc.)

**PROJECT OWNER’S/PERMITTEE’S RESPONSIBILITIES**

The project owner/permittee is responsible for providing:

- A full-time Safety Engineer or Safety Representative, and proof of certification is required, either by submittal on “Certification of Structural Experience” (form TR-0133) or State Certification.

Cal/OSHA requires persons performing the duties of gas tester or safety representative to be certified by passing a written and an oral examination administered by the M&T Unit. CCR 8406(f), (h)

- Project drawings and specifications, calculations and details stamped by a Registered Structural Engineer, or a Registered Civil Engineer, with a minimum of five (5) years’ experience in sub-structural design of tunnels.
- A geotechnical investigation by a licensed geotechnical engineer to determine the following:
  - Storm Water Pollution Prevention Plan (SWPPP) or Water Pollution Control Plan (WPCP).
  - De-Watering Plan, if needed.
  - Ground water information
  - Boring and soil analysis logs, location plan of borings, cross sections, subsurface strata, fill and ground water elevations;
    - Particle size distribution (particularly percent rock and cobble),
    - Cohesion index, internal angle of friction, and soil classification,
    - Plastic and liquid limits (clays), expansion index (clays), soil density, and penetration tests,
    - Rock strength, rock joint fracture and orientation, water table levels, and soil permeability,
    - Areas of suspected and known contamination should also be noted and characterized.
  - The soil investigation shall also determine the presence of rock, cobbles, and/or boulders, and the following:
    - Depth and extent of rock
• Rock type
• Rock strength
• Rock joint/fracture spacing
• Hardness
• RQD
• Estimated range of sizes & frequency of occurrence of cobbles and boulders.

**CONTRACTOR’S RESPONSIBILITIES**

The contractor is responsible for providing:

- Tunnel project construction plans and specifications, calculations and details, method of construction, to include the adequacy of the shield and liner material stamped by a Registered Structural Engineer, or a Registered Civil Engineer, with a minimum of five (5) years’ experience in sub-structural design of tunnels.
- “Notice of Materials to be used” (form CEM-3101).
- Method of construction plan.
- A Licensed Surveyor.
- Proof of rib expanders and/or liner supports.
- Working schedule of the project.
- Contingency plan for dealing with ground loss work.
- Shaft; soil stability at portals and ground improvement plan.
- Dewatering plans for entry and exit shafts/pits, if needed.
- Installation and monitoring of SWPPP or WPCP facilities and conditions.
- Shoring design for entry and exit shafts/pits.
- Survey control plan: lasers, laser mounting, laser checking.
- Ground surface settlement monuments and subsurface settlement monuments monitoring program plan.
  - Buried points
ENCASEMENT REQUIREMENTS

1. Encasement requirements are discussed in Section 603.3C of the Encroachment Permits Manual.
2. The minimum wall thickness required for steel encasements is shown in Table 6.8 of the Encroachment Permits Manual.
3. Encasement ends shall be plugged with ungrouted bricks or other suitable material approved by the Caltrans' representative.
4. The Caltrans' representative may require the permittee to pressure grout, filling any voids generated during the permitted work. Grouting shall be at the expense of the permittee. Grout holes when placed inside the of the pipe, generally on diameters of 36” or greater, shall be on 8' centers, longitudinally and offset 22 degrees from vertical, and staggered to the left and right of the top longitudinal axis of the pipe. Grout pressure shall not exceed five-(5) psig (34.5 kPa) for a duration sufficient to fill all voids.
5. There is a spacing requirement when placement of multiple encasements is requested. The distance between multiple encasements shall be the greater of either 24” or twice that of the diameter of the larger pipe being installed.
6. Wing cutters when used shall only add a maximum of 1" in diameter to the outside diameter of the encasement pipe. Voids in excess of the Standard Specifications shall be grouted.
7. A band welded to the leading edge of the encasement pipe should be placed square to the alignment and not on the bottom edge of pipe. A flared lead section on bores over 100' shall not be permitted.
8. The length of the auger strand shall be equal to that of the section of encasement pipe.
BORE & JACK

Utility installations placed by Bore & Jack shall be monitored to ensure that the integrity of the existing roadway elevations are maintained. When the encasement is also to serve as the carrier facility for hazardous materials, the use of another trenchless installation is recommended. Potential damage could occur during the jacking process, rendering the use of that facility as the carrier.

