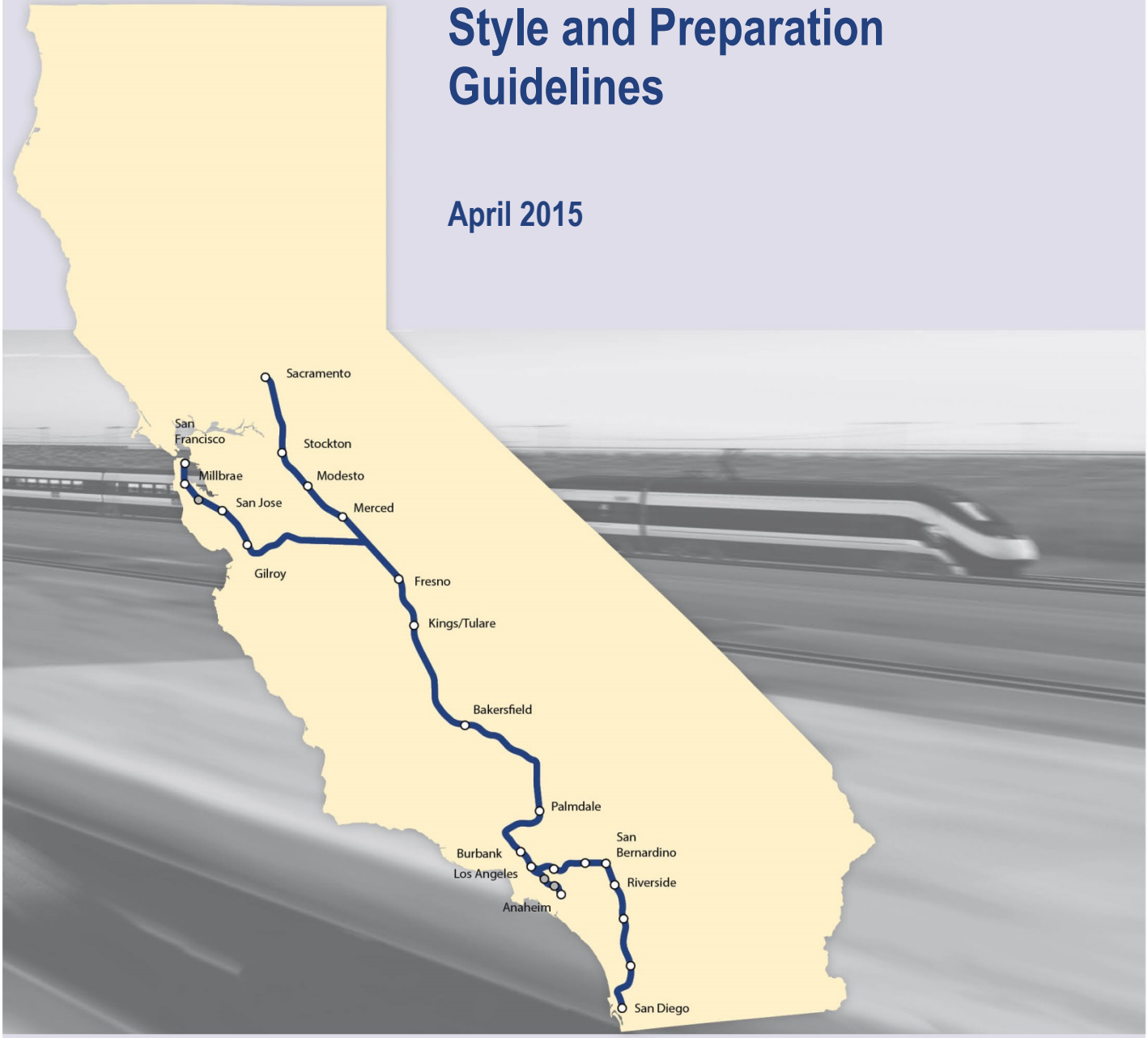
California High-Speed Rail Authority

Project Environmental Document

Style and Preparation Guidelines

April 2015



CALIFORNIA High-Speed Rail Authority

U.S. Department of Transportation
Federal Railroad Administration

California High-Speed Rail Program

TECHNICAL GUIDANCE

Project Environmental Document Style and Preparation Guidelines

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for the California High-Speed Rail Authority

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1 PURPOSE

The *California High-Speed Rail Project Environmental Document Style and Preparation Guidelines* (Guidelines) describes the California High-Speed Rail Authority (Authority) direction for preparing environmental documents for the California high-speed rail (HSR) program. The objectives of these Guidelines are to ensure:

- Consistent definition of terms and grammatical usage for HSR environmental documents
- Clear, understandable, concise, and attractive format and presentation of information in HSR environmental documents for agency, stakeholder, and public audiences
- Consistent use of styles and procedures for preparing and publishing HSR environmental documents
- Conformance with the Authority's *Style and Branding Guide* and *Graphic and Exhibit Standards* (Appendix A)

Authority Guidelines

California High-Speed Rail Project Environmental Document Style and Preparation Guidelines (Guidelines)

California High-Speed Rail Authority Style and Branding Guide

California High-Speed Rail Project Environmental Impact Report/Environmental Impact Statement Environmental Methodology Guidelines , Version 5

[Editor's note: The Environmental Methodology is for content development only. The Guidelines and Style and Branding Guide take style and formatting precedence.]

Each HSR project environmental document that is released by the Authority and the Federal Railroad Administration (FRA) must demonstrate these performance objectives. The responsibility for preparing each document resides with the HSR Regional Consultant (RC). The Program Management Team (PMT) and Authority staff will provide guidance for preparation and an initial check of each document to ensure quality and adherence to approach, format, and methodology. Subsequent Authority, FRA (FRA program, environmental, and legal staff), and state legal (Attorney General (AG), Authority staff, and other counsel) reviews may occur in different ways throughout the process but typically will focus on general, high-level evaluations related to presentation of content, adequacy of analysis and conclusions, and compliance with applicable laws, regulations, and guidance.

Practical advice, rules, and usable content are provided by these Guidelines. Content is presented in the same format scheme for headings, text, and exhibits as required for environmental documents. The Authority's *Style and Branding Guide* is the primary source of direction on requirements for all documents, including terminology, grammar, punctuation, style, official references, legal citations, logotype and color usage, fonts, and page layout. These Guidelines provide complementary detail for use in HSR environmental documents. The *Chicago Manual of Style,* the FRA list of common words used in FRA program publications, the U.S. Government Printing Office (GPO) style manual, and other resources provide additional guidance on issues that are not specifically addressed by the Authority directives.

Conveying comprehensible information

- Describe the importance or sensitivity of the resource, study area, and pertinent regulations in the introductory text for each resource analysis
- Provide text and images that describe components of the project—function, placement, and operational characteristics
- For measures to mitigate impacts, describe
  - The aspect of impact that is avoided or reduced by the measure
  - The means by which the measure reduces the impact
  - The placement and operational characteristics of the measure
  - The timing and responsibility for implementation and maintenance

Clear and direct grammar and construction are essential for conveying the breadth, depth, and complexity of HSR information. Use active voice and active pronouns whenever possible (*example:* "The California High-Speed Rail Authority (Authority) *evaluated* potential impacts upon biological resources within the project section.") Complete narratives are crucial for conveying comprehensible information to audiences with variable subject-matter familiarity or knowledge.

2 TERMS AND USAGE

2.1 California High-Speed Rail System and Geographic Terms

A number of terms have specific meaning for the HSR program that may differ from common vernacular, other projects, or documents in the public record. The meanings ascribed to the following terms by the HSR program supercede those of other projects or programs.

- ***Alignment*** refers to the refined routes selected to fulfill specific purposes, such as satisfy right-of-way or curvature, or to avoid impacts, such as property acquisitions. It also refers to the path of the guideway. *[Editor's note: **alignment** is horizontal and **profile** is vertical.]*
- ***Alternative*** refers to the entire set of project improvements, operations, and maintenance activities associated with a given alignment, not just the path the HSR will follow. The alternative includes all project components, including guideway, wayside facilities, bridges and other guideway structures, stations, roadway and utility crossings, traction power connections, and ancillary improvements or changes.
- ***Corridor*** refers to the geographic area between one city and another city (*example:* between San Francisco and Gilroy, the area generally referred to as the Peninsula Corridor).
- ***Project Section of the HSR system*** refers to the corridor between terminal HSR stations that are the logical termini of a single project of the HSR system. Capitalize when used with a specific project section but lowercase for plural uses. **DO NOT** hyphenate the project section names (*example:* "The Merced to Fresno Project Section connects the Bay Area to the Fresno to Bakersfield and Merced to Sacramento project sections."). *[Editor's note: It is also acceptable to use "The HSR project section between Merced and Fresno."]*
- ***Route*** refers to a general option for HSR in a corridor, typically associated with an existing geographic or institutional feature that is a generally known or readily identifiable (*example:* the BNSF route and the UPRR route within the Central Valley project sections). *Route* is not capitalized when used this way. Although the routes in the example are identified by the BNSF Railway (BNSF) and Union Pacific Railroad (UPRR) railroads, the route does not necessarily remain adjacent to the railroad. If there is any chance for confusion about the route under discussion (e.g., when discussing the alternatives developed during the alternatives analysis process), write "BNSF route" or "UPRR route" to clarify.
- ***Segment*** refers to a geographic component of an HSR project section. Segments are used to organize location-based information within distinctive geographic areas (e.g., rural or suburban or urban; valley or foothill or mountain).

2.2 General Terms and Usage

This section presents words and phrases common to this project, as well as style guidance to authors, such as hyphenation, italicizing, spelling out numbers, etc. For words and phrases not covered in this section, refer to the Authority's *Style and Branding Guide,* the *Chicago Manual of Style,* the FRA list of common words used in FRA program publications, the U.S. GPO style manual, or consult with the project lead document editor.

For additional terms, see

- Appendix C for structural design terminology
- Appendix D for a list of acronyms and abbreviations
- Appendix E for a comprehensive glossary.

21st century use numerals

aboveground one word

abbreviations *see* **acronyms and abbreviations**

absolutes **DO NOT** use absolutes unless necessary or warranted by data (*examples:* all, every, ensure, complete, full, never)

acronyms and abbreviations acronyms and abbreviations (*and initialisms*) are frequently used in environmental documents. However, it is best to keep their use to a minimum wherever possible. Use the following guidelines:

- An **abbreviation** is a shortened or contracted form of a word or phrase (*examples:* Dr. for doctor, U.S. for United States, lb for pound). **Acronyms** are abbreviations that are pronounced as words (NEPA, ASAP, Radar, Scuba). **Initialisms** are acronyms that are pronounced one letter at a time (FTA, HTML, DVD). The term acronym is used in the following guidelines to designate acronyms, initialisms, and abbreviations.
- Always include an Acronyms and Abbreviations section in the document. **DO NOT** use either "List of" or "List" in the title for the Acronyms and Abbreviations section. Remember to add the acronyms to this section as they are introduced in text. The section should be continuously updated throughout each revision cycle. *See* Appendix D for word processing protocols.
- Define terms with the same capitalization used in the text (for proper nouns use initial caps, for others use lower case). *[Editor's note: The Acronyms and Abbreviations section becomes a useful tool for multiple authors and editors to determine previously used capitalization protocols.]*
- To keep the use of acronyms to a minimum, only use an acronym if the term will be used **five more** times in the chapter (total of six times). For example, if National Marine Fisheries Service is used only five times in a chapter, spell it out in all instances. (*Exceptions:* include certain industry standard acronyms if used only twice, such as L_{dn}, and also use to clearly connect it to similar terms, such as L_{eq}, if used only once.)
- To define an acronym, spell the complete term the first time it is used and follow with the acronym in parenthesis. The term should follow normal capitalization rules. In other words, proper nouns will have initial caps and other terms will be lower case.
- In multi-file documents (*example:* the EIR/EIS), redefine acronyms the first time used in each file (e.g., chapter or section) and then use only the acronym for the remainder of the file. In single-file documents (*example:* shorter technical reports), only define acronyms the first time used in the document and then only use the acronym for the remainder of the document.
- If a term is plural the first time it is used, **DO NOT** add a lower case "s" to the acronym in parentheses (*example:* "Use best management practices (BMP) for this…"). However, when using the acronym alone from then on, add the "s" to the acronym when the intent is plural (*example:* "Construction BMPs will be used…"). **DO NOT** use an apostrophe to separate the acronym and the letter "s."
- If an abbreviation is not much shorter than the term (*examples:* ft for feet, in for inch), **DO NOT** use the abbreviation in text. It is acceptable to use abbreviations in tables if necessary to conserve space. However, spell terms out if space is not an issue. If using an abbreviation in a table, **DO NOT** use periods (*examples:* Ave not Ave., Blvd not Blvd.).
- In text, **DO NOT** abbreviate Street, Avenue, Road, Highway, etc. If abbreviating in tables, use St, Ave, Rd, Hwy. Abbreviate state highway names (*examples:* SR 41, I-5) in text after first reference. Also use N, S, E, W, NE, SE, NW, SW (without periods) in addresses and street names. In text, spell out numbered avenues (*examples:* Fifth Avenue, First Avenue S); in tables, use numerals (*examples:* 5th Avenue, 1st Avenue S). Spell out *right-of-way* in text (the ROW acronym may be used in tables to conserve space, if necessary).
- **DO NOT** use acronyms in section headings or table and figure captions (with a few exceptions, such as *EIR/EIS)*. In headings and captions, spell out the full term and **DO NOT** define the acronym with parentheses.

- **DO NOT** use the percent symbol (%) in text. However, do use the % symbol in table columns. If the entire column is percentages, include the term "(percent)" in the column heading and **DO NOT** add the % symbol to the numbers in the column. *[Editor's note: In text, use a nonbreaking space between the number and "percent" so the measurement does not split at the end of a line.]*
- Treat tables as independent of text and independent of each other. For complex tables or when multiple acronyms are used in a table, use only the acronyms **without** first spelling out and then create a note or legend at the bottom of the table to define all acronyms used. This should be done for each table whether or not the acronyms are included in the document Acronym and Abbreviation list. *[Editor's note: consider each complex table as a standalone page that may be extracted from the document.]*
- Treat text boxes as independent of text. If using an acronym in a text box, spell it out the first time with the acronym in parentheses. Each text box should be treated the same way—as independent from every other text box. This applies to large text boxes; try to avoid using acronyms in small ones.
- Use the following guidelines to determine the correct article preceding an acronym:
  - Use "a" before a consonant sound (*examples:* a NASA spacecraft, a BBC documentary, a DEIS)
  - Use "an" before a vowel sound (*examples:* an IRA deduction, an NFL game, an FRA document, an FEIS)
  - **DO NOT** base the "a" or "an" on the spelled out version of the acronym (*examples:* "a Federal Railroad Administration (FRA) report" and "an FRA report" are both correct)
  - When all else fails, say the phrase out loud and use the article that sounds correct

affect (versus impact) use the verb "affect," not "impact" (*example: "*Construction would affect…")

affect, effect in general, when a verb is required, think "affect"; when a noun is required, think "effect." "Affect" as a verb means to influence; "effect" as a noun means "result." (*Hint: if the word "the" precedes it, the next word should always be "effect."*) *[Editor's note: "effect" also has a limited use as a verb meaning "to cause," e.g., to effect massive change.]*

agricultural land may be used as a shortened term in Section 3.14, Agricultural Farmland and Forest Land

air quality use the full term, **DO NOT** use "air" alone

Alternative, alternative initial cap when referring to a specific alternative by name (*example:* No-Build Alternative); lower case when not being specific (*example:* "this alternative would…")

although means "in spite of the fact that" or "even though"; **DO NOT** use the word "though" when "although" is the intent

a.m. and p.m. use lower case with periods; **DO NOT** use AM and PM or A.M. and P.M. (*exception:* when referring to traffic models, in which case use AM peak or PM peak)

and (series punctuation) use a comma before "and" in a series of three or more things (*example:* "Salmonids can live in lakes, rivers, and oceans.")

and (versus "&") use "and" not "&" (except as part of a company or agency official name or a published title)

and (versus "/") use "and" not "/" with common words (e.g., "time and money" not "time/money")

and/or **DO NOT** use; decide whether "and" or "or" is the correct usage

appendix, appendices enumerate with letters (*examples:* Appendix A, Appendix B); spell the plural with a "c"

at-grade hyphenate

Attachments enumerate with numbers (*examples:* Attachment 1, Attachment 2)

avoidance *see* **mitigation versus avoidance and minimization**

because of/due to use "because of" when matching cause to effect or when the writer can ask "why?" in a sentence (*example:* This area is unsuitable for development because of steep slopes.). "Due to" has a limited use introducing adjective phrases and normally follows some form of the verb "to be" (*example:* Her success is due to talent and hard work.).

below-grade hyphenate

below-ground hyphenate

best management practices (BMP) **DO NOT** hyphenate

Build Alternatives capitalize in all instances

BNSF Railway (BNSF) Use "BNSF Railway (BNSF)" on first occurrence in each chapter and then "BNSF" for remainder of the chapter *[editor's note: Burlington Northern Santa Fe Railway officially changed its name to BNSF Railway in 2005]*

bullets *see* **lists**

bus, buses use the verb forms "bus," "bused," "busing"

bus stop two words

California High-Speed Rail System, California HSR System uppercase "System" in this use because it is the full name of the program; lowercase when not used as part of the full name (*examples:* the HSR system, the system).

Capitalization

- Avoid unnecessary capitalization (it impedes reading). For emphasis, use other typographical devices (e.g., bold, italics, or quotation marks).
- Capitalize corridor names, including "Project Section" (*example:* Merced to Fresno Project Section); **DO NOT** capitalize "project section" when the specific section is not named (*example:* Madera is within the project section) or in plural use (*example:* Fresno to Bakersfield and Bakersfield to Los Angeles project sections).
- Capitalize segment names following the same guidelines as for "project section" above.
- Capitalize "Alignment" when discussing a specific alignment (*example:* Alignment A1); **DO NOT** capitalize "alignment" when the specific alignment is not named (*example:* the project alignments).
- Capitalize "Alternative" when discussing a specific alternative (*example:* Alternative A1); **DO NOT** capitalize "alternative" when the specific alignment is not named (*example:* the project alternatives).
- Capitalize titles of positions only when they are directly connected to the name (*examples:* Governor Brown; the governor; the governor, Edmund G. Brown, Jr.).
- Capitalize the full name of programs, projects, or plans adopted formally by the Authority or other entities. Always lowercase program, project, or plan when the word stands alone or when using only a portion of the formal name.
- Use the terms "Project Alternative" and "No Project Alternative"; **DO NOT** use "No Action or No Build Alternative"; **DO NOT** capitalize project when discussing "the project."
- Capitalize the common part of plural forms when they follow proper names (*examples:* First and Second Avenues; the Pacific and Atlantic Oceans).

- Capitalize directions when they are locations or names of regions; **DO NOT** capitalize when they are general directions (*examples:* the Northwest California coastline; the Pacific Northwest; go west young man).

carpool one word

central business district use "downtown" instead

California Environmental Quality Act (CEQA) spell out and use initial caps on first reference; use the acronym CEQA on second reference if used more than five times in the chapter

California High-Speed Rail Authority (Authority) **DO NOT** use abbreviation CHSRA or HSRA when referring to the Authority

citations use the full name of a project report, or other referenced material, when referring to it the first time. Always italicize the full name of a published report. Follow the title with the citation identifier in parentheses (*example: California High-Speed Rail Authority Alternatives Analysis Methods for Project EIR/EIS* (Authority 2009)). The next time the report is referred to, use its shortened name without italics but include the reference code with each use (*example:* Alternatives Analysis Methods (Authority 2009)). Cite references using last name or agency abbreviation and year with no comma in between. *See* "How to Prepare the References Section" at the end of this guide.

citywide one word; lowercase

cleanup, clean up one word when used as a noun or modifier; two words when used as a verb (no hyphen) (*example:* "The Authority will clean up the construction debris after the local jurisdiction approves the cleanup.")

construct (as a verb) use "build" instead

contractor **DO NOT** capitalize

cost-effective, cost-effectiveness hyphenate

could use in impact discussion under circumstances that are possible, yet not definitively or probably determined (*example:* "Road closures to implement Alternative 1 could increase emergency services response times…."). Also use in mitigation measures that the responsible party (an entity other than the Authority or FRA) has not yet agreed to (*example:* "The Regional Transit District could reconfigure bus routes that could reduce…")

criteria plural

criterion singular

cross-section always hyphenate

dates

- There are no commas surrounding the year when just the month and year are used (*example:* "The project started in June 2014.")
- There are commas surrounding the year if a day is included (*example:* "The project started on June 1, 2014, and continued through…")
- **DO NOT** use ordinals in dates (*example:* "June 1" not "June 1st")

data plural

datum singular

decisionmaking, decisionmaker one word; **DO NOT** hyphenate *[editor's note: MSWord's dictionary will not agree with this]*

downtown lowercase unless used as part of a formal name (e*xamples:* Congestion in the downtown area; congestion in downtown Fresno; the Downtown Association of Fresno)

Draft EIS initial cap; **DO NOT** use dEIS, DEIS, or draft EIS; *see* **environmental impact statement (EIS)**

due to *see* **because of and due to**

effect, effects when referring to a resource effect, always replace with "impacts" except for usage related to evaluations and determinations of impacts on cultural resources under Section 106 (*example:* Findings of Effects); use impact *on*, not impacts *to*

effect, affect *see* **affect, effect**

e.g. (versus i.e.)

- "e.g." means "for example" ("i.e." means "in other words")
- Use inside parentheses and follow with a comma (*example:* "e.g., railroads, buses, automobiles")
- **DO NOT** use "etc." following a list that begins with e.g. because "for example" already implies the list is not complete

environmental impact statement (EIS) spell out on first reference in each chapter; capitalize only when used as part of a document title. Always spell out Draft, Final, or Supplemental when used with the acronym to indicate a document (*example:* "The project team printed the Draft EIS in…").

facility use a more specific term, such as "road," "school," "trail," etc.

farebox one word

farther, further use "farther" to indicate physical distance (*example:* "The new station is farther away"); use "further" to indicate figurative distance or instead of "moreover" or "additional" (*example:* "There will be no further discussion")

Federal, federal

- Capitalize for corporate or governmental bodies that include the word as part of their formal names (*examples:* Federal Transit Administration, Federal Express)
- Lowercase when used as an adjective (*examples:* federal Department of Transportation)
- Lowercase the phrases "federal courts," "federal government," and "federal regulations"

Federal Register daily publication of federal rules; always italicize

figures and tables When cross-referencing a table or figure in the text, **DO NOT** add the words "see," "below," or "above." *Examples:*

- "Table X-X shows…"; "…as shown **in** Table X-X"; "the list of criteria (Table X-X) shows…"
- "Figure X-X illustrates…"; "…as illustrated **on** Figure X-X"; "the locations (Figure X-X) illustrate the…"
- Use "in" when referencing tables; use "on" when referencing figures.

Final EIS initial cap; **DO NOT** use fEIS, FEIS, or final EIS; *see* **environmental impact statement (EIS)**

floodplain one word

further *see* **farther, further**

government lowercase; spell out (*examples:* the state government, the U.S. government)

grade-separated always hyphenate

groundwater one word

guideway one word

hazardous materials **DO NOT** use "hazmat"

high-speed hyphenate when used as a modifier (*example:* high-speed rail)

high-speed rail (HSR) use to describe a train designed to operate safely and reliably at speeds upwards of 200 mph. While HSR is acceptable in longer technical documents with more than five references, high-speed rail is preferred in formal communications

High-Speed Rail initial caps when used with the "California High-Speed Rail Authority" *[editor's note: which will usually be referred to simply as "the Authority"];* lower case for all other, nontitle uses

historic use "historic" to indicate something important or influential in history (*example:* "The properties are in an historic district"); **DO NOT** use "historical," which refers to anything from the past, important or not

HSR project alternative represents different combinations of guideway, wayside, stations, and other project features to achieve the project objectives of an HSR project section or other HSR project. Project-level EIRs/EISs or other environmental documents evaluate the no-project and project alternatives at the construction level of detail.

HSR corridor alignment the corridor selected at the program level, also referred to as an alignment in the statewide program EIR/EIS

hyphenation

- Hyphenate two or more words when used as a modifier (*example:* high-speed rail; project-related assessment)
- **DO NOT** hyphenate project section names (*example:* the Merced to Fresno project section)
- *See* individual terms throughout Section 2.2 for specific hyphenation requirements

hyphens and dashes

- Use a **hyphen** (-) to separate compound words (*example:* right-of-way; on-site)
- Use a **nonbreaking hyphen** (-) in number strings that should not be split at the end of a line (*MS word key command:* Ctrl + Shift + hyphen) (*examples:* 206-555-1111; Figure 3-1; I-5)
- Use an **en dash** (–) to express a range of values (*MS word key command:* Ctrl + minus sign on keypad); **DO NOT** space before or after (*examples:* June 5–8, 2014; pages 7–10)
- Use an **em dash** (—) to set off parenthetical elements for emphasis, to separate a heading from its following text, or in headings to divide related terms (*MS word key command:* Alt + Ctrl + minus sign on keypad); **DO NOT** space before or after (*examples:* "There are two options—one north and one south—for this station"; "**• Cooke Street**—This is an example of…"; "Alternative 1—Bakersfield Station Hybrid") *[Editor's note: Type two hyphens without spaces before or after and MS Word will automatically convert them to an em dash as soon as the next word is entered followed by a space or punctuation.]*

i.e. (versus e.g.)

- "i.e." means "in other words" ("e.g." means "for example")
- Use inside parentheses and follow with a comma (*example:* i.e., time and money)
- **DO NOT** use "etc." following a list that begins with i.e. because it introduces a clarification that is considered a complete list

impact **DO NOT** use the verb "impact" as a synonym for "affect"; as a noun, it can be used to mean "the effect of one thing on another"; use *impacts on* not *impacts to [editor's note: when a verb is called for, use affect]*

inch/second inch per second; **DO NOT** abbreviate

indepth, in depth one word as compound modifier; never hyphenate (*examples:* "For an indepth discussion, see…"; "Utilities are discussed in depth in….") *[editor's note: MS Word's dictionary will not agree with this]*

industrywide one word *[editor's note: MS Word's dictionary will not agree with this]*

interchange spell out; **DO NOT** abbreviate as I/C

italics

- Use to identify an official document name but not the shortened form of the name (*examples: Fresno Downtown Plan;* the downtown plan)
- Can be used to highlight important words (never use underlining, all caps, or small caps)
- Use to identify terms on first use (*example:* "The term *tiering* refers to a multilevel approach…")
- Use for less commonly familiar foreign words (*example: de minimis*)

Le Grand two words

less-than-significant, less than significant hyphenate only when used as an adjective (*example:* less-than-significant impact; the impact is less than significant)

level-of-service (LOS) always hyphenate; plural is levels-of-service (LOS)

lists

- Use a colon following the introduction to a list (*example:* "The instructions are as follows:")
- Use parallel construction throughout the list (if one item begins with an action verb, they all begin with an action verb and all verbs are the same tense)
- When using an introductory stem (an incomplete sentence preceding a list) (*example*: "The instructions are:"), write each individual item as a continuation of the introductory stem *[editor's note: double check correctness by reading the introductory stem followed by each list item]*
- List only comparable items
- Use bullets when rank or sequence are not important (use MSWord's "List Bullet" style(s) to format).
- Use numbers when rank or sequence are important (use MSWord's "List Number" style(s) to format) (**DO NOT** use numbers just because the list is introduced as having a specified number of items)
- Capitalize the first word of each list item
- Use a period at the end of every item if one of the items in the list is a complete sentence *[editor's note: if one item is a complete sentence, they all should be rewritten as complete sentences for parallel construction]*
- Chose to use a period at the end of every item following an introductory stem if one of the items in the list is a complex phrase (however, as in "parallel construction," be as consistent as possible for a better looking and sounding list); **DO NOT** use a period if each of the list items is just a few words.
- If all items in the list are not written in complete sentences or do not follow an introductory stem, **DO NOT** use any punctuation (*in other words:* **DO NOT** use semicolons at the end of every item, or a semicolon and the word "and" for the next to last item, or a period at the end of the last item—this is an out-of-style method that is no longer used in modern document production)

- If subheadings are used for the list, use subheadings for all items in that list:
  - Use initial caps and bold for the subheading followed by a nonbold em dash (*MS Word key command:* Alt + Ctrl + minus sign on number keypad) with no spaces
  - Uppercase the first letter following the dash
  - For a second level bulleted item heading, use sentence case (first letter cap only), bold, dash, with first letter following the dash uppercase

long-distance, long distance hyphenate when used as a modifier (*examples:* long-distance trip; commuters who travel a long distance)

magnetic levitation spell out on first reference; *maglev* is acceptable on second reference

man-made **DO NOT** use; instead, use "built" (*example:* the built and natural environments)

measurements use English measurements, not metric; always use numerals (**DO NOT** spell out); *see* **numbers** and **units of measure**

metric *see* **numbers**

miles per gallon (mpg) introduce the acronym (lowercase, no periods) if used more than five times in the chapter

miles per hour (mph) introduce the acronym (lowercase, no periods) if used more than five times in the chapter

minimization *see* **mitigation versus avoidance and minimization**

mitigation *see* **mitigation versus avoidance and minimization**

mitigation versus avoidance and minimization use mitigation only if impact avoidance and minimization features integrated in project design cannot avoid adverse impacts or ensure that adverse impacts are less than significant. Impact avoidance and minimization features must be discussed in the project description (Chapter 2 of EIR/EIS Volume 1) and considered in impact analyses (Chapter 3 of EIR/EIS Volume 1).

modal split avoid using this term in information intended for the public

molecular notation introduce notation if molecule is used more than five times in the chapter. Use *Periodic Table* symbols for atoms (*examples:* "H" for hydrogen, "O" for oxygen, "C" for carbon, "Pb" for lead). Always use subscript for notation of constant or variable multiples of atoms (*examples:* H_2S, CO_2, CO_2e, O_3, SO_x) and for dimensional or other descriptive metrics of chemical matter (*examples:* PM_{10}, $PM_{2.5}$)

multi almost always omit hyphen (*examples:* multibody, multicar, multiplane, multifamily, multiuse, but multi-incremental (due to double "i") *[editor's note: MS Word's dictionary often will not agree with this]*

multifamily one word

multimodal one word

National Environmental Policy Act of 1969 (NEPA) spell out and use initial caps on first reference; use the acronym NEPA on second reference if used more than five times in the chapter

navigable waters of the U.S. lowercase and abbreviate as shown

neighborhood capitalize when used in conjunction with a specific neighborhood (*example:* "This option would avoid the Sunnyside Neighborhood.")

No Build Alternative **DO NOT** hyphenate; *see* **No Project Alternative, No Action Alternative**

non almost always omit hyphen (*examples:* nonlinear, nonprofit, nonnative, non-American)

No Project Alternative, No Action Alternative represents the region's (and state's) transportation system (highway, air, and conventional rail) as it is today and in the future with implementation of programs or projects that are in adopted regional transportation plans and have identified funds for implementation by 2050 *[editor's note: does not include the High-Speed Rail Project]*

numbers

- Spell out single-digit numbers (one to nine)
- Use numerals for double-digit numbers (10 to infinity)
- Use numerals with all units of measure (*examples:* 3-mile segment, 0.5 acre, 8 percent)
- Always spell out any number at the beginning of a sentence *[editor's note: when possible, rewrite a sentence so the number is not the first word]*
- When double-digit and single-digit numbers are used within the same paragraph to identify like items, **DO NOT** spell out the number(s) smaller than 10 (*example:* "…12 businesses, 4 residences, and 1 church")
- When two numbers appear side-by-side, it is a rule of thumb to spell one out and use numerals for the other (*example:* "There are seventeen 3-inch bolts…")
- **DO NOT** spell out a number and follow it with the numeric value in parentheses
- Use a nonbreaking space (*MS Word key command:* Ctrl + Shift + spacebar) or nonbreaking hyphen (*MS Word key command:* Ctrl + Shift + hyphen) between a number and its measure to prevent separation at the end of a line (*example:* 12 feet, 12-foot walkway)

off-peak, on-peak hyphenate; use a nonbreaking hyphen (*MS Word key command:* Ctrl + Shift + hyphen) with "on-peak" (to prevent a two-character break at the end of a line)

off-ramp, on-ramp hyphenate; use a nonbreaking hyphen (*MS Word key command:* Ctrl + Shift + hyphen) with "on-ramp" (to prevent a two-character break at the end of a line)

off-site, on-site hyphenate; use a nonbreaking hyphen (*MS Word key command:* Ctrl + Shift + hyphen) with "on-site" (to prevent a two-character break at the end of a line)

offshore, onshore one word

onboard, on board one word when used as an adjective (*example:* onboard passengers); in other instances, two words (*example:* when passengers get on board)

on-demand, on demand hyphenate when used as an adjective (*example:* on-demand response); in other instances, two words (*example:* the response is on demand)

ongoing one word

online one word in all cases for the computer connection term

park-and-ride lot hyphenate; spell out "and"

parkland one word

paratransit one word

passholders one word

percent spell out; **DO NOT** use "%" except in tables where space is tight (*example:* 4 percent); *see* **numbers**

permit agencies **DO NOT** use "permitting agencies"

plans, projects, programs

- Capitalize the **full name** of programs, projects, or plans adopted formally by the Authority
- Lowercase when the word stands alone or when using only part of the formal name (*example:* "The project is under way")
- Avoid interchanging the words *program*, *project*, or *plan* within text

p.m. *see* **a.m. and p.m.**

post-accident hyphenate

power line two words

power plant two words

preventive **DO NOT** use "preventative"

profile refers to whether the guideway is elevated, at-grade, or below-grade; *see* **alignment**

program level the program or planning level; hyphenate when used as an adjective (*examples:* at the program level; program-level decision)

Project, project

- A component of the HSR program or system. There are ten project sections to be built, but only one program to implement the HSR system. For many project-level environmental documents, this will mean the project section of the HSR system being evaluated and permitted for construction. Later in the implementation process there may be other components of the system that are treated as distinct projects, such as maintenance facilities.
- At the beginning of the document, spell out the entire project name once (*example:* Merced to Fresno Project Section Central Valley Wye Project) and from then on call it the Project Section (or Project for distinct undertakings) when it is used as a noun. When used as an adjective, **DO NOT** capitalize project (*example:* project section). If possessive, do capitalize (*example:* Project's timeline) but try to rewrite without the possessive (*example:* timeline of the Project).
- The site-specific level of design and environmental documentation leading to permits for construction. Refer to the Project EIR/EIS, never project-level EIR/EIS, However, the term can still be used (*example:* "at the project level, the Authority will consider…").

project area **DO NOT** use; replace with "resource study area," "project vicinity," "project footprint," or another term, as appropriate, and then use the selected term consistently throughout the document

project footprint *see* Appendix E, Glossary

project-wide hyphenate (however, *see* **systemwide**)

PTC-equipped hyphenate (positive train control)

Purpose and Need always initial caps

punctuation (*see* **lists**)

- Single space after all punctuation
- Use the series comma (*example:* "…time, money, and energy…")
- Use a semicolon to separate a series when one or more of the items in the series also includes commas (*example:* "…time; money, space, and intent; and energy…")

- Use a semicolon in compound sentences to separate independent clauses not joined by a conjunction *[editor's note: an independent clause is a complete sentence that normally would require a period] [editor's note: for easier readability, avoid using compound sentences unless necessary for clarity]*
- Use a colon to introduce elements illustrating the independent clause that precedes the colon *[editor's note: colons and semicolons are not interchangeable]*
- **DO NOT** use a colon immediately following a verb that introduces illustrations or following the word "includes" in a sentence (*examples:* the items were time, money, and expertise; the list includes time, money, and expertise)
- Always place periods and commas inside a closing double or single quotation mark
- When a footnote number is next to a punctuation mark, always place it immediately to the right of the punctuation

rail yard two words

references *see* Section 4.4

references to other parts of a document

- When referring to an Appendix, Chapter, or Section, include its number and name (surrounded by commas) the first time only then refer to it by number only for the remainder of the chapter or section
- **DO NOT** put names in italics or quotes
- Refer to figures and tables by number only
- **DO NOT** include "in these guidelines" (or any other variation) following a reference
- References to sections in other documents should always include the name of the other document

right-of-way always hyphenate; plural is rights-of-way

risk based, risk-based hyphenate when used as an adjective (*examples:* "The assessment of risk based upon previous occurrences…"; "The risk-based forecast of damages…")

resource study area **DO NOT** capitalize; the geographic and stratigrafic area of investigation for a particular resource, such as archaeology, wetlands, or noise receptors—must be defined for each resource, topic, or discipline

round trip, round-trip hyphenate when used as a unit modifier (*examples:* "The duration of a round trip between HSR stations is influenced by…"; "The estimated prices of round-trip HSR fares will be influenced by…")

route use "route" instead of "alignment" when referring to bus routes

route numbers

- **DO NOT** abbreviate "route"
- Capitalize route and follow with the number (*example:* Route 5)
- Avoid putting an "E" after route numbers to show express routes (*examples:* express Route 251; Route 251 express).

runoff one word

scoping notice lowercase

Sections of the EIR/EIS and Appendices *see* **references to other parts of a document**

shall avoid using; *see* **will**

significant **DO NOT** use the word "significant" unless referring to a specific adverse environmental impact that invokes CEQA or NEPA procedures. For any description of anything that is in any way related to the built or natural environment (which will be almost everything that appears in an EIR/EIS and supporting documents), use a word such as substantial, important, noteworthy, or considerable or refer to specific numbers and let the reader make the value judgment as to its importance. **DO NOT** add superlative words such as "very." **DO NOT** use words that imply value judgments in most cases.

single-family hyphenate

site-specific hyphenate when used as an adjective (*example:* site-specific analysis)

socioeconomic one word

SOV avoid using abbreviation; use single-occupant vehicle instead

Statewide Program EIR/EIS use initial caps; use after first reference to *Final Program Environmental Impact Report/Environmental Impact Statement for the Proposed California High-Speed Train System [Editor's note: The term Rail is now used, rather than the term Train in context to the Authority program and implementing projects. The term train may be used for specific reference to HSR vehicles or a consist of HSR vehicles in operation.]*

station refer to station site when describing location and discussing impacts associated with an HSR station at a particular site (*example:* ridership forecasts for the Fresno Station in 2040)

street names initial caps; spell out (*examples:* 115th Street, Second Avenue, Central Boulevard)

stormwater one word

story use numerals for number of stories in a building (*examples:* 4 stories, 4-story building)

study area lowercase; *see* **resource study area**

study corridor lowercase; *see* Appendix E, Glossary

study region lowercase; *see* Appendix E, Glossary

substation one word

superscripts use for footnotes in text and tables; use for scientific acronyms; **DO NOT** use for ordinals or street addresses (*examples:* 15th time…, 115th Street) *[editor's note: see Section 4.2.1.1 for turning this automatic feature off in MS Word]*

surface-water hyphenate when used as an adjective (*example:* surface-water tension)

System *see* **California High-Speed Rail System, California HSR System**

systemwide one word (however, *see* **project-wide**) *[editor's note: MS Word's dictionary will not agree with this]*

table notes use numbers, not letters

threatened and endangered use the two terms in this order

time be consistent with times used together (*examples:* 5:30 to 7:00 a.m.; 5 a.m. to 7 p.m.); *see* **a.m. and p.m.**

TTY acceptable on first reference when used with a phone number

Transit Center, transit center capitalize the full name of transit centers (*example:* the Merced Transit Center); lowercase when the term stands alone (*example:* the transit center is near…)

train operator lower case; use for people who drive trains

transit-oriented development (TOD) lowercase; hyphenate as shown; spell out on first reference and use acronym if used more than five times

transportation demand management (TDM) lowercase; spell out on first reference and use acronym if used more than five times

trench replace with retained cut when referring to the guideway profile

turnouts one word

underground one word

units of measure use English measures; *see* **measurements** and **numbers**

- 1 kilometer = 0.62 mile
- 1 meter = 39.37 inches
- 1 centimeter = 0.39 inch
- 1 square kilometer = 0.3861 square mile
- 1 hectare = 2.47 acres
- 1 liter = 1.057 quarts
- 1 metric ton = 1.102 short tons (2,204.6 pounds)
- 1 kilogram = 2.2046 pounds
- 1 gram = 0.035 ounce
- 1 kilometer per hour = 0.621 mile per hour

University of California (UC)

- Spell out and capitalize on first reference
- Separate the specific university location with commas (*example:* "the University of California, Merced, is…")
- Use "UC location" (*example:* UC Merced) or "the university" on second reference

unticketed one word

Union Pacific Railroad (UPRR) use "Union Pacific Railroad (UPRR)" on first occurrence in each chapter and then "UPRR" for remainder of the chapter

U.S. use on first reference; **DO NOT** use space; include periods except when used with highways (*example:* US 99)

vehicle hours of delay (VHD) **DO NOT** hyphenate

versus **DO NOT** abbreviate

very use only when part of an agency-defined term (*example:* "…medium risk, low risk, very low risk")

via

- Use to mean "by way of" but avoid using when a simpler word is available (*example:* "The alignment runs from Fresno to Le Grand *through* the community of Planada")
- **DO NOT** use to show the means by which someone makes a journey (*example: "*He made the trip *by* bus")

Volume 1 and Volume 2 initial caps; use Arabic numerals

waters of the U.S., waters of the state lowercase and abbreviate as shown

website one word; lowercase

will use in mitigation measures (*example:* "The Authority will construct a noise wall…"); **DO NOT** use "shall"

will/would/could *see* **separate entries for will, would,** and **could**

- Something "will" happen regardless of whether the proposed action is implemented
- An impact "would" happen only if this alternative were implemented
- An impact "could" occur under circumstances that are possible, yet not definitively or probably determined
- Mitigation to which the proponent has agreed "would" be implemented
- Mitigation to which the responsible party has not yet agreed "could" be implemented

within **DO NOT** use in place of "in"; use only to restrict

- *Correct:* "Construction roads will be built within the right-of-way" (because the construction will take place in only a portion of the right-of-way and is not meant to take up all of the area)
- *Incorrect:* "Wetland surveys will be conducted within the project vicinity" (because the survey represents the entire area)

workforce one word

would use in impact discussion because the project is hypothetical and would imply a necessary degree of uncertainty about future decisions (*example:* "The project would reduce congestion…")

3 DOCUMENT PREPARATION

Preparing understandable CEQA and NEPA documents for large complex transportation projects has been a recognized challenge for many years. Environmental documents have become lengthy, cumbersome, and difficult for people to understand—especially decision-makers and the public. Currently, it is not uncommon for published EIRs/EISs to exceed 1,000 pages.[1] Publishing such lengthy and complex environmental documents is not intended by CEQA or NEPA regulations, which emphasize the use of plain language and concentration on significant issues.

The *California High-Speed Rail Project Environmental Impact Report/Environmental Impact Statement Methodology Guidelines, Version 5* (Environmental Methods), provides the framework for conducting impact analyses and determinations and comparing project alternatives for the HSR environmental documents, including recommended and example text, section and chapter organization templates, and significance methodologies. The Environmental Methods emphasizes the importance of preparing succinct analyses and focusing on significant issues.[2] However, that guidance does not provide specific techniques for reducing document size, focusing content on understanding the issues and analytical conclusions, and presenting information in a clear, navigable, and attractive manner. Techniques for preparing concise, understandable documents have been identified in several federal and state NEPA guidance documents over the past 10 years (*see* Section 3.5 for a list of references used in developing this chapter).

3.1 Reader-friendly Documents

In 2003, the American Association of State Highway and Transportation Officials (AASHTO) joined the American Council of Engineering Companies (ACEC) and the Federal Highway Administration (FHWA) in an initiative to improve the readability and functionality of NEPA documents for transportation projects. Surveys of state departments of transportation (DOT), the engineering consultant community, and FHWA, in combination with workshops, were undertaken to identify priority issues related to the preparation of quality NEPA documents. The quality and clarity of NEPA documents was identified as a priority to be studied by the task team.

40 CFR 1502.1

The primary purpose of an environmental impact statement is to serve as an action-forcing device to insure that the policies and goals defined in the Act are infused into the ongoing programs and actions of the federal government. It shall provide full and fair discussion of significant environmental impacts and shall inform decisionmakers and the public of the reasonable alternatives that would avoid or minimize adverse impacts or enhance the quality of the human environment. Agencies shall focus on significant environmental issues and alternatives and shall reduce paperwork and the accumulation of extraneous background data. Statements shall be concise, clear, and to the point, and shall be supported by evidence that the agency has made the necessary environmental analysis.

CEQA Guidelines §15143

The EIR shall focus on the significant effects on the environment. The significant effects should be discussed with emphasis in proportion to their severity and probability of occurrence.

40 CFR 1502.2(a-c)

Environmental impact statements shall be analytic rather than encyclopedic. Impacts shall be discussed in proportion to their significance. There shall be only a brief discussion of other than significant issues. Environmental impact statements shall be kept concise and shall be no longer than absolutely necessary to comply with NEPA and with these regulations.

CEQA Guidelines §15147

The information contained in an EIR shall include summarized technical data… Placement of highly technical and specialized analysis and data in the body of an EIR should be avoided.

[1] The California High Speed Rail CEQA/NEPA documents were each over 1,000 pages (Volume 1 of the Merced to Fresno Section EIR/EIS was 1,651 pages and the compiled volumes of the Fresno to Bakersfield Section EIR/EIS were over 17,000 pages).
[2] In accordance with the *CEQ Guidelines for Implementing NEPA* (40 CFR 1500–1508) and the CEQA Guidelines (§15000–15387)

The resulting report, *Improving the Quality of Environmental Documents* (*see* Section 3.5), published in May 2006, devoted several chapters to suggested techniques for improving the quality of NEPA documents by making them more effective, engaging, and useful for the public and decisionmakers. Three core principles were identified as the basis for quality NEPA documents:

- **Tell the Story**—Tell the story of the project so that the reader can easily understand the purpose and need for the project, how each alternative would meet the project goals, and the strengths and weaknesses associated with each alternative. The document should be understandable to a broad audience.
- **Keep it Brief**—Keep the document as brief as possible, using clear, concise writing; an easy-to-use format; effective graphics and visual elements; and discussion of issues and impacts in proportion to their significance. Explain technical details in a way that is understandable to nontechnical readers.
- **Meet Legal Requirements**—Ensure that the document meets all legal requirements in a way that is easy to follow for regulators and technical reviewers.

Several state DOTs that contributed to the *Improving the Quality of Environmental Documents* publication issued their own guidance or training documents that incorporated and built upon recommendations in the publication, including:

- The Washington State Department of Transportation (WSDOT) developed the *Reader-Friendly Toolkit*, a comprehensive manual that provides specific suggestions on issues such as page layout, figures, clear writing, and appendices (*see* Section 3.5).
- The California Department of Transportation (Caltrans) developed annotated outlines for use in preparing EAs and EISs that include a standard format and chapter organization and specific instructions for the content (*see* Section 3.5).
- The Oregon Department of Transportation (ODOT) and FHWA's Oregon Division Office jointly produced a memorandum, *"NEPA Document Dos and Don'ts, 2nd Edition,"* which included tips for NEPA document preparers on readability, formatting, figures and tables, and terminology.

In July 2014, additional guidance for preparing high-quality NEPA documents for transportation projects was published by AASHO's Center for Environmental Excellence. The *Practioner's Handbook*—developed in cooperation with an advisory group, including representatives from FHWA, Federal Transit Administration (FTA), state DOTs, and the consultant community—describes practices for achieving high-quality NEPA documents. A high-quality NEPA document is identified as one that:

- Is readily understandable by all audiences, including those without technical expertise
- Provides key information in an easy-to-navigate format
- Focuses on pertinent information and avoids unnecessary bulk
- Includes supporting technical information in appendices
- Meets all legal requirements

The appendix to the handbook *Examples of Effective Techniques for Improving the Quality of Environmental Documents* presents excerpts from published NEPA documents to illustrate the guidance from the handbook. Techniques are categorized by those that will improve overall document quality and those that will demonstrate compliance with NEPA and related requirements. Of particular relevance to preparing more readable CEQA/NEPA documents are techniques to improve the overall document quality—in particular, the examples of effective page layouts, presentation of data, and figures.

3.2 Purpose

A variety of circumstances have contributed to the growing size and complexity of environmental documents, including changing expectations from regulatory agencies, legal concerns related to court challenges, and information requests from the public or special interest groups. In many cases the resulting environmental documents, while addressing regulatory concerns and meeting legal requirements, were not understandable to a nontechnical audience. Transportation agencies have found that preparing more readable environmental documents generates greater public trust, along with more constructive and concise public comments.[3]

40 CFR 1502.8

Environmental impact statements shall be written in plain language and may use appropriate graphics so that decisionmakers and the public can readily understand them. Agencies should employ writers of clear prose or editors to write, review, or edit statements, which will be based upon the analysis and supporting data from the natural and social sciences and the environmental design arts.

CEQA Guidelines §15140

EIRs shall be written in plain language and may use appropriate graphics so that decisionmakers and the public can rapidly understand the documents.

These guidelines present specific techniques for reducing HSR document size and facilitating understanding of the issues and conclusions presented in the environmental documents, while meeting legal requirements. The creation of more attractive and useful, readable documents will facilitate the understanding of the alternatives, issues, and decisions by a nontechnical audience. The tools presented in this guidance supplement the information presented in the Environmental Methods. Use guidance from both methods when preparing the HSR environmental documents. Recommendations and examples from the NEPA guidance documents *Improving the Quality of Environmental Documents* (2006) and the *Practioner's Handbook, Preparing High-Quality NEPA Documents for Transportation Projects* (2014) (*see* Section 3.5) are incorporated into these Guidelines.

3.3 Approach

The readability of a CEQA/NEPA document depends not only on the content but also on the way that content is presented. The following recommendations for improving the quality of HSR environmental documents focus on organizational and presentation techniques that enhance the understanding of technical data, reducing the need for lengthy explanations. Other methods that address approaches to reducing the document length also are provided. When developing content for the environmental document, combine text and graphic techniques to optimize meaning, emphasis, visual clarity, and brevity.

3.3.1 Techniques to Improve Readability

The following layout and design techniques improve the visual appearance of the document and provide a visual hierarchy of information. Implementing the techniques will require team members with expertise in document layout and design, particularly when formatting the environmental document for publication. See Section 3.4 for additional document production stages and techniques. Also, see Chapter 4 for document formatting during the *content development* phase and Chapter 5 for final formatting, page layout, and document design to be undertaken during the *document design and publication* phase.

Document Formatting

These Guidelines describe two distinct methods for creating and formatting high-quality environmental documents:

Content Development Phase—Includes writing, illustrating, editing, and reviewing/revising cycles (*see* Chapter 4)

Document Design and Publication Phase—Includes high-quality formatting of final document for publication (hard copy and online versions) and quality control reviews (*see* Chapter 5)

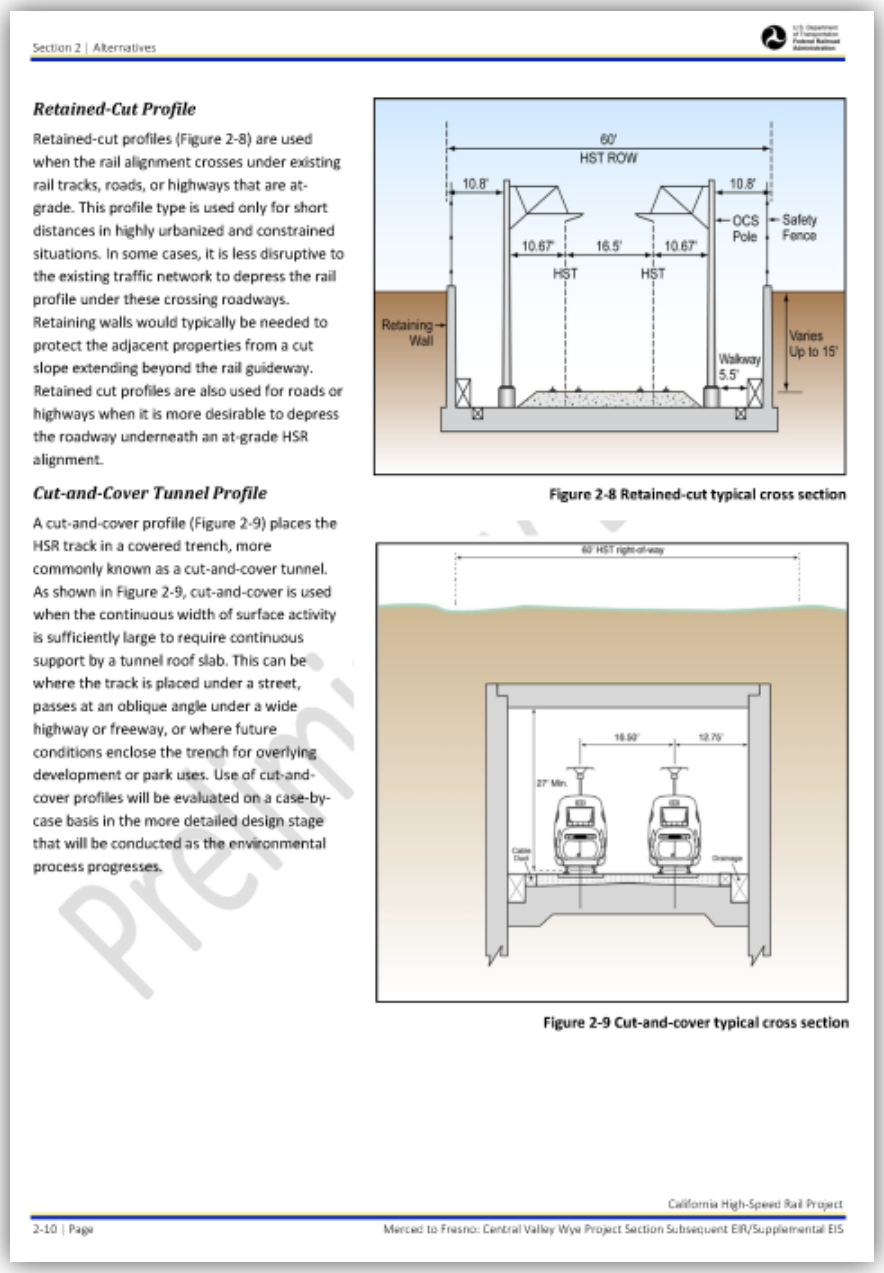
[3] Washington State Department of Transportation, *Reader-Friendly Document Toolkit*, Chapter 2, March 2011

3.3.1.1 Integrate Figures, Tables, and Charts into the Text

Specifically cross-reference all figures and tables in the text and **briefly summarize** the key points that are being covered by the figure or table—avoid repetitive restatement of tabular or graphic content in related text. Place figures and tables in close proximity to the corresponding text—ideally on the same page or on the following page.

IMPORTANT

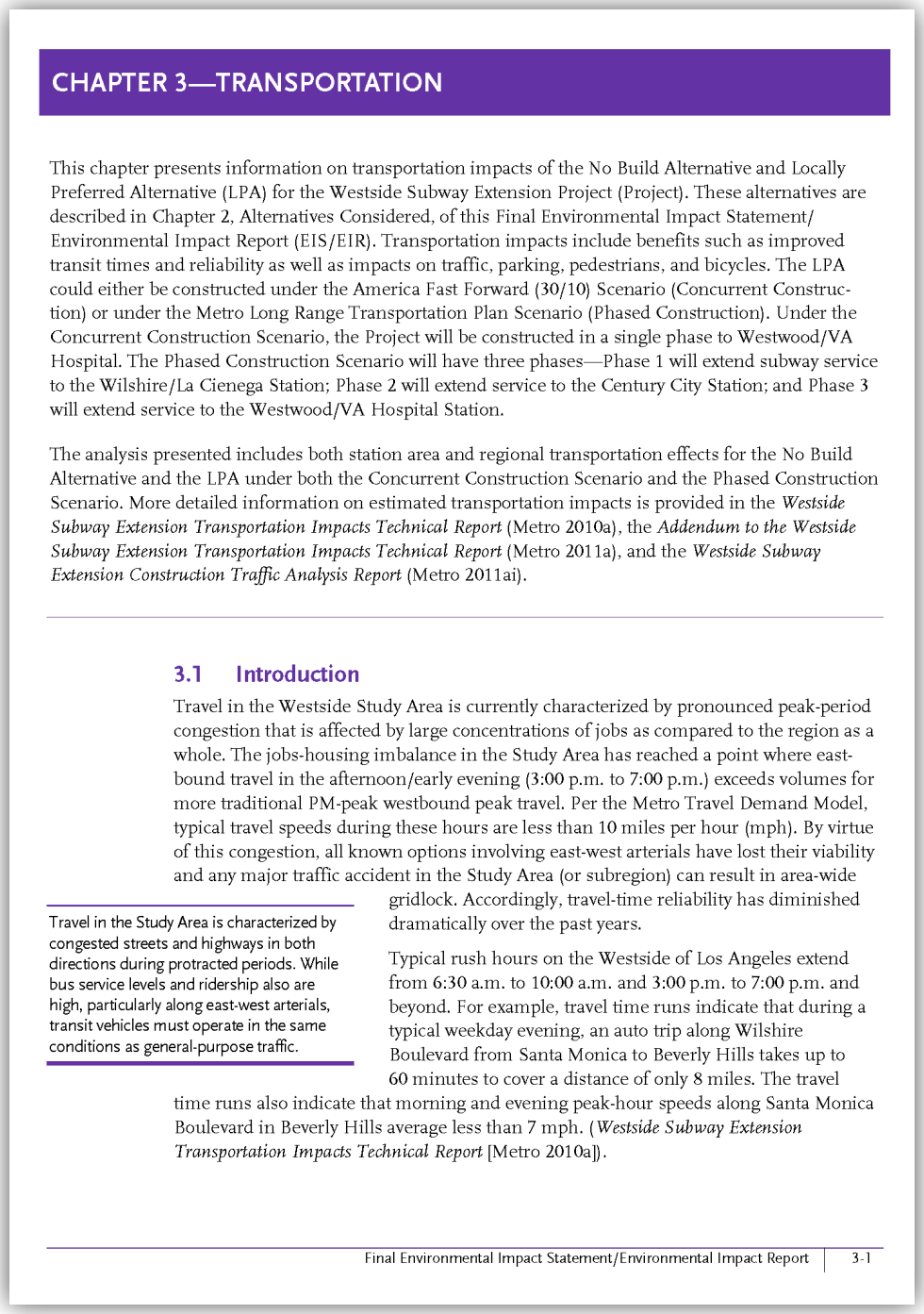
When copying an image from the internet, assume it is copyrighted. To use the image in a public document, track down the original site of the image and request permission from the owner to reprint. Images created by or for a U.S. Government agency (which includes EIRs/EISs) are not subject to copyright.



Source: Merced to Fresno Central Valley Wye Project Section SEIR/SEIS, Authority, 2014
This example is for illustrative purposes only and does not comply with Authority *Graphic and Exhibit Standards* (Appendix A)

3.3.1.2 Highlight Information with Sidebars and Call-Out Boxes

Use callout boxes to highlight important conclusions, explain technical terms, provide cross-references, and provide background that is important but not central to the main point covered in the text.



CHAPTER 3—TRANSPORTATION

This chapter presents information on transportation impacts of the No Build Alternative and Locally Preferred Alternative (LPA) for the Westside Subway Extension Project (Project). These alternatives are described in Chapter 2, Alternatives Considered, of this Final Environmental Impact Statement/ Environmental Impact Report (EIS/EIR). Transportation impacts include benefits such as improved transit times and reliability as well as impacts on traffic, parking, pedestrians, and bicycles. The LPA could either be constructed under the America Fast Forward (30/10) Scenario (Concurrent Construction) or under the Metro Long Range Transportation Plan Scenario (Phased Construction). Under the Concurrent Construction Scenario, the Project will be constructed in a single phase to Westwood/VA Hospital. The Phased Construction Scenario will have three phases—Phase 1 will extend subway service to the Wilshire/La Cienega Station; Phase 2 will extend service to the Century City Station; and Phase 3 will extend service to the Westwood/VA Hospital Station.

The analysis presented includes both station area and regional transportation effects for the No Build Alternative and the LPA under both the Concurrent Construction Scenario and the Phased Construction Scenario. More detailed information on estimated transportation impacts is provided in the *Westside Subway Extension Transportation Impacts Technical Report* (Metro 2010a), the *Addendum to the Westside Subway Extension Transportation Impacts Technical Report* (Metro 2011a), and the *Westside Subway Extension Construction Traffic Analysis Report* (Metro 2011ai).

3.1 Introduction

Travel in the Westside Study Area is currently characterized by pronounced peak-period congestion that is affected by large concentrations of jobs as compared to the region as a whole. The jobs-housing imbalance in the Study Area has reached a point where east-bound travel in the afternoon/early evening (3:00 p.m. to 7:00 p.m.) exceeds volumes for more traditional PM-peak westbound peak travel. Per the Metro Travel Demand Model, typical travel speeds during these hours are less than 10 miles per hour (mph). By virtue of this congestion, all known options involving east-west arterials have lost their viability and any major traffic accident in the Study Area (or subregion) can result in area-wide gridlock. Accordingly, travel-time reliability has diminished dramatically over the past years.

Travel in the Study Area is characterized by congested streets and highways in both directions during protracted periods. While bus service levels and ridership also are high, particularly along east-west arterials, transit vehicles must operate in the same conditions as general-purpose traffic.

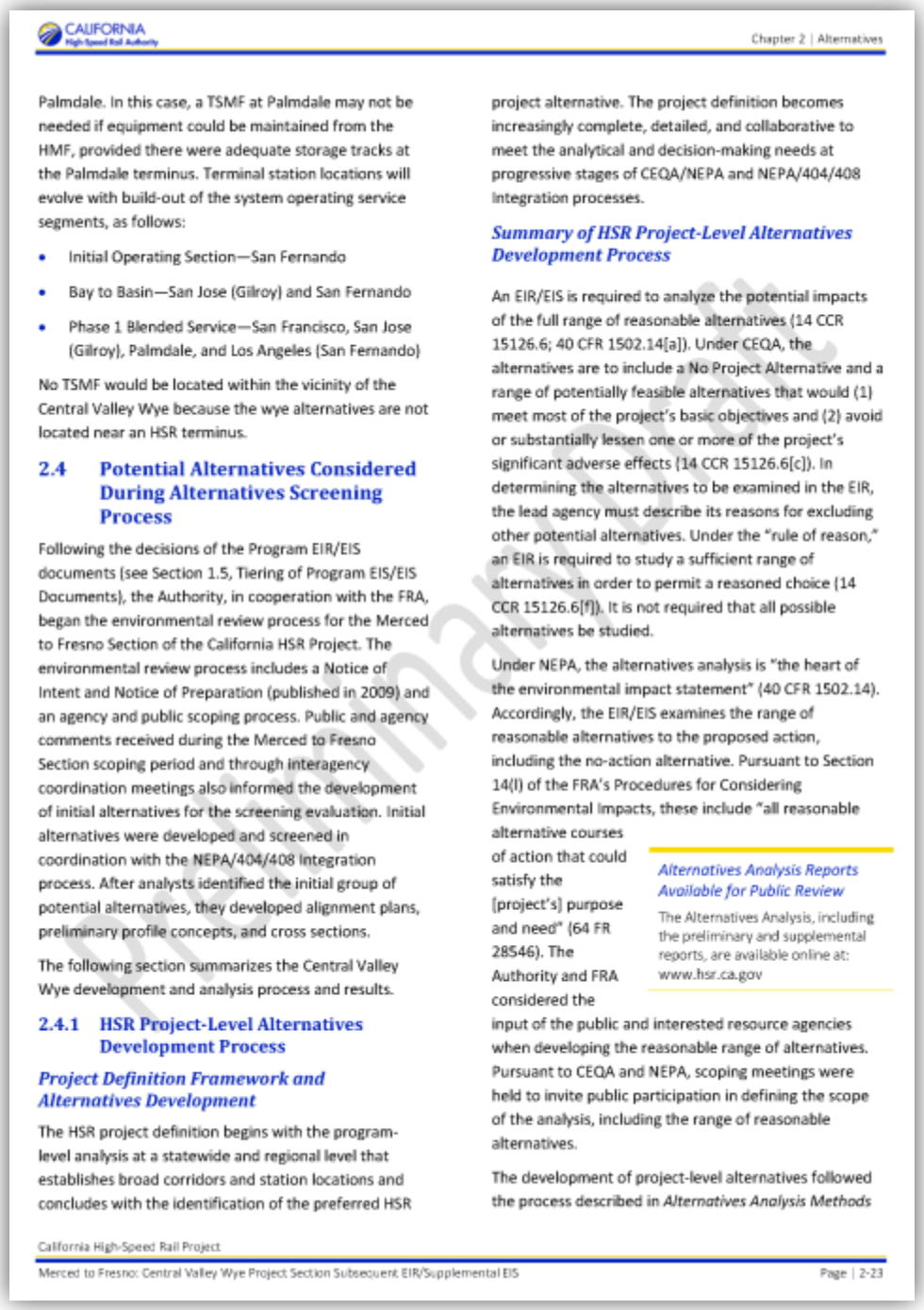
Typical rush hours on the Westside of Los Angeles extend from 6:30 a.m. to 10:00 a.m. and 3:00 p.m. to 7:00 p.m. and beyond. For example, travel time runs indicate that during a typical weekday evening, an auto trip along Wilshire Boulevard from Santa Monica to Beverly Hills takes up to 60 minutes to cover a distance of only 8 miles. The travel time runs also indicate that morning and evening peak-hour speeds along Santa Monica Boulevard in Beverly Hills average less than 7 mph. (*Westside Subway Extension Transportation Impacts Technical Report* [Metro 2010a]).

Final Environmental Impact Statement/Environmental Impact Report 3-1

Source: Westside Subway Extension Final EIS/EIR, Metro, 2012
This example is for illustrative purposes only and does not comply with Authority *Graphic and Exhibit Standards* (Appendix A)

3.3.1.3 Use Color, Fonts, and White Space to enhance readability

Use color and an easily readable font to visually articulate black-and-white text. Use white space to break up lengthy extents of text into visually distinctive and navigable blocks.



CALIFORNIA High-Speed Rail Authority

Chapter 2 | Alternatives

Palmdale. In this case, a TSMF at Palmdale may not be needed if equipment could be maintained from the HMF, provided there were adequate storage tracks at the Palmdale terminus. Terminal station locations will evolve with build-out of the system operating service segments, as follows:

- Initial Operating Section—San Fernando
- Bay to Basin—San Jose (Gilroy) and San Fernando
- Phase 1 Blended Service—San Francisco, San Jose (Gilroy), Palmdale, and Los Angeles (San Fernando)

No TSMF would be located within the vicinity of the Central Valley Wye because the wye alternatives are not located near an HSR terminus.

2.4 Potential Alternatives Considered During Alternatives Screening Process

Following the decisions of the Program EIR/EIS documents (see Section 1.5, Tiering of Program EIS/EIS Documents), the Authority, in cooperation with the FRA, began the environmental review process for the Merced to Fresno Section of the California HSR Project. The environmental review process includes a Notice of Intent and Notice of Preparation (published in 2009) and an agency and public scoping process. Public and agency comments received during the Merced to Fresno Section scoping period and through interagency coordination meetings also informed the development of initial alternatives for the screening evaluation. Initial alternatives were developed and screened in coordination with the NEPA/404/408 Integration process. After analysts identified the initial group of potential alternatives, they developed alignment plans, preliminary profile concepts, and cross sections.

The following section summarizes the Central Valley Wye development and analysis process and results.

2.4.1 HSR Project-Level Alternatives Development Process

Project Definition Framework and Alternatives Development

The HSR project definition begins with the program-level analysis at a statewide and regional level that establishes broad corridors and station locations and concludes with the identification of the preferred HSR project alternative. The project definition becomes increasingly complete, detailed, and collaborative to meet the analytical and decision-making needs at progressive stages of CEQA/NEPA and NEPA/404/408 Integration processes.

Summary of HSR Project-Level Alternatives Development Process

An EIR/EIS is required to analyze the potential impacts of the full range of reasonable alternatives (14 CCR 15126.6; 40 CFR 1502.14[a]). Under CEQA, the alternatives are to include a No Project Alternative and a range of potentially feasible alternatives that would (1) meet most of the project's basic objectives and (2) avoid or substantially lessen one or more of the project's significant adverse effects (14 CCR 15126.6[c]). In determining the alternatives to be examined in the EIR, the lead agency must describe its reasons for excluding other potential alternatives. Under the "rule of reason," an EIR is required to study a sufficient range of alternatives in order to permit a reasoned choice (14 CCR 15126.6[f]). It is not required that all possible alternatives be studied.

Under NEPA, the alternatives analysis is "the heart of the environmental impact statement" (40 CFR 1502.14). Accordingly, the EIR/EIS examines the range of reasonable alternatives to the proposed action, including the no-action alternative. Pursuant to Section 14(l) of the FRA's Procedures for Considering Environmental Impacts, these include "all reasonable alternative courses of action that could satisfy the [project's] purpose and need" (64 FR 28546). The Authority and FRA considered the input of the public and interested resource agencies when developing the reasonable range of alternatives. Pursuant to CEQA and NEPA, scoping meetings were held to invite public participation in defining the scope of the analysis, including the range of reasonable alternatives.

Alternatives Analysis Reports Available for Public Review

The Alternatives Analysis, including the preliminary and supplemental reports, are available online at: www.hsr.ca.gov

The development of project-level alternatives followed the process described in *Alternatives Analysis Methods*

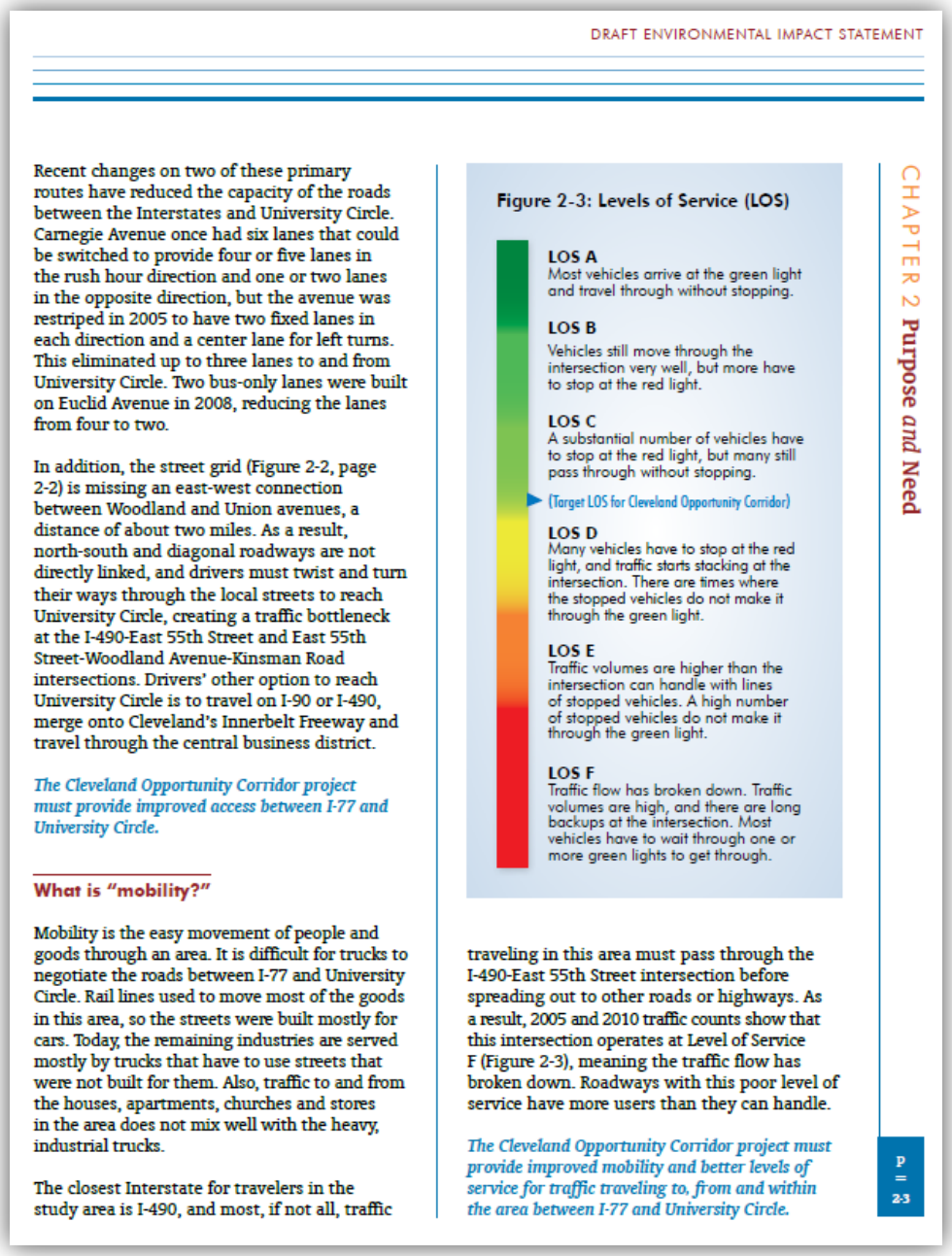
California High-Speed Rail Project

Merced to Fresno: Central Valley Wye Project Section Subsecuent EIR/Supplemental EIS Page | 2-23

Source: Merced to Fresno Central Valley Wye Project Section SEIR/SEIS, Authority, 2014

3.3.2 Techniques to Improve Presentation of Technical Data

Any CEQA/NEPA document for a transportation project will include substantial quantities of data regarding population growth, traffic congestion, air emissions, and noise levels. Incorporating visual elements into the presentation of technical data will improve the understanding of the data. Using visual elements can illustrate the location and significance of the data, reducing the need for lengthy explanation.



DRAFT ENVIRONMENTAL IMPACT STATEMENT

Recent changes on two of these primary routes have reduced the capacity of the roads between the Interstates and University Circle. Carnegie Avenue once had six lanes that could be switched to provide four or five lanes in the rush hour direction and one or two lanes in the opposite direction, but the avenue was restriped in 2005 to have two fixed lanes in each direction and a center lane for left turns. This eliminated up to three lanes to and from University Circle. Two bus-only lanes were built on Euclid Avenue in 2008, reducing the lanes from four to two.

In addition, the street grid (Figure 2-2, page 2-2) is missing an east-west connection between Woodland and Union avenues, a distance of about two miles. As a result, north-south and diagonal roadways are not directly linked, and drivers must twist and turn their ways through the local streets to reach University Circle, creating a traffic bottleneck at the I-490-East 55th Street and East 55th Street-Woodland Avenue-Kinsman Road intersections. Drivers' other option to reach University Circle is to travel on I-90 or I-490, merge onto Cleveland's Innerbelt Freeway and travel through the central business district.

The Cleveland Opportunity Corridor project must provide improved access between I-77 and University Circle.

What is "mobility?"

Mobility is the easy movement of people and goods through an area. It is difficult for trucks to negotiate the roads between I-77 and University Circle. Rail lines used to move most of the goods in this area, so the streets were built mostly for cars. Today, the remaining industries are served mostly by trucks that have to use streets that were not built for them. Also, traffic to and from the houses, apartments, churches and stores in the area does not mix well with the heavy, industrial trucks.

The closest Interstate for travelers in the study area is I-490, and most, if not all, traffic

Figure 2-3: Levels of Service (LOS)

LOS A
Most vehicles arrive at the green light and travel through without stopping.

LOS B
Vehicles still move through the intersection very well, but more have to stop at the red light.

LOS C
A substantial number of vehicles have to stop at the red light, but many still pass through without stopping.

(Target LOS for Cleveland Opportunity Corridor)

LOS D
Many vehicles have to stop at the red light, and traffic starts stacking at the intersection. There are times where the stopped vehicles do not make it through the green light.

LOS E
Traffic volumes are higher than the intersection can handle with lines of stopped vehicles. A high number of stopped vehicles do not make it through the green light.

LOS F
Traffic flow has broken down. Traffic volumes are high, and there are long backups at the intersection. Most vehicles have to wait through one or more green lights to get through.

traveling in this area must pass through the I-490-East 55th Street intersection before spreading out to other roads or highways. As a result, 2005 and 2010 traffic counts show that this intersection operates at Level of Service F (Figure 2-3), meaning the traffic flow has broken down. Roadways with this poor level of service have more users than they can handle.

The Cleveland Opportunity Corridor project must provide improved mobility and better levels of service for traffic traveling to, from and within the area between I-77 and University Circle.