BORE AND RECEIVING PITS

Requirements:

1. Must be located as far from the traveled way as feasible. At minimum, must be located 10 feet from the edge of pavement in rural areas, or at least 5 feet beyond the concrete curb and gutter or AC dike in urban areas, or at least 5 feet beyond the toe of slope of embankments.
2. Must be located outside of access-controlled right-of-way. Any deviations for direct crossings that are excessively long, or there is restricted space available for placement, outside of the right-of-way require an approved encroachment policy exception. Those portions of the installation not placed by Bore & Jack must be encased by the open trench method.
3. Must be protected by placement of 6-foot chain link fence or Type-K barrier around them.
4. Must be shored in accordance to Cal-OSHA requirements. Shoring of pits located within 15 feet of lanes within State highway right-of-way must not extend more than 36 inches in height above the pavement grade, unless authorized by a Caltrans' representative.
5. Reflectors must be affixed to the shoring on all sides facing traffic.
6. Pits must not affect any State facilities, or create a hazard to the traveling public. Damaged State facilities must be replaced in-kind or repaired to their original state.
7. All pits should have crushed-rock and sump areas to clear groundwater and water used to clean the casings. Pits must be lined with filter fabric when groundwater is found and pumping is required.
8. Temporary Type-K railing must be placed at a 10:1 taper or as otherwise directed by the Caltrans’ representative to maintain the integrity of the adjacent travel lane.

Any installation that is 30 inches in diameter or greater is defined as tunnel. See Section 518, and Table 5.29 - Permit Code TN for the requirements of such installations.
### RECOMMENDED MINIMUM DEPTH OF COVER FOR HDD INSTALLATIONS

<table>
<thead>
<tr>
<th>DIAMETER</th>
<th>DEPTH OF COVER</th>
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<tbody>
<tr>
<td>2 inches to 6 inches</td>
<td>4 feet</td>
</tr>
<tr>
<td>8 inches to 14 inches</td>
<td>6 feet</td>
</tr>
<tr>
<td>15 inches to 24 inches</td>
<td>10 feet</td>
</tr>
<tr>
<td>25 inches to 48 inches</td>
<td>15 feet</td>
</tr>
</tbody>
</table>

Upon completion of the work, the permittee shall provide an accurate as-built drawing of the installed pipe.

### SOIL INVESTIGATIONS

The District Permit Engineer (DPE) should determine the extensiveness of the Soil Investigation to be performed based on the complexity of the HDD operation, or modify the guideline to fit the respective area.

A soil investigation is required, suitable for the proposed complexity of the installation to confirm ground conditions that will be encountered during the HDD operation. The HDD process is a continual and extensive soil analysis as the pilot bore is made encountering the varying soils and formations.

#### Projects less than 500' in length, where the product or casing is 8" or less in diameter:

A field soil sampling investigation to a depth of one foot below the proposed drilling.
- a) Subsurface strata, fill, debris and material

#### Projects less than 800' in length, where the product or casing is 14" or less in diameter:

A field soil sampling investigation to a depth of one foot below the proposed drilling.
- a) subsurface strata, fill, debris and material
- b) particle size distribution (particularly percent gravel and cobble)

#### Projects where the product or casing is 16" or greater in diameter:

A geotechnical evaluation by a qualified soil engineer to determine the following.
- a) subsurface strata, fill, debris and material,
- b) particle size distribution (particularly percent gravel and cobble),
- c) cohesion index, internal angle of friction, and soil classification,
- d) plastic and liquid limits (clays), expansion index (clays), soil density
- e) water table levels, and soil permeability,

#### Projects where the product or casing 24" or greater in diameter:

A geotechnical evaluation by a qualified soil engineer to determine the following.
- a) subsurface strata, fill, debris and material
- b) particle size distribution (particularly percent gravel and cobble)
- c) cohesion index, internal angle of friction, and soil classification
- d) plastic and liquid limits (clays), expansion index (clays), soil density, and penetration tests,
- e) rock strength, rock joint fracture and orientation, water table levels, and soil permeability,
- f) areas of suspected and known contamination should also be noted and characterized.