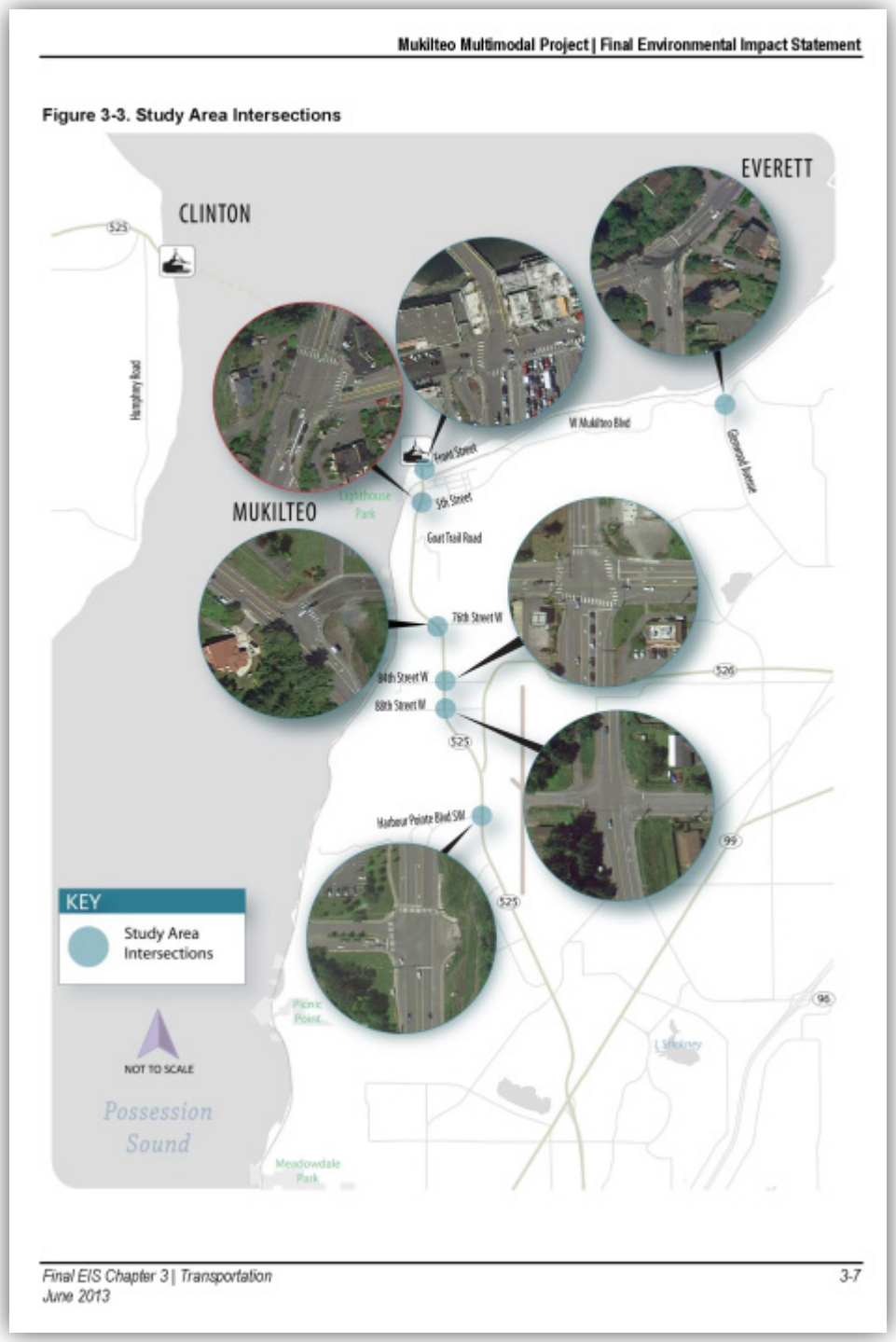
CHAPTER 2 Purpose and Need

P = 2-3

Source: The Cleveland Opportunity Corridor Project DEIS, ODOT, 2013
This example is for illustrative purposes only and does not comply with Authority *Graphic and Exhibit Standards* (Appendix A)

3.3.2.1 Connect Information to Location on Project Area Figures

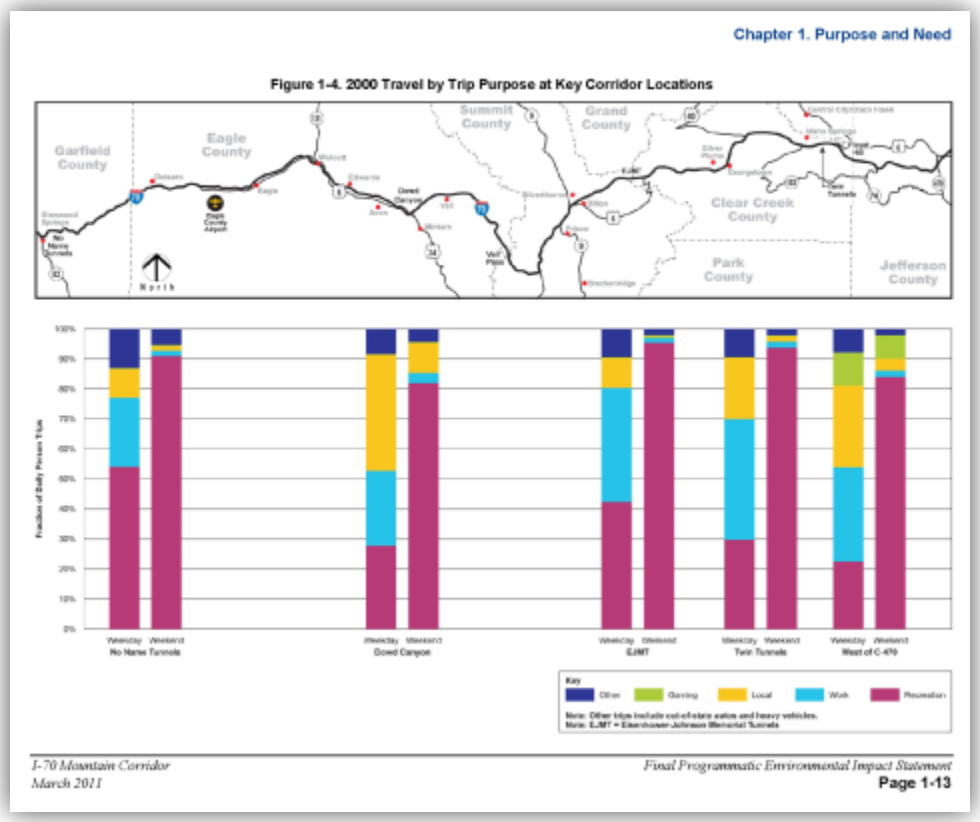
Data is often used to describe conditions in a specific location, for example regarding traffic congestion on a region's road network or noise impacts within a residential area. To be meaningful, this data should connect the information to the location that is being described.



Source: Mukilteo Multimodal Project FEIS, WSDOT, 2013
This example is for illustrative purposes only and does not comply with Authority *Graphic and Exhibit Standards* (Appendix A)

3.3.2.2 Use Bar Charts to Convey Magnitude

Bar charts are an effective way to convey the relative magnitude of different numbers over time or distance. Bar, pie, and other forms of graphic charts minimize the need for explanatory text.



Source: 1-70 Mountain Corridor Final Preliminary EIS, CDOT, 2011
This example is for illustrative purposes only and does not comply with Authority *Graphic and Exhibit Standards* (Appendix A)

3.3.2.3 Color Code Data in a Table

Colors help to highlight important differences among the numbers—for example, to distinguish acceptable vs. unacceptable levels of service when presenting traffic congestion data.

Table 3-6. Levels of Service at Intersections along the Alignment that would operate at or Near Capacity in 2040

Intersection	2012 Existing		2040 No Build Alternative		2040 Preferred Alternative	
	AM	PM	AM	PM	AM	PM
Wayne Avenue @ Fenton Street	C	C	C	D	C	F
Wayne Avenue @ Dale Drive	B	C	C	F	E	E
Wayne Avenue @ Sligo Creek Parkway	D	C	F	F	D	F
Wayne Avenue @ Manchester Road	E	E	F	F	C	F
Piney Branch Road @ University Boulevard	D	D	D	D	F	F
University Boulevard @ Carroll Avenue	D	C	E	C	D	C
University Boulevard @ Merrimac Drive	D	F	F	F	A	A
University Boulevard @ New Hampshire Avenue	D	E	D	F	D	E
University Boulevard @ 14th Avenue	C	E	C	C	A	A
University Boulevard @ Riggs Road	D	E	E	F	E	F
University Boulevard @ 15th Avenue	B	D	B	D	B	F
University Boulevard @ Guilford Road	C	F	B	F	A	A
Campus Drive @ Adelphi Road	E	E	F	F	E	E
Campus Drive @ Regents Drive	D	F	F	F	E	E
Paint Branch Parkway @ Rossborough Lane	N/A	N/A	F	F	B	E
Paint Branch Parkway @ MFRI Building Entrance	B	B	F	F	C	B
Paint Branch Parkway @ Metro Parking	A	B	E	F	E	F
River Road @ Rivertech Court	E	F	F	F	D	D
River Road @ Haig Drive	C	C	E	D	A	A
Kenilworth Avenue @ East-West Highway	F	F	F	F	F	F
Veterans Parkway @ Glenridge Yard	E	F	F	F	A	A
Veterans Parkway @ Annapolis Road	E	D	E	E	E	E
Total LOS F Intersections (by peak period)	**1**	**6**	**10**	**15**	**2**	**8**
Intersections at or exceeding capacity (by peak period)	**6**	**11**	**15**	**16**	**8**	**14**
Total Intersections at or exceeding capacity	**12**		**18**		**14**	

Note: Green shading denotes levels of service A-C, red and orange shading denotes intersection levels at or near capacity, i.e., with LOS of E or F.

Source: Purple Line Traffic Analysis Technical Report (2013)

3.2.3 No Build Alternative

In the latest update of the CLRP (July 2012), there are no east-west roadway projects programmed for funding along the Purple Line corridor. The effects of increased traffic would be most pronounced at intersections currently operating at or exceeding capacity, where an increase in queuing of traffic and delay is anticipated by 2040. The level of service analysis of the 2040 No Build Alternative clearly shows further deterioration in levels of service at key intersections.

As shown in Table 3-6 the analysis forecasted that during the 2040 No Build condition 18 intersections (35 percent) will operate at LOS E or F during one or both peak hours, compared to 12 intersections (24 percent) under existing conditions. The impact

Source: Purple Line Draft Final EIS, MTA/MDOT, 2013
This example is for illustrative purposes only and does not comply with Authority *Graphic and Exhibit Standards* (Appendix A)

3.3.2.4 Use Symbols to Summarize Differences

Symbols can effectively convey alternative comparisons during screening (e.g., meets criterion, partially meets criterion, does not meet criterion), the levels of impact to significant resources (e.g., adverse, moderate, beneficial), the effectiveness of mitigation measures (e.g., avoids, partially avoids, does not avoid), and other comparisons that reveal differences among a range of alternatives or issues.

- Does the concept improve transportation operations compared to existing conditions at the Mukilteo terminal?
- How well does the concept avoid environmental effects?

Table 1 summarizes the results of the Level 1 screening for each concept. The details of the screening results for the Level 1 analysis are documented in *Mukilteo Multimodal Project Level 1 Screening Result*. None of these concepts were eliminated in the Level 1 analysis; all were carried forward into the Level 2 analysis.

Table 1. Summary of Level 1 Screening Results

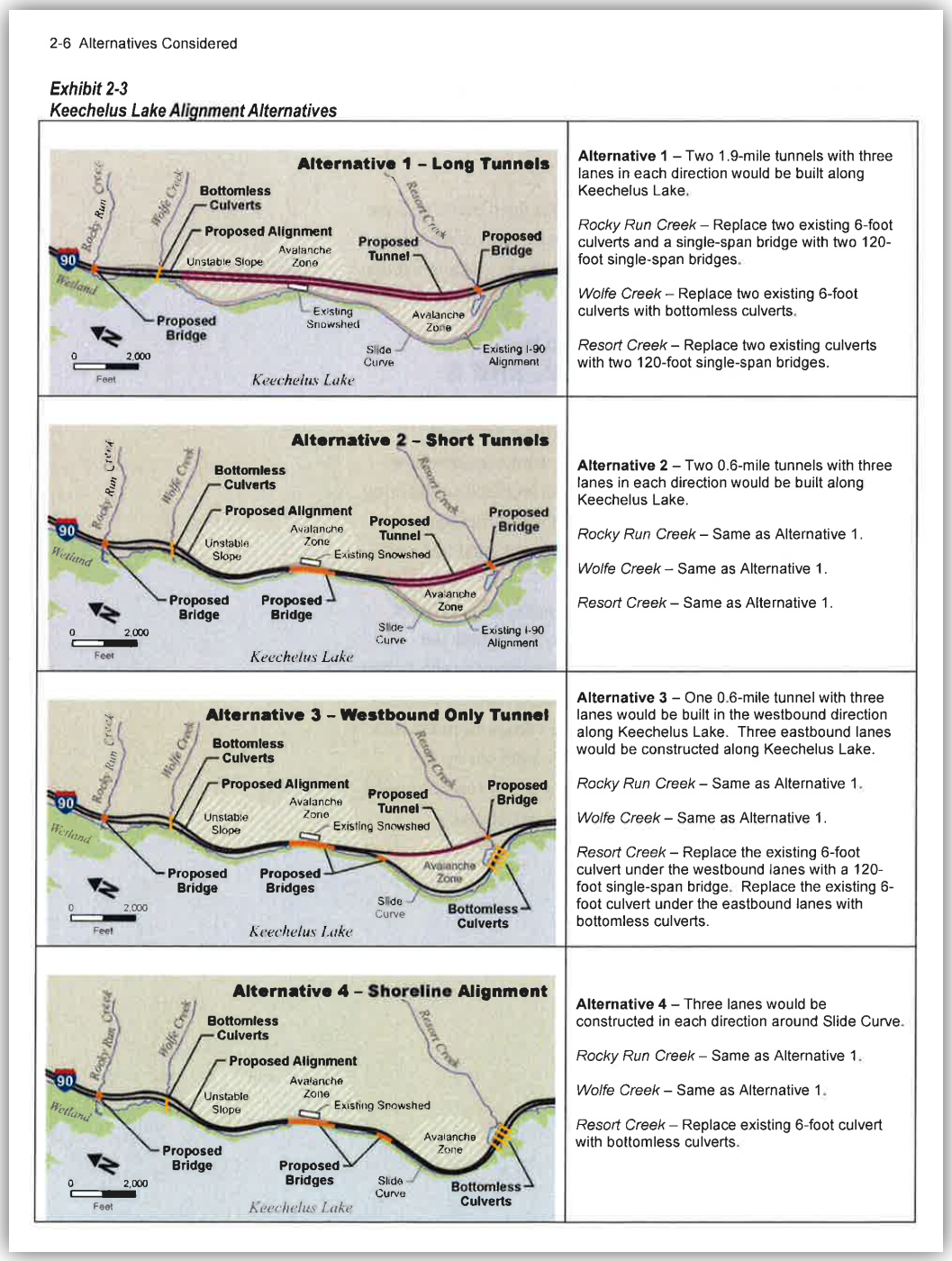
Level 1 Screening Results Summary	No Build	Existing Site Improvements	Elliot Point – Option 1	Elliot Point – Option 2	Elliot Point – Option 3	Mount Baker Terminal	Edmonds – Existing Terminal	Edmonds – Existing Site	Edmonds – Point Edwards	Port of Everett South Terminal
(1) Does the concept improve safety and security at the terminal facility compared to existing conditions at the Mukilteo terminal?										
1(A) Does the concept improve safety for vehicles, bicycles, and pedestrians by reducing conflicts?	●	◆	◆	▲	◆	▲	●	◆	▲	▲
1(B) Does the concept address the structural deficiencies of the existing terminal?	▲	▲	▲	▲	▲	▲	▲	▲	▲	▲
1(C) Does the concept allow for the facility to be secured as required by Homeland Security?	●	●	▲	▲	▲	▲	●	●	▲	▲
(2) Does the concept improve transportation operations compared to existing conditions at the Mukilteo terminal?										
2(A) Would the concept provide a terminal with improved multimodal connections?	●	◆	◆	▲	◆	●	◆	◆	●	●
2(B) Would the concept provide adequate facilities for future transit service?	●	▲	▲	▲	▲	▲	●	▲	▲	▲
2(C) Is there enough room to provide holding facilities that can handle at least 1.5 times the capacity of the ferry (approximately 215 vehicles)?	▲	▲	▲	▲	▲	▲	●	▲	▲	▲
2(D) Would the concept provide improved facilities for loading and unloading the ferry reliably to maintain schedules?	●	▲	▲	▲	▲	▲	●	●	▲	▲
(3) How well does the concept avoid environmental effects?										
3(A) Ecosystem resources (aquatic habitat, wetlands)?	◆	◆	▲	▲	▲	◆	▲	●	●	◆
3(B) Historic, cultural, and parkland resources?	●	●	●	●	●	●	◆	●	◆	▲
3(C) Proximity effects (noise and visual)?	◆	◆	●	●	●	●	◆	●	◆	▲

▲ Meets criterion or likely to avoid adverse effects
◆ Partially meets criterion or avoidance uncertain or mixed
● Does not meet criterion or likely to not avoid adverse effects

Source: Mukilteo Multimodal Project FEIS, WSDOT, 2013
This example is for illustrative purposes only and does not comply with Authority *Graphic and Exhibit Standards* (Appendix A)

3.3.2.5 Use Side-by-Side Layout to Summarize Alternatives on Figures

Figures enhance readability by enabling the reader to visualize conditions that are described in the text. Using a side-by-side layout to illustrate the key features of each alternative enables the reader to differentiate between the alternatives without having to read the text. The key features of each alternative must be clearly labeled and stand out against the background.



Source: I-90 Snoqualmie Pass East Project Final EIS and Section 4(f) Evaluation, WSDOT, 2008
This example is for illustrative purposes only and does not comply with Authority *Graphic and Exhibit Standards* (Appendix A)

3.3.3 Techniques to Reduce Document Length

A consistent theme in state and federal agency guidance reports over the past several years has been reversing the trend toward CEQA or NEPA documents that compile voluminous amounts of data, but are overwhelming and incomprehensible to the average citizen. As noted in the 2006 AASHTO report, this trend has occurred despite NEPA regulations, which require clear, understandable documents that "concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail."[4] The following techniques support CEQA and NEPA regulations and state and federal agency guidance recommendations for reducing the bulk of environmental documents.

3.3.3.1 Focus on Significant Resources and Significant Issues

Using information from the technical appendices or reports in combination with the issues and concerns identified during the scoping process, focus the EIR/EIS resource discussion on the significant resources that will be affected by the project and the significant effects of the project. Technical appendices or reports include important information and analyses that should be **summarized** in the main body of the EIR/EIS. The scoping process involves inviting participation; coordinating with the public and agencies; determining the scope of the project and study area; and identifying important issues verses minor issues. A well documented scoping process will explain why particular issues were either highly developed or only minimally discussed in the document.

40 CFR 1502.15—Affected Environment

The environmental impact statement shall succinctly describe the environment of the area(s) to be affected or created by the alternatives under consideration. The description shall be no longer than is necessary to understand the effects of the alternative. Data and analysis in a statement shall be commensurate with the importance of the impact, with less important material summarized, consolidated, or simply referenced. Agencies shall avoid useless bulk in statements and shall concentrate effort and attention on important issues.

CEQA Guidelines §15125—Environmental Setting

The description of the environmental setting shall be no longer than is necessary to an understanding of the significant effects of the proposed project and its alternatives.

40 CFR 1502.24—Methodology and Scientific Accuracy

Agencies shall insure the professional integrity, including scientific integrity, of the discussions and analyses in environmental impact statements. They shall identify any methodologies used and shall make explicit reference by footnote to the scientific and other sources relied upon for conclusions in the statement. An agency may place discussion of methodology in an appendix.

3.3.3.2 Use Appendices for High-Volume Materials

Resource sections comprising the affected environment and environmental consequences CEQA/NEPA chapter sometimes exceed 100 pages in length. With large and complex projects such as HSR there may be numerous applicable agency regulations, extensive and detailed methodologies that must be undertaken, and lengthy definitions of technical terms used in the section. While the level of detail provided in the main body of the CEQA/NEPA document will vary according to the project and the potential risk for litigation, **whenever possible move reference and other large-volume materials into an appendix or refer the reader to the technical report for the details**. Include only a **summary** of the pertinent details in the main body of the CEQA/NEPA document.

[4] CEQ Regulations, 40 CFR 1500.1(b)

3.3.3.3 Document Layout

Using a two-column format for the published Draft and Final EIR/EIS documents will facilitate incorporation of text and figures, as well as reduce the length of a document (*see* Appendix B for examples). During the content development phase, however, use a single-column page format to facilitate preparation, review, and refinement of all content. Chapter 4 of these Guidelines discusses recommended document layouts and templates to be used during the content development phase. Chapter 5 describes the process and recommended templates for the document design and publication phase.

Content Development Protocols

- Understand and use MS Word styles correctly (see Section 4.2.1)
- Use a single-column template (*see* Section 4.2.2)
- Place all tables and figures at the end of the file using auto captioning and cross-referencing (*see* Section 4.2.5.2)
- Concentrate on content (*see* Section 3.4.1)
- Employ a qualified graphic designer to prepare illustrations that effectively convey technical information to a nontechnical audience; convert narrative into effective and space-saving graphics, charts, or tables; and provide professional graphics through artistic use of text, symbols, lines, color, and other design techniques
- Employ a qualified professional editor to read for understandability, language correctness, consistency, and overall quality

Document Design and Publication Protocols

- Employ a qualified word processor and document designer with a strong background in MS Word and high-quality document formatting for final document design and publication (*see* Chapter 5)
- For larger documents that are to be published for general audiences, such as Draft and Final EIR/EIS volumes, convert the final document content to a two-column page format with tables and other graphics relocated immediately following their first reference in text (*see* Chapter 5)
- Employ a qualified professional editor to provide a final quality control review of the document

Document Creation Roles

Writer—Discipline expert who prepares narrative clearly, accurately, and comprehensively

Graphic Designer—Design professional who creates graphics and tables that interpret and convey data that can replace or supplement narrative

Technical Reviewer—Discipline expert who reviews narrative and graphics for accuracy and understandability (this person is not the writer of the material)

Editor—Trained editor who reads narrative for grammar, accuracy, consistency, and readability

Document Designer—MS Word expert who designs the aesthetic appeal of a document—layout, colors, pagination, consistency, and completeness—and produces the final high-quality camera-ready files

3.4 Document Content Development Phase

Preparing a high-quality, reader-friendly document requires the following:

- Clear Writing—Use clear, concise, correct, coherent, complete, consistent, courteous language
- Professional Editing—Use professional language editing to ensure correct, accessible, and compelling writing, grammar, and readability for all intended audiences
- Interpretive Illustrations—Use high-quality graphic design for illustrations that can be interpreted easily by readers and that are aesthetically appealing
- Technical Quality Control Reviews—Use experts in the applicable fields of discussion for technical review prior to each submittal to the Authority, FRA, and AG to ensure content accuracy, editorial consistency, and quality of illustrations

3.4.1 Writing

Writing a technical document for the general public requires care beyond ensuring the information is accurate. Facts not presented in a reader-friendly way are less likely to be read. When writing an EIR/EIS section, provide only the information that is necessary for the reader to understand the salient aspects of the project and its consequences. An over-abundance of technical information is neither necessary nor desirable. Provide the technical details of references, project sub-components, analytical methodologies, and data in topical technical reports or appendices to the EIR/EIS.

- **Purpose**—Provide the information needed by the public. Stay focused by asking "what should the public be able to do with the information?" and "what information will help the public understand the project and its consequences to their communities?"
- **Logic**—Present the material in a simple and logical way. Just as an EIR/EIS includes an executive summary, treat each individual section as an executive summary of the technical document upon which it is based—provide the basics required to attract and inform the reader without overwhelming with detail and jargon. Use the same approach when writing paragraphs that reference illustrations or tables. Summarize the salient information that the reader is intended to acquire from the illustration or table, rather than repeat the details in the text.
- **Flow**—Break the information into pieces that flow logically from one topic to the next. Use headings, illustrations, callout boxes, tables, and other tools to explain and illustrate concepts.
- **Style**—Use a familiar, conversational style, yet avoid colloquial usage. Use the active voice as much as possible. Keep sentences short and simple (no longer than two clauses). Use bullet lists to simplify sentences with a long series of terms or concepts.
- **Vocabulary**—Use familiar, everyday words that are relevant and meaningful to different cultural, economic, and educational backgrounds. Explain technical terms or unfamiliar concepts using familiar words in callout boxes on the same page.

3.4.2 Editing

Documents for the general public must be easy to read because audiences are diverse. Technical writers who are typically focused on analytical rigor and factual content often do not consider the varying capabilities of a diverse audience. However, a professional editor is trained to recognize these differences and can transform arcane technical material into content that is attractive, accessible, and meaningful to the intended audiences.

3.4.3 Illustrating

"A picture is worth a thousand words." Create clear, simple illustrations focused on the topic discussed in the text. Place images on the same page as the discussion or on the immediate following page. Use a professional graphic designer to prepare all illustrations. Do not use MS Word to create charts or graphs—create them professionally using purpose-built software (e.g,, Adobe Illustrator or Photoshop) in formats optimized for insertion into the final version of the document.

3.4.4 Reviewing

No one is perfect—**all** technical information must be reviewed for accuracy. All products must be reviewed before submitting to the client for the first time and before delivery of subsequent contractual submittals.

3.4.5 Quality Control

The last stage in preparing a document for internal review is a complete quality control review. Conduct multiple overall reviews of the content development documents prior to submittal to the Authority, FRA, and AG to ensure accuracy in content, illustrations, and format. Table 3-1 provides an overview of the minimum tasks involved in creating a high-quality technical document.

Table 3-1 Document Writing, Editing, Formatting, and Quality Control Conventions

Check for...	Writing	Graphics	Word Processing (~8 pages/hour)	Copy Editing (~6 pages/hour)	Quality Control
Technical Content					
Text (clear, concise, consistent, correct)	√				√
Acronyms/abbreviations (usage in text)	√			√	√
References (usage in text and source accuracy)	√			√	√
Technical abbreviations/symbols	√			√	√
Exhibits (content and design)	√	√			√
Tables (content accuracy)	√				√
Sources (copyright and source accuracy)	√				√
Definitions/glossary	√				√
Overall content organization	√				√
Exhibits					
Readability and reproducibility		√	√	√	√
Accuracy and consistency		√		√	√
Orientation (portrait, landscape, 11x17)		√	√	√	√
Formatting					
Cover and title page			√	√	√
Headers/footers (title, date, page numbers)			√	√	√
Table of contents, exhibit lists			√	√	√
Lists: acronyms, references, glossary, etc.	√		√	√	√
Pagination, leading, margins, indents			√	√	√
Heading levels and bullet/number lists			√	√	√
Exhibit placement (figures, tables, text boxes, etc.)	√		√	√	√
Sequencing/cross-referencing (figures, tables, etc.)	√		√	√	√
Fonts (types, sizes, boldface, italics)			√	√	√
Typographical errors			√	√	√
Spelling	√		√	√	√
Punctuation	√		√	√	√
Overall format design			√	√	√
Overall format consistency	√		√	√	√
Editing					
Three Cs: clear, concise, consistent	√			√	√
Paragraphing (length and coherence)				√	√
Voice				√	√
Sentence fragments and run-ons				√	√
Subject/verb agreement				√	√
Word choice				√	√
Ambiguous pronouns				√	√
Misplaced modifiers				√	√
Parallelism				√	√
Tables				√	√
Exhibits				√	√
Text boxes, callouts, etc.				√	√
Hyphens, em dashes, en dashes				√	√
Splits at end of lines				√	√
Numbers				√	√

3.4.6 Formatting

Chapter 4 provides instructions for the writer and reviewer with only basic word processing skills using Microsoft Word to simplify the initial steps in developing the content for an environmental document. However, before the document is released to the public (document design and publication phase), a qualified MS Word expert must elevate the document design to a high professional level. Chapter 5 describes the process to be undertaken for the document design and publication phase.

3.5 Document Content Development References

A wide variety of information is available online to supplement this guidance:

- *Improving the Quality of Environmental Documents,* AASHTO/ACEC Committee/FHWA, 2006, http://environment.transportation.org/pdf/hot_documents/IQED-1%20for%20CEE.pdf
- *Keys to Efficient Development of Useful Environmental Documents,* FTA, 2007, www.fta.dot.gov/documents/enviroDocs.pdf
- *Reader-Friendly Document Tool Kit,* WSDOT, 2008, http://www.wsdot.wa.gov/NR/rdonlyres/9D49067F-8DAC-4B08-B3EC-2C2E7F09C074/0/RFToolKit.pdf
- *NEPA Document Dos and Don'ts, 2nd Edition,* ODOT & FHWA Quality Initiative Team, 2011, ftp://ftp.odot.state.or.us/techserv/Geo-Environmental/Environmental/Other%20Enviromental%20Materials/NEPA%20-%20CETAS%20Resources/NEPA/NEPA_Guidance_Memo_%2008242011.pdf
- *Examples of Effective Techniques for Improving the Quality of Environmental Documents,* FHWA/AASHTO, 2014, http://environment.transportation.org/pdf/examples_quality_enviro_docs/examples_quality_enviro_docs_all.pdf
- *Practioner's Handbook: Preparing High-Quality NEPA Documents for Transportation Projects,* AASHTO, 2014, http://environment.transportation.org/pdf/programs/pg15-1.pdf
- Caltrans SER Chapter 37: "Preparing Joint NEPA/CEQA Documentation, 2015, http://www.dot.ca.gov/ser/vol1/sec6/ch37joint/chap37.htm
- Improving communication from the federal government to the public, www.plainlanguage.gov/
- Plain Writing Act of 2010—clear government communication that the public can understand and use, http://epa.gov/plainwriting/

4 FORMATTING AND STYLE—CONTENT DEVELOPMENT PHASE

IMPORTANT

Section 5.2 provides instructions to be used by an MS Word expert to convert final content for draft and final EIR/EIS volumes to a two-column page format for final camera-ready production (document design and publication phase).

This section shows the approved format and styles for text, tables and figures, references and sources, and lists of preparers for use in documents[5] prepared for review by the Authority, FRA, and AG. These protocols are to be used for all non-EIR/EIS environmental documents and for the content development phase of draft and final EIRs/EISs.

See Appendix B for a list of templates available on SharePoint[6] that incorporate the following formatting protocols. Use these templates to create all files for the EIR/EIS and supporting documents. These templates provide a basic, easy-to-use format that simplifies the content development phase.

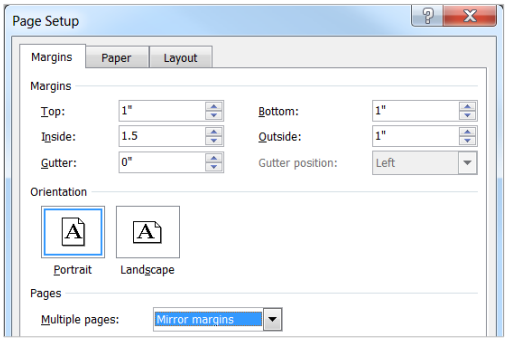
[Editor's note: MS Word commands and style names are highlighted in the following sections for ease of identification.]

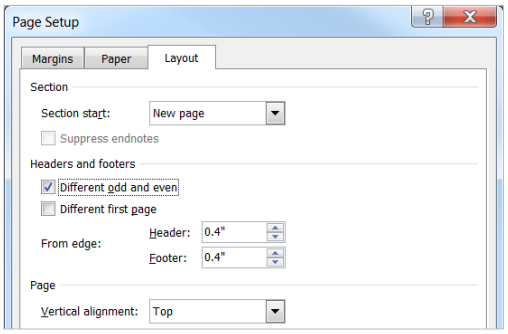
4.1 Page and Text Formatting

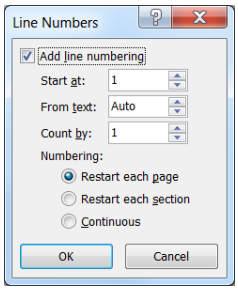
4.1.1 Page Formatting

Page formatting has been included in the templates available on SharePoint and consists of the following:

- **All documents**—double-sided
- **Size and orientation**—8.5 by 11 inches, portrait (*exceptions:* select figures and tables that require landscape or 11-by-17-inch pages)
- **Margins**
  - Mirror margins
  - Top = 1 inch, Bottom = 1 inch, Inside = 1.5 inch, Outside = 1 inch
  - Header = 0.4 inch, Footer = 0.4 inch
  - Check "Different odd and even"
- **Main chapters/sections**—begin on right-hand (odd-numbered) page
- **Page numbering**
  - Use chapter numbering for main body of the EIR/EIS (1-1, 1-2, 2-1, 2-2, etc.)
  - Use section numbering for Chapter 3 sections of the EIR/EIS (3.1-1, 3.2-1, etc.)
  - Use continuous numbering for each appendix preceded by the appendix designation (A-1, A-2, B-1, B-2, etc.)
  - Use continuous numbering for other support







[5] Using the formatting and style conventions provided in this section meets the criteria for federal 508 compliance (Appendix G).
[6] See the PMT Environmental SharePoint site, Work Templates tab (https://chsra.pbid.com/pmt/Environmental/SitePages/Home.aspx).

documents

- **Headers and footers**—format to match header and footer used in this style guide, including Authority logo (flush left on even pages) and FRA logo (flush right on odd pages)
  - Header—Arial, 9 point, 1/2 pt border below (RGB=252/212/027) (*MS Word style:* Header 1) followed by a blank paragraph with 2-1/4 pt border above (RGB=035/065/126) *(MS Word style:* Header 2)
  - Footer—Arial, 9 point, 1/2 pt border below (RGB=252/212/027) (*MS Word style:* Footer 1) followed by a paragraph with same font attributes and a 2-1/4 pt border above (RGB=035/065/126) *(MS Word style:* Footer 2*)*
- **Line numbering**—use this MS Word feature to facilitate the review of draft documents

4.1.2 Text Formatting

Text formatting consists of the following *[editor's note: formatting information has already been incorporated in the SharePoint templates for MS Word styles indicated in parentheses]:*

- Body Text—Arial, 10 point, left alignment, single line spacing, 0 points before, 6 points after (style: Body Text)
- Headings
  - Limit headings to a maximum of seven levels (fewer is better)
  - Follow heading level formatting as shown in Figure 4-1
  - Insert an Odd Page Section Break before every Heading 1 and begin chapter page numbering at x-1
- Bullets
  - If at least one bullet item in a list has multiple lines, set up bullets with space between (style: List Bullet)
  - If all bullet items in a list are single space lines, set up bullets with no space between (style: List Bullet - no space)
  - Each bullet list is treated as separate from every other bullet list
- Captions
  - Arial, 10 point, bold
  - Use a single space (with no punctuation) between caption number and caption title
  - Table captions—flush left above table, Arial, 10 point, bold, 12 points above, 6 points below, keep with next command applied (style: Caption)
  - Figure captions—flush right below figure, Arial, 10 point, bold, 6 points above, 18 points below (style: Caption - figure)
  - Caption titles should be only as wide as the table or figure (manually adjust by using the left and right indent triangles located on the MS Word ruler)

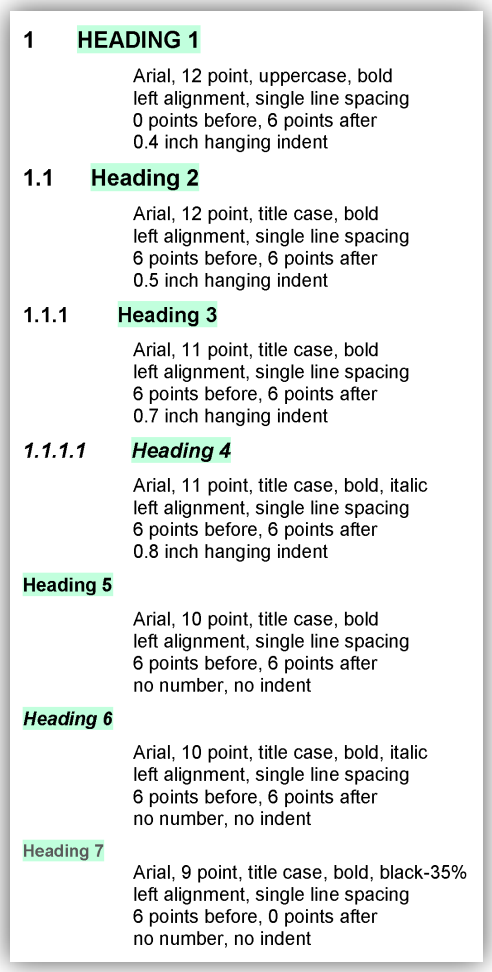


Figure 4-1 Heading Level Formatting

- Cross-references
  - Use MS Word Cross-reference command to reference sections, tables, and figures by number in text
  - **DO NOT** reference tables and figures out of order in text
  - **DO NOT** reference tables and figures by number if first introduced in following sections *[editor's note: if reference is in Chapter 3 but table or figure is first introduced in Chapter 4, refer only to the section number in which the table or figure is located]*
  - **DO NOT** add the word "see" when cross referencing tables or figures in close proximity (for smaller chapters, this implies within the same chapter)
  - When referencing tables or figures in previous sections, it is acceptable to use "(*see* Table x-x above)" or "(*see* Table x-x in Section x)"
  - Use "in" when referencing tables—"…as shown in Table x-x"
  - Use "on" when referencing figures—"…as depicted on Figure x-x"

4.1.3 Character Formatting

IMPORTANT

Use a single space after periods (and all other punctuation).

- Avoid using italics except in the following cases:
  - For scientific nomenclature (*example*: *Orcinus orca*)
  - For foreign words (example: *de minimis*)
  - To introduce a new term followed by a definition (*example*: "the term *alignment* is defined as…")
  - For quotes (instead of quotation marks) if desired
  - For complete titles of published documents (including titles in References section)
- **DO NOT** use underlining for headings, hyperlinks, or emphasis
- **DO NOT** use initial caps as a form of emphasis for common nouns

4.1.4 Document Contents

Volume 1 of each EIR/EIS should consist of the following front matter, chapters, and back matter at a minimum:

- Cover
- Title page
- Signature page
- Table of Contents (including figures, tables, appendices)
- Summary
- Chapter 1—Project Purpose, Need, and Objectives
- Chapter 2—Alternatives
- Chapter 3—Affected Environment, Environmental Consequences, and Mitigation Measures
- Chapter 4—Section 4(f) and Section 6(f) Evaluations
- Chapter 5—Environmental Justice
- Chapter 6—Project Costs and Operations
- Chapter 7—Other CEQA/NEPA Considerations
- Chapter 8—Preferred Alternative and Station Site(s)
- Chapter 9—Public and Agency Involvement
- Chapter 10—EIR/EIS Distribution
- Chapter 11—List of Preparers
- Chapter 12—References/Sources Used in Document Preparation
- Chapter 13—Glossary of Terms
- Chapter 14—Index
- Chapter 15—Acronyms and Abbreviations
- Appendices

Refer to the Environmental Methodology for the list of technical appendices in Volume 2 of each EIR/EIS.

4.2 Automated Word Processing Style and Formatting Tools

The Environmental Methods document was written in part to simplify the preparation of each project level EIR/EIS and to provide consistency in presentation—both among different EIR/EISs and internally within the EIR/EIS documents.

Practical guidance and usable content are provided in the Environmental Methods. Guidance is shown in black text, tables, and illustrative graphics. Usable "boilerplate" content is shown in red text and can be copied verbatim or with refinement, as appropriate, into applicable areas within the EIR/EIS. Example text that illustrates the concepts and methods is shown in *italics*. The methods follow the general sequence of content of the EIR/EIS and use the same format scheme for headings, text, and tables as the EIR/EIS. *[Editor's note: In order to meet the criteria for reader-friendly documents identified in Chapter 3, make every effort to identify areas in the boilerplate and example text that can be simplified and edit accordingly.]*

IMPORTANT

Version 5 of the Environmental Methods was produced using Tahoma font. Since then, the Authority has mandated use of Arial font for all documentation.

The remainder of this section offers word processing tools for using the Environmental Methods document as well as the samples and templates provided in these formatting guidelines.

4.2.1 Establishing Microsoft Word Protocols

4.2.1.1 MS Word Computer-specific Settings

Following are recommended computer settings for all members of the Authority, FRA, California AG, Authority external counsel, PMTs, and RCs who will be working on files individually or collaboratively. These are intended to provide consistency in the preparation of environmental documents (as well as provide efficient tips for using MS Word). Instructions are included for MS Word 2007, 2010, and 2013 for PCs. **DO NOT** use an earlier version of MS Word because newer features would be lost when converting to an older version. Equivalent versions of MS Word for Macs are fully compatible *[editor's note: PC terminology will need to be converted to Mac terminology by the user]*. The following steps need to be done one time only on each computer.

- Click on the Office Button (2007) or File tab (2010, 2013)
- Click on Word Options (2007) or Options (2010, 2013)
- Click on Advanced category
  - Scroll to Cut, copy, and paste group (2007) and set the following criteria:
    - Pasting within the same document: "Keep Source Formatting (default)"
    - Pasting between documents: "Match Destination Formatting"
    - Pasting between documents when style definitions conflict: "Use Destination Styles (Default)"
    - Pasting from other programs: "Match Destination Formatting"
  - Scroll to Cut, copy, and paste group (2010, 2013) and set the following criteria:
    - Pasting within the same document: "Keep Source Formatting (default)"
    - Pasting between documents: "Merge Formatting"
    - Pasting between documents when style definitions conflict: "Use Destination Styles (Default)"
    - Pasting from other programs: "Merge Formatting"
  - Scroll to Show document content group
    - At "Field shading:" select "Always" from drop down menu (this shades auto-numbering fields on the screen—TOC, paragraphs, tables, figures, cross references—for easy recognition)
  - Scroll to Display group

        - At “Style area pane width in draft and outline views” enter “1” in window (this shows the style that is applied to each paragraph in the left margin when in “Draft” view)

- Click on Proofing category
  - Click on AutoCorrect Options button in top group
    - Click on AutoFormat As You Type tab
    - Check “Straight quotes with smart quotes” option
    - Uncheck “Ordinals (1st) with superscript” option
    - Uncheck “Fractions (1/2) with fraction character (½)” option
    - Check “Hyphens (--) with dash (—)” option
    - Click on AutoFormat tab and perform the same steps listed above
    - Click OK to return to Options
  - In Exceptions for group, ensure that “Hide spelling errors in this document only” is not checked

4.2.1.2 MS Word Styles

The key to good document word processing is the use of styles. Every paragraph should have its correct style applied with a minimum of manual changes. The basic styles being used in this style guide, the Environmental Methods, templates, and examples in Appendix B include:

- Body Text (all standard paragraphs) *(MS Word default style)*
- List Bullet (first level bullet for multiple-line lists) *(MS Word default style)*
- List Bullet - no space (first level bullet for single-line lists) *[editor’s note: always use List Bullet if List Bullet 2 is part of a bullet list]*
- List Bullet 2 (second level dash) *(MS Word default style)*
- Headings 1 through 7 (**DO NOT** use Headings 1 through 4 for anything other than auto-numbered sections since these styles are used to develop the Table of Contents) *(MS Word default styles)*
- Caption (for table captions) *(MS Word default style)*
- Caption - figure (for figure captions)
- Graphic (for inline graphics)
- Emphasis (character style for italics) *(MS Word default style)*
- Strong (character style for boldface) *(MS Word default style)*
- Table Column Heading
- Table Body Text (standard left align) *[editor’s note: for columns that are not left align, create the cells with the Table Body Text style and then manually apply center or right align to the column as needed]*
- Table Bullet
- Table Notes

4.2.1.3 MS Word Features

The following are a few suggestions for working in all versions of MS Word to take advantage of Word’s many features:

- Open the styles task pane every time a document is opened (Alt + Ctrl + Shift + S) for easy access to styles

- Click on the Options button in the styles task pane and select "In use" or "In current document" from the drop-down list; then uncheck the five check boxes and click OK (this only needs to be done once in a document)
- On the View ribbon, click on the Draft icon in the Document Views group (to see applied styles in left margin)
- On the Home ribbon, click on the ¶ icon in the Paragraph group (to see section breaks in order to avoid accidental deletions)
- See **hyphens and dashes** in Section 2.2 for correct usage and keyboard commands
- Replacing two spaces with one throughout a file
  - Open Find and Replace (Ctrl + h)
  - In the Find What box, enter two spaces (will not be visible unless highlighted)
  - In the Replace With box, enter one space (will not be visible unless highlighted)
  - Click on Replace All as often as necessary until the search dialog box shows "0" replacements
  - Close the window

4.2.2 Starting with a New EIR/EIS Template

If starting with an existing document

See Section 4.1 for page formatting requirements and Section 4.2.3 for importing MS Word styles.

Templates are provided for each individual portion of a new project level EIR/EIS during the content development phase (*see* template lists in Appendix B). Each chapter and section template file includes the outline provided in the Environmental Methods. All files have correct margins, styles, headers and footers, and other formatting requirements already in place. Material can be copied and pasted into these templates from other documents. These templates also contain shaded text fields for data entry (*example:* [body text]). Hover over the field and **CLICK ONCE ONLY** to highlight the field and begin typing or pasting new text.

4.2.2.1 Changing Cover Background Graphic

Do the following to replace the statewide alignment graphic in the template with the project-specific one:

- Download project-specific cover jpg from SharePoint ("XX-EnvDocCover-Background.jpg")
- Open the document template
- Open header on cover page (double-click in upper left corner)
- Hover cursor over white space until a 4-pointed arrow appears and then right click
- Select "Change picture" from the drop-down menu
- Browse to the project-specific jpg, select it, and click on Insert
- Click on Close Header and Footer to return to document

4.2.2.2 Using Project-specific Cover Templates

IMPORTANT

Follow computer settings instructions in Section 4.2.1.1 before merging an existing document into the cover template.

Templates are provided that contain project-specific covers. These can be used for creating new documents that do not have an existing template. Instructions are provided in a text box in the template for incorporating existing documents.

4.2.2.3 Maintaining Section Breaks

It is extremely important that existing section breaks are retained in the templates. MS Word stores information in the section break for each individual section. Following are tips to ensure that breaks are not deleted when revising a document:

- Use Draft View (View ribbon, Document Views group)—page and section breaks will always be visible on the screen

- Use Show ¶ (Home ribbon, Paragraph group)—all codes will be visible on the screen
- If a break is highlighted when selecting text to be deleted, hold down the Shift key and press the Left Arrow key until break is no longer highlighted and then delete.

4.2.3 Importing MS Word Styles into an Existing Document

The correct MS Word styles can be imported from any template into an existing file as follows:

- Open the existing file in MS Word
- On the Home ribbon, in the Styles group, press the down arrow in the lower right corner of the group (or press Alt + Ctrl + Shift + S) to open the styles task pane on the right side of the document
- On the bottom of the styles task pane, click on the Manage Styles button (third from left)
- Click on the Recommend tab
- Click on Select All, Make Last, and Hide (in that order)
- Click on Import/Export in lower left corner
- On the right side of the Styles window, click on Close File and then click on Open File
- Change "All Word Templates" to "All Files" in lower right corner
- Browse to the applicable template file, select it, and then click on Open
- Hold down the mouse button and drag to select all the styles listed in the right-hand window
- Click on Copy, Yes to All, and Close (in that order)
- Close the window

4.2.4 Using Copy and Paste

The red text in the Environmental Methods can be used as boilerplate (with appropriate refinement) in all project level EIR/EISs. The easiest way to move material from the Environmental Methods to a working file is to use MS Word's copy and paste commands.

- In the MS Word version of the Environmental Methods, select the text to be copied and press Ctrl + c
- In the working file, place cursor where text is to be pasted and press Ctrl + v
- To remove red once material has been pasted, do one of the following:
  - Delete the Red characters style from the styles task pane once all material has been pasted (right click on the style name in the task pane and select "Delete Red characters…")
  - Modify the Red characters style to change the text color from red to black (right click on the style name in the task pane and select "Modify" to make changes to the style)

4.2.5 Using Text Fields and Links

4.2.5.1 Text Fields

Some of the red text in the Environmental Methods includes text fields to be used for adding project-specific details to the text. These text fields should be visibly shaded and include instructions in brackets (*example:* [example of text field]). To replace the field with appropriate information, **SINGLE CLICK ONLY** on the field and begin typing. *[Editor's note: double-clicking on the field will open the field's options window—just close the window and try again.]*

4.2.5.2 Auto-numbering and Cross-referencing

Use automatic numbering and cross-referencing for all figures and tables. Following the instructions in Section 4.2.1.1 for turning on field shading will make this a much easier process since the fields will become visible on the screen. Captions must be inserted using the Insert Captions command (References ribbon, Captions group) to enable the cross-referencing feature to work. The Cross-reference command is located in this same group. When these two commands are done correctly, the cross-reference will hyperlink to its figure, table, or section number. **DO NOT** make a manual change to an auto-numbered figure, table, or cross-reference.

To update numbering, use one of the following methods:

- Click on the shaded caption number or cross-reference and press the F9 key to update the individual field.
- To update all fields, go to Print Preview and then return to the document view (2007: Office Button > Print > Print Preview > Close Print Preview) (2010, 2013: File tab > Print > Home tab). This will update all auto-numbering fields in the document except the TOC lists.

4.2.5.3 Website Hyperlinks

MS Word (and other MS programs) will automatically apply the Hyperlink style to a website address that includes HTTP or www when a space or punctuation is added following the address. For accuracy, copy and paste the URL directly from a website's address bar. *[Editor's note: the Hyperlink style in the document templates does not include an underline so that underscores included in some addresses are visible.]*

- When manually entering a URL, include "HTTP://" only when the address does not contain "www."
- When copying and pasting a URL, manually delete the "HTTP://" when the address contains www. *[Editor's note: Web browsers have discontinued including the "HTTP://" designation in the address bar except for "secure" sites ("HTTPS://").]*
- Always test the hyperlink by clicking on it.

[Editor's note: To simplify working with hyperlinks, change the MS Word option to require holding down the CTRL key to activate a hyperlink (2007: Office Button > Word Options > Advanced > Editing Options > Use CTRL + Click to follow hyperlink) (2010, 2013: File tab > Options > Advanced > Editing Options > Use CTRL + Click to follow hyperlink).]

4.2.6 Formatting Figures and Tables

For the content development phase of EIRs/EISs, place all figures and tables at the end of the document in the order they are introduced in text. Because personal expertise in using MS Word is often quite varied, the intent of this protocol is to simplify the creation and review process to allow technical focus on content development rather than document formatting. When the content development phase is complete, designate a qualified expert in MS Word to convert the EIR/EIS content to the formatting identified in Chapter 5 for the document design and publication phase. For non-EIR/EIS documents, place tables and figures following their first reference on the same page or on the following page during content development. *[Editor's note: Non-EIR/EIS documents may follow the same protocols as EIR/EIS documents as long as tables and figures are relocated adjacent to their cross-references prior to final printing.]*

> ***IMPORTANT***
>
> During the document content development phase, use the single-column format templates and place all tables and figures at the end of the file. This simplifies the review process so that time is spent on content and not on formatting. See Section 4.2.5.2 for auto-numbering and cross-referencing.

4.2.6.1 Tables

- Tables are flush left with caption above and flush left *[editor's note: **DO NOT** place caption in the top row of the table—it should immediately precede the table]*

- Use Insert Caption command (References ribbon, Captions group) to create an auto-numbered table caption
- Copy and paste the table sample in the template to create new tables or create a new table using the Insert Table command
- There are two table styles established for HSR environmental documents: Authority (Table 4-1) and blank (unlined for the acronym list)
  - Click anywhere in a table to activate the Table Tools tab
  - Click on the Design tab and hover over the table icon with a blue header row (it should show the name Authority)—click on this icon to apply the style to the table
  - Use the Table styles (Table Column Heading, Table Body Text, Table Bullet, and Table Notes) to format data, including the source and notes that may follow the table

IMPORTANT

In tables, select columns with numbers (including the column heading) and use the Center (Ctrl + e) command

- Place source and notes flush left below the table (see Section 4.2.6.5 for formatting) *[editor's note: **DO NOT** place source and notes in the last row of the table]*

Table 4-1 Example Table

County	2010	2040 Projections	Percent Change (%)
Population[1]			
Merced	255,793	436,188	70.5
Madera	150,865	278,011	84.3
Total	**406,658**	**714,199**	**75.6**

*Sources: U.S. Census Bureau, 2010; Caltrans, 2014 [editor's notes: change to "Source" if only one source; **DO NOT** place a period at the end of sources].*
[1] Use manually superscripted numbers to footnote if necessary (not letters or symbols) *[editor's note: **DO NOT** use MS Word Insert Footnote command for tables].*
Enter notes below source information and footnotes.
DO NOT use the term "Notes."
Use periods only if notes are complete sentences.
DO NOT extend the source or notes beyond the width of the table (use right indent triangle on the ruler (View ribbon, Show group) to manually reduce width.
Use Align Bottom command (Left or Center depending on column alignment) (Table Tools Layout ribbon, Alignment group) for column headings.
Use Align Top command (Left or Center) for cells.
Manually apply background color to subheading rows (RGB: 222/222/232).
DO NOT use initial caps except in column headings or for proper nouns.

IMPORTANT

The notes in Table 4-1 provide additional directions for table formatting.

4.2.6.2 Figures

Figures are comprised of charts, images (i.e., photographs), illustrations, and maps. Use figure formatting established in the *Authority Style and Branding Guide* and *Graphic and Exhibit Standards* (Appendix A).

- Figures are flush right (use Graphic style) with caption below (use Caption – figure style)
- Crop existing borders and extra white space from jpegs and pngs before inserting into the Word file
- Insert figures using the Insert Picture from File command (Insert ribbon, Illustrations group)
  - **DO NOT** copy and paste a figure into a Word file *[editor's note: MS Word changes the figure type and quality may not be maintained]*

  - Use jpeg image format for photographs and png image format for all other figures
  - Use a standard resolution of 300 DPI for all graphics

- Use the MS Word Format Picture command to apply consistent borders throughout the file:
  - Right click on the figure
  - Select Format Picture
  - Click on Line Style and set a width of .25 pt
  - Click on Line Color to select a color other than solid black (recommendation: white, 50%)

IMPORTANT

Borders should be subtle and serve to frame a graphic without drawing attention to the border.

- **DO NOT** border photographs except if white is part of an edge—in that instance, apply a border as described above and select a Line Color that is a very light white shade (5% or 15%)
- After figures have been inserted in the document and formatted, use the Change Picture command to replace with revised figures (using this command retains all formatting previously established for the figure)
  - Right click on the figure and select Change Picture
  - Browse to the revised figure and select it
  - Click on Insert

4.2.6.3 Charts

Follow chart design and formatting established in *Graphic and Exhibit Standards* (Appendix A).

- Do not use MS Word to generate charts—use Excel or a drawing program and save as png files
- Do not place outside borders around charts

4.2.6.4 Text Boxes

- Download the file "Textbox_Template.docx" file from SharePoint, copy applicable sample text box from the file, and paste into document
- Use styles as indicated in the text box to the right

Text box head style

Text box text style

- Text box bullet style
  - Text box bullet 2 style

Press Enter key after final text and use Text box bottom line style to generate the bottom yellow border. Resize the text box as necessary so both borders show.

4.2.6.5 Sources

Include source information for all tables and figures (illustrations, photos, charts, maps). Generate all source information in the Word document. If the source appears on an inserted figure, crop the source out of the figure and enter the source into the Word document.

- All sources are below and flush to the left edge of the item being sourced
- Manually align source with left edge of figure using Left Indent command on the ruler (View ribbon, Show group)

IMPORTANT

ALL tables and figures must have source information provided, including items generated by project consultants or the Authority.

- Apply Table Notes style to source information and then highlight information and apply Emphasis character style to italicize *[editor's note: the notes following a table also use Table Notes style but are not italicized]*
- When source precedes a figure caption, change Spacing After to "0" (Page Layout ribbon, Paragraph group)

4.2.7 Generating a Table of Contents and Lists of Tables and Figures

Since the size of an EIR/EIS is large and multiple disciplines work on the document, it is usually divided into several files by chapter and, in the case of Chapter 3, by section. Establish a TOC and lists of tables and figures at the beginning of each file. These can be used to generate a combined TOC when the document is ready for submittal (using the copy and paste method below) and also aid reviewers in identifying content during revisions. The individual chapter TOC pages are easily removed from final PDFs when chapters are merged together.

Use one of the following methods to create a combined TOC file.

- Copy and paste method (this will not be an updateable TOC and the steps will have to be performed after every revision cycle)
  - Create a new file to be used for the final TOC
  - Go to a chapter file and highlight the TOC (making sure it is up to date)
  - Press Ctrl + Shift + F9 key (this removes the auto update fields)
  - Press Ctrl + C to copy
  - Move cursor to new TOC file and press Ctrl + V to paste
  - Follow the same steps for lists of tables and figures
  - Follow the above steps for every file in the document
  - Once all contents have been inserted into the new TOC file, delete the Hyperlinks style
- Updateable TOC for multiple documents—https://support.office.com/en-us/article/Create-a-table-of-contents-for-multiple-documents-b7f75d94-ba5e-4a99-972a-1705718640f6

4.3 List of Preparers

Chapter 11 of each EIR/EIS contains a list of all the personnel primarily responsible for the preparation and review of the project-level environmental documents. A similar inventory of preparers must be included for all other environmental documents, unless otherwise directed by the Authority. Compile and document preparer information and prepare this chapter of the EIR/EIS to include:

- Role in the preparation of the analysis/report
- Names of all preparers, including personnel who conducted field work, performed analyses, documented results, provided quality control, or were otherwise substantially involved
- Titles and any relevant credentials or registrations (by initials, e.g., PE, AICP, RPA, AIA, ASLA) for all preparers
- Years of experience and a short explanation of that experience
- Education for all preparers, including degree and school (define any acronyms that are not the standard—BA, MA, BS, MS, or PhD) *[editor's note: **DO NOT** include course work or certificate programs that are not directly related to the work conducted]*

Table 4-2 is an example of the format for the list of preparers.

Table 4-2 List of Preparers Sample Format

Project Role	Name, Credential	Qualifications
Federal Railroad Administration		
Division Chief[1]	Name, Credentials	[#] years experience Degree; Major/coursework; School
California High-Speed Rail Authority		
Director of Environmental Services[2]	Name, Credentials	[#] years experience Degree; Major/coursework; School
Program Management Team		
Program Manager[3]	Name, Credentials	[#] years experience Degree; Major/coursework; School
Regional Consultant Environmental Team		
Project Manager[4]	Name, Credentials	[#] years experience Degree; Major/coursework; School

[1] Insert roles of FRA staff who assisted in the preparation of the project-level environmental document.
[2] Insert roles of Authority staff who assisted in the preparation of the project-level environmental document.
[3] Insert roles of Program Management Team staff who assisted the RC environmental team in the development of the project-level environmental document.
[4] Insert roles of RC environmental team staff who assisted in the preparation of the project-level environmental document. These may include those who authored or led document chapters, GIS, technical editing, word processing, etc.

4.4 References and Sources

Chapter 12 of each HSR project EIR/EIS contains a list of the references and sources relied upon to prepare the project-level environmental document. A similar inventory of references and sources must be included for all other environmental documents, unless otherwise directed by the Authority. Compile and acknowledge the references and sources whether or not cited in text. Organize references and sources according to each chapter in the EIR/EIS (or other environmental document) and list in alphabetical order by the last name of the reference author or contact person, organization name, and website. For large reference items, specify a page range of material relied upon or utilized to prepare the document. The Authority's *Style and Branding Guide* provides detailed direction on requirements for all references and citations, including terminology, grammar, punctuation, style, fonts, and page layout.

It is not necessary to include federal or state legislation in the references section since these are public records and can be easily found on the internet. At the first reference to a legislation or act in each chapter, include the identifying information in parentheses following the title of the code or act (*example:* Department of Transportation Act of 1966 (49 U.S.C. § 1653(f)). Following are examples of code formats:

- 40 C.F.R. Part 350 et seq.
- 42 U.S.C. § 6901 et seq.
- 64 Fed. Reg. 28545
- Public Law 101-615
- USEO 13007
- EO S-3-05
- AB 32
- SB 375
- California Government Code 65082
- Cal. Code Regs., tit. 14, § 15000 et seq.

- Cal. Public Res. Code, § 4291
- Cal. Health and Safety Code, § 25249.5 et seq.
- Cal. Water Code, § 13000 et seq.
- Cal. Fish and Game Code, § 1500 et seq.

List the applicable abbreviations for acts and codes used in the text of the document in the References section for reader convenience. *Example:*

AB	California Assembly Bill
C.F.R.	Code of Federal Regulations
EO	California Executive Order
Fed. Reg.	Federal Register
SB	California Senate Bill
U.S.C.	United States Code
USEO	U.S. Presidential Executive Order

Provide an electronic copy of **every** reference and source for inclusion in the administrative record. Consult with the most recent Authority administrative record guidance for additional reference requirements.

The following are reference examples for various source types. Refer also to the most recent environmental documents produced by the California High Speed Rail Authority, e.g., *Fresno to Bakersfield Section Final EIR/EIS* (April 2014), or more recent HSR project EIR/EIS, for reference examples.

IMPORTANT

When listing internet addresses, include "http://" only if "www" is not a part of the link.

Website

Airports Council International. 2010. *World Airport Traffic Report 2009*. www.airports.org/cda/aci_common/display/main/aci_content07_c.jsp?zn=aci&cp=1-5-54_666_2 (accessed July 2010).

Amtrak Government Affairs. 2008. *Amtrak Fact Sheet, Fiscal Year 2008, State of California*. Washington, DC: October 2008. www.amtrak.com/pdf/factsheets/CALIFORNIA08.pdf (accessed July 2010).

Website Mapping

Google Maps. 2010. Driving directions from Fresno, CA, to San Francisco, CA, and from Fresno, CA, to Los Angeles, CA. http://maps.google.com/maps?rls=com.microsoft:*&oe=UTF-8&startIndex=&startPage=1 (accessed September 10, 2010).

Bing Maps (Bing). 2010. Microsoft Corporation and its data suppliers. www.bing.com/maps (accessed November 2011).

Abbreviation or Acronym

Authority. See California High-Speed Rail Authority.

Agency or Organization

California Department of Agriculture. 2010. *California Agricultural Production Statistics 2009–2010.* Sacramento.

California Department of Transportation (CALTRANS). 2008a. *San Joaquin Corridor Strategic Plan.* Sacramento.

———. 2008b. *California State Rail Plan, 2007–08 to 2017–18*. Sacramento: March 2008.

———. 2009a. Route 99 Corridor Business Plan. September 2009.

Parsons Brinckerhoff. 2010. Estimates based on Cambridge Systematics, Inc., 2007 projections.

Single Author

Cowan, Tadlock. 2005. *California's San Joaquin Valley: A Region in Transition.* Washington, DC: Congressional Research Service Report for Congress, Order Code RL33184, December 12, 2005.

Multiple Authors Reference

Bremner-Harrison, S., B.L. Cypher, C.M. Fiehler, A.P. Clevenger, and D. Hacker. 2007. *Use of Highway Crossing Structures by Kit Foxes.* Report prepared for the California Department of Transportation. August 2007.

Presentation

SH&E. 2009. "Alternative Strategies for Accommodating Future Aviation Demand." Presentation to the Regional Airport Planning Committee. New York, NY. November 20, 2009.

Email

Willis, Jessica. 2010. Air Quality Specialist, San Joaquin Valley Air Pollution Control District. Email communication with Cheri Velzy, Senior Air Quality Scientist, URS Corporation, August 4, 2010.

Multiple Authority Documents

California High-Speed Rail Authority (Authority). 2010a. *EMC Program Plan*. Prepared by Turner Engineering Corporation, September 2010.

———. 2010b. *Draft Environmental Impact Report/Environmental Impact Statement Assessment of California High Speed Train Alignment Electromagnetic Field Footprint.* Prepared by Turner Engineering, July 8, 2010.

———. 2011. *Automatic Train Control and Radio Systems: Requirements, Solutions and Radio Frequency Spectrum Challenges Technical Memorandum TM 300.04*. Prepared by Parsons Brinckerhoff, May 4, 2011.

Letters

Scott, Mark. 2011. City Manager, City of Fresno, Fresno, CA. Personal communication via letter regarding comments on the *Merced to Fresno Section High-Speed Train Draft EIR/EIS* with Roelof van Ark, California High-Speed Rail Authority, October 13, 2011.

Real Estate Search

Loopnet. 2010. "Commercial and Industrial Real Estate Database Search." www.loopnet.com (accessed July 3, 2010).

Zillow. 2010. "Home Real Estate Database Search." www.zillow.com/homes/ (accessed July 7, 2010).

GIS Files

City of Fresno. 1989. *Central Area Community Plan*. Fresno, CA: Housing and Community Development Department Redevelopment Division. July 1989. www.fresno.gov/NR/rdonlyres/846736A2-DE15-4BB6-8AB3-97625D1203DF/0/CentralAreaCommunityPlan.pdf.

———. 2009a. *Existing Land Use* (GIS shapefile: elu.shp). www.fresno.gov/Government/DepartmentDirectory/InformationServices/GIS/Layers.htm (accessed May 27, 2011).

———. 2009b. *Zoning* (GIS shapefile: zoning.shp). http://gis4u.fresno.gov/downloads/zoning.zip (accessed May 27, 2011).

Memorandum

AECOM/CH2M Hill 2011. *CAHSR Merced-Fresno: Economic Modeling Assumptions.* Memorandum to program management team, March 28, 2011.

Reference for industry/agency publications and design standards (These would be utilized in the presentation of the project-level environmental document as a whole)

American Railway Engineering and Maintenance-of-Way Association (AREMA). 2012. *Manual for Railway Engineering.*

American Association of State Highway and Transportation Officials (AASHTO). 2007. *Highway Drainage Guidelines*.

5 FORMATTING AND STYLE—DOCUMENT DESIGN AND PUBLICATION PHASE

Following completion of the content development phase of the environmental document, the RC will undertake document design and publication. This phase shall consist of the following:

- Use a document layout and design professional (an expert in the use of MS Word and document publishing techniques) to ensure the environmental document is easy to read and navigate, is visually appealing, and meets modern publishing standards
  - For large, complex documents intended for the general public, such as the Draft and Final EIR/EIS, convert the single-column document to a two-column page format (*see* Section 5.2)
  - For most technical support documents, retain the single-column page format

IMPORTANT

If using Adobe InDesign for the final version of the EIR/EIS, maintain the formatting of the MS Word version for consistency with other HSR projects. Also, create a legacy version in MS Word for archiving in SharePoint.

- Conduct final quality control visual reviews using multiple reviewers to ensure all aspects of the formatted document are correct and meet high-quality publishing standards prior to delivery to the printer and posting online (*see* Table 3-1 in Chapter 3 for quality review criteria).

5.1 Document Design and Layout

Keep in mind that document appearance can make or break readability. This section is written for the experienced word processor with the expertise to provide a high-quality professional document to meet Authority requirements.

Ensure that the final document meets the highest quality standards possible before release to the public by following professional document production techniques, for example:

- Use color in text components (headings, headers/footers, callout boxes, tables, etc.) to add visual interest *[editor's note: see templates included in the PMT Environmental SharePoint site for color settings]*
- Place all tables and figures as close to their text cross-reference as possible—either same page or immediate following page
- Insert tables and figures as column width, full-page width, or landscape page width and use section breaks accordingly
- Provide visual interest by wrapping text around smaller tables, illustrations, and callout boxes when size allows
- Use white space effectively on each page to balance elements
- Use design elements consistently, such as illustration borders, alignment of elements on a page, balance of light and dark elements *[editor's note: **DO NOT** border charts]*
- Paginate for best readability—eliminate widows/orphans, keep headings with following text, keep a graphic with text wrap on the same page as the referencing paragraph, make sure graphics and tables follow their text reference as closely as possible on the same page or following page, avoid large blocks of white space at the bottom of a page, make sure page breaks are logical
- Develop headings as they will appear in the table of contents—initial caps, no acronyms, no hyphenation
- Use one space after all punctuation *[editor's note: make sure track changes is turned off and then globally find and replace two spaces with one space]*

- Use left align for all text elements *[editor's note: also known as left justify or left ragged]*
- Keep *italics* and **bold** used for emphasis to a minimum—**DO NOT** use underlining, SMALL CAPS, or ALL CAPS
- Use an em dash (Ctrl + Alt + minus sign on keypad) with no spaces before or after for dashes in text and following bullet headings—**DO NOT** use an en dash with spaces, double hyphens, or single hyphen with spaces
- Use smart single and double quotation marks *[editor's note: see Section 4.2.1.1 for Proofing category settings]*
- Keep symbols to a minimum—**DO NOT** use fraction symbols (½) or superscript ordinals (1st) *[editor's note: see Section 4.2.1.1 for Proofing category settings]*, **DO NOT** use symbols for measurements (spell out percent (not %), inch/inches (not "), except in tables when space is an issue)
- Use nonbreaking spaces and hyphens to ensure compound terms do not split at the end of a line (*example:* the term "Figure 3-1" has a nonbreaking space between "Figure" and "3" and a nonbreaking hyphen between "3" and "1")
- Close up large white spaces at the end of a line by manually hyphenating long words

5.2 Word Processing Instructions for Converting an EIR/EIS to Two-Column Format

The guidance in this section is designed for an expert user of Microsoft Word. Once the content development phase of the EIR/EIS document files is complete, the files are ready to be converted to a more sophisticated, professional format. Follow techniques included in Chapter 4 as they apply to this final publication phase.

The following sections provide detailed instructions on converting the files created during the content development phase into a two-column, reader-friendly, visually appealing final document.

5.2.1 Converting an Existing File

Follow the steps in Section 4.2.3 to import styles from the EIR/EIS styles template (HSR_EIR-EIS_Styles_Publication.dotx) located on the PMT Environmental SharePoint site.

The same criteria listed in Section 4.1 will apply to the publication phase file except for the following:

- **Margins**
  Top = 0.9 inch, Bottom = 0.9 inch,
  Inside = 0.9 inch, Outside = 0.7 inch
- **Columns**
  Two equal width columns = 3.2"
  Space between = 0.5"

5.2.2 Reformatting a Converted File

Once page layout changes have been made and styles imported, perform all steps in Section 5.1 and verify that applicable criteria in Chapter 4 have been retained. Verify all styles have been correctly applied.

When working on multiple files, it is beneficial to use an Excel spreadsheet to keep track of consistency issues. A template that can be revised as needed (HSR_Consistency_Checklist.xlsx, Table 5-1) is available on the PMT Environmental SharePoint site.

Table 5-1 HRS Consistency Checklist Spreadsheet Sample

Individual Files>	Cover	Title	Sig	TOC	Sum	Ch 1	to	Ch 15	App A	to	App ?
MISC											
track changes (turn off)											
date											
comments (check for instructions)											
header/footer (style/content accuracy)											
page numbering (accuracy)											
callout boxes (size, style, location)											
styles (applied consistently)											
acronyms (first reference only)											
web hyperlinks (http:// -**OR**- www)											
reference citations											
cross references (hyperlinked)											
footnotes											
TABLES / FIGURES											
graphics (replace all to ensure current)											
graphics/tables following reference											
graphics and captions (style accuracy)											
tables and captions (style accuracy)											
EDITING / FORMATTING											
no double spaces (globally remove)											
hyphens/dashes (correctly used)											
right margin (check for bad splits)											
right margin (hyphenate where needed)											
headings/captions (initial caps)											
pagination (page/section breaks)											

6 VERSION CONTROL

6.1 File Sharing

SharePoint is the preferred tool for transferring and sharing files. When posting to SharePoint, upload the original source file and a PDF copy in the same document set. In general for draft or work-in-progress documents, post each original component file separately, rather than compiling into a single, large PDF. Send alerts with links upon posting, including text to the subject line and a note describing the purpose and content of the link.

When sending files via e-mail, provide the original source file and a PDF copy. In general for draft or work-in-progress documents, send each original component file separately, rather than compiling into a single, large PDF. A File Transfer Protocol (FTP) site is acceptable for distributing large files or combinations of files that would over-load e-mail services. However, neither e-mail nor FTP replace or function in lieu of posting files to SharePoint, in particular for contract deliverables or collaboration.

6.2 Tracking Changes

Each separate environmental document that is developed for the Authority, including chapters, sections, front matter, appendices, and discipline reports, will be reviewed through the use of SharePoint. Post each draft or work-in-progress file under the appropriate tab on SharePoint with "Track Changes" enabled. This will ensure a collaborative review process and each series of edits will be tracked automatically by SharePoint. SharePoint allows each reviewer to add a comment to the version note when first posting and when revising a file to indicate the purpose of the review and anything else worth noting. Use of the version comment tool will help to organize work progress and communicate status to other collaborators.

Tracking changes is an important tool for producing high-quality documents quickly in a collaborative development and review process. In Microsoft Word documents, use the Track Changes feature for all changes. Comment or revise either by inserting highlighted text directly into the text or using the Word Comment tool.

DO NOT accept changes or delete comments—this enables the document team to track the evolution of the document. The document manager or editor will generate a clean document for each new review cycle.

IMPORTANT

Use the existing "comment balloon" to respond to a comment rather than creating a new comment—separate the response from the comment by using the enter key and include the response date and respondent name (new text in comment balloons is not tracked by author).

Each contributor, reviewer, and commenter must have a user name in Microsoft Word[7] to automatically identify the changes and comments of the author (discovered by hovering cursor over the changed text).

6.3 File Naming and Electronic Format

Program-wide guidelines for naming conventions have yet to be developed as each project section and task has different needs and priorities for naming conventions. Currently, individual project teams have developed their own unique standards for file naming practices.

Ongoing development of SharePoint includes efforts to standardize data sets and other elements of the file sharing and archival program as much as possible. Until a programmatic standard is issued, document authors and managers should develop a guideline document for Authority

[7] To configure a user name: (1a) For MS Word 2007 and 2010, select "Review" ribbon tab and click on down arrow of "Track Changes" icon in the "Tracking" group. (1b) For MS Word 2013, select "Review" ribbon tab and click on down arrow to right of the "Tracking" group title. (2) Click on "Change user name." (3) Type in user name and initials in the boxes under "Personalize your copy of Microsoft Office" and click "OK." Do this for each computer used.

review and approval and publication in the Policies, Procedures and Instruction database. There are several items to consider when developing these guidelines:

- The file name should communicate its content, the time frame, and source of the information.
- File names must be unique.
- All reports should include the period for the report including the year (*examples:* March 2014, 2014 03, or 20140314).
- Correspondence should indicate the primary recipient's organization (*examples:* PB-Authority or Authority-FRA).
- Documents that are periodically updated should include the official version number or date in the title (*example:* Implementation Plan version 3; Orientation Briefing March 2004 update, etc.).
- Acronyms and abbreviations used in titles must conform to the Acronym List (*examples:* FJ for the San Francisco to San Jose Segment and UPRR for Union Pacific Railroad). Table 6-1 lists HSR project section code prefixes.

Table 6-1 High-Speed Rail Project Sections and Codes

Alignment Sections	Section Code
San Francisco to San Jose	FJ
San Jose to Merced	JM
Central Valley WYE	CVY
San Jose to Gilroy	J2G
Gilroy to the Wye	G2Y
Merced to Fresno	MF
Fresno to Bakersfield	FB
Bakersfield F Street Station Alignment	FSS
Bakersfield to Palmdale	BP
Palmdale to Los Angeles	PL
Palmdale to Burbank	P2K
Burbank to Los Angeles	K2L
Express West Wye	EWY
L.A. Union Station to Anaheim	LO
Los Angeles Wye	LAY
Los Angeles to Anaheim	L2O
Los Angeles to San Diego	LD
Merced to Sacramento	MS
Altamont Pass	AJ

6.3.1 General File Naming Guidelines for Environmental Documents

For environmental documents, each file name should be preceded with the two- or three-letter project section identifier and only contain the status of the document and its title. It should not have any special characters within the file name (*example:* MF Draft Alternatives Analysis.docx).

- Use underscores, not spaces
- Keep the file name as short as possible
- To avoid confusion with the automatic SharePoint version tracking feature, generally avoid dates and revision or version numbers in the name of files that are stored on SharePoint

6.3.2 Name Conventions for Particular Document Types

- Annual Work Scope, Budget, Schedule & Deliverables:
  - *Correct:* HNTB_LD_Scope_FY2009-10_20090615_v1.doc (Firm Section Code File Name Date version xx.ext)
  - *Incorrect:* HNTB San Diego to Los Angeles Scope FY 2009-2010, June 15, 2009, version 1.doc
- Monthly schedule updates
  - *Correct:* LD_Schedule_Update_2009_June_v1.xer (Section Code File Name Update Month Version xx.ext)
  - *Incorrect:* San Diego to Los Angeles Schedule June Update FY 2009-2010 version 1.doc

- Letters /Memorandum
  - *Correct:* AD-CP_Budgets_and_Work_Scope_Concerns_20090615.docx (From initials-To Initials Subject Date.ext.)
  - *Incorrect:* James Van Epps—Frank Vacca Budgets and Work Scope Concerns, June 15, 2009.doc
- Engineering documents undergoing review shall comply with the requirements in:
  - TM 0.7 Design Submittal and Review Protocol, In-progress and Draft 15% Design Submittals
- Environmental documents
  - *Correct:* LD_Draft_Alternatives_Analysis.docx (Section Code File Name.ext)
  - *Incorrect:* San Diego to Los Angeles Draft Alternatives Analysis.docx
- Environmental documents undergoing review: Indicate the resource, type of document (EIR/EIS or tech report, point the process (drafter, senior review, etc.), and date/author.
  - 1st Draft Version, Senior Review, and Edited Version: MF_ResourceName_EIS (or TR for tech reports)_Draft_date_initials.docx
  - Final Version to be uploaded to SharePoint: MF_ResourceName_EIS (or TR for tech reports)_Final_date_initials.docx

6.3.3 Software Applications for Particular Document Types

- Studies, reports and other documents: Microsoft Word
- Tabular data: Microsoft Excel
- List of deliverables: Microsoft Excel or Word
- Budget: Microsoft Excel
- Schedule: Primavera P6 (preferred) or Microsoft Project 2007
- Read-only or website publication: Adobe Portable Document Format (PDF)

6.3.4 Converting a File to PDF

When creating a PDF for review or for publishing on the web, ensure that all hyperlinks are functional and that bookmarks have been generated for main sections and heading levels 1 through 3. If using Acrobat Pro (or other PDF software) to create the PDF, these can be programmed in the software's preferences. If using MS Word "save as" command to create a PDF, hyperlinks should remain active but bookmarks will not be automatically generated. PDFs must be generated from a PDF software program or from Word to be searchable (**DO NOT** scan a hard copy to generate a pdf).

With Acrobat Pro, select a quality level when creating the PDF that provides good on-screen review without generating too large a file—"Standard" should be sufficient for reviews and web viewing; "High Quality Print" can be used for hard copy printing; **DO NOT** use "Press Quality" (this was designed for offset press printing). *See* Section 7.4 for website posting instructions.

6.3.5 Creating Optical Disk Storage or Publication

Storage to either compact disk (CD) or digital video disk (DVD) may be necessary for archival retention, off-line distribution of working materials, or off-line publication of completed submittals. For off-line distribution or publication, file configuration must match that of on-line file configurations (e.g., file sizes, file formats, file naming). When selecting an optical storage medium, contact the intended recipient or consider the typical capabilities of intended recipients. For example, many state employees do not have access to DVD readers, but most have access to CD readers. Optical disk (or other physical media) storage, distribution, or publication **do not** meet the requirements for on-line storage, distribution, or publication.

When preparing optical disk products, prepare and affix labels that comply with the Authority labeling standards for each disk (Figure 6-1), including those that are part of a series.