A borehole or test pit should be undertaken on both sides and in the median when conditions permit.
Additional boreholes or test pits should be considered if substantial variations in soil conditions are encountered in the soil analysis (the presence of gravel, cobble, and/or boulders).

Fluid jetting methods used as a means of cutting should only be considered where soils have a high cohesion such as stiff clays.

**PRE-CONSTRUCTION & SITE EVALUATION**

The following steps should be undertaken by the permittee/contractor to ensure safe and efficient construction with minimum interruption of normal, everyday activities at the site.

- Notify owners of subsurface utilities along and on either side of the proposed drill path of the impending work through USA alert (the one-call program). All utilities along and on either side of the proposed drill path are to be located.
- Obtain all necessary permits or authorizations to carry construction activities near or across all such buried obstructions.
- All utility crossings should be exposed using a hydro-excavation, hand excavation (potholing) or other approved method to confirm depth.
- Construction schedule should be arranged to minimize disruption (e.g. drilling under railroad beds, major highways, and/or river crossings).
- The proposed drill path should be determined and documented, including its horizontal and vertical alignments and the location of buried utilities and substructures along the path.

Walk the area prior to the commencement of the project and visually inspect potential sites. The following should be addressed:

- When on State R/W establish whether or not there is sufficient room at the site for: entrance and exit pits; HDD equipment and its safe unimpeded operation; support vehicles; fusion machines; stringing out the pipe to be pulled back in a single continuous operation.
- Establishing suitability of soil conditions for HDD operations. Subgrade soils consisting of large grain materials like gravel, cobble, and boulders make HDD difficult to use and may contribute to pipe damage.
- Check the site for evidence of substructures such as manhole covers, valve box covers, meter boxes, electrical transformers, conduits or drop lines from utility poles, and pavement patches. HDD may be a suitable method in areas where the substructure density is relatively high.

**INSTALLATION REQUIREMENTS**

During construction continuous monitoring and plotting of pilot drill progress shall be undertaken to ensure compliance with the proposed installation alignment and allow for appropriate course corrections to be undertaken that would minimize “dog legs” should the bore start to deviate from the intended bore path.

Monitoring shall be accomplished by manual plotting based on location and depth readings provided by the locating/tracking system or by computer generated bore logs which map the bore path based on information provided by the locating/tracking system. Readings or plot points shall be undertaken on every drill rod.

Excess drilling fluids shall be contained at entry and exit points until recycled or removed from the site. Entry and exit pits should be of sufficient size to contain the expected return of drilling fluids and soil cuttings.

The permittee shall ensure that all drilling fluids are disposed of in a manner acceptable to the appropriate
local, state, or federal regulatory agencies. When drilling in contaminated ground the drilling fluid shall be tested for contamination and disposed of appropriately. Restoration of damage to any highway or non-highway facility caused by escaping (“fracout”) drilling fluid, or the directional drilling operation, shall be the responsibility of the permittee.

To minimize heaving during pullback, the pull back rate shall be determined which maximizes the removal of soil cuttings and minimizes compaction of the ground surrounding the borehole. The pullback rate shall also minimize overcutting of the borehole during the back reaming operation to ensure excessive voids are not created resulting in post installation settlement.

The permittee shall, prior to and upon completion of the directional drill, establish a Survey Grid Line and provide monitoring as outlined in their submitted detailed monitoring plan. Subsurface monitoring points shall be utilized to provide early indications of settlement as large voids may not materialize during drilling due to pavement bridging.

Should pavement heaving or settlement occur, sawcutting and replacement of the asphalt shall be the responsibility of the permittee.

To prevent future settlement should the drilling operation be unsuccessful the permittee shall ensure the backfill of any void(s) with grout or backfilled by other means.

**PERMITTEE’S/CONTRACTOR’S RESPONSIBILITIES**

The plans set submittal should contain the following information in support of the permit application.