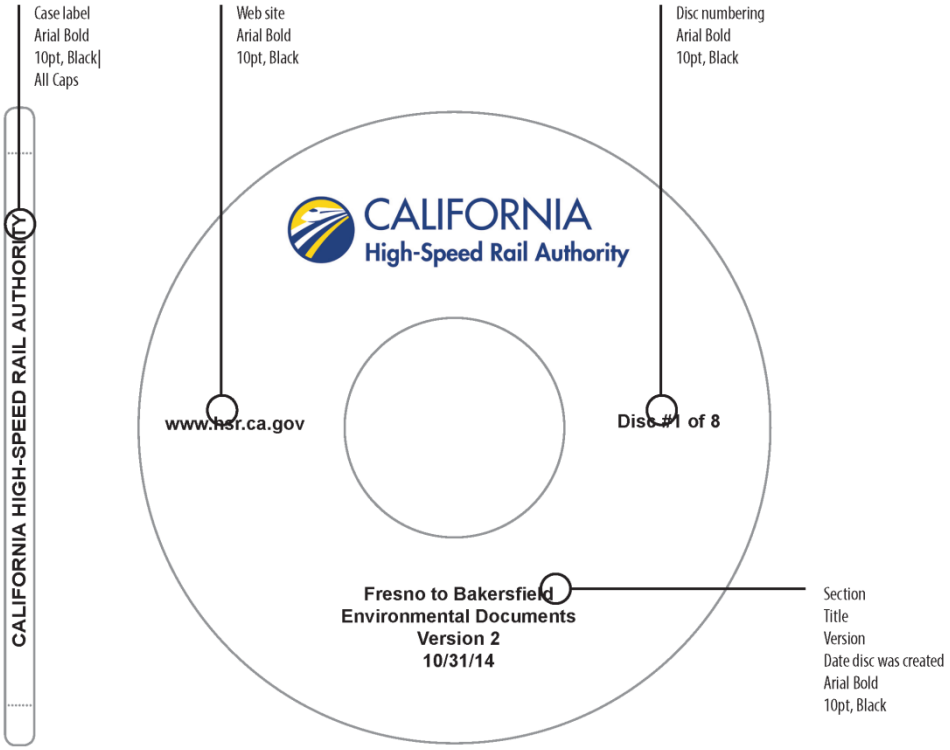


Figure 6-1 Optical Disk Labeling Standards

7 AUTHORITY WEBSITE POSTING

This section describes the procedure for posting environmental documents to the Authority website (www.hsr.ca.gov/). CEQA and NEPA require that environmental documents and their associated public outreach be made available to the public. Authority environmental documents may include, but are not limited to, the alternatives analysis documentation, the Draft and Final EIR/EIS, NEPA/Section 404/Section 408 Integration checkpoint submittals, Section 106 submittals, and scoping and public hearing materials. These Guidelines also assign roles to the Authority, PMT, and RC for coordinated development of website content, website design and implementation, and content posting.

7.1 Project Section Webpage Layout

All of the environmental documents on the Authority's website associated with a particular HSR project section are accessible from the Project Section pages. Each Project Section page will present drop-down menus for documents that are posted primarily on the Project Section page and links to Draft and Final EIR/EIS documents as the materials are completed and posted on document-specific pages in the Environmental Planning Section.

Content will be presented on the Project Section pages in the following order:

- Project section map
- Links to EIR/EIS (if available)
- Alternatives Analyses
- Scoping
- Notice of Intent/Notice of Preparation
- Public Outreach Materials
- Technical Material and Memoranda

Some links will launch a new window to provide access to multiple documents. Other links, such as Preliminary Alternatives Analysis, will be drop-down menus which provide links to each of the documents that are related to the menu activity or deliverable. Public outreach materials will be posted according to date. Figure 7-1 shows the layout of the Fresno to Bakersfield Project Section page.

Figure 7-1 Fresno to Bakersfield Project Section Webpage

7.2 EIR/EIS Webpage

The Environmental Planning section of the Authority's website contains separate pages for posting Draft and Final EIR/EIS documents for each project section. PMT Environmental staff will notify Authority Communications and IT staff one month in advance of a website posting. Authority staff will begin building a new webpage for the posting, named by the type of document first, followed by the project section (i.e., Draft EIR/EIS: Merced to Fresno).

The RC will prepare introductory text for the webpage that explains the purpose of the posted document. For a Draft EIR/EIS, this text shall

- Provide information from the Notice of Preparation and Notice of Intent
- Describe the duration of the public comment period
- Describe the procedure and provide a link to the page for submitting comments to the Authority website
- Present the dates and locations of public meetings
- Describe physical and virtual locations that house additional information
- Disclose the anticipated date of Final EIR/EIS availability

Figure 7-2 is an example of the introductory text, including Board meeting times and locations, for the Fresno to Bakersfield Final EIR/EIS webpage.

Figure 7-2 Fresno to Bakersfield Final EIR/EIS Webpage

For a Final EIR/EIS, the RC will prepare introductory text that provides details on the time and location of the public meeting(s) when the Authority Board of Directors will consider certification of the Final EIR/EIS and approve the HSR project. This text must also briefly explain that, following Board approval, FRA will consider the Final EIR/EIS and issue a Record of Decision and provide the anticipated timeframe for the FRA decision. Once a Record of Decision has been issued, this text must be updated to reflect the relevant details of the decision.

For both the Draft and Final EIR/EIS, these web pages provide information about the locations for public review of a printed version of the document and information for obtaining an electronic copy of the document. A brief explanation of the organization of the document follows the introductory text. Hyperlinks for posted document sections will be provided when possible. Appendix B, Sample 1, provides an example of introductory text. Use the "EIR-EIS_Webpage Introduction" MS Word template file located on the SharePoint PMT Environmental site.

7.3 Organization of the EIR/EIS Sections and Supporting Documentation

The EIR/EIS and supporting documents will be posted as drop-down menus on the webpage for each EIR/EIS. When each document section is selected, the list of posted file names will appear. Each of these file names links to a PDF of the corresponding document. Figure 7-3 illustrates the section headings for the Fresno to Bakersfield Final EIR/EIS. Each section heading is listed below, along with an explanation of the documents that will appear in the drop-down menu for that section.

Figure 7-3 Fresno to Bakersfield Final EIR/EIS Section Headings

7.3.1 Education Materials

The Education Materials section provides links to any information that is distributed to the public at meetings or other events that the Authority attends. This typically includes the Highlights of the Draft or Final EIR/EIS, the Executive Summary, and any brochures or fact sheets about the document that the Authority has created. If any of these items are also available in Spanish, the Spanish language versions of these documents will be furnished here.

7.3.2 Notices

This section includes any public notices related to the document, such as the Notice of Determination and Notice of Availability. If these documents are available in Spanish or other languages, the translated versions will be furnished here.

7.3.3 Approval Documents

The Approval Documents section includes all documentation of state and federal agency approvals of the Final EIR/EIS. The documentation includes resolutions by the Authority Board of Directors to approve the document and any attachments, the FRA Record of Decision and any appendices, the Air Quality General Conformity Determination, and the Surface Transportation Board decision. These documents will not be furnished when the Final EIR/EIS is posted to the Authority's website but will be posted as they become available.

7.3.4 EIR/EIS Volumes

The EIR/EIS documents will be posted by volume on separate webpages (i.e., a webpage for the Draft EIR/EIS, another webpage for the Final EIR/EIS, other webpages for subsequent or supplemental environmental documents). Selecting each volume title label will produce a drop-down menu showing all the documents that are part of the volume. Each chapter of the EIR/EIS will be posted individually and in sequence to help users navigate the document. If a chapter is large and divided into separate parts, each part will be titled as such (e.g., Part # of #).

7.3.5 EIR/EIS Technical Reports

This link provides access to all technical reports that support the EIR/EIS document. While the list of technical reports will vary by project section, technical reports will typically be prepared on transportation, air quality, noise and vibration, biological resources, hydrology, visual resouces, and cultural resources.

7.3.6 NEPA/404/408 Integration Checkpoints A, B, and C

Checkpoints A, B, and C will have separate title labels that will activate drop-down menus of the checkpoint documents and supporting materials. Typically, only Checkpoints A and B will be posted on the Draft EIR/EIS webpage. For the Final EIR/EIS webpage, links will be provided to the Draft EIR/EIS webpage for Checkpoints A and B.

7.3.7 Repository Locations

This section provides a list of all document repositories and location addresses throughout the HSR project section. This will include repositories that have printed copies or electronic copies of the EIR/EIS and supporting documents. The locations of printed copies will be listed first, followed by the locations of electronic copies. The information in this section is only text; there are no links to any files for download.

7.3.8 Brief Explanation of Each Chapter

This section provides a brief explanation of each chapter to familiarize readers with the organization of the document. The information in this section is only text; there are no links to any files for download. The text in Appendix B, Sample 2, is an example that may be adapted for use in this section. Use the "EIR-EIS_WebpageChapterExplanation" MS Word template file located on the SharePoint PMT Environmental site.

7.4 Technical Specifications for Website Posting

7.4.1 File Type and Size

All individual files must be 30 MB or smaller and in PDF format for posting to the Authority website. The RC will split all files larger than 30 MB into multiple parts that do not exceed 30 MB. If practical, divide the file based on chapters or sections and label each file accordingly. Alternatively, divide the file into the necessary parts and label the files by part number. For example, after the file name, label each piece in parenthesis as [File Name] (Part 1 of 5), [File Name] (Part 2 of 5), etc.

For consistency and efficiency, the same PDF files for EIR/EIS documents posted to the Authority's website will be used for the eNEPA process. Although eNEPA can accommodate files up to 50 MB, the 30-MB limit of the Authority's website sets the practical limit of file sizes for both the Authority's website and the eNEPA process. Refer to the eNEPA technical guidance for additional technical specifications.

7.4.2 File Names

The names of the files should closely resemble the name of the documents. The name should also identify the draft or final version, the type of document, the project section, the volume, the chapter and section number, and the chapter's name. Use underscores in place of spaces or other punctuation. For example, the file name of a document from the Final EIR/EIS for Fresno to Bakersfield might be "FB_Final_EIRS__Vol_1_CH_3_9_Geology_Soils_Seismicity.pdf" File names of documents that are split into multiple parts must identify part number in total sequence (e.g., Part 1 of 2).

Use consistent naming conventions throughout the document. For EIR/EIS Volume 1 and Volume 2, name documents by section followed by the title of the section (e.g., EIR-EIS_ Section3.8_HydrologyWaterResources). In Volume 3, use file names that correspond to the title of each plan/design section (e.g., Section_A_AlignmentPlans_Part1of2). For Final EIR/EIS documents that include responses to comments, the files will be posted by chapter and labeled with the full chapter name and title (e.g., Chapter23_Response_to_Comments_from_Individuals_ LastName_D-F).

Technical studies, memoranda, or other documents will generally be listed alphabetically by titles on the Authority Environmental Planning webpage. Use the same title for the file posted to the webpage as the title on the document cover page. The exception to listing technical documents in alphabetical order will be for a document that is an appendix or otherwise directly related to a primary technical document. For example, a "Supplemental Archaeological Survey Report" will be listed directly beneath an "Archaeological Survey Report" to ensure all related documents are grouped together.

Additional file naming protocols

See Section 6.3 of these Guidelines for additional information on electronic file naming.

7.4.3 Sequencing of Documents

Draft or Final EIR/EIS documents will be listed on the Authority Environmental Planning webpage in order by volume, then by chapter number. Each chapter will be posted as a separate file. The RC will split chapters to comply with the 30-MB file limit and label accordingly (*see* previous section). Chapters posted in pieces will be listed in numerical order on the webpage. The RC will prepare introductory material for each volume and submit as separate files for each document item in the order of publication in the complete document. For example, Volume 1 and Volume 2 often include the following as separate files: Cover Page, Title Page, Signature Page, Fact Sheet, Preface, Table of Contents, and Summary. Each of the EIR/EIS chapters will be posted in numerical order beneath the introductory material. Introductory material for Volumes 3 and beyond consists solely of a Title Page and Table of Contents. The RC will prepare and submit these materials as individual files.

7.5 Coordination with Authority Staff to Create the Webpage

The PMT will coordinate with the Authority and the RC to ensure all necessary documents are posted to the Authority's website. Coordination with the Authority shall begin at least one month before the date each document must be available to the public via the Authority website. The PMT will begin coordination by notifying the Authority's Deputy Director of Public Affairs of the date of required public access. The Deputy Director of Public Affairs will review all material for the webpage and coordinate directly with the Authority Information Technology (IT) staff to post each document to the website. The PMT and Authority will develop a schedule for delivering documents to the IT staff.

7.6 Suggested Timeline

Final documents must be posted to the Authority website test page as early as possible to allow adequate time for review of the webpage. The RC will submit an initial draft of website text and outline of the order in which the files are to appear on the EIR/EIS webpage (discussed in previous sections) at least one month before the date of required public access. The draft website text and outline must be reviewed by the PMT Regional Manager and approved by the Authority Deputy Director of Public Affairs. This information will allow the IT staff to begin building the structure of the webpage.

7.7 Transferring Files

The RC will submit files that comprise the environmental document and accompanying materials to the Authority's Deputy Director of Public Affairs and IT staff as final versions are completed and accepted by the PMT. All document files must be submitted to the Authority IT staff no later than one week before the website is publically available to ensure adequate time for posting quality assurance and control and to resolve unanticipated technical problems.

The PMT will coordinate with Authority staff to determine the most efficient means of transferring the files to the Deputy Director of Public Affairs and the IT staff. For documents involving a large volume of files or large file sizes, the simplest and most reliable transfer media may be compact disk (CD) (*see* Section 6.3.5). For each CD submitted, the RC will provide a list of the files on the CD. The names of the files on the CD must match the names of the documents provided in the webpage outline.

PMT staff will confer with the RC to create the list of all relevant technical reports and other supporting documents to be posted on the EIR/EIS webpage. The list will be reviewed by PMT staff who have participated in the creation of the documents and will be approved by the PMT Regional Manager to ensure that the supporting document list is complete and current.

7.8 Quality Assurance and Control Process

Once the Deputy Director of Public Affairs has approved all documents for posting, the Authority IT staff will build a test webpage with links to downloadable PDF versions of all the documents. The PMT will check every link on the webpage to ensure correct document activation. The PMT will also review the text and formatting of the webpage to ensure consistency with these guidelines and visual similarity to previous Authority EIR/EIS web pages. After the PMT and the Authority Deputy Director of Public Affairs approval, IT will make the page publically available on the date specified by the PMT. Once an EIR/EIS webpage is publically available, a link to the page will be added to the Regional Section page.

7.9 Administrative Record

Once an environmental document is publically available on the Authority website, the PMT will record a PDF screenshot of the webpage of the posted document. The screenshot must clearly show the date and time of recording. These screenshots must be saved for compiling in the Administrative Record.

7.10 Coordinating Posting of Environmental Documents to the FRA Website

Simultaneously with public access on the Authority Environmental Program website, EIR/EIS documents must be publically available on the FRA website. Each volume of the EIR/EIS document must be posted to the FRA website. However, posting of supporting documentation, such as technical reports, may not be required. The EIR/EIS document must be publicly available on both the Authority and FRA's websites on the same day.

Begin coordination with FRA IT staff one month before the date that a document must be publicly available. All volumes of the environmental document must be sent to FRA no later than one week before public access is required to allow adequate time for posting. Smaller files may be transmitted to FRA via email. Use a file transfer protocol site to transmit larger files.

8 eNEPA POSTING

This section describes the procedure for posting environmental documents to the Federal Environmental Protection Agency (EPA) eNEPA website. NEPA requires that environmental documents be made available to the public. eNEPA is the electronic filing process for federal employees for all Draft, Supplemental, and Final EISs. The guidance also assigns roles to the Authority, FRA, PMT, and RC for coordinated content development and assembly, transmittal, and posting. As of October 1, 2012, EPA only accepts filing via eNEPA and does not accept paper copies or compact disks (CD) of environmental documents.

8.1 Filing Documents

FRA staff must directly upload each environmental document through the eNEPA internet portal at https://cdx.epa.gov/. The environmental document may only be filed by federal employees (i.e., FRA staff). The Authority, PMT, or RC cannot perform this function. The Authority and PMT will support and provide the information and files in the format required by eNEPA for each environmental document by:

- Ensuring that the eNEPA upload dates for the document are incorporated into the schedule to ensure timely entry into the *Federal Register*
- Providing FRA with the environmental document files by chapter and appendix and file data tracking information consisting of file names (e.g., EIR-EIS_Chapter1_Purpose_Part1of2), numbers of pages, and file sizes (in megabytes [MB]) for upload into eNEPA in accordance with the eNEPA document upload guidance as described in Section 7.2.

FRA staff must upload the complete environmental document onto the eNEPA site by 5:00 p.m. Eastern Time on the Friday before the desired *Federal Register* notice posting the following Friday. There are no limits to the number of files that can be uploaded for an environmental document.

EPA will create its own *Federal Register* notice, separate from the FRA *Federal Register* notice. Once files are successfully uploaded to eNEPA, the *Federal Register* notice will occur the following Friday at 6:30 a.m. The *Federal Register* can be viewed at several online websites:

- www.federalregister.gov/
- www.gpo.gov/fdsys/browse/collection.action?collectionCode=FR&browsePath=2014%2F04&isCollapsed=false&leafLevelBrowse=false&ycord=0
- www.regulations.gov/#!home

EPA will transmit notice of the document to the Council for Environmental Quality at the same time notice is sent to the *Federal Register*.

8.2 Preparing eNEPA Files

The RC is responsible for compiling all files needed for the eNEPA process. The files for eNEPA are the complete environmental document, including all volumes. FRA requires submittal of all electronic files on CD media. These Guidelines describe the required electronic file attributes, specifications for the file data tracking table, and procedure for creating, assuring quality, and furnishing CDs for transmitting files.

The eNEPA file requirements specified on the EPA website are:

- Each file must be smaller than 50 MB
- Each file must be bookmarked and open in bookmark view
- Each document must be searchable
- Each document file must include metadata

The following specifications supersede the EPA requirements for all HSR environmental documents to ensure consistency of postings to the Authority, FRA, and EPA websites and to facilitate successful eNEPA uploads. The RC is responsible for meeting requirements of Section 8.2 as indicated.

8.2.1 Setting Bookmarks

Files containing section and subsection content must be fully bookmarked (*see* Section 6.3.4). All PDF files must open in bookmark view, with the exception of files that would not have a bookmark (e.g., cover page, signature page). When dividing large chapters into smaller component files, adjusting file resolution for readability, or reducing file size, ensure bookmarks are not erased or rendered nonfunctional in files submitted for posting.

8.2.2 Enabling Word Search

All PDF files must be searchable for words in text, headings, and captions (*see* Section 6.3.4).

8.2.3 Including Metadata

The properties of each file must contain the following metadata:

- Title—Same as the environmental document name
- Author—Federal Railroad Administration [federal lead agency]
- File Name—Subject or chapter name, including file number in sequence of total files (e.g., file 1 of 3)
- Keywords—Relevant terms, including synonyms describing the content of the file *[Editor's note: Identify keywords for environmental documents. The index created for the environmental document may be used as a source of keywords. Do not overthink keywords.]*

8.2.4 Limiting File Size

The Authority Internet server can host file sizes up to 30 MB. To ensure consistency of information presented on Authority and FRA websites and content in the *Federal Register*, **all electronic files for eNEPA must be 30 MB or smaller.** The same files posted to eNEPA will be posted by the Authority and FRA to their respective websites.

Do not combine environmental document chapters when compiling files, even if the combined file size would be less than 30 MB. For a chapter that exceeds 30 MB, divide the chapter into portions less than 30 MB (split at section or subsection headings; **DO NOT** sever graphic content from referencing text) and compile into files only for the divided chapter.

8.2.5 Naming Files and Compiling Transmittal Disks

Compile CDs with all eNEPA files placed into folders that correspond to volumes of the environmental document. Number the files in each folder following sequential order of the document, from beginning to end of the document. The file numbering will guide the order that FRA uploads files into eNEPA, which will determine the order of appearance on the EPA website. For example, files in Volume 1 and Volume 2 of the environmental document would be numbered and named:

- Volume 1
  - V1-00 Cover page
  - V1-01 Title page
  - V1-02 etc.
- Volume 2
  - V2-00 Cover page
  - V2-01 etc.

When uploading files to eNEPA, FRA will also upload general descriptive information for each file—file name, number of pages in the file, and the file size in MB (whole number units). Compile a file data tracking table (Table 8-1) to furnish the information to FRA.

Table 8-1 [Environmental Document Title] Disk [1 of #] File Data (example only)

File Name	Number of Pages	File Size (MB, whole units)
V1-00 Cover	1	0
V1-0# Example Chapter	85	23

Provide a hard copy of the file data tracking table to the Authority and PMT for review and approval before submittal to FRA. Every data file CD must include an MS Word version of the data tracking table for the files on the CD. Provide a hard copy of the approved data tracking table with each CD submitted to FRA.

8.2.6 Assuring Quality and Delivering

Submit to the Authority one set of CDs that contains all environmental document files, organized in folders by environmental document volume, and the file data tracking table for files on each CD. The Authority or PMT will conduct quality assurance and quality control by checking the formatting of each CD, opening every file, and checking for correct attributes and functionality. The Authority or PMT will return the set of CDs to the RC after assuring compliance with this guidance. Use the checked set of CDs to produce two identical copies of the CDs and then submit the "original" checked set of CDs to FRA, submit one set of the CD copies to the Authority, and retain the other set of CD copies for archive.

8.2.7 Timing Activities

Uploading environmental document files to eNEPA is the last process for fulfilling the requirements set forth by EPA and achieving publication in the *Federal Register*. FRA must possess all CD(s) in the morning of the Friday selected for uploading to eNEPA. As a contingency for unexpected technical challenges and buffer for unanticipated FRA workload conflicts, the CD(s) should be delivered to FRA by Tuesday before the Friday upload date. Per EPA guidelines, the environmental documents must be shipped and distributed to all parties identified in the distribution list in the environmental document prior to FRA staff uploading the files to eNEPA.

8.3 eNEPA Assistance

The EPA Administrator for eNEPA can provide information to, or answer questions from, the Authority, FRA, PMT, or RC. The Authority or PMT in coordination with FRA staff should advise the eNEPA Administrator of an upcoming project submission **before** eNEPA files are furnished to FRA. The Authority or PMT should also furnish the eNEPA Administrator contact information to FRA. Large, complex environmental documents, such as the Fresno to Bakersfield Final EIR/EIS, may require active coordination between FRA and the eNEPA Administrator to facilitate timely, correct upload to eNEPA.

Consult with the FRA regional environmental manager to determine the appropriate eNEPA administrative contact person. Consult the eNEPA website to confirm the current EPA staff assignment.

General information about the eNEPA process can be found at www.epa.gov/compliance/nepa/submiteis. Also, see Appendix F for the eNEPA posting guide published by EPA.

A webinar providing instructions for user registration and procedure to upload environmental document files can be found at www.epa.gov/compliance/nepa/submiteis.

APPENDIX A: CALIFORNIA HIGH-SPEED RAIL AUTHORITY GRAPHIC AND EXHIBIT STANDARDS

These *Graphic and Exhibit Standards* (Standards) provide guidelines for preparing consistent, informative, and appealing graphics and exhibits for California High-Speed Rail Authority (Authority) project environmental documents that conform with the California High-Speed Rail Authority *Style and Branding Guide*.

Compliance with these standards is required for all graphics and exhibits created for Environmental Impact Reports/Environmental Impact Statements and other environmental documents and will allow these materials to be easily accessible and user friendly. Compliance with these standards is also necessary to support the development of stable, reasonably sized document files that are suitable for publication in print and electronic media. Templates for the maps and other graphics in these Standards are located on SharePoint in the PMT Environmental Viewing Library, under the Work Templates tab.

These Standards supplement document formatting and integration information provided in the *California High-Speed Rail Project Environmental Document Style and Preparation Guidelines* (Guidelines). References are provided, as needed, to applicable sections in the Guidelines.

Contact the Authority Office of Communications for questions regarding the content or requirements of these Standards.

This document will be updated as required.

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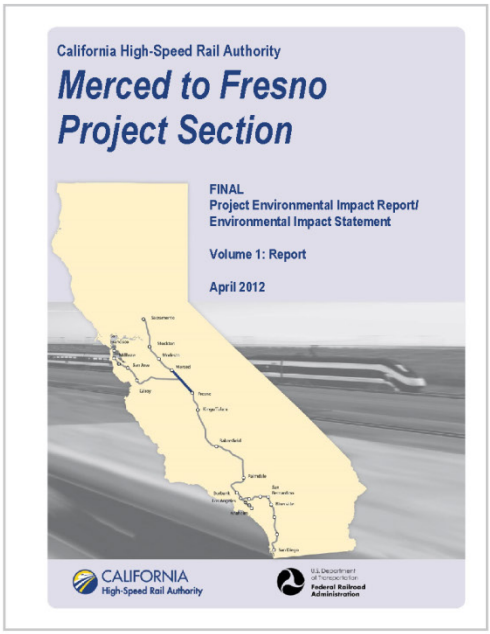
Cover Templates: *Guidelines*

Cover templates for environmental documents are available in two sizes: 8.5 x 11 and 11 x 17 inches. Use 8.5 x 11 with vertical alignment and 11 x 17 in horizontal alignments.

Always use the appropriate cover template for the document you are creating by making sure the correct project section is named and the corresponding alignment is selected in the high-speed rail system cover map.

See Appendix B (Cover Templates for Environmental Documents) in the Guidelines.

8.5 X 11 LETTER SIZE COVER



11 X 17 TABLOID SIZE COVER


California High-Speed Rail Authority
Arial Narrow Bold
20 pt, HSR Blue
8.5 x 11
Vertical
Alignment
Actual Size
Cover
Merced to Fresno
Project Section
Arial Narrow Bold Italic
50 pt – 70 pt, HSR Blue
Gutter space for binding is 0.75 inches from the edge
and is already provided in template
Arial Narrow Bold All Caps
16 pt – 24 pt, HSR Blue
Arial Narrow Bold
16 pt – 24 pt, HSR Blue
FINAL
Project Environmental Impact Report/
Environmental Impact Statement
Arial Narrow Bold
16 pt – 24 pt, HSR Blue
Volume 1: Report
Arial Narrow Bold
16 pt – 24 pt, HSR Blue
April 2012
Sacramento
San Francisco
Stockton
Millbrae
Modesto
San Jose
Merced
Select the alignment that corresponds to the named project section
Gilroy
Fresno
Kings/Tulare
Bakersfield
Palmdale
San Bernardino
Burbank
Los Angeles
Riverside
Anaheim
San Diego
CALIFORNIA
High-Speed Rail Authority
U.S. Department
of Transportation
Federal Railroad
Administration

Figures: *Guidelines*

Following are standards for different types of figures for environmental documents. These standards are intended for figures (i.e., charts, images, illustrations, and maps) that will be imported into the MS Word files for environmental documents. See Chapter 4 of the Guidelines for details on formatting and inserting figures into text documents.

Charts

When creating charts for environmental documents, make them clear and simple in content arrangement and chart design so that information can be read and understood easily. See Section 4.2.6.2 of the Guidelines for information on inserting charts into an MS Word text document. Adhere to the following standards:

Use MS Excel to generate charts—column, line, pie, or bar

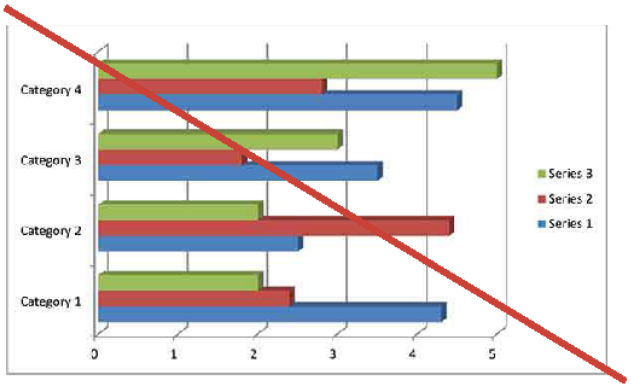
Or, use a drawing program to generate charts and save as PNG files—300 DPI, RGB format

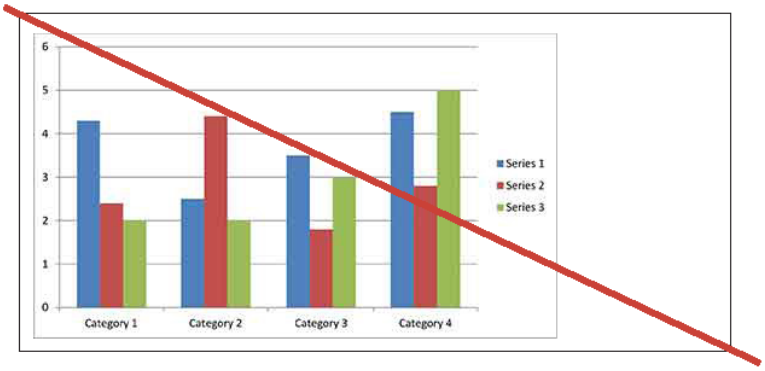
Do not use MS Word to generate charts

Do not place outside borders around charts

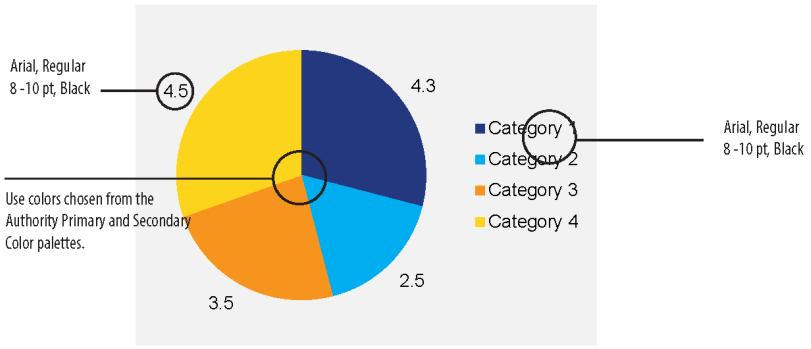
Do not generate 3D chart styles

BAD EXAMPLES

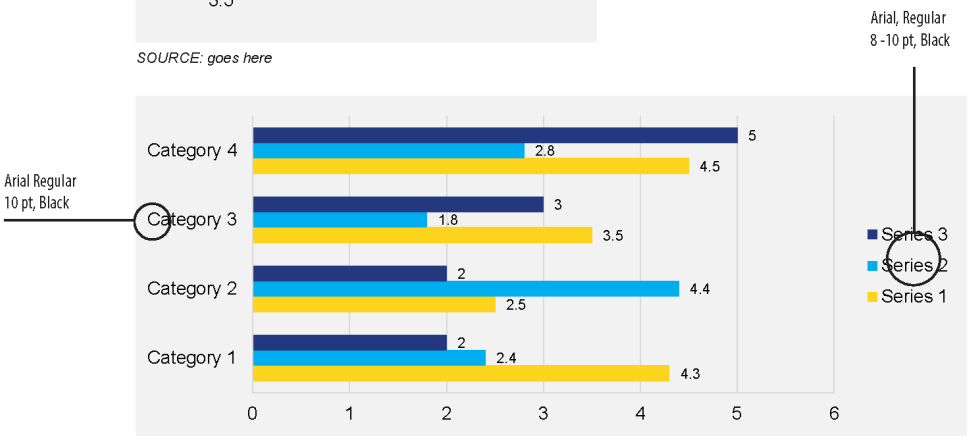




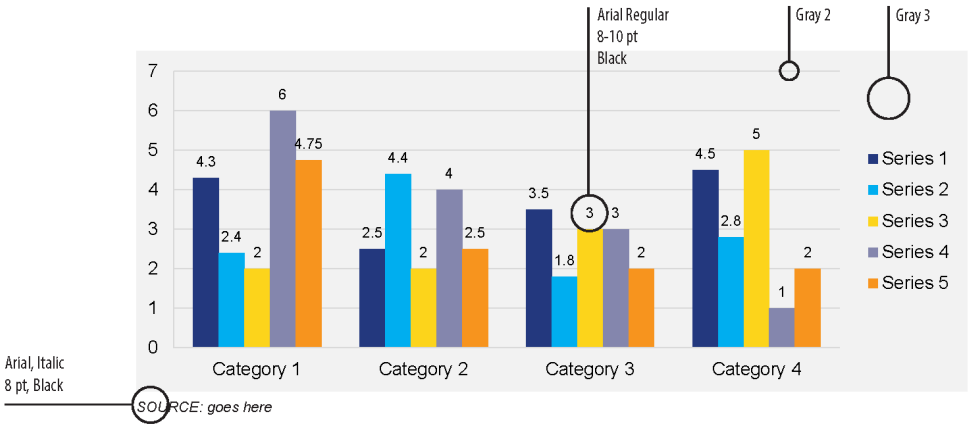
GOOD EXAMPLES



SOURCE: goes here



SOURCE: goes here



Images

See Section 4.2.6.2 of the Guidelines for information on inserting images into an MS Word text document. Adhere to the following standards:

Use images with resolution of 300 DPI and save as JPEG files

Save images in RGB color

Do not copy and paste images from the Internet directly into an MS Word document

Do not use outside borders on images

GOOD EXAMPLE

PHOTO CREDIT GOES HERE IF NEEDED

Arial, Italic, All Caps, Align Right
5 pt, Black

BAD EXAMPLE

Illustrations

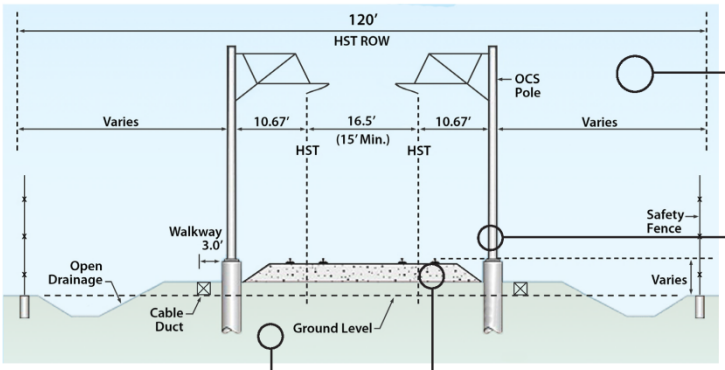
See Section 4.2.6.2 of the Guidelines for information on inserting illustrations into an MS Word text document. Adhere to the following standards:

Create illustrations with resolution of 300 DPI and save as PNG files

Create illustrations using RGB color

Do not use outside borders on illustrations

GOOD EXAMPLE



Design typical sections to appear more illustrative in nature. Ensure sections are technically accurate and match the corresponding preliminary engineering documents.

Show structural elements, such as aerial structures, in gray scale.

SOURCE: if needed

In most instances, show track form as nonballasted. Nonballasted track shall have a concrete pattern fill. Do not include trainsets.

Use solid colors. Do not use gradients except on structures to show shapes, such as cylinders and beams.

BAD EXAMPLE

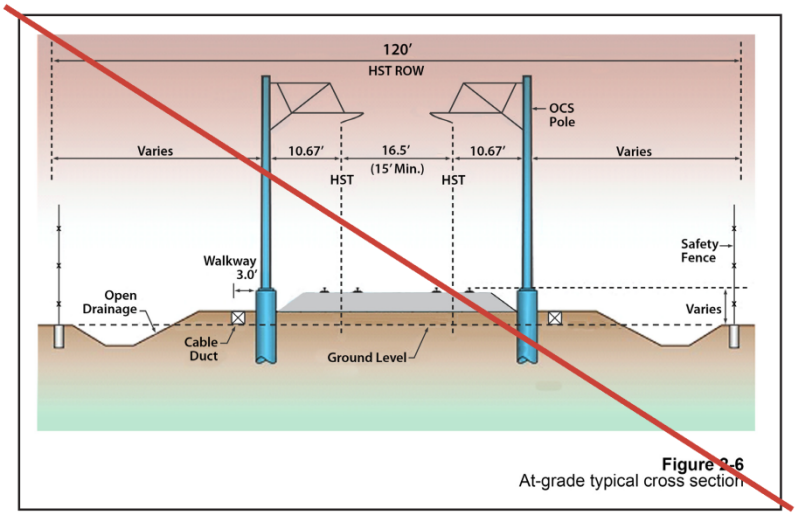


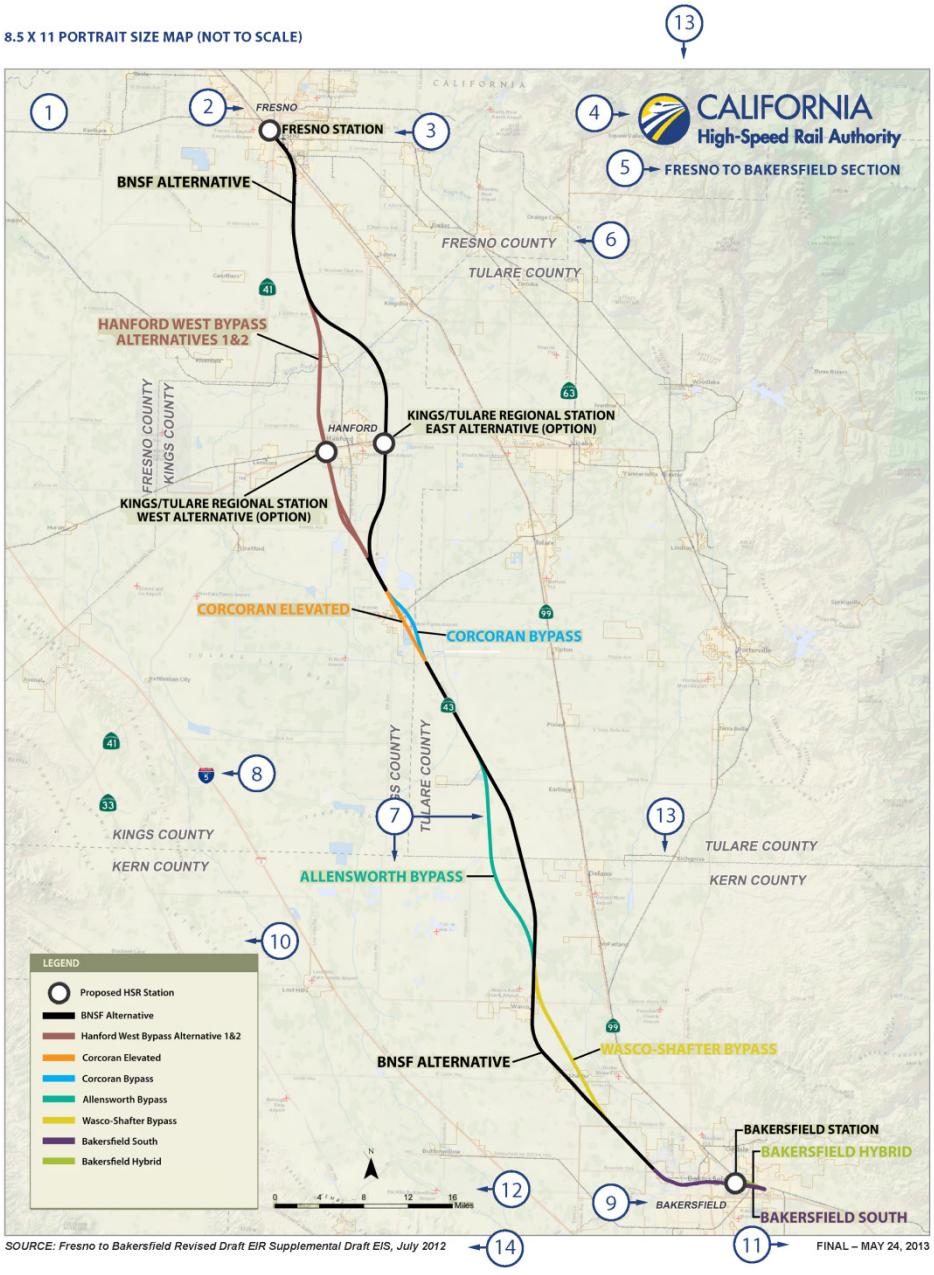
Figure 2-6
At-grade typical cross section

Detailed Map: Guidelines

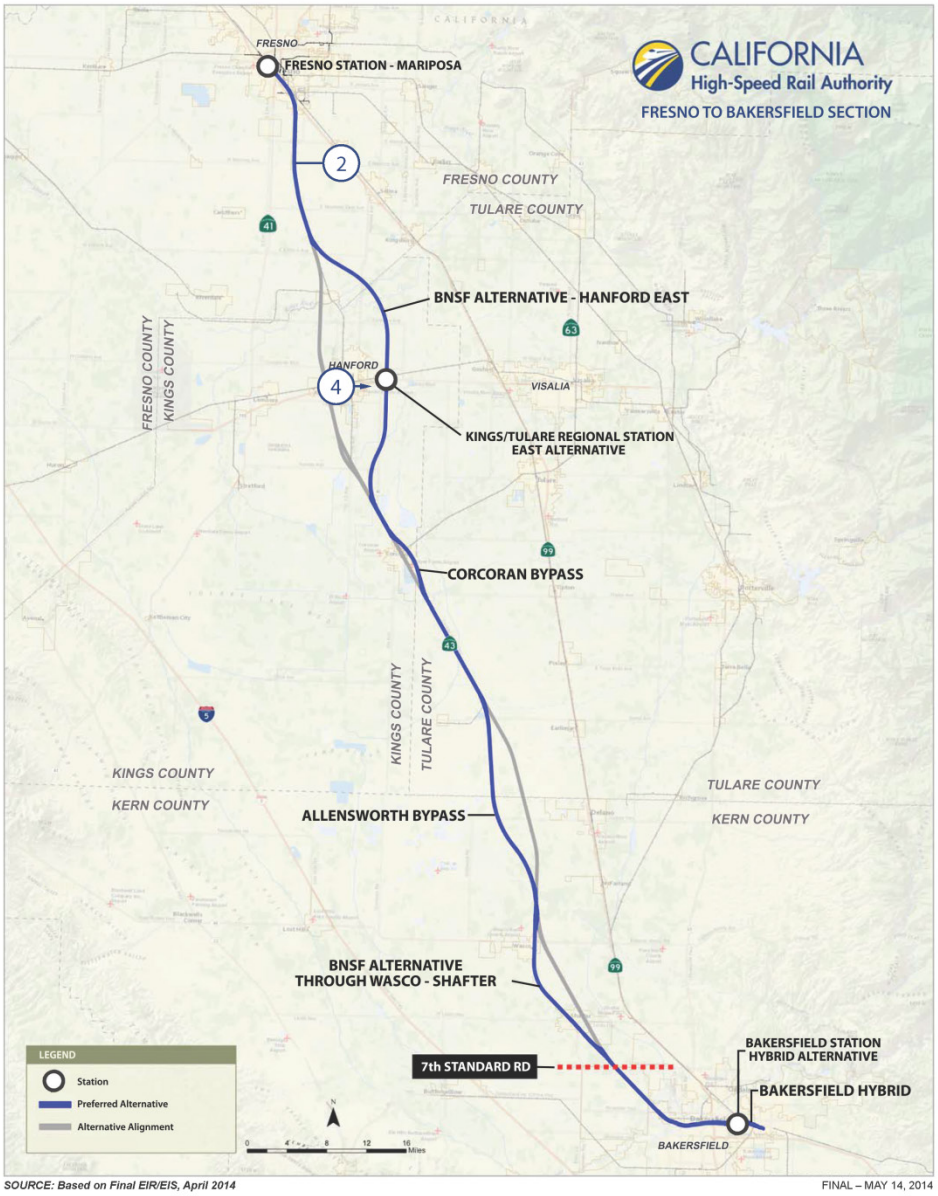
1.	**BACKGROUND**	For standard maps, use the ESRI National Geographic Background. Background opacity can be reduced to make alignment information more visible. For PPT slides and environmental figures, solid background colors are available for use.
2.	**STATIONS**	Show proposed stations using a white circle with a black outline. Show optional stations using a gray circle with a black outline.
3.	**STATION NAMES**	Font: Myriad Pro Bold All Caps Color: Black
4.	**LOGO**	File Name: **chsra-logo-color-w-text.png** Place logo in upper right corner.
5.	**MAP TITLE**	Font: Myriad Pro Semibold All Caps Color: HSR Blue
6.	**COUNTY LABELS**	Font: Arial Bold Italic All Caps Color: Gray 4 Stroke: White 6px
7.	**ALIGNMENT/ LABELS**	Use matching colors for alternate alignments and corresponding text labels. Maintain consistent color schemes.
8.	**ROUTE SYMBOLS**	Place route symbols for all major interstate and state routes. See Symbols page for more details.
9.	**CITY NAMES**	Font: Myriad Pro Semibold Italic All Caps Color: Black Stroke: White 6px based on standard map size of 22x34. Reduce stroke accordingly.
10.	**LEGEND**	Located legend in the bottom left or right of the map.
11.	**MAP DATE**	In all caps: Version, En Dash, Month, Day, Year the map was released. Example: **DRAFT 1 – MAY 25, 2013**
12.	**NORTH ARROW/ SCALE BAR**	Use standard North Arrow and Scale Bar for all detailed maps and locate near the legend (not within). Scale Bar required in english and metric units. Color: Black
13.	**MAP SIZE**	Insert maps into environmental documents using the following dimensions in inches. **Size** / **Max Height** / **Max Width** 8.5 x 11, Portrait / 8.5 / 6 8.5 x 11, Landscape / 6 / 9 11 x 17 / 8.5 / 15
14.	**SOURCE INFORMATION**	Within the graphic: Arial Italic, 8 pt, Black. Example: ***SOURCE: Fresno to Bakersfield Revised Draft EIR Supplemental Draft EIS, July 2012*** Within the environmental document: Refer to the *Project Environmental Document Style and Presentation Guidelines* for source documentation.

Detailed Map: Sample (Multiple Alignments)

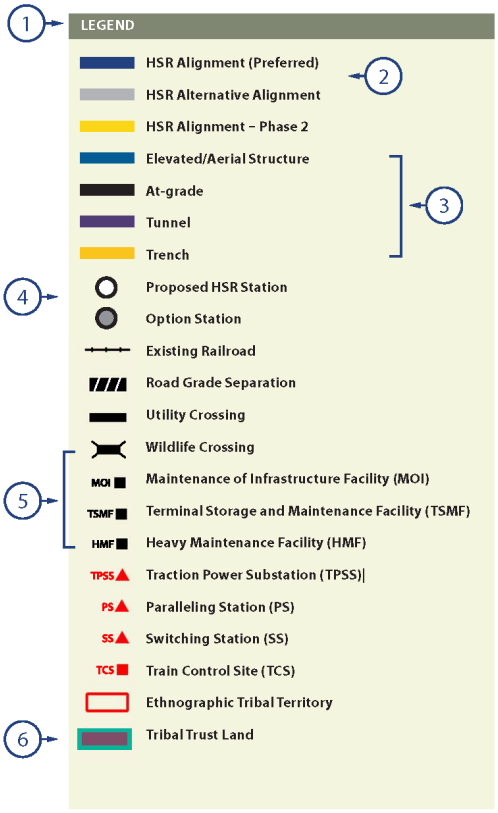
8.5 X 11 PORTRAIT SIZE MAP (NOT TO SCALE)



Detailed Map: Sample (Preferred Alignment)



Detailed Map: Map Legend and Symbols



1.	LEGEND COLORS	Bar Color: Legend Green Bar Text: Legend Background or White Legend Color: Legend Background or White Legend Text: Black
2.	ALIGNMENTS	Show maps with preferred alignments or Phase 1 alignment in HSR Blue. Show Phase 2 in HSR Yellow or HSR Orange.
3.	STRUCTURE TYPE COLOR CODES	Maps may be color coded by structure type. Assign a color scheme as applicable and remain consistent within a document. See Authority Color Palette page.
4.	STATIONS	Show proposed stations using a white circle with black outline. Show optional stations using a gray circle (RGB 147/149/152) with black outline.
5.	HSR FACILITIES	Consistently show facilities in legend regardless of the map purpose and style to provide standardization and easy identification of Authority facilities and provide programmatic consistency.
6.	TRIBAL LANDS / TERRITORIES	For maps used in documents and public outreach meetings with California tribes, show boundaries in red (RGB 202/66/54) with no fill. Show trust lands with a solid fill (RGB 127/76/104) and outline (RGB 8/178/152).

Legend and Symbol Colors

Legend

Black and HSR Blue may also be used instead of Legend Green with White as the Legend Background color.

Legend Green	CMYK	48/33/65/7	Legend Background	CMYK	4/1/13/0
	RGB	135/144/107		RGB	243/244/224

Structure Colors

Elevated/ Aerial Structure	BLUE 2		Icons, Symbols and Ethographic Tribal Territories	CMYK	20/90/90/0
				RGB	202/66/54
At-grade	BLACK				
Tunnel	PURPLE 2		Tribal Trust Lands	FILL	OUTLINE
				PURPLE 3	CYAN GREEN
Trench	YELLOW 2				

Map Symbols

State Route Symbols

Interstate Route Symbols

Other Symbols

Airport

Logos

CALIFORNIA High-Speed Rail Authority

U.S. Department of Transportation
Federal Railroad Administration

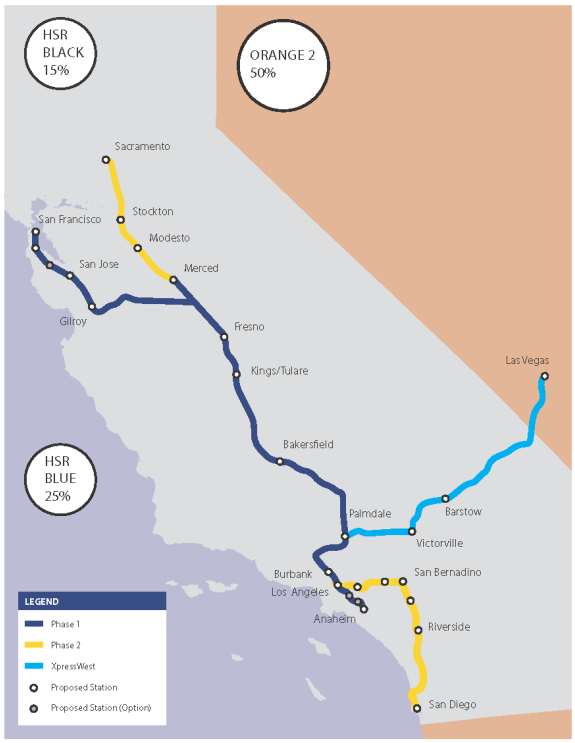
Detailed Map: *Color Palette*

Map Background Colors

HSR BLUE	75%	50%	25%
HSR CYAN	75%	50%	25%
HSR YELLOW	75%	50%	25%
HSR BRONZE	75%	50%	25%
HSR BROWN	75%	50%	25%
HSR LIGHT BROWN	75%	50%	25%

The colors above may be used for map background colors when solid colors are needed. Pull from the Secondary and Extended color palettes if more colors are needed. A darker color palette may be used for PPT slides. Use contrasting colors to show emphasis on different map elements.

Example of a darker color palette for PPT



Authority Color Palette

Primary Colors		75%	50%	25%	10%
HSR BLUE	CMYK 99/86/22/07 RGB 035/065/126 PANTONE HEX 22407D	74/64/17/05 86/96/147 566093	50/43/11/04 132/134/173 8486AD	25/22/06/02 185/185/207 B9B9CF	10/09/02/01 222/222/232 DEDEE8
HSR CYAN	CMYK 100/0/0/0 RGB 000/174/239 PANTONE HEX 00AEEF	75/0/0/0 0/188/242 00BCF2	50/0/0/0 109/207/246 6DCFF6	25/0/0/0 185/229/250 B9E5FA	10/0/0/ 225/243/253 E1F3FD
HSR YELLOW	CMYK 02/14/96/00 RGB 251/211/27 PANTONE HEX FBD31B	01/11/72/0 252/220/101 FCDC65	01/07/48/0 254/230/152 FEE698	0/04/24/0 254/240/201 FEF0C9	00/01/10/0 254/248/230 FEF8E6

Secondary Colors		75%	50%	25%	10%
HSR ORANGE	CMYK 0/50/100/0 RGB 247/148/30 PANTONE HEX F7931D	0/38/75/0 250/171/85 FAAB55	0/25/50/0 252/197/137 FCC589	0/13/25/0 254/224/191 FEE0BF	0/5/10/0 255/240/225 FFF0E1
HSR PURPLE	CMYK 76/91/29/8 RGB 92/57/114 PANTONE HEX 5C3972	57/68/22/6 122/95/138 7A5F8A	38/46/14/4 156/135/166 9C87AC	18/23/7/2 198/186/204 C6BACC	8/9/3/1 228/223/230 E4DFE6
HSR GREEN	CMYK 50/0/100/0 RGB 140/198/62 PANTONE HEX 8CC63E	37/0/75/0 168/209/108 A8D16C	25/0/50/0 195/222/154 C3DE9A	13/0/25/0 223/337/202 DFEDCA	5/0/10/0 240/246/231 F0F6E7

Neutral Colors		75%	50%	25%	10%
HSR BRONZE	CMYK 51/50/59/4 RGB 135/122/108 PANTONE HEX 877A6C	38/38/44/3 160/147/135 A09387	25/25/29/2 187/176/167 BBB0A7	13/13/15/1 216/210/205 D8D2CD	5/5/6/0 237/233/231 EDE9E7
HSR BROWN	CMYK 32/32/56/1 RGB 177/160/124 PANTONE HEX B1A07C	HSR LIGHT BROWN CMYK 5/10/30/5 RGB 228/221/175 PANTONE HEX E4D3AF			
		GRAY 4	GRAY 3	GRAY 2	GRAY 1
BLACK	CMYK 0/0/0/100 RGB 0/0/0 PANTONE Black 6 C HEX 000000	0/0/0/75 99/100/102 Cool Gray 10 C 404040	0/0/0/50 147/149/152 Cool Gray 7 C 808080	0/0/0/25 199/200/202 Cool Gray 4 C BFBFBF	0/0/0/10 230/231/232 Cool Gray 1 C E6E6E6

Extended Colors			75%	50%	25%	10%
PURPLE 2	CMYK	82/90/27/8	62/68/20/6	41/45/13/4	20/23/7/2	8/9/3/1
	RGB	80/59/117	114/95/140	150/134/168	194/186/204	227/222/231
	PANTONE					
	HEX	503B75	725F8C	9686A8	C2BACC	E3DEE7
PURPLE BLUE	CMYK	88/88/25/8	66/66/19/6	44/44/13/4	22/22/6/2	9/9/2/1
	RGB	66/61/120	104/96/142	144/135/170	191/185/206	225/222/231
	PANTONE					
	HEX	423D78	68608E	9087AA	BFB9CE	E1DEE7
BLUE 3	CMYK	93/87/24/7	70/65/18/5	47/44/12/4	23/22/6/2	9/9/2/1
	RGB	54/63/122	97/96/145	139/135/172	188/185/207	224/222/232
	PANTONE					
	HEX	363F7A	616091	8B87AC	BCB9CF	E0DEE8
BLUE 2	CMYK	99/65/17/5	74/49/13/4	50/32/8/2	25/16/4/1	10/6/2/0
	RGB	0/91/146	76/117/1165	129/151/188	185/195/216	223/226/236
	PANTONE					
	HEX	005B92	4C75A5	8197BC	B9C3D8	DFE2EC
BLUE CYAN	CMYK	100/43/11/4	75/32/8/3	50/22/6/2	25/11/3/1	10/4/1/0
	RGB	0/116/171	54/139/186	123/168/204	184/205/226	223/231/241
	PANTONE					
	HEX	0074AB	368BBA	7BA8CC	B8CDE2	DFE7F1
CYAN 3	CMYK	100/22/6/2	75/17/5/1	50/11/3/1	25/6/1/0	10/2/1/0
	RGB	0/142/199	0/161/209	118/185/221	185/215/236	224/236/246
	PANTONE					
	HEX	008EC7	00A1D1	76B9DD	B9D7EC	E0ECF6
CYAN 2	CMYK	88/0/25/1	66/0/19/1	44/0/13/0	22/0/6/0	9/0/2/0
	RGB	0/157/194	54/190/206	134/209/220	194/230/235	229/243/245
	PANTONE					
	HEX	00AFC2	36BECE	86D1DC	C2E6EB	E5F3F5
CYAN GREEN	CMYK	75/0/50/3	56/0/38/2	38/0/25/1	19/0/13/1	7/0/5/0
	RGB	7/177/151	104/192/173	154/210/197	202/230/222	232/244/239
	PANTONE					
	HEX	07B197	68C0AD	9AD2C5	CAE6DE	E8F4EF
GREEN 3	CMYK	63/0/75/4	47/0/56/3	31/0/38/2	16/0/19/1	6/0/7/0
	RGB	93/182/108	134/196/140	172/213/174	210/231/211	235/244/234
	PANTONE					
	HEX	5DB66C	86C48C	ACD5AE	D2E7D3	EBF4EA
GREEN 2	CMYK	38/4/99/4	28/3/74/3	19/2/50/2	10/1/25/1	4/0/10/0
	RGB	163/191/54	184/203/102	205/217/149	227/233/199	241/245/229
	PANTONE					
	HEX	A3BF36	B8CB66	CDD995	E3E9C7	F1F5E5

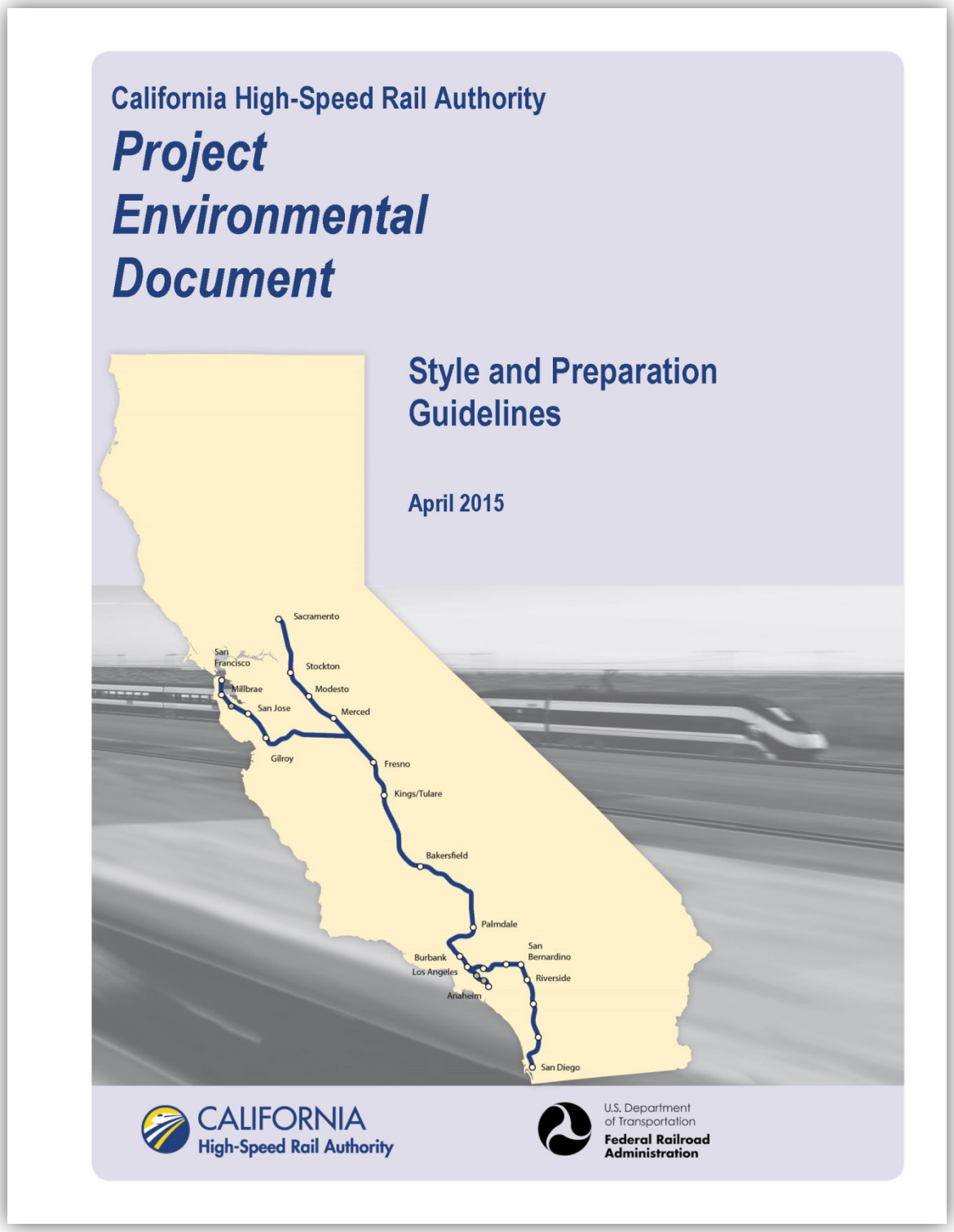
Extended Colors		75%	50%	25%	10%
GREEN YELLOW	CMYK 26/7/98/3 RGB 192/198/46 PANTONE HEX C0C62E	19/5/74/2 205/208/101 CDD065	13/4/49/1 220/220/150 DCDC96	6/2/25/1 235/235/199 EBEBC7	3/1/10/0 245/245/229 F5F5E5
YELLOW 3	CMYK 14/11/97/1 RGB 222/204/38 PANTONE HEX DECC26	11/8/73/1 229/214/102 E5D666	7/6/49/0 237/225/151 EDE197	4/3/24/0 244/237/200 F4EDC8	1/1/10/0 249/246/230 F9F6E6
YELLOW 2	CMYK 2/23/97/0 RGB 248/195/29 PANTONE HEX F8C31D	1/17/73/0 251/208/97 FBD061	1/12/49/0 252/221/148 FCDD94	0/6/24/0 254/236/198 FEECC6	0/2/10/0 254/245/229 FEF5E5
YELLOW ORANGE	CMYK 1/32/98/0 RGB 249/179/29 PANTONE HEX F9B31D	1/24/74/0 251/196/93 FBC45D	0/16/49/0 253/214/144 FDD690	0/8/25/0 254/232/196 FEE8C4	0/3/10/0 255/244/228 FFF4E4
ORANGE 3	CMYK 1/41/99/0 RGB 246/163/30 PANTONE HEX F6A31E	1/31/74/0 249/183/90 F9B75A	0/20/50/0 252/205/141 FCCD8D	0/10/25/0 253/228/193 FDE4C1	0/4/10/0 254/242/226 FEF2E2
ORANGE 2	CMYK 19/60/82/2 RGB 201/120/69 PANTONE HEX C97845	14/45/62/1 212/148/106 D4946A	10/30/41/1 224/179/147 E0B393	5/15/20/0 237/213/195 EDD5C3	2/6/8/0 246/235/227 F6EBE3
ORANGE PURPLE	CMYK 38/70/64/4 RGB 161/98/92 PANTONE HEX A1625C	28/52/48/3 180/127/120 B48078	19/35/32/2 200/163/155 C8A39B	10/18/16/1 224/204/198 E0CCC6	4/7/6/0 240/2231/228 F0E7E4
PURPLE 3	CMYK 57/81/47/6 RGB 126/76/103 PANTONE HEX 7E4C67	43/61/35/5 150/110/129 966E81	28/40/24/3 178/148/161 B294A1	14/20/12/1 210/195/201 D2C3C9	6/8/5/1 234/227/229 EAE3E5

APPENDIX B: EXAMPLES, SAMPLES, AND TEMPLATES

Example 1a: Cover page (EIR/EIS both phases)

Example 1b: Cover page (project-specific environmental documents)

Example 1c: Cover page (all other environmental documents)



Example 2: Title page (EIR/EIS both phases)

California High-Speed Rail Authority

Fresno to Bakersfield Project Section

Final Project Environmental Impact Report/ Environmental Impact Statement

and

Section 4(f) Evaluation

and

Draft General Conformity Statement

Volume 1: Report

Prepared by:

California High-Speed Rail Authority
770 L Street, Suite 800
Sacramento, CA 95814
Contact: Mr. Mark McLoughlin
916-956-8731

USDOT Federal Railroad Administration
1200 New Jersey Avenue SE MS-20
Washington, DC 20590
Contact: Mr. David Valenstein
202-493-6381

Cooperating Agencies:

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Sacramento, CA 95814
Contact: Mr. Zachary Simmons
916-557-6746

Surface Transportation Board
395 E Street SW
Washington, DC 20423
Contact: Mr. David Navecky
202-245-0294

April 2015

California High-Speed Rail Authority and Federal Railroad Administration. 2014. *California High-Speed Rail Authority Fresno to Bakersfield Project Section Final Project Environmental Impact Report/Environmental Impact Statement*, Volume 1: Report. Sacramento, CA, and Washington, DC.

Example 3: Signature pages (EIR/EIS both phases)

California High-Speed Rail Authority

Fresno to Bakersfield Project Section

Final Project Environmental Impact Report/ Environmental Impact Statement

and

Section 4(f) Evaluation

and

Draft General Conformity Statement

Pursuant to:

California Environmental Quality Act, P.R.C. 21000 et seq.; State of California CEQA Guidelines, California Administrative Code, 15000 et seq.; and National Environmental Policy Act (42 U.S.C. 4332 et seq.), 40 CFR Part 1500, and 64 Fed. Reg. 28545

Prepared by:

California High-Speed Rail Authority
USDOT Federal Railroad Administration

Cooperating Agencies:

U.S. Army Corps of Engineers
Surface Transportation Board

Jeff Morales, Chief Executive Officer California High-Speed Rail Authority	Joseph C. Szabo, Administrator Federal Railroad Administration U.S. Department of Transportation
Date: _____	Date: _____

The following individuals may be contacted for additional information concerning this document:

Mr. Mark McLoughlin California High-Speed Rail Authority 770 L Street, Suite 800 Sacramento, CA 95814	Mr. David Valenstein Federal Railroad Administration MS-20, W38-303 1200 New Jersey Avenue, SE Washington, DC 20590

Abstract

This document considers, describes, and summarizes the environmental impacts of the Fresno to Bakersfield Project Section High-Speed Rail (HSR) Project, an approximately 114-mile portion of a larger HSR System that is intended to connect to sections traveling west to San Francisco, south to Los Angeles and, later, north to Sacramento. The project is designed as a steel-wheel-on-steel-railway completely grade-separated from other modes. The need for this project is directly related to the population growth and increased intercity travel demand over the next 20 years, and beyond, and the increased travel delays and congestion that would result on California's highways and airports. Additionally, Fresno, Kings, Tulare, and Kern counties have limited connectivity with the state's larger urban metropolitan areas. Twelve alternatives are considered in this Final EIR/EIS—the No Project Alternative and the 11 HSR alternatives: the BNSF, Hanford West Bypass 1, Hanford West Bypass 2, Hanford West Bypass 1 Modified, Hanford West Bypass 2 Modified, Corcoran Elevated, Corcoran Bypass, Allensworth Bypass, Wasco-Shafter Bypass, Bakersfield South, and Bakersfield Hybrid. The Fresno to Bakersfield Project Section contains one station in Fresno, one station in Bakersfield, and a Kings(Tulare Regional Station either east or west of Hanford. The HSR in this section has the ability to travel up to 220 mph along the alignment. Portions of the BNSF Alternative in combination with the Corcoran Bypass, Allensworth Bypass, and Bakersfield Hybrid alternatives have been identified by the FRA and the Authority as the Preferred Alternative. Potential environmental impacts of the alternatives include displacement of commercial, residential, and agricultural properties; community and neighborhood disruption; increase in noise; increase in traffic at each of the stations; impacts on historic and archaeological sites; impacts on parks and recreational resources; visual impacts; impacts on sensitive biological resources and wetlands; and use of energy. Mitigation measures are described to address impacts identified in the Final Project EIR/EIS. This California HSR Project EIR/EIS is being made available to the public in accordance with the California Environmental Quality Act and the National Environmental Policy Act. Visit the California High-Speed Rail Authority website (www.hsr.ca.gov), where you can

- View and download the Final EIR/EIS
- Request a CD-ROM of the Final EIR/EIS
- Locate a library near you to review a hardcopy of the Final EIR/EIS

Printed copies have been provided at a number of repositories throughout the project area including at main libraries in the following cities and communities:

- [location]
- [location]
- [location]

Examples 4a: Table of Contents (EIR/EIS Content Development Phase and all other environmental documents)

TABLE OF CONTENTS

Tables

Figures

Appendices

Examples 4b: Table of Contents (EIR/EIS Document Design and Publication Phase)

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Appendices

Example 5a: Summary (EIR/EIS Content Development Phase)

SUMMARY

The Summary chapter provides a condensed version of the technical information discussed in the environmental impact report/environmental impact statement (EIR/EIS) and includes references to other sections of the document for additional detailed analysis and discussion. This environmental analysis guidance addresses the overall structure and content for the EIR/EIS Summary chapter.

Summary

The Summary of the EIR/EIS is the primary section that will be made available in languages other than English (where appropriate for the HSR section) and in format(s) to accommodate persons with disabilities. The Summary will be also be the section that will be most extensively distributed in printed hard copy in service of public and agency reviews, and lead agency decision making.

Practical guidance and usable content are provided. Guidance is shown in black text, tables, and illustrative graphics. Usable "boilerplate" content is shown in red text and can be copied verbatim or with refinement, as appropriate, into applicable areas within the chapter. Example text that illustrates the concepts and methods is shown in *italics*. The methods are organized to mirror the organization of the EIR/EIS chapter and use the same format scheme for headings, text, and tables as the EIR/EIS.

S.1 Introduction and Background

The California High-Speed Rail Authority (Authority), a state governing board formed in 1996, has responsibility for planning, designing, constructing, and operating the California High-Speed Rail (HSR). Its mandate is to develop a high-speed rail system that coordinates with the state's existing transportation network, which includes intercity rail and bus lines, regional commuter rail lines, urban rail and bus transit lines, highways, and airports.

S.2 Purpose of and Need for the HSR System and the Merced to Fresno Project Section

S.2.1 Purpose of the HSR System

High-Speed Rail System

The system that includes the HST guideways, structures, stations, traction-powered substations, and maintenance facilities.

The purpose of the California HSR System is to provide a reliable high-speed electric-powered train system that links the major metropolitan areas of the state and that delivers predictable and consistent travel times. A further objective is to provide an interface with commercial airports, mass transit, and the highway network and to relieve capacity constraints of the existing transportation system as increases in intercity travel demand in California occur, in a manner sensitive to and protective of California's unique natural resources.

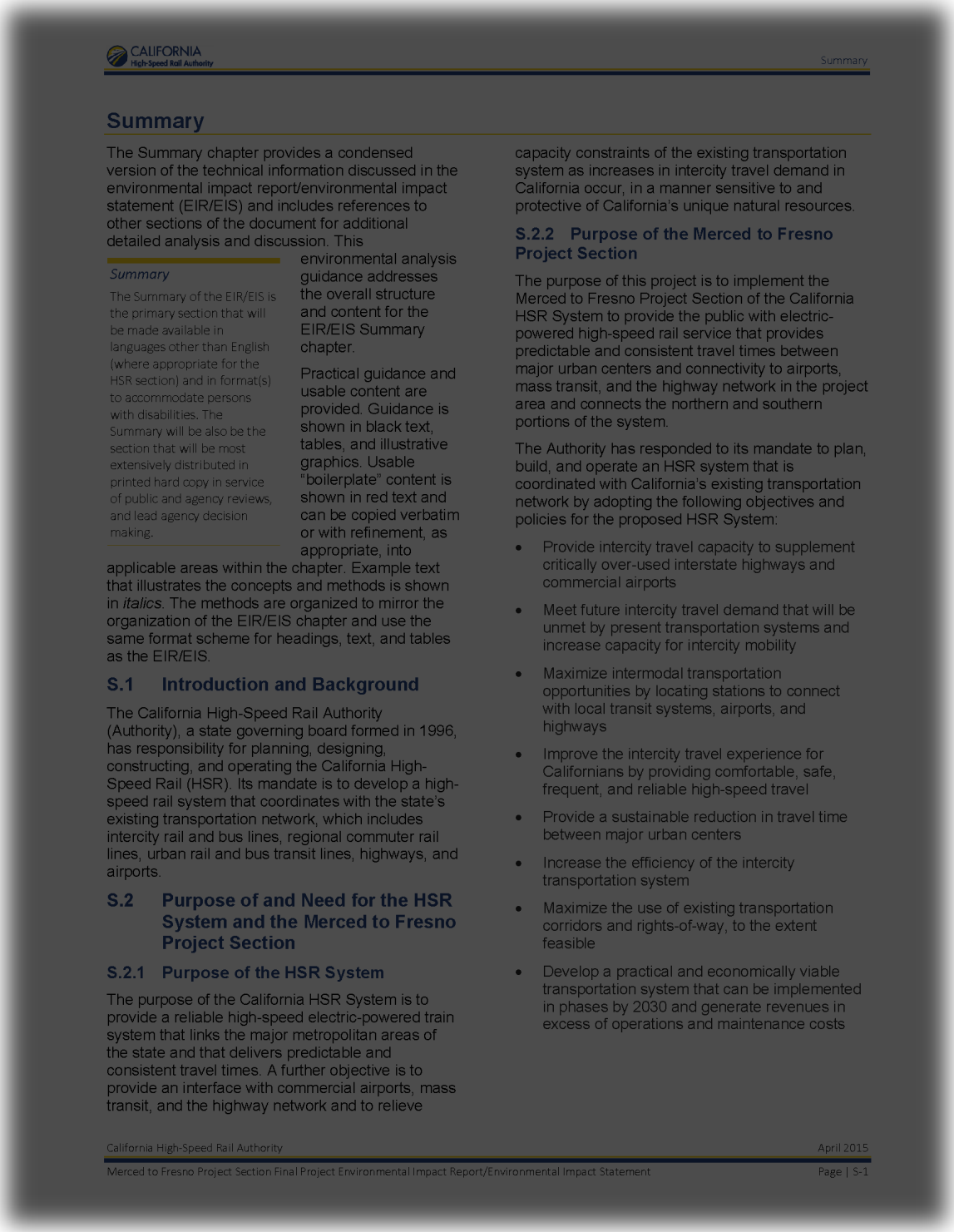
S.2.2 Purpose of the Merced to Fresno Project Section

The purpose of this project is to implement the [section name] Section of the California HSR System to provide the public with electric-powered high-speed rail service that provides predictable and consistent travel times between major urban centers and connectivity to airports, mass transit, and the highway network in the [project area] and connects the northern and southern portions of the system.

The Authority has responded to its mandate to plan, build, and operate an HSR system that is coordinated with California's existing transportation network by adopting the following objectives and policies for the proposed HSR System:

- Provide intercity travel capacity to supplement critically over-used interstate highways and commercial airports
- Meet future intercity travel demand that will be unmet by present transportation systems and increase capacity for intercity mobility

Example 5b: Summary (EIR/EIS Document Design and Publication Phase)



CALIFORNIA High-Speed Rail Authority Summary

Summary

The Summary chapter provides a condensed version of the technical information discussed in the environmental impact report/environmental impact statement (EIR/EIS) and includes references to other sections of the document for additional detailed analysis and discussion. This environmental analysis guidance addresses the overall structure and content for the EIR/EIS Summary chapter.

Summary

The Summary of the EIR/EIS is the primary section that will be made available in languages other than English (where appropriate for the HSR section) and in format(s) to accommodate persons with disabilities. The Summary will be also be the section that will be most extensively distributed in printed hard copy in service of public and agency reviews, and lead agency decision making.

Practical guidance and usable content are provided. Guidance is shown in black text, tables, and illustrative graphics. Usable "boilerplate" content is shown in red text and can be copied verbatim or with refinement, as appropriate, into applicable areas within the chapter. Example text that illustrates the concepts and methods is shown in *italics*. The methods are organized to mirror the organization of the EIR/EIS chapter and use the same format scheme for headings, text, and tables as the EIR/EIS.

S.1 Introduction and Background

The California High-Speed Rail Authority (Authority), a state governing board formed in 1996, has responsibility for planning, designing, constructing, and operating the California High-Speed Rail (HSR). Its mandate is to develop a high-speed rail system that coordinates with the state's existing transportation network, which includes intercity rail and bus lines, regional commuter rail lines, urban rail and bus transit lines, highways, and airports.

S.2 Purpose of and Need for the HSR System and the Merced to Fresno Project Section

S.2.1 Purpose of the HSR System

The purpose of the California HSR System is to provide a reliable high-speed electric-powered train system that links the major metropolitan areas of the state and that delivers predictable and consistent travel times. A further objective is to provide an interface with commercial airports, mass transit, and the highway network and to relieve capacity constraints of the existing transportation system as increases in intercity travel demand in California occur, in a manner sensitive to and protective of California's unique natural resources.

S.2.2 Purpose of the Merced to Fresno Project Section

The purpose of this project is to implement the Merced to Fresno Project Section of the California HSR System to provide the public with electric-powered high-speed rail service that provides predictable and consistent travel times between major urban centers and connectivity to airports, mass transit, and the highway network in the project area and connects the northern and southern portions of the system.

The Authority has responded to its mandate to plan, build, and operate an HSR system that is coordinated with California's existing transportation network by adopting the following objectives and policies for the proposed HSR System:

- Provide intercity travel capacity to supplement critically over-used interstate highways and commercial airports
- Meet future intercity travel demand that will be unmet by present transportation systems and increase capacity for intercity mobility
- Maximize intermodal transportation opportunities by locating stations to connect with local transit systems, airports, and highways
- Improve the intercity travel experience for Californians by providing comfortable, safe, frequent, and reliable high-speed travel
- Provide a sustainable reduction in travel time between major urban centers
- Increase the efficiency of the intercity transportation system
- Maximize the use of existing transportation corridors and rights-of-way, to the extent feasible
- Develop a practical and economically viable transportation system that can be implemented in phases by 2030 and generate revenues in excess of operations and maintenance costs

California High-Speed Rail Authority April 2015
Merced to Fresno Project Section Final Project Environmental Impact Report/Environmental Impact Statement Page | S-1

Examples 6a: Technical Chapters (EIR/EIS Content Development Phase and all other environmental documents)

2 ALTERNATIVES

2.1 Introduction

This chapter describes the background and development of the HSR system and its individual components. This chapter also describes the background and development and details of the alternatives considered for the Merced to Fresno: Central Valley Wye (Central Valley Wye) of the HSR system. All three of the wye alternatives discussed in this chapter are based on the alternatives selected by the California High-Speed Rail Authority (Authority) and Federal Railroad Administration (FRA) at the conclusion of the Tier 1 EIR/EIS processes for the HSR system (see Section 1.5, Tiering of Program EIR/EIS Documents). The design drawings that support the alternatives' descriptions are included as Volume 3 (Alignments and Other Plans) of the Draft Subsequent Environmental Impact Report/Supplemental Environmental Impact Statement (SEIR/SEIS). This Draft SEIR/SEIS analyzes the environmental impacts of implementing the Central Valley Wye of the HSR system, including wye alternatives, direct and indirect impacts, cumulative impacts, indirect effects, and mitigation measures. Visit the Authority website (www.hsr.ca.gov) to view and download the Draft SEIR/SEIS, request a CD-ROM Draft SEIR/SEIS, or locate a library to review a printed copy of the environmental document. Printed copies of the Draft SEIR/SEIS have been placed in public libraries in the following cities and communities: Sacramento, Merced, Madera, and Chowchilla. The following documents are also available at the Authority's website: alternative analyses preceding preparation of the Project EIR/EIS, materials prepared for coordination with U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (USEPA) in compliance with the Clean Water Act Section 404(b)(1) requirements, and technical reports developed for the environmental analyses presented in Chapter 3.

Definition of High-Speed Rail (HSR) System

A system that includes HSR tracks, structures, stations, traction power substations, maintenance facilities, and trains able to travel 220 mph.