1. Location of entry and exit point.
2. Equipment and pipe layout areas.
3. Proposed drill path alignment (both plan & profile view).
4. Location, elevations and proposed clearances of all utility crossings and structures.
5. Proposed Depth of cover.
6. **Soil analysis.**
7. Product material (HDPE/steel), length, diameter-wall thickness, reamer diameter.
8. Detailed pipe calculations, confirming ability of product pipe to withstand installation loads and long term operational loads including H2O.
9. Proposed composition of drilling fluid (based on soil analysis) viscosity and density.
10. Drilling fluid pumping capacity, pressures and flow rates proposed.
11. State right-of-way lines, property, and other utility right-of-way or easement lines.
12. Elevations.
13. Type of tracking method/system.
14. Survey Grid establishment for monitoring ground surface movement (settlement or heave) due to the drilling operation.

Note: **May be waived by the District Permit Engineer on HDD jobs of less than 6" in diameter and on a transverse crossing less than 150' in length.**

**ADDITIONAL PERMIT CONDITIONS SHALL BE SET FORTH IN THE SPECIAL PROVISIONS OF THE PERMIT. LOCATING AND TRACKING**

**Effective January 1, 2000, locating and tracking of the reamer during the back-reaming process is required.**

The illustration below shows a universal housing that will work with any drill-string on all HDD rigs.
DRILLING FLUIDS MANAGEMENT PLAN

The following information should be provided as part of the drilling fluid management plan:

- Identify source of fresh water for mixing the drilling mud (Necessary approvals and permits are required for sources such as streams, rivers, ponds, or fire hydrants).
- Method of slurry containment.
- Method of recycling drilling fluid and spoils (if applicable).
- Method of transporting drilling fluids and spoils off site.

Drilling fluid pressures should not exceed that which can be supported by the overburden (soil) pressure.

Drilling fluids serve many functions, as follows:

- Removes cuttings from the bottom of the hole and transports them to the surface.
- Holds cuttings and weight material in suspension when circulation is interrupted.
- Releases sands and cuttings at the surface.
- Stabilizes the hole with an impermeable cake.
- Cools and lubricates the drill bit and drill string
- Controls subsurface pressures.
- Transmits hydraulic horsepower.
- Cools the locating transmitter sonde preventing burnout.

PREVIOUS EXPERIENCE

- The permittee's contractor should provide a list of projects completed by his company, location, project environment (e.g., urban work, river crossing), product diameter and length of installation.
- The permittee's contractor should provide a list of key personnel.

SAFETY

- Emergency procedures for inadvertently boring into a natural gas line, live power cable, water main, sewer lines, or a fiber-optic cable, which comply with applicable regulations.
- Emergency evacuation plan in case of an injury.
CONTINGENCY PLANS

The Contingency plan shall address the containment and removal, of an inadvertent return or spill (e.g., drilling fluids, and hydraulic fluids).

COMMUNICATION PLAN

The communication plan should address the following:

- The phone numbers for communication with owner or his representative on the site.
- Identification of all key personnel which will be responsible for ensuring that the communications plan is followed.

DRILLING OPERATIONS

The following paragraphs provide general remarks and rules of thumb related to the directional boring method, as well as specific details regarding various stages of the installation process.

- The drill path alignment should be as straight as possible to minimize the fractional resistance during pullback and maximize the length of the pipe that can be installed during a single pull.
- The radius of curvature is determined by the bending characteristics of the product line, and it is increasing with diameter.
- If a drill hole beneath a road must be abandoned, the hole should be backfilled with grout or bentonite to prevent future subsidence.

EQUIPMENT SETUP AND SITE LAYOUT

- Sufficient space is required on the rig side to safely set up and operate the equipment.
- Sufficient space should be allocated to fabricate the product pipeline into one string, thus enabling the pull back to be conducted in a single continuous operation.