2.2 Background

2.2.1 California HSR System Background

The planning, design, construction, and operation of the California HSR System are the responsibility of the Authority, a state governing board formed in 1996. The Authority's statutory mandate is to develop an HSR system that is coordinated with the state's existing transportation network, which includes intercity rail and bus lines, regional commuter rail lines, urban rail and bus transit lines, highways, and airports. The Authority's plans call for high-speed intercity train service on more than 800 miles of tracks throughout California, connecting the major population centers of Sacramento, the San Francisco Bay Area, the Central Valley, Los Angeles, the Inland Empire, Orange County, and San Diego (Figure 2-1).

The California HSR System is planned to be implemented in two phases. Phase 1 would connect San Francisco to Los Angeles and Anaheim via the Pacheco Pass and the Central Valley.[1]

2.2.2 Merced to Fresno: Central Valley Wye SEIR/SEIS Background

The Central Valley Wye would be a critical link in the Phase 1 HSR system connecting San Francisco and the Bay Area to Los Angeles and Anaheim. The Authority and FRA's prior program EIR/EIS documents (see Section 1.5, Tiering of Program EIR/EIS Documents) resulted in the selection of two different preferred north-south alternatives through the Central Valley for the

[1] Phase 1 may be constructed in smaller operational segments, depending on available funds.

Source: Authority, 2014

Figure 2-1 California HSR System

Examples 6b: Chapters 1 through 9 (EIR/EIS Document Design and Publication Phase)

2 Alternatives

2.1 Introduction

This chapter describes the background and development of the HSR system and its individual components. This chapter also describes the background and development and details of the alternatives considered for the Merced to Fresno: Central Valley Wye (Central Valley Wye) of the HSR system. All three of the wye alternatives discussed in this chapter are based on the alternatives selected by the California High-Speed Rail Authority (Authority) and Federal Railroad Administration (FRA) at the conclusion of the Tier 1 EIR/EIS processes for the HSR system (see Section 1.5, Tiering of Program EIR/EIS Documents). The design drawings that support the alternatives' descriptions are included as Volume 3 (Alignments and Other Plans) of the Draft Subsequent Environmental Impact Report/ Supplemental Environmental Impact Statement (SEIR/SEIS). This Draft SEIR/SEIS analyzes the environmental impacts of implementing the Central Valley Wye of the HSR system, including wye alternatives, direct and indirect impacts, cumulative impacts, indirect effects, and mitigation measures. Visit the Authority website (www.hsr.ca.gov) to view and download the Draft SEIR/SEIS, request a CD-ROM Draft SEIR/SEIS, or locate a library to review a printed copy of the environmental document. Printed copies of the Draft SEIR/SEIS have been placed in public libraries in the following cities and communities: Sacramento, Merced, Madera, and Chowchilla. The following documents are also available at the Authority's website: alternative analyses preceding preparation of the Project EIR/EIS, materials prepared for coordination with U.S. Army Corps of Engineers (USACE) and U.S. Environmental Protection Agency (USEPA) in compliance with the Clean Water Act Section 404(b)(1) requirements, and technical reports developed for the environmental analyses presented in Chapter 3.

Definition of High-Speed Rail (HSR) System

A system that includes HSR tracks, structures, stations, traction power substations, maintenance facilities, and trains able to travel 220 mph.

2.2 Background

2.2.1 California HSR System Background

The planning, design, construction, and operation of the California HSR System are the responsibility of the Authority, a state governing board formed in 1996. The Authority's statutory mandate is to develop an HSR system that is coordinated with the state's existing transportation network, which includes intercity rail and bus lines, regional commuter rail lines, urban rail and bus transit lines, highways, and airports. The Authority's plans call for high-speed intercity train service on more than 800 miles of tracks throughout California, connecting the major population centers of Sacramento, the San Francisco Bay Area, the Central Valley, Los Angeles, the Inland Empire, Orange County, and San Diego (Table 2-1).

The California HSR System is planned to be implemented in two phases. Phase 1 would connect San Francisco to Los Angeles and Anaheim via the Pacheco Pass and the Central Valley.[1]

Phase 2 would connect from the Central Valley (Merced Station) to the state's capital, Sacramento, and another extension is planned from Los Angeles to San Diego). The HSR system would meet the requirements of Proposition 1A, including the requirement for a maximum nonstop service travel time between San Francisco and Los Angeles of 2 hours and 40 minutes.

2.2.2 Merced to Fresno: Central Valley Wye SEIR/SEIS Background

The Central Valley Wye would be a critical link in the Phase 1 HSR system connecting San Francisco and the Bay Area to Los Angeles and Anaheim. The Authority and FRA's prior program EIR/EIS documents (see Section 1.5, Tiering of Program EIR/EIS Documents) resulted in the selection of two different preferred north-south alternatives through the Central Valley for the Merced to Fresno Section: the corridors along the existing Burlington Northern Santa Fe Railway (BNSF)

[1] Phase 1 may be constructed in smaller operational segments, depending on available funds.

Table 2-1 HSR Performance Criteria

Category	Criteria
System design criteria	▪ Electric propulsion system ▪ Fully grade-separated guideway ▪ Fully access-controlled guideway with intrusion monitoring systems where required ▪ Track geometry to maintain passenger comfort criteria (smoothness of ride, lateral or vertical acceleration less than 0.1 g (i.e., acceleration due to gravity))
System capabilities	▪ Capable of traveling from San Francisco to Los Angeles in approximately 2 hours and 40 minutes ▪ All-weather/all-season operation ▪ Capable of sustained vertical gradient of 2.5 percent without considerable degradation in performance ▪ Capable of operating parcel and special freight service as a secondary use ▪ Capable of safe, comfortable, and efficient operation at speeds over 200 mph ▪ Capable of maintaining operations at 3-minute headways ▪ Equipped with high-capacity and redundant communications systems capable of supporting fully automatic train control
System capacity	▪ Fully dual track mainline with off-line station stopping tracks ▪ Capable of accommodating a wide range of passenger demand (up to 20,000 passengers per hour per direction) ▪ Capable of accommodating normal maintenance activities without disruption to daily operations
Level of service	▪ Capable of accommodating a wide range of service types (express, semi-express/limited stop, and local)

Source: Authority, 2014

Design criteria would address FRA safety standards and requirements as well as a possible Petition for Rule of Particular Applicability that addresses specifications for key design elements for the system. FRA is currently developing safety requirements for HSRs for use in the U.S. FRA will require that the HSR safety regulations be met prior to revenue service operations. The following section describes those system components pertinent to the Central Valley Wye.

2.2.3 Vehicles

Although the exact vehicle-type has not yet been selected, the environmental analyses considered the impacts associated with any of the HSR vehicles. produced in the world that meet the Authority's criteria. All of the world's HSR systems in operation today use electric propulsion with power supplied by an overhead system. These include, among many others, the Train à Grande Vitesse in France, the Shinkansen in Japan and Taiwan, and the InterCity Express in Germany. See Figure 2-1 for examples of typical HSRs.

The Authority is considering an electric multiple unit concept that would equip several train cars (including both end cars) with traction motors compared to a locomotive-hauled train (i.e., one engine in the front and one in the rear). Each train car would have an active suspension and each

Figure 2-1 Examples of Japanese Shinkansen High-speed Trains

Example 7a: Chapter 10 EIR/EIS Distribution (EIR/EIS Content Development Phase)

10 EIR/EIS DISTRIBUTION

The distribution of the *Merced to Fresno Project Section Final Project Environmental Impact Report/Environmental Impact Statement* (EIR/EIS) emphasizes the use of electronic media to ensure cost-effective, broad availability to the public and interested parties. The entire EIR/EIS, appendices, and supporting reports are available on the California High-Speed Rail Authority's web site (www.hsr.ca.gov). The EIR/EIS is also available at the repositories listed below. Electronic copies of the document and technical studies are available on compact disc upon request at the office of the California High-Speed Rail Authority, 700 L Street, Suite 800, Sacramento, CA 95814.

All persons, agencies, and organizations listed in this chapter have been informed of the availability of, and locations to obtain, the EIR/EIS as well as the timing of the 60-day formal comment period. Notice of availability of the EIR/EIS has been included in the *Federal Register*. Repositories and cooperating federal agencies were sent both hard and electronic copies of the EIR/EIS. Copies were filed with the California State Clearinghouse. Each county within the Merced to Fresno Section received a copy of the EIR/EIS. Other federal agencies, state agencies, and selected interested parties listed below have received summary chapters and electronic copies of the EIR/EIS. Summary chapters have been translated into the primary languages of the Merced to Fresno area, including [list all languages]. Federal, state, and county elected officials, mayors of cities with possible stations, and the potentially affected local agencies listed below were mailed an informational brochure and instructions on how to obtain a copy of the EIR/EIS. Additional local elected officials and agency representatives and all others on the project mailing list have been mailed a notification that includes information about how to access the EIR/EIS; the timing of the formal comment period; and public hearing dates, times, and locations.

10.1 Repository Locations

Allensworth Community Services District, 3336 Road 84, Allensworth, Phone: (661) 849-3894

10.2 Federal Agencies

Advisory Council on Historic Preservation, Executive Director, Washington, DC

10.3 State Agencies

California Air Resources Board, Chairman, Sacramento

10.4 Elected Officials

U.S. Senators

The Honorable Barbara Boxer, U.S. Senate

10.5 Regional and Local Agencies

Central Valley Flood Protection Board, Fresno

10.6 Organizations and Businesses

Amtrak, Mayors Advisory Council, Bakersfield

10.7 Native American Contacts

Cold Springs Rancheria of Mono Indians, Mr. Travis Coleman, Chairperson

10.8 Schools and Districts

Fresno County Office of Education, Mr. Larry Powell, Superintendent

Example 7b: Chapter 10 EIR/EIS Distribution (EIR/EIS Document Design and Publication Phase)

10 EIR/EIS Distribution

The distribution of the *Merced to Fresno Project Section Final Project Environmental Impact Report/ Environmental Impact Statement* (EIR/EIS) emphasizes the use of electronic media to ensure cost-effective, broad availability to the public and interested parties. The entire EIR/EIS, appendices, and supporting reports are available on the California High-Speed Rail Authority's web site (www.hsr.ca.gov). The EIR/EIS is also available at the repositories listed below. Electronic copies of the document and technical studies are available on compact disc upon request at the office of the California High-Speed Rail Authority, 700 L Street, Suite 800, Sacramento, CA 95814.

All persons, agencies, and organizations listed in this chapter have been informed of the availability of, and locations to obtain, the EIR/EIS as well as the timing of the 60-day formal comment period. Notice of availability of the EIR/EIS has been included in the *Federal Register*. Repositories and cooperating federal agencies were sent both hard and electronic copies of the EIR/EIS. Copies were filed with the California State Clearinghouse. Each county within the Merced to Fresno Section received a copy of the EIR/EIS. Other federal agencies, state agencies, and selected interested parties listed below have received summary chapters and electronic copies of the EIR/EIS. Summary chapters have been translated into the primary languages of the Merced to Fresno area, including [list all languages]. Federal, state, and county elected officials, mayors of cities with possible stations, and the potentially affected local agencies listed below were mailed an informational brochure and instructions on how to obtain a copy of the EIR/EIS. Additional local elected officials and agency representatives and all others on the project mailing list have been mailed a notification that includes information about how to access the EIR/EIS; the timing of the formal comment period; and public hearing dates, times, and locations.

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10.4 Elected Officials

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The Honorable Barbara Boxer, U.S. Senate

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Amtrak, Mayors Advisory Council, Bakersfield

10.7 Native American Contacts

Cold Springs Rancheria of Mono Indians, Mr. Travis Coleman, Chairperson

10.8 Schools and Districts

Fresno County Office of Education, Mr. Larry Powell, Superintendent

Example 8a: Chapter 11 List of Preparers (EIR/EIS Content Development Phase)

11 PREPARER QUALIFICATIONS

Project Role	Name, Credential	Qualifications
Federal Railroad Administration		
Division Chief	David Valenstein	24 years experience MPA, Harvard University; BAR, Rhode Island School of design
Environmental Protection Specialist	Stephanie B. Perez-Arrieta, PG	23 years experience BS, Geology, Virginia Polytechnic Institute and State University
Southwest Regional Manager	Melissa Elefante DuMond, AICP	14 years experience BS, Environmental Studies, UNC Wilmingtonp; MNR, NC State University; MPA, NC State University
California High-Speed Rail Authority		
Chief Executive Officer	Jeff Morales	29 years experience BS; Biology; George Washington University
Director of Environmental Services		
Senior Environmental Planner, Biology/Natural Science		
Senior Environmental Planner, Cultural Resources		
Senior Environmental Planner, Social Science		
Project Management Team		
Planning Manager	Nicholas Brand	31 years experience AB, English Literature, Dartmouth College; Masters of Regional Planning, University of Massachusetts, Amherst
Deputy Program Director		
Environmental Manager		
Technical Editor		
Document Designer	Dorothy Skans, CDT	40 years experience BA, Communications, University of Washington
Regional Consultant Environmental Team		
Environmental Manager, EIR/EIS Coordinator	Thomas Baily	39 years experience BS and MS, Plant Ecology, University of Michigan
Assistant Environmental Manager		

Example 8b: Chapter 11 List of Preparers (EIR/EIS Design Development and Publication Phase)

11 Preparer Qualifications

Project Role	Name, Credential	Qualifications
Federal Railroad Administration		
Division Chief	David Valenstein	24 years experience MPA, Harvard University; BAR, Rhode Island School of design
Environmental Protection Specialist	Stephanie B. Perez-Arrieta, PG	23 years experience BS, Geology, Virginia Polytechnic Institute and State University
Southwest Regional Manager	Melissa Elefante DuMond, AICP	14 years experience BS, Environmental Studies, UNC Wilmingtonp; MNR, NC State University; MPA, NC State University
California High-Speed Rail Authority		
Chief Executive Officer	Jeff Morales	29 years experience BS; Biology; George Washington University
Director of Environmental Services		
Senior Environmental Planner, Biology/Natural Science		
Senior Environmental Planner, Cultural Resources		
Senior Environmental Planner, Social Science		
Project Management Team		
Planning Manager	Nicholas Brand	31 years experience AB, English Literature, Dartmouth College; Masters of Regional Planning, University of Massachusetts, Amherst
Deputy Program Director		
Environmental Manager		
Technical Editor		
Document Designer	Dorothy Skans, CDT	40 years experience BA, Communications, University of Washington
Regional Consultant Environmental Team		
Environmental Manager, EIR/EIS Coordinator	Thomas Baily	39 years experience BS and MS, Plant Ecology, University of Michigan
Assistant Environmental Manager		

Example 9a: References (EIR/EIS Content Development Phase and all other environmental documents)

REFERENCES

Executive Summary

California High-Speed Rail Authority (Authority) and Federal Railroad Administration (FRA). 2005. *Final Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the proposed California High-Speed Train System*. August 2005.

Chapter 1 Project Purpose, Need, and Objectives

Airports Council International. 2010. *World Airport Traffic Report 2009*. www.airports.org/cda/aci_common/display/main/aci_content07_c.jsp?zn=aci&cp=1-5-54_666_2 (accessed July 2010).

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California High-Speed Rail Authority (Authority) and Federal Railroad Administration (FRA). 2005. *Final Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the proposed California High-Speed Train System.* August 2005.

Chapter 2 Alternatives

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Bremner-Harrison, S., B.L. Cypher, C.M. Fiehler, A.P. Clevenger, and D. Hacker. 2007. *Use of Highway Crossing Structures by Kit Foxes*. Report prepared for the California Department of Transportation. August 2007.

Example 9b: Chapter 12 References (EIR/EIS Document Design and Publication phase)

12 References

Executive Summary

California High-Speed Rail Authority (Authority) and Federal Railroad Administration (FRA). 2005. *Final Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the proposed California High-Speed Train System*. August 2005.

Chapter 1 Project Purpose, Need, and Objectives

Airports Council International. 2010. *World Airport Traffic Report 2009*. www.airports.org/cda/aci_common/display/main/aci_content07_c.jsp?zn=aci&cp=1-5-54_666_2 (accessed July 2010).

Amtrak Government Affairs. 2008. *Amtrak Fact Sheet, Fiscal Year 2008, State of California*. Washington, DC: October 2008. www.amtrak.com/pdf/factsheets/CALIFORNIA08.pdf (accessed July 2010).

California High-Speed Rail Authority (Authority) and Federal Railroad Administration (FRA). 2005. *Final Program Environmental Impact Report/Environmental Impact Statement (EIR/EIS) for the proposed California High-Speed Train System*. August 2005.

Chapter 2 Alternatives

Amtrak. 2008. *Amtrak Annual Report, October 2007-September 2008*. www.amtrak.com/servlet/ContentServer/Page/1241245669222/1237608345018.

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Bremner-Harrison, S., B.L. Cypher, C.M. Fiehler, A.P. Clevenger, and D. Hacker. 2007. *Use of Highway Crossing Structures by Kit Foxes*. Report prepared for the California Department of Transportation. August 2007.

Chapter 3 Affected Environment, Environmental Consequences, and Mitigation Measures

Airports Council International. 2010. *World Airport Traffic Report 2009*. www.airports.org/cda/aci_common/display/main/aci_content07_c.jsp?zn=aci&cp=1-5-54_666_2 (accessed July 2010).

Amtrak Government Affairs. 2008. *Amtrak Fact Sheet, Fiscal Year 2008, State of California*. Washington, DC: October 2008. www.amtrak.com/pdf/factsheets/CALIFORNIA08.pdf (accessed July 2010).

Example 10a: Chapter 13 Glossary of Terms (EIR/EIS Content Development Phase)

13 GLOSSARY OF TERMS

The Glossary of Terms provided below identifies and defines common terms or phrases used in California High-Speed-Rail (HSR) environmental impact report/environmental impact statement (EIR/EIS) documents. The HSR regional consultant shall review and modify the list as needed to include all terms pertinent to the specific HSR section or to remove terms not used in the specific HSR section.

A

A Horizon: The A horizon is the soil zone immediately below the surface from which soluble material and fine-grained particles have been moved downward by water seeping into soil. Varying amounts of organic matter give the A horizon a dark color.

Abatement: Reduction; often used to describe noise mitigation.

Accessibility: The ease with which a site or facility may be reached by passengers and others necessary to the facility's intended function. Also, the extent to which a facility is usable by persons with disabilities, including wheelchair users.

Actual Use: The amount of use that actually occurs.

B

Ballasted Track: Railways installed over a specific type of crushed rock that is graded to support heavily loaded rolling stock.

Barrier: A device intended to contain or redirect an errant vehicle by providing a physical limitation through which a vehicle would not typically pass.

Barrier Offset Distance: The lateral distance from the centerline of the track to the face of the barrier, trackside, or other roadside feature.

Baseline: Foundation or basis to use for comparison purposes.

Bas-Relief: Sculptural element characterized by varied surface planes in low relief.

Btu: British thermal unit, equal to the amount of heat required to raise 1 pound of water 1 degree Fahrenheit at 1 atmosphere of pressure.

Buttressing: An action or structure that provides support or stability.

C

California Endangered Species Act (CESA): A law that mandates that state agencies do not approve a project that would jeopardize the continued existence of endangered species if reasonable and prudent alternatives are available that would avoid a jeopardy finding.

California Environmental Quality Act (CEQA): Legislation enacted in 1970 to protect the quality of the environment for the people of California by requiring public agencies and decision-makers to document and consider the environmental consequences of their actions. CEQA is the state equivalent of the National Environmental Policy Act (NEPA)."

California High-Speed Rail Authority (Authority): The state governing board that has responsibility for planning, designing, constructing, and operating the California High Speed Rail (HSR) System. The Authority's mandate is to develop the HSR system in coordination with the state's existing transportation network, which includes intercity rail and bus lines, regional commuter rail lines, urban rail and bus transit lines, highways, and airports.

Example 10b: Chapter 13 Glossary of Terms (EIR/EIS Document Design and Publication Phase)

13 Glossary of Terms

The glossary of terms provided below identifies and defines common terms or phrases used in California High-Speed-Rail (HSR) environmental impact report/environmental impact statement (EIR/EIS) documents. The HSR regional consultant shall review and modify the list as needed to include all terms pertinent to the specific HSR section or to remove terms not used in the specific HSR section.

A

A Horizon: The A horizon is the soil zone immediately below the surface from which soluble material and fine-grained particles have been moved downward by water seeping into soil. Varying amounts of organic matter give the A horizon a dark color.

Abatement: Reduction; often used to describe noise mitigation.

Accessibility: The ease with which a site or facility may be reached by passengers and others necessary to the facility's intended function. Also, the extent to which a facility is usable by persons with disabilities, including wheelchair users.

Actual Use: The amount of use that actually occurs.

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Ballasted Track: Railways installed over a specific type of crushed rock that is graded to support heavily loaded rolling stock.

Barrier: A device intended to contain or redirect an errant vehicle by providing a physical limitation through which a vehicle would not typically pass.

Barrier Offset Distance: The lateral distance from the centerline of the track to the face of the barrier, trackside, or other roadside feature.

Baseline: Foundation or basis to use for comparison purposes.

Bas-Relief: Sculptural element characterized by varied surface planes in low relief.

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California High-Speed Rail Authority (Authority): The state governing board that has responsibility for planning, designing, constructing, and operating the California High Speed Rail (HSR) System. The Authority's mandate is to develop the HSR system in coordination with the state's existing transportation network, which includes intercity rail and bus lines, regional commuter rail lines, urban rail and bus transit lines, highways, and airports.

California High-Speed Rail (HSR): *See* **High-Speed Rail**.

California High-Speed Rail (HSR) System: *See* **High-Speed Rail System**.

Capital Cost: The total cost of acquiring an asset or constructing a project.

Capitol Corridor: An existing intercity rail alignment approximating the I-80 corridor; carries freight traffic, long-distance Amtrak service, and intrastate "Capitol" service.

Carbon Dioxide (CO_2): A colorless, odorless gas that occurs naturally in the atmosphere; fossil fuel combustion emits significant quantities of CO_2.

Carbon Monoxide (CO): A colorless, odorless gas generated in the urban environment primarily by the incomplete combustion of fossil fuels in motor vehicles.

Example 11: Chapter 14 Index (EIR/EIS Document Design and Publication Phase)

14 Index

[Editor's note: Index section is not required during the content development phase.]

Example 12a: Chapter 15 Acronyms and Abbreviations (EIR/EIS Content Development Phase)

15 ACRONYMS AND ABBREVIATIONS

This list of acronyms and abbreviations identifies and defines common terms used in high-speed-rail (HSR) environmental impact report/environmental impact statement (EIR/EIS) documents. The HSR regional consultant shall review and modify the list as needed to include all terms pertinent to the specific HSR section or to remove terms not used in the specific HSR section.

°C	degree(s) Celsius
°F	degree(s) Fahrenheit
AAI	All Appropriate Inquiry
AASHTO	American Association of State Highway and Transportation Officials
AB	(California) Assembly Bill
ac	alternating current
AC	air conditioning
ACGIH	American Conference of Government Industrial Hygienists, Inc.
ARRA	American Recovery and Reinvestment Act
ASR	Archeological Survey Report
AST	aboveground storage tank
ASTM	ASTM International (formerly known as the American Society for Testing and Materials)
AT&SF	Atchison, Topeka, and Santa Fe
ATC	automatic train control
ATCM	Airborne Toxic Control Measure
ATP	Archaeological Treatment Plan
Authority	California High-Speed Rail Authority
B&B	Brown and Bryant
B.P.	year(s) before the present
BAC	Business Advisory Council
BACT	best available control technology
BA-CV MMRP	Bay Area-Central Valley Mitigation Monitoring and Reporting Program
BART	Bay Area Rapid Transit
Basin Plan	Water Quality Control Plan for the Tulare Lake Basin
Bay Area	San Francisco Bay Area
BCA	benefit-cost analysis
BLM	Bureau of Land Management
BMP	best management practice
BNSF	Burlington Northern & Santa Fe Railway
BRMP	Biological Resources Management Plan
Btu	British thermal unit
C&D	construction and demolition
C.F.R.	Code of Federal Regulations

Example 12b: Chapter 15 Acronyms and Abbreviations (EIR/EIS Document Design and Publication Phase)

15 Acronyms and Abbreviations

This list of acronyms and abbreviations identifies and defines common terms used in high-speed-rail (HSR) environmental impact report/environmental impact statement (EIR/EIS) documents. The HSR regional consultant shall review and modify the list as needed to include all terms pertinent to the specific HSR section or to remove terms not used in the specific HSR section.

°C	degree(s) Celsius
°F	degree(s) Fahrenheit
AAI	All Appropriate Inquiry
AASHTO	American Association of State Highway and Transportation Officials
AB	(California) Assembly Bill
ac	alternating current
AC	air conditioning
ACGIH	American Conference of Government Industrial Hygienists, Inc.
ARRA	American Recovery and Reinvestment Act
ASR	Archeological Survey Report
AST	aboveground storage tank
ASTM	ASTM International (formerly known as the American Society for Testing and Materials)
AT&SF	Atchison, Topeka, and Santa Fe
ATC	automatic train control
ATCM	Airborne Toxic Control Measure
ATP	Archaeological Treatment Plan
Authority	California High-Speed Rail Authority
B&B	Brown and Bryant
B.P.	year(s) before the present
BAC	Business Advisory Council
BACT	best available control technology
BA-CV MMRP	Bay Area-Central Valley Mitigation Monitoring and Reporting Program
BART	Bay Area Rapid Transit
Basin Plan	Water Quality Control Plan for the Tulare Lake Basin
Bay Area	San Francisco Bay Area
BCA	benefit-cost analysis
BLM	Bureau of Land Management
BMP	best management practice
BNSF	Burlington Northern & Santa Fe Railway
BRMP	Biological Resources Management Plan
Btu	British thermal unit
C&D	construction and demolition
C.F.R.	Code of Federal Regulations

Example 12c: Acronyms and Abbreviations (all other environmental documents)

ACRONYMS AND ABBREVIATIONS

AB	(California) Assembly Bill
Authority	California High-Speed Rail Authority
BMP	best management practice
BRT	bus rapid transit
C.F.R.	Code of Federal Regulations
Caltrans	California Department of Transportation
CHSR	California High-Speed Rail
CHSRA	California High-Speed Rail Authority (see Authority)
COG	Council of Governments
DEIR	Draft Environmental Impact Report
DEIS	Draft Environmental Impact Statement
EIR	environmental impact report
EIS	environmental impact statement
FAA	Federal Aviation Administration
Fed. Reg.	Federal Register
FEIR	Final Environmental Impact Report
FEIS	Final Environmental Impact Statement
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Administration
HCM	Highway Capacity Manual
HDM	Highway Design Manual
HOV	high-occupancy vehicle
HSR	high-speed rail
PMT	Program Management Team
RC	Regional Consultant
ROW	right-of-way
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SB	(California) Senate Bill, southbound (editor's note: use in tables or figures only)
SR	State Route
U.S.C.	U.S. Code

[Editor's notes: Acronyms and Abbreviations section follows the Table of Contents. This is a sample of the even page format.]

Example 13a: Appendices (EIR/EIS Content Development Phase and all other environmental documents)

APPENDIX B: ENVIRONMENTAL RESOURCE AREA DIMENSIONS

The California High-Speed Rail Authority (Authority) and project management team (PMT) have developed guidance on the environmental resource study area (RSA): the area in which all environmental investigations, specific to each resource type, are conducted to determine the resource characteristics and potential impacts of the project segment. The RSA contains all of the following components:

- All facilities or features within the project footprint (PF)
- Area specific to each resource or resource issue to evaluate the intensity and determine the significance of direct and indirect impacts, permanent and temporary impacts, beneficial and adverse impacts of high-speed rail (HSR) improvements, and activities
- Areas needed to implement, operate, or maintain mitigation measures or off-site mitigation measures and mitigation sites (including relocations)
- Areas to identify and analyze potential secondary impacts of implementing mitigation

For cumulative impacts, the RSA also includes the geographic extent of each affected resource within which project impacts accumulate or interact with the impacts of other actions, including adjacent HSR sections. The study distance is measured from centerline (CL) of the HSR alignment or edge of PF, as indicated.

Project Footprint

The PF is the area needed to construct, operate, and maintain all permanent HSR features (including tracks and guideway structures, train signaling and controls and communications facilities, traction power distribution and substations, switching and paralleling stations, passenger platforms and stations, maintenance-of-way facilities, maintenance facilities, HSR perimeter security controls, passenger station access, HSR facility operation or maintenance access, sound walls or other peripheral features owned and maintained by the Authority, freight or passenger or transit railroad grade separations, roadway grade separations and adjoining street or intersection changes, contiguous access to severed parcels, new utility features, existing utility relocations, access to new or relocated utility features, drainage facilities, any other physical changes within the area required to construct and operate HSR, and HSR property rights or licenses to accommodate HSR construction, operation, and maintenance (temporary and permanent ground or aerial fee properties, easements or licenses for HSR facility and associated feature sites, HSR operations and maintenance activities, operation or maintenance access, utility connections and maintenance, HSR stormwater and wildlife management features, construction activities, mobilization, staging and access).

The remainder property area is the area adjacent to the PF that consists of all severed or residual parcels created by the Authority's actions. These properties are not needed for HSR improvements and activities, relocations or other consequential actions, mitigation measures or mitigation sites, yet may be acquired (in fee or easement) to compensate for direct or indirect disruption of land uses, loss of usable land area, or economic utility.

The following table presents baseline dimensions for environmental and community impact investigations. Actual RSAs must consider the geographical extent of the HSR project section, physical proximity to the HSR project and associated physical changes and influence of HSR operations, and all relevant factors related to resource condition, characteristics, and physical and social contexts. An acronym key is provided following the table.

Example 13b: Appendices (EIR/EIS Document Design and Publication Phase)

CALIFORNIA High-Speed Rail Authority
Appendix B

Appendix B: Environmental Resource Area Dimensions

The California High-Speed Rail Authority (Authority) and project management team (PMT) have developed guidance on the environmental resource study area (RSA): the area in which all environmental investigations, specific to each resource type, are conducted to determine the resource characteristics and potential impacts of the project segment. The RSA contains all of the following components:

- All facilities or features within the project footprint (PF)
- Area specific to each resource or resource issue to evaluate the intensity and determine the significance of direct and indirect impacts, permanent and temporary impacts, beneficial and adverse impacts of high-speed rail (HSR) improvements, and activities
- Areas needed to implement, operate, or maintain mitigation measures or off-site mitigation measures and mitigation sites (including relocations)
- Areas to identify and analyze potential secondary impacts of implementing mitigation

For cumulative impacts, the RSA also includes the geographic extent of each affected resource within which project impacts accumulate or interact with the impacts of other actions, including adjacent HSR sections. The study distance is measured from centerline (CL) of the HSR alignment or edge of PF, as indicated.

Project Footprint

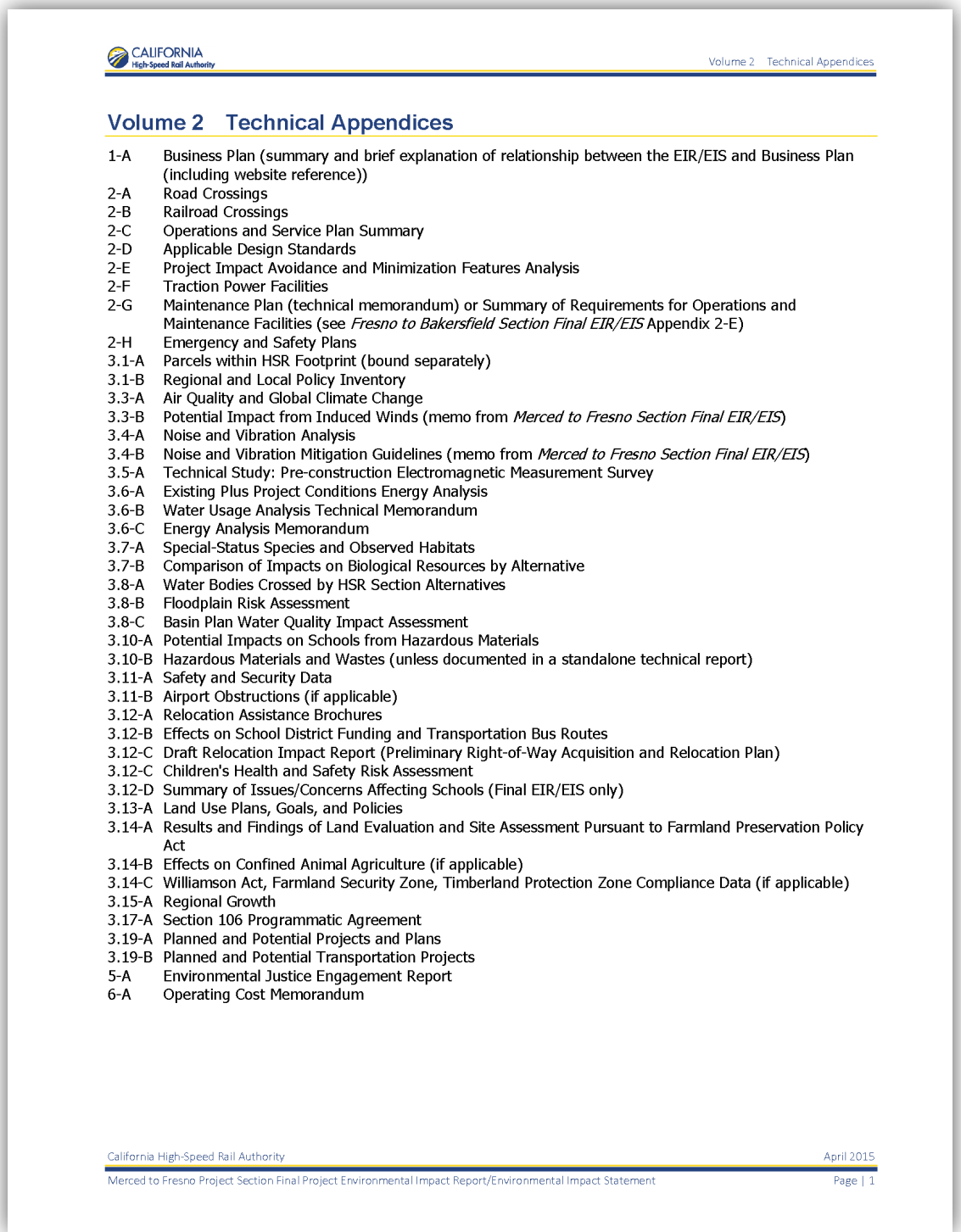
The PF is the area needed to construct, operate, and maintain all permanent HSR features (including tracks and guideway structures, train signaling and controls and communications facilities, traction power distribution and substations, switching and paralleling stations, passenger platforms and stations, maintenance-of-way facilities, maintenance facilities, HSR perimeter security controls, passenger station access, HSR facility operation or maintenance access, sound walls or other peripheral features owned and maintained by the Authority, freight or passenger or transit railroad grade separations, roadway grade separations and adjoining street or intersection changes, contiguous access to severed parcels, new utility features, existing utility relocations, access to new or relocated utility features, drainage facilities, any other physical changes within the area required to construct and operate HSR, and HSR property rights or licenses to accommodate HSR construction, operation, and maintenance (temporary and permanent ground or aerial fee properties, easements or licenses for HSR facility and associated feature sites, HSR operations and maintenance activities, operation or maintenance access, utility connections and maintenance, HSR stormwater and wildlife management features, construction activities, mobilization, staging and access).

The remainder property area is the area adjacent to the PF that consists of all severed or residual parcels created by the Authority's actions. These properties are not needed for HSR improvements and activities, relocations or other consequential actions, mitigation measures or mitigation sites, yet may be acquired (in fee or easement) to compensate for direct or indirect disruption of land uses, loss of usable land area, or economic utility.

The following table presents baseline dimensions for environmental and community impact investigations. Actual RSAs must consider the geographical extent of the HSR project section, physical proximity to the HSR project and associated physical changes and influence of HSR operations, and all relevant factors related to resource condition, characteristics, and physical and social contexts. An acronym key is provided following the table.

Example 14: Volume 2, Technical Appendices (EIR/EIS both phases)

The analytical conclusions presented in Chapters 2 through 5 are based on substantial evidence, which is supported by detail contained within Volume 2, Technical Appendices. The outline below provides a suggested list of support documentation. These are considered environmental documents and preparation should follow the same formatting provided in these Guidelines.



CALIFORNIA High-Speed Rail Authority — Volume 2 Technical Appendices

Volume 2 Technical Appendices

1-A Business Plan (summary and brief explanation of relationship between the EIR/EIS and Business Plan (including website reference))
2-A Road Crossings
2-B Railroad Crossings
2-C Operations and Service Plan Summary
2-D Applicable Design Standards
2-E Project Impact Avoidance and Minimization Features Analysis
2-F Traction Power Facilities
2-G Maintenance Plan (technical memorandum) or Summary of Requirements for Operations and Maintenance Facilities (see *Fresno to Bakersfield Section Final EIR/EIS* Appendix 2-E)
2-H Emergency and Safety Plans
3.1-A Parcels within HSR Footprint (bound separately)
3.1-B Regional and Local Policy Inventory
3.3-A Air Quality and Global Climate Change
3.3-B Potential Impact from Induced Winds (memo from *Merced to Fresno Section Final EIR/EIS*)
3.4-A Noise and Vibration Analysis
3.4-B Noise and Vibration Mitigation Guidelines (memo from *Merced to Fresno Section Final EIR/EIS*)
3.5-A Technical Study: Pre-construction Electromagnetic Measurement Survey
3.6-A Existing Plus Project Conditions Energy Analysis
3.6-B Water Usage Analysis Technical Memorandum
3.6-C Energy Analysis Memorandum
3.7-A Special-Status Species and Observed Habitats
3.7-B Comparison of Impacts on Biological Resources by Alternative
3.8-A Water Bodies Crossed by HSR Section Alternatives
3.8-B Floodplain Risk Assessment
3.8-C Basin Plan Water Quality Impact Assessment
3.10-A Potential Impacts on Schools from Hazardous Materials
3.10-B Hazardous Materials and Wastes (unless documented in a standalone technical report)
3.11-A Safety and Security Data
3.11-B Airport Obstructions (if applicable)
3.12-A Relocation Assistance Brochures
3.12-B Effects on School District Funding and Transportation Bus Routes
3.12-C Draft Relocation Impact Report (Preliminary Right-of-Way Acquisition and Relocation Plan)
3.12-C Children's Health and Safety Risk Assessment
3.12-D Summary of Issues/Concerns Affecting Schools (Final EIR/EIS only)
3.13-A Land Use Plans, Goals, and Policies
3.14-A Results and Findings of Land Evaluation and Site Assessment Pursuant to Farmland Preservation Policy Act
3.14-B Effects on Confined Animal Agriculture (if applicable)
3.14-C Williamson Act, Farmland Security Zone, Timberland Protection Zone Compliance Data (if applicable)
3.15-A Regional Growth
3.17-A Section 106 Programmatic Agreement
3.19-A Planned and Potential Projects and Plans
3.19-B Planned and Potential Transportation Projects
5-A Environmental Justice Engagement Report
6-A Operating Cost Memorandum

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Sample 1: Sample text for EIR/EIS document page on the Authority website[8]

The California High-Speed Rail Authority (Authority) and the Federal Railroad Administration (FRA) have prepared the [type of document] for the [project section] of the high-speed rail project. The [type of document] is available to the public and public agencies pursuant to the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) prior to Authority and FRA decisions at the conclusion of this project-level environmental review process. The Authority is the CEQA lead agency and FRA is the NEPA lead agency.