DRILLING AND BACK-REAMING

- Drilling mud shall be used during drilling and back reaming operations. Using exclusively water may cause collapse of the borehole in unconsolidated soils, while in clays, the use of water may cause swelling and subsequent jamming of the product.
- Heaving may occur when attempting to back ream too large of a hole. This can be avoided by using several pre-reams to gradually enlarge the hole to the desired diameter.
- The conduit must be sealed at both ends with a cap or a plug to prevent water, drilling fluids and other foreign materials from entering the pipe as it is being pulled back.
- Pipe rollers, skates or other protective devices should be used to prevent damage to the pipe from the edges of the pit during pullback, eliminate ground drag or reduce pulling force and subsequently reduce the stress on the product.
- The drilling mud in the annular region should not be removed after installation, but permitted to solidify and provide support for the pipe and neighboring soil.

BREAK-AWAY PULLING HEAD

Some utility companies require the use of breakaway swivels to limit the amount of force used when pulling HDPE products.
**PROTECTIVE COATINGS**

In an HDD installation, the product pipe may be exposed to extra abrasion during pullback. When installing a steel pipe, a form of coating which provides a corrosion barrier as well as an abrasion barrier is recommended during the operation, the coating should be well bonded and have a hard smooth surface to resist soil stresses and reduce friction, respectively. A recommended type of coating for steel pipes is mill applied Fusion Bonded Epoxy.

**DRILLING FLUID - COLLECTION AND DISPOSAL PRACTICES**

Drilling fluids, additives and their Material Safety Data Sheets (MSDS) shall be identified within the contractor’s submittal permit package.

- Excess drilling fluids shall be contained within a lined pit or containment pound, until removed from the site.
- When an area of contaminated ground is encountered, the slurry shall be tested for contamination and disposed of in a manner, which meets Local, State and/or Federal requirements.
- Precautions shall be taken to keep drilling fluids out of the streets, manholes, sanitary and storm sewers, and other drainage systems, including streams and rivers.
- The contractor shall make all diligent efforts to minimize the amount of drilling fluids and cuttings spilled during the drilling operation, and shall provide complete clean-up of all drilling mud overflows or spills.

**SITE RESTORATION AND POST CONSTRUCTION EVALUATION**

All surfaces affected by the work shall be restored to their pre-existing conditions.

The permittee/contractor shall provide a set of as-built drawings to include both alignment and profile.

Drawings should be constructed from actual field readings. Raw data shall be submitted as part of the “As-Built” document. The contractor shall stipulate the tracking method used to ensure the data was captured.
MICRO-TUNNELING

Micro-tunneling is a hybrid of the tunneling industry (miniaturization of tunnel boring machines) and the pipeline industry where pipe jacking has been used for more than 100 years. It is a special construction method suitable for many conditions where open cut construction methods are not cost effective, too disruptive, or not physically possible.

MICRO-TUNNELING PLAN SET SUBMITTAL

The plan set submittal shall consist of two separate submittals, by the Owner of the installation and by the owner's contractor.

The submittal by the owning agency shall contain the following plans and information:

1. Drive lengths
2. Proposed depth
3. Shaft; jacking and receiving shafts, manhole construction, shaft backfill, and shoring removal;
   - Type of shaft;
     a) Sheet Pile
     b) Beams and Lagging
     c) Trench Box
     d) Auger Drilled and Lined
     e) Caissons
4. Intermediate jacking stations;
   - Number of Stations;
     a) Required by Specifications
     b) On site
5. Geotechnical; including ground water information
   - Geotechnical evaluation by a qualified soil engineer to determine the following;
     a) Boring logs & plan locations of borings and cross sections, Subsurface strata, fill and ground water elevations
     b) Particle size distribution (particularly percent rock and cobble),
     c) Cohesion indexes, internal angle of friction, and soil classification,
     d) Plastic and liquid limits (clays), expansion index (clays), soil density, and penetration tests,
     e) Rock strength; rock joint fracture and orientation, water table levels, and soil permeability,
     f) Areas of suspected and known contamination should also be noted and characterized.
   - Should the soil investigation determine the presence of rock, cobbles, and/or boulders, determination of the following information would be required;
     a) Depth and extent of rock
     b) Rock type
     c) Rock strength
     d) Rock joint/fracture spacing
     e) Hardness
     f) RQD
     g) Estimated range of sizes & frequency of occurrence of cobbles and boulders.

Boreholes or test pits for road crossings shall be undertaken on both sides with one or more additional boreholes or test pits in the median where conditions permit. Additional boreholes or test pits should be considered if substantial variation in soil conditions are encountered. Where a proposed installation parallels an existing road, boreholes or test pits should be undertaken at approximately 250 to 410 feet intervals.
CONTRACTOR’S SUBMITTAL

Shall contain the following plans and information:

1. Shaft; soil stability at portals and ground improvement.
2. Dewatering plans for jacking and receiving shafts, if any.
3. Shoring design for jacking and receiving shafts.
5. Ground surface settlement monuments and subsurface settlement monuments monitoring program plan.
   - Buried points
     a) Rebar points, or
     b) MPBX (Multi-point borehole extensometers)
6. Recycling information; slurry mix and polymer additives, slurry separation plant type, and spoils disposal;
   a) Removal of slurry in dump trucks.
   b) Removal of slurry in tankers.
   c) Settlement ponds.
   d) Muck piles on site.
7. Contingency plan information;
   a) Ground improvement plans when required at portals and/or behind thrust block/reaction wall due to weak and unstable soil conditions.
   b) Obstruction removal through emergency (911) shafts or other means.
   c) Mechanical breakdowns and recovery of the MTBM through 911 shafts or other means.
   d) Control of hydrofracture and slurry loss.
   e) Remediation of loss of ground and excessive ground surface settlement.
PIPE RAMMING

Pipe Ramming pit requirements are identical to those for Bore & Jack.

Establishment of a survey-grid line is required.

Before any project begins, exploration bore-holes and a complete geotechnical investigation shall be conducted to determine possible difficulties to determine the drilling trajectory.

The casing shall be rammed open ended, except when the diameter is 6” or smaller. Pipes 6” or smaller may be rammed open ended or closed.

A soil shoe may be installed on the leading edge of the casing, either by fabrication on site or obtained from the manufacturer. A soil shoe shall not be utilized on those installations at depths or 18” or less from the surface.

Lubrication shall only be utilized to reduce friction and increase production. The amount of lubrication directed to the outside of the pipe shall only be of a sufficient amount required to fill the void between the outside of the pipe and soil, as created by the soil shoe.

Lubrication to the inside of the casing shall only be an amount adequate to assist in spoil removal when the ram is completed.

Welding of the casing at joints shall be as per the manufacturer’s recommendations.

The use of straps at each joint on pipe diameters of 12” or larger is required as is the use of the manufacturer’s specified welding wire or rod.

Spoil removal for rammed encasements of 30” in diameter or less, may utilize pressurized air or water.

Air pressure shall not exceed 150 psi and water pressure shall not exceed 300 psi.

Encasements larger than 30” in diameter shall have the spoils removed by other means than by pressurizing of the pipe, such as, manual, auguring, vacuum, washing or other means.

The Receiving Pit shall be steel plated entirely when the spoils are to be removed from within the encasement by means of air or water pressurized methods.
PIPE BURSTING

Pipe Bursting operations generally are only performed by the owning utility when they have exceeded the operating capacity of their existing facilities. In most cases pipe bursting allows the utility owners the advantage of upgrading their existing facilities by up to 50%.

On installations of diameters 12” or greater it is necessary to establish a survey-grid line and establish the existing elevation points over the existing area of installation.

A soil analysis should be required and review of the information to identify any locations of difficulty, density, water table, changes in soil formation that could present or create greater friction resistance.

Request information of the proposed project as to:

1. The ratio of the proposed upgrade to determine difficulty, generally up to 25% increase in diameter is common. An increase of 25% - 50% is considered challenging, and an increase of 50% or greater is considered experimental.

2. The existing depth of cover, “rule of thumb” depth of cover should be at least 10X the difference in the upgrade of the existing diameter to be burst.

3. Whether or not the existing line has been viewed by video, do not allow line to be burst blind.

4. Is this proposed line straight or are there bends in the line.

5. If bends are existing in the line, the location of the bend will have to be excavated and new pits re-established at those locations.

6. Require that the contractor provide a list of equipment to be on site to handle an emergency, in the event that bypass pumping is required to maintain the existing service in the event of a problem.

7. As to what method will be utilized (static, pneumatic, burst and jack, or hydraulic).