In addition to posting the electronic version of the [name of document] on this website, printed copies are provided at libraries and community centers in [list counties where document is available]. A complete listing is available below. You may also request a CD-ROM of the [name of document] by calling (866) 761-7755.

Document Organization

The [type of document] for the [project section] includes the following:

- Volume 1—Report
- Volume 2—Technical Appendices
- Volume 3—Alignment Plans
- Volume 4—Response to Comments on Draft EIR/EIS
- Staff Response to Comments Raised Orally

The purpose of environmental documents is to disclose information to decision makers and the public. While the science and analysis that supports this [type of document] is complex, this document is intended for the general public. Every attempt has been made to limit technical terms and the use of acronyms. Where this cannot be avoided, the terms and acronyms are defined the first time they are used, and a list of acronyms and abbreviations *[editor's note: provide correct hyperlink]* is provided in Chapter 14 of this document.

For a reader with limited time to devote to this document, the Highlights *[editor's note: provide correct hyperlink]* is the place to start. For more detail than found in the Highlights, an Executive Summary is available. The Executive Summary *[editor's note: provide correct hyperlink]* provides an overview of the substantive chapters and includes a table listing the potential environmental impacts for each environmental resource topic and directs the reader where to get details elsewhere in the document. A brief explanation of each chapter is also provided in the [type of document].

The following documents are available in Adobe Acrobat PDF format, which require Adobe Acrobat Reader. If you do not have a copy of this free software, you can download it from Adobe at http://get.adobe.com/reader *[editor's note: verify hyperlink is active]*. If you already have a copy of this software, simply click on the link and it will open up automatically. Please note that many of these files are very large and could take up to several minutes to download.

[8] *Editor's note: This page is available as a template on the PMT Environmental SharePoint site (EIR-EIS_WebpageIntroduction). See Section 4.2 for word processing instructions on using this sample. Remove editor's notes before publishing.*

Sample 2: Sample text for brief explanation of each EIR/EIS chapter[9]

Volume 1—EIR/EIS Report

- **Chapter 1 Project Purpose, Need, and Objectives** explains the reasons and rationale for proposing the HSR project and provides a history of the HSR planning process.
- **Chapter 2 Alternatives** describes the proposed [project section] HSR alternatives and design options, HSR station options, and maintenance facility options and includes the No Project Alternative to which the HSR alternatives are compared. This chapter contains illustrations and maps of the HSR alternatives; describes project construction activities; and describes features of the HSR alternatives that are designed to avoid or minimize adverse impacts upon transportation, environmental, and community resources or conditions. The first two chapters describe the project that is analyzed in the remainder of the EIR/EIS document.
- **Chapter 3 Affected Environment, Environmental Consequences, and Mitigation Measures** provides detailed information about the existing transportation, environmental, and community resources or conditions in the area of the proposed HSR project; the potential for the proposed HSR project alternatives to adversely impact those resources or conditions; and actions to reduce these impacts (called mitigation measures).
- **Chapter 4 Section 4(f)/Section 6(f) Evaluation** summarizes parks, historic properties, and wildlife refuge resources in accordance with Section 4(f) of the Department of Transportation Act of 1966 and Section 6(f) of the Land and Water Conservation Funds Act. This chapter describes alternatives to avoid harm and measures to minimize harm to these resources.
- **Chapter 5 Environmental Justice** describes potential project and cumulative impacts on minority or low-income populations and describes the process for outreach to EJ populations.
- **Chapter 6 Project Costs and Operations** summarizes the estimated costs for building, operating, and maintaining each [project section] HSR alternative evaluated in the project EIR/EIS, including funding and financial risk.
- **Chapter 7 Other CEQA/NEPA Considerations** summarizes the project's significant adverse environmental effects, including those that cannot be avoided if the HSR project is implemented. This chapter also summarizes the significant irreversible environmental changes, irretrievable commitments of resources, or loss of future options that would occur as a result of the HSR project.
- **Chapter 8 Preferred Alternative** identifies the preferred HSR alternative for the [project section] alignment, stations, and (as applicable) maintenance facilities. This chapter also describes the environmentally superior alternative and the least environmentally damaging, practicable alternative.
- **Chapter 9 Public and Agency Involvement** contains summaries of outreach and coordination activities with agencies, stakeholders, and the general public.
- **Chapter 10 EIR/EIS Distribution** identifies individuals and organizations informed of the availability of the [type of document] and the repository locations where the environmental documents can be reviewed.
- **Chapter 11 List of Preparers** provides the names and responsibilities of the authors of the [type of document].
- **Chapter 12 References/Sources Used in Document Preparation** provides the inventory of references and contacts used in writing the [type of document].

[9] *Editor's note: This page is available as a template on the PMT Environmental SharePoint site (EIR-EIS_WebpageChapterExplanation). See Section 4.2 for word processing instructions on using this sample. Remove editor's notes before publishing.*

- **Chapter 13 Glossary of Terms** provides definitions for certain words or terms used in the [type of document].
- **Chapter 14 Index** provides a tool to cross-reference major topics discussed in the [type of document].
- **Chapter 15 Acronyms and Abbreviations** lists the acronyms and abbreviations used in the [type of document].

Volume 2—Technical Appendices

These appendices provide additional, detailed technical information that supports the analysis and conclusions in Volume 1 of the [type of document].

Volume 3—Alignment Plans

This volume contains the preliminary engineering plans that detail the routes of the alternatives. Volume 3 also includes conceptual designs for the station sites.

Volume 4—Response to Comments on Draft EIR/EIS

Volume 4 contains comments received on the Draft EIR/EIS and the responses to those comments.

MS Word Templates for EIR/EIS Files—Content Development Phase

MS Word templates for EIR/EIS document components are available for download from the PMT Environmental SharePoint site (*see* the Work Templates tab in the Viewing Library). Before beginning preparation of any documents, confer with the PMT to confirm the document outline. Following is a list, by title, of the MS Word file templates located in SharePoint.

EIR-EIS_Cover
EIR-EIS_Title_Page
EIR-EIS_Signature_Page
EIR-EIS_TableOfContents
EIR-EIS_Summary
EIR-EIS_Chapter1_Purpose
EIR-EIS_Chapter2_Alternatives
EIR-EIS_Section3.1_Introduction
EIR-EIS_Section3.2_Transportation
EIR-EIS_Section3.3_AirQuality
EIR-EIS_Section3.4_NoiseVibration
EIR-EIS_Section3.5_ElectromagneticFields
EIR-EIS_Section3.6_PublicUtilitiesEnergy
EIR-EIS_Section3.7_BiologicalResourcesWetlands
EIR-EIS_Section3.8_HydrologyWaterResources
EIR-EIS_Section3.9_GeologySoils
EIR-EIS_Section3.10_HazardousMaterials
EIR-EIS_Section3.11_SafetySecurity
EIR-EIS_Section3.12_SocioeconomicsCommunities
EIR-EIS_Section3.13_StationPlanningLandUse
EIR-EIS_Section3.14_AgriculturalFarmlandForestLand
EIR-EIS_Section3.15_ParksRecreationOpenSpace
EIR-EIS_Section3.16_AestheticsVisuaQuality
EIR-EIS_Section3.17_CulturalResources
EIR-EIS_Section3.18_RegionalGrowth
EIR-EIS_Section3.19_CumulativeImpacts
EIR-EIS_Chapter4_Section4f-6f
EIR-EIS_Chapter5_EnvironmentalJustice
EIR-EIS_Chapter6_ProjectCostsAndOperations
EIR-EIS_Chapter7_OtherCEQA-NEPAConsiderations
EIR-EIS_Chapter8_PreferredAlternative
EIR-EIS_Chapter9_PublicAgencyInvolvement
EIR-EIS_Chapter10_Distribution
EIR-EIS_Chapter11_Preparers
EIR-EIS_Chapter12_References
EIR-EIS_Chapter13_Glossary
EIR-EIS_Chapter14_Index
EIR-EIS_Chapter15_AcronymsAbbreviations
EIR-EIS_Appendix
EIR-EIS_WebpageIntroduction
EIR-EIS_WebpageChapterExplanation

MS Word Templates for EIR/EIS Files—Document Design and Publication Phase

Instructions for converting files created in the content development phase are provided in Section 5.2 of the Guidelines. The following styles template is available for importing document design and publication phase styles into existing files. Also available is an Excel file that can be used as a quality control checklist to maintain consistency throughout the multiple EIR/EIS files.

HSR_EIR-EIS_Publication_Styles.dotx

HSR_Consistency_Checklist.xlsx

MS Word Templates for Environmental Technical Reports

MS Word templates for environmental technical reports are available for download from the PMT Environmental SharePoint site (*see* the Work Templates tab in the Viewing Library) in the following MS Word files. Before beginning preparation of any documents, confer with the PMT to confirm the document outline. These templates are not project-specific and require replacement of the background graphic on the cover page (*see* Section 4.2.2.1 of the Guidelines) and applicable project section information entered as instructed on the first page of the file.

EnvTechReport-Transportation

EnvTechReport-AirQuality

EnvTechReport-AestheticsVisualQuality

EnvTechReport-NoiseVibration

EnvTechReport-GeologySoilsSeismicity

EnvTechReport-PaleontologicalResources

EnvTechReport-HazardousMaterialsWastes

EnvTechReport-HydrologyWaterResources

EnvTechReport-BiologicalResourcesWetlands

WetlandsDelineation

BiologicalAssessment

WatershedEvaluationReport

*NEPA-404-408_CheckpointA

*NEPA-404-408_CheckpointB

*NEPA-404-408_CheckpointC (including Draft Compensatory Mitigation Plan)

CompensatoryMitigationPlan

CRAMAnalysis

CommunityImpactAssessment

DraftRelocationImpactReport

*ArcheologicalSurveyReport

HistoricArchitecturalSurveyReport

HistoricPropertySurveyReport

*ArchaeologicalTreatmentPlan

*[*Editor's note: provision of these templates is pending completion of document outlines.]*

Cover Templates for Environmental Documents

Alignment Background Graphic

JPG files are available for download from the PMT Environmental SharePoint site (*see* the Work Templates tab in the Viewing Library). Use the applicable project section background jpg to replace the statewide background in the environmental technical report templates listed above (*see* instructions in Section 4.2.2.1 of the Guidelines).

Statewide-EnvDocCover-Background.jpg (Statewide)
BP-EnvDocCover-Background.jpg (Bakersfield to Palmdale)
FB-EnvDocCover-Background.jpg (Fresno to Bakersfield)
FJ-EnvDocCover-Background.jpg (San Francisco to San Jose)
JM-EnvDocCover-Background.jpg (San Jose to Merced)
K2L-EnvDocCover-Background.jpg (Burbank to Los Angeles)
LD-EnvDocCover-Background.jpg (Los Angeles to San Diego)
LO-EnvDocCover-Background.jpg (Los Angeles to Anaheim)
MF-EnvDocCover-Background.jpg (Merced to Fresno)
MS-EnvDocCover-Background.jpg (Merced to Sacramento)
P2K-EnvDocCover-Background.jpg (Palmdale to Burbank)

Environmental Document Cover Templates

MS Word files are available for download from the PMT Environmental SharePoint site (*see* the Work Templates tab in the Viewing Library). Use the applicable project-specific template for environmental documents that are not based on an existing template. See Section 4.2.2.2 for instructions on how to use these templates with existing documents.

Statewide-EnvDocCover-Template.docx (Statewide)
Statewide-EnvDocCover-Template-11x17.docx (Statewide)

BP-EnvDocCover-Template.docx (Bakersfield to Palmdale)
BP-EnvDocCover-Template-11x17.docx (Bakersfield to Palmdale)

FB-EnvDocCover-Template.docx (Fresno to Bakersfield)
FB-EnvDocCover-Template-11x17.docx (Fresno to Bakersfield)

FJ-EnvDocCover-Template.docx (San Francisco to San Jose)
FJ-EnvDocCover-Template-11x17.docx (San Francisco to San Jose)

JM-EnvDocCover-Template.docx (San Jose to Merced)
JM-EnvDocCover-Template-11x17.docx (San Jose to Merced)

K2L-EnvDocCover-Template.docx (Burbank to Los Angeles)
K2L-EnvDocCover-Template-11x17.docx (Burbank to Los Angeles)

LD-EnvDocCover-Template.docx (Los Angeles to San Diego)
LD-EnvDocCover-Template-11x17.docx (Los Angeles to San Diego)

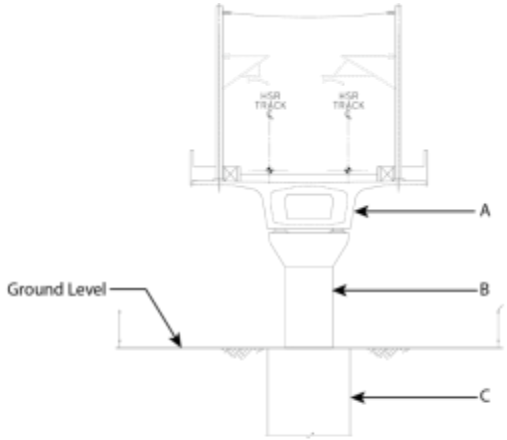
LO-EnvDocCover-Template.docx (Los Angeles to Anaheim)
LO-EnvDocCover-Template-11x17.docx (Los Angeles to Anaheim)

MF-EnvDocCover-Template.docx (Merced to Fresno)
MF-EnvDocCover-Template-11x17.docx (Merced to Fresno)

MS-EnvDocCover-Template.docx (Merced to Sacramento)
MS-EnvDocCover-Template-11x17.docx (Merced to Sacramento)

P2K-EnvDocCover-Template.docx (Palmdale to Burbank)
P2K-EnvDocCover-Template-11x17.docx (Palmdale to Burbank)

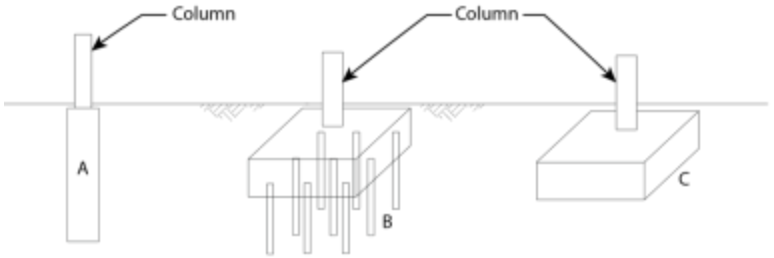
APPENDIX C: STRUCTURAL DESIGN TERMINOLOGY



A - Superstructure, shown is "Box Girder" type. They may be individual precast "I" girders

B - Aerial support structures are generally called Bents or Piers. The above-ground support is a Column

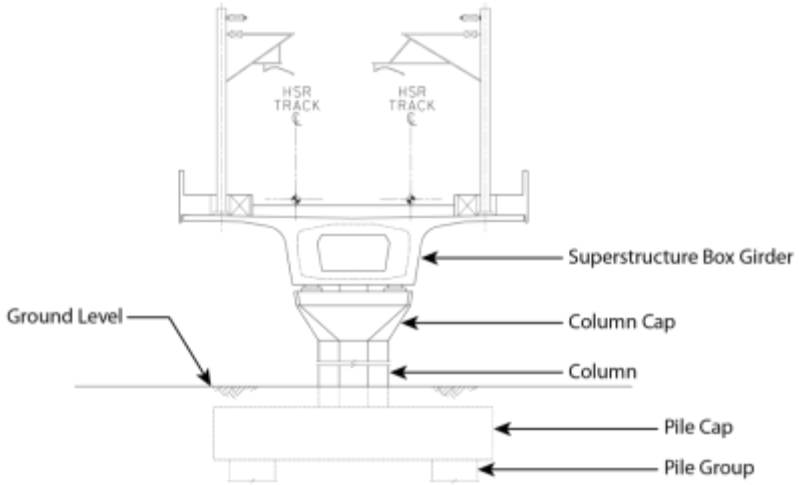
C - Foundation: Piles or Shafts (Shown). Foundations may also be group of concrete or steel piles with a pile cap, or a spread footing without piles on appropriate soil.



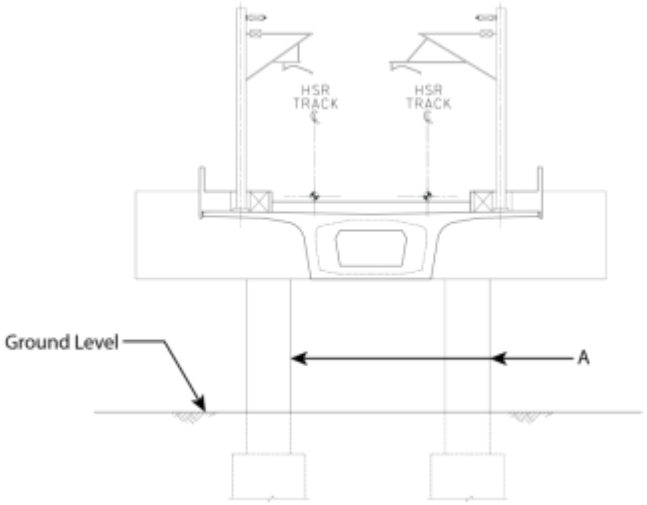
A - Cast in Drilled Hole (CIDH) or Cast in Steel Shell (CISS) pile or shaft.

B - Piles or Shafts with a pile cap; they can be driven or drilled, concrete or steel, piles or shafts.

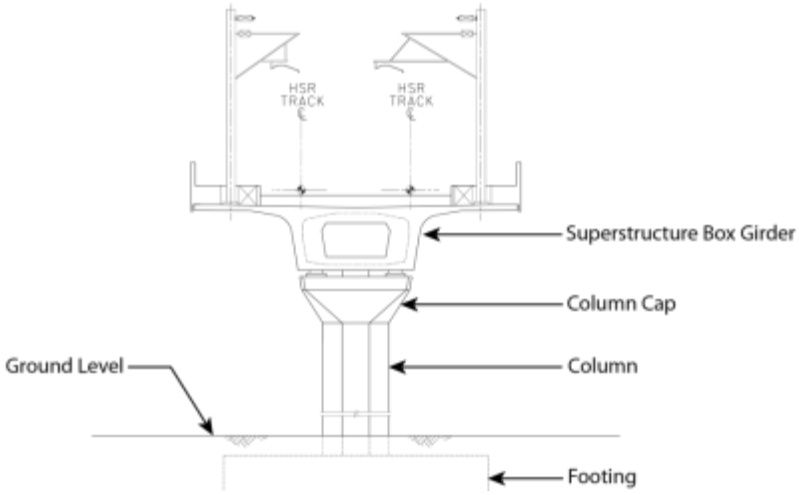
C - If soil conditions are appropriate, a footing with no piles can be utilized.

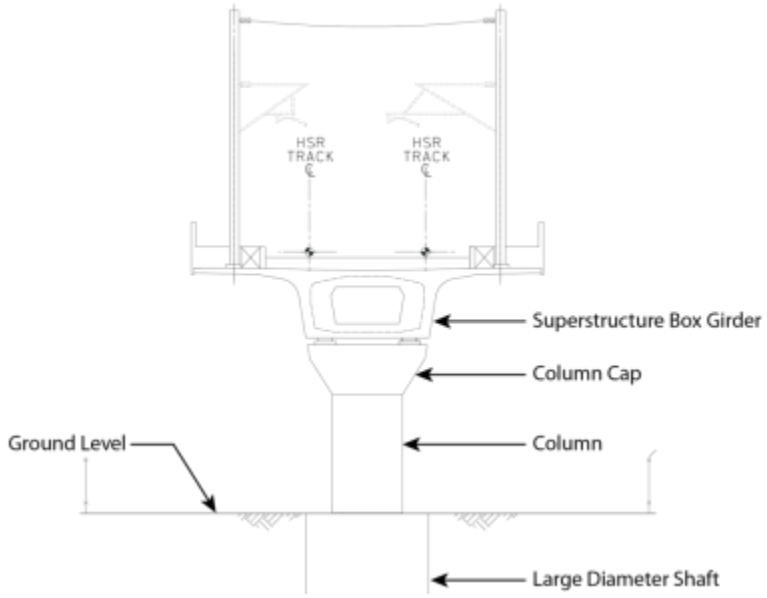


Single-column bent



A = Two-column bent (also referred to as "outrigger bent" or "straddle bent"


HSR TRACK
HSR TRACK
Superstructure Box Girder
Column Cap
Column
Ground Level
Footing


HSR TRACK
HSR TRACK
Superstructure Box Girder
Column Cap
Column
Ground Level
Large Diameter Shaft

APPENDIX D: ACRONYMS AND ABBREVIATIONS

This list of acronyms and abbreviations identifies and defines common terms used in California High-Speed-Rail (HSR) project-level environmental impact report/environmental impact statement (EIR/EIS) documents. The Regional Consultant will review and modify the list as needed to include all topical, geographic, institutional, or other terms pertinent to the specific HSR project section (or project) or to remove terms not used in the specific HSR project section (or project). The Authority's *Style and Branding Guide* provides detailed direction on requirements for acronyms and abbreviations used in all official Authority communications and documents.

Word Processing Protocols

The following list is created as a 2-column, nonbordered table with each acronym in a separate row for ease of alphabetizing. If table gridlines are not visible on screen, take the following steps:

- Place cursor in a cell in the table (Table Tools tab will appear above ribbons at the top of the screen)
- Click on Layout tab and then click on View Gridlines icon in Table group (shaded dash lines will appear around every cell)

The MS Word template for this list is available for download from the PMT Environmental SharePoint site (Work Templates tab in the Viewing Library): EIR-EIS_Chapter15_ AcronymsAbbreviations. Take the following steps to revise the file to be project-specific:

- To delete an acronym
  - Highlight the entire row (move cursor to the left of the row until it turns into a right-facing arrow and then left click to select one row or left click and drag to select multiple rows)
  - Press Backspace or Ctrl + X (**DO NOT** press Delete—which would only delete cell contents but not delete the row itself)
- To add an acronym
  - Scroll to the last row in the list and place cursor in the right-hand cell
  - Press the Tab key to add a new row
  - Enter new acronyms *[editor's note: be sure to press the Tab key after each entry to keep entries in separate rows]*
- To alphabetize the list
  - When all revisions have been made to the list, select the entire table (move cursor above the first column and hover until it becomes a down-pointing arrow and then left click)
  - Click on the Sort icon (Home ribbon, Paragraph group) and click OK

°C	degree(s) Celsius
°F	degree(s) Fahrenheit
AAI	All Appropriate Inquiry
AAR	Association of American Railroads
AASHTO	American Association of State Highway and Transportation Officials
AB	(California) Assembly Bill
ac	alternating current
AC	air conditioning
ac.	acres

ACGIH	American Conference of Government Industrial Hygienists, Inc.
ACHP	Advisory Council on Historic Preservation
ACM	asbestos-containing material
ACS	(U.S.) American Community Survey
ADA	Americans with Disabilities Act
ADRP	archeological data recovery program
ADT	average daily traffic
AJD	approved jurisdictional determination
aka	also known as
ALUCP	Airport Land Use Compatibility Plan
AMP	Airport Master Plan
ANSI	American National Standards Institute
APCD	air pollution control district
APE	area of potential effect
APN	Assessor's Parcel Number
APS	alternate planning strategy
APTA	American Public Transportation Association
APZ	Agricultural Protection Zone
AQMD	air quality management district
AREMA	American Railway Engineers and Maintenance of Way Association
ARPA	Archaeological Resources Protection Act
ARRA	American Recovery and Reinvestment Act
ASCE	American Society of Civil Engineers
ASR	Archeological Survey Report
AST	aboveground storage tank
ASTM	ASTM International (formerly known as the American Society for Testing and Materials)
AT&SF	Atchison, Topeka, and Santa Fe Railroad
ATC	automatic train control
ATCM	Airborne Toxic Control Measure
ATP	Archaeological Treatment Plan
Authority	California High-Speed Rail Authority
B.P.	year(s) before the present
BAC	Business Advisory Council
BACT	best available control technology
Basin Plan	Water Quality Control Plan for the Tulare Lake Basin
BCA	benefit-cost analysis

BDS	bridge design specifications
BETP	built-environment treatment plan
bgs	below ground surface
BIOS	Biogeographic Information and Observation System
BLM	Bureau of Land Management
BMP	best management practice
BNSF	BNSF Railway (formerly known as Burlington Northern and Santa Fe Railroad)
BRMP	Biological Resources Management Plan
BRT	bus rapid transit
Btu	British thermal unit
C&D	construction and demolition
C.F.R.	Code of Federal Regulations
CAA	Clean Air Act
CAAQS	California Ambient Air Quality Standards
CAG	County Association of Governments
Cal EMA	California Emergency Management Agency
CAL FIRE	California Department of Forestry and Fire Protection
Cal. Code Regs.	California Code of Regulations
Cal. Fish and Game Code	California Fish and Game Code
Cal. Health and Safety Code	(California) Health and Safety Code
Cal. Public Res. Code	California Public Resources Code
Cal. Streets and Highway Code	California Streets and Highway Code
Cal. Water Code	California Water Code
Cal-EPA	California Environmental Protection Agency
Cal-ISO	California independent system operator
Cal-OSHA	California Occupational Safety and Health Administration
CalRecycle	California Department of Resources Recycling and Recovery
CalSTA	California State Transportation Agency
CALTRANS	California Department of Transportation
CARB	California Air Resources Board
CASQA	California Stormwater Quality Association
CBOC	California Burrowing Owl Consortium
CCAA	California Clean Air Act

CCC	California Coastal Commission
CCJPA	Capitol Corridor Joint Powers Authority
CCTV	closed-circuit television
CDFA	California Department of Food and Agriculture
CDFC	California Fish and Game Code
CDFW	California Department of Fish and Wildlife
CDMG	California Division of Mines and Geology
CDOF	California Department of Finance
CDP	census designated place
CDSM	cement deep soil mixing
CEC	California Energy Commission
CEDD	California Employment Development Department
CEG	Certified Engineering Geologist
CEQ	Council on Environmental Quality
CEQA	California Environmental Quality Act
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CESA	California Endangered Species Act
CFC	chlorofluorocarbon
CGS	California Geological Survey
CH_4	methane
CHA	collision hazard analysis
CHL	California Historical Landmark
CHP	California Highway Patrol
CHRIS	California Historical Resources Information System
CHSR	California High-Speed Rail
CIA	Community Impact Assessment
CIDH	cast-in-drill hole
CL	centerline
CLUP	Comprehensive Land Use Plan
cm	centimeter(s)
CMA	Congestion Management Agency
CMAQ	Congestion Mitigation and Air Quality Program
CMP	Congestion Management Plan
CMS	changeable message signs
CNDDB	California Natural Diversity Database
CNEL	community noise equivalent level
CNG	compressed natural gas

CNPS	California Native Plant Society
CO	carbon monoxide
CO_2	carbon dioxide
CO_2e	carbon dioxide equivalents
COG	Council of Governments
CP	construction package, Control Point
CPCN	Certificate of Public Convenience and Necessity
CPT	cone penetration test
CPUC	California Public Utilities Commission
CRHR	California Register of Historical Resources
CS	Cambridge Systematics, Inc.
CSE	Countywide Siting Element
CSHP	construction safety and health plan
CSMP	Corridor System Management Plan
CT	computed tomography
CTP	Construction Transportation Plan
CTS	California tiger salamander
CUPA	Certified Unified Program Agency
CWA	Clean Water Act
CWHR	California Wildlife Habitat Relationship System
CZMA	Coastal Zone Management Act
CZMP	Coastal Zone Management Plan
dB	decibel(s)
DB	design build
dBA	A-weighted decibel(s)
DBE	Disadvantage Business Enterprise
Dc	direct current
DCE	dichloroethylene
DDD	dichlorodiphenyldichloroethane
DDE	dichlorodiphenyldichloroethylene
DDT	dichlorodiphenyltrichloroethane
DE	diesel exhaust
DEIR	Draft Environmental Impact Report
DEIS	Draft Environmental Impact Statement
DOC	California Department of Conservation
DOF	*see* CDOF
DOGGR	(California) Division of Oil, Gas, and Geothermal Resources

DPM	diesel particulate matter
DPR	Department of Parks and Recreation
DRIS	Draft Relocation Impact Study/Statement
DSHA	deterministic seismic hazard analysis
DSOD	Division of Safety of Dams
DTM	digital terrain model
DTSC	Department of Toxic Substances Control
du	dwelling unit
DVBE	Disabled Veterans Business Enterprise
DWR	California Department of Water Resources
EA	environmental assessment
EB	eastbound *[editor's note: use in tables and figures only]*
EDMS	Emission and Dispersion Modeling System
EDR	Environmental Data Resources, Inc.
EIR	environmental impact report
EIS	environmental impact statement
EISA	Energy Independence and Security Act
EJ	environmental justice
ELF	extremely low frequency
EMC	electromagnetic compatibility
EMCPP	Electromagnetic Compatibility Control Plan
EMF	electromagnetic field
EMFAC	emission factors model
EMI	electromagnetic interference
EMMA	Environmental Mitigation Management and Assessment
EMT	emergency medical technician
EMU	electric multiple unit
EO	(California) Executive Order
EOI	Expression of Interest
EOP	emergency operating procedure
EPCRA	Emergency Planning and Community Right-to-Know Act
ER	ecological reserve
ERA	environmentally restricted area
ERF	Effective Response Force
ESA	environmentally sensitive area, environmental site assessment
ESAL	equivalent single-axel loads
ESRP	Endangered Species Recovery Program

ESU	evolutionary significant unit
ETW	edge of travelled way
FAA	Federal Aviation Administration
FAT	Fresno Air Terminal
FCA	fire control agency
FCC	Federal Communications Commission
FCS	first construction segment
Fed. Reg.	*Federal Register*
FEIR	Final Environmental Impact Report
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FER	fault evaluation report
FERC	Federal Energy Regulatory Commission
FESA	Federal Endangered Species Act
FHWA	Federal Highway Administration
FIRE	finance, insurance, and real estate
FLPMA	Federal Land Policy and Management Act
FLSP	fire/life safety program
FMMP	Farmland Mapping and Monitoring Program
FOE	Finding of Effect Report
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FRA	Federal Railroad Administration
FRIS	Final Relocation Impact Study/Statement
FSZ	Farmland Security Zone
FTA	Federal Transit Administration
FTIP	Federal Transportation Improvement Programs
FUSD	Fresno Unified School District
g	acceleration of gravity
G	gauss
GAMAQI	Guide for Assessing and Mitigating Air Quality Impacts
GAO	Government Accountability Office
GC	general conformity
GDR	Geotechnical Design Report
GET	Golden Empire Transit
GHG	greenhouse gas
GHz	gigahertz

GIS	geographic information system
GMA	ground motion analysis
GNIS	geographic names information system
gpd	gallon(s) per day
gpm	gallon(s) per minute
GPS	global positioning system
GSHA	geologic and seismic hazards analysis
GSSPR	geology, soils, seismicity, and paleontological resources
GWh	gigawatt-hour
GWP	global warming potential
HABS	Historic American Building Survey
HAER	Historic American Engineering Record
HALS	Historic American Landscape Survey
HASR	Historic Architectural Survey Report
hazmat	hazardous material
HCM	*Highway Capacity Manual*
HCP	habitat conservation plan
HDM	*Highway Design Manual*
HF	high frequency
HFC	hydrofluorocarbons
HFE	hydrofluorinated ether
HMF	heavy maintenance facility
HMMP	Habitat Mitigation and Monitoring Plan
HOV	high-occupancy vehicle
hp	horsepower
HPSR	Historic Property Survey Report
HR	hydrologic region
HS	high speed
HSR	high-speed rail
HUD	(U.S.) Department of Housing and Urban Development
HWMP	Hazardous Waste Management Plan
Hz	hertz
I	interstate
IBC	International Building Code
ICC	International Code Council
ICE	InterCity Express
ICES	International Committee on Electromagnetic Safety

ICNIRP	International Commission on Non-Ionizing Radiation Protection
ICS	Initial Construction Section
ID	Irrigation District
IEEE	Institute of Electrical and Electronic Engineers
IGR	Intergovernmental Review
IOS	Initial Operating Section
IR	infrared
IRIS	Integrated Risk Information System
IS	Initial Study (CEQA)
ISA	Initial Site Assessment
ITMS	intermodal transportation management system
JD	jurisdictional determination
JPA	Joint Powers Authority
JPB	Joint Powers Board
kHz	kilohertz
km	kilometer(s)
kPa	kilo Pascal
kph	kilometer(s) per hour
kV	kilovolt
kV/m	kilovolt(s) per meter
KVP	key viewpoint
KWH	kilowatt hour
LAC	Local Advisory Committee
LAQMD	local air quality management district
LBP	lead-based paint
LCP	Local Coastal Plan
L_{dn}	day-night sound level, dBA
LEDPA	least environmentally damaging practicable alternative
LEED	Leadership in Energy and Environmental Design
LEP	limited English proficiency
L_{eq}	equivalent sound level, dBA
$L_{eq}(h)$	equivalent sound level for a 1-hour period, dBA
LESA	land evaluation and site assessment
L_{max}	maximum sound level, dBA
LOS	level of service
LPG	liquefied petroleum gas
LRMP	Land Resource Management Plan

LSA	lake and streambed alteration
LT	long-term measurement
LTC	local transportation commission
LUST	leaking underground storage tank
LWCF	Land and Water Conservation Fund
m	meter
m^3	cubic meter(s)
maglev	magnetic levitation
MBTA	Migratory Bird Treaty Act
MCD	maximum considered earthquake
MCL	maximum contaminant level
mG	milligauss
mgd	million gallon(s) per day
MHWM	mean high water mark
MHz	megahertz
mm	millimeter
MM	mitigation measure
MMAA	Master Mutual Aid Agreement
MMBtu	million Btu
MMcf	million cubic feet
MMEP	Mitigation Monitoring and Enforcement Plan
MMRP	Mitigation Monitoring and Reporting Program
MMT	million metric tons
MOA	memorandum of agreement
MOIF	maintenance of infrastructure facility
MOIS	maintenance of infrastructure siding
MOU	memorandum of understanding
MOWF	maintenance-of-way facility
MP	mile post
MPE	maximum permissible exposure
mpg	miles per gallon
mph	miles per hour
MPO	metropolitan planning organization
MRF	materials recovery facility
MRI	magnetic resonance imaging
MRZ	mineral resource zone
MS4	municipal separate storm sewer system

MSAT	mobile-source air toxics
MTA	Metropolitan Transportation Authority
MTBE	methyl tertiary butyl ether
MW	megawatt
MWH	megawatt hour
N_2O	nitrous oxide
NAAQS	National Ambient Air Quality Standards
NAC	noise abatement criteria
NAHC	Native American Heritage Commission
NASA	National Aeronautics and Space Administration
NAVD 88	North American Vertical Datum of 1988
NB	northbound *[editor's note: use in tables or figures only]*
NCCP	Natural Communities Conservation Plan
NCRP	National Council on Radiation Protection
ND	Negative Declaration (CEQA)
NEPA	National Environmental Policy Act
NESHAP	National Emissions Standards for Hazardous Air Pollutants
NF_3	nitrogen trifluoride
NFMA	National Forest Management Act
NFPA	National Fire Protection Association
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NHTSA	National Highway Traffic Safety Administration
NIEHS	National Institute of Environmental Health Sciences
NIST	National Institute of Standards and Technology
NMFS	National Marine Fisheries Service
NMR	nuclear magnetic resonance
NO	nitric oxide
NO_2	nitrogen dioxide
NOA	naturally occurring asbestos
NOAA	National Oceanic and Atmospheric Administration
NOD	notice of determination
NOI	notice of intent
NOP	notice of preparation
NO_x	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List (Superfund)

NPPA	Native Plant Protection Act
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRPA	National Recreation and Park Association
NWI	National Wetlands Inventory
NWR	National Wildlife Refuge
O&M	operating and maintenance
O_3	ozone
OC	overcrossing *[editor's note: use in tables or figures only]*
OCC	Operations Control Center
OCR	open space, conservation, and recreation element
OCS	overhead contact system
OEHHA	Office of Environmental Health Hazard Assessment
OHP	(California) Office of Historic Preservation
OPR	(California Governor's) Office of Planning and Research
OSHA	Occupational Safety and Health Administration
OSHPD	Office of Statewide Health Planning and Development
OXY	Occidental Petroleum Corporation
PA	programmatic agreement
PAH	polycyclic aromatic hydrocarbon
Pb	lead
PCB	polychlorinated biphenyl
PCC	Portland cement concrete
PCE	perchloroethylene (synonym: tetrachloroethene)
PCM	(HSR) program construction manager
PE	Professional Engineer
PEC	potential environmental concern
PEIR	Program Environmental Impact Report (CEQA)
PER	Paleontological Evaluation Report
PFC	perfluorocarbon
PFDHA	Probabilistic Fault Displacement Hazard Analysis
PG&E	Pacific Gas and Electric Company
PGA	peak ground acceleration
PHA	preliminary hazard analysis
PHMSA	(U.S. Department of Transportation) Pipeline and Hazardous Materials Safety Administration

PIM	public information meeting
PIR	Paleontological Identification Report
PJD	preliminary jurisdictional determination
PL	public law
PM	particulate matter
PM_{10}	particulate matter smaller than or equal to 10 microns in diameter
$PM_{2.5}$	particulate matter smaller than or equal to 2.5 microns in diameter
PMT	Program Management Team
ppm	part(s) per million
PPV	peak particle velocity
PR	Project Report
PRG	Peer Review Group
PRM	paleontological resources monitor
PRMMP	Paleontological Resource Monitoring and Mitigation Plan
PRPA	Paleontological Resources Preservation Act
PRS	paleontological resources specialist
PS	paralleling station (with Autotransformer)
PSHA	Probabilistic Seismic Hazard Analysis
PTC	Positive Train Control
PTE	permission to enter
PTO	permit to operate
PVC	polyvinyl chloride
QI	qualified investigator
RAP	relocation assistance program, Remedial Action Plan
RC	Regional Consultant
RCD	Resource Conservation District
RCE	Registered Civil Engineer
RCM	roadway construction model
RCRA	Resource Conservation and Recovery Act
RE	Resident Engineer
RF	radio frequency
RFI	radio frequency interference
RHNA	Regional Housing Needs Assessment
RIMS	Regional Input-Output Modeling System
RIS	Relinquishment Information Sheet
RMS	root mean square
ROD	Record of Decision (NEPA)

ROG	reactive organic gas
RON	Resolution of Necessity
ROW	right-of-way
RP	responsible party
RPA	Rule of Particular Applicability
RRP	restoration and revegetation plan
RSA	(environmental) resource study area
RSAC	Railroad Safety Advisory Committee
RTAC	Regional Targets Advisory Committee
RTIP	Regional Transportation Improvement Program
RTP	Regional Transportation Plan
RTPA	Regional Transportation Planning Agency
RWQCB	Regional Water Quality Control Board
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SB	(California) Senate Bill, southbound *[editor's note: use in tables or figures only]*
SBA	Small Business Administration
SCADA	Supervisory Control and Data Acquisition
SCAG	Southern California Association of Governments
SCAQMD	South Coast Air Quality Management District
SCD	Soil Conservation District
SCE	Southern California Edison
SCORP	Statewide Comprehensive Outdoor Recreation Plan
SCPE	Seismic Capacity and Performance Evaluation
SCRRA	Southern California Regional Rail Authority
SCS	Soil Conservation Service
SCS	sustainable communities strategy
SDC	Seismic Design Criteria
SEIS	supplemental environmental impact statement (NEPA), subsequent environmental impact report (CEQA)
SEL	sound exposure level
SEM	scanning electron microscope
SEMS	Standardized Emergency Management System
SER	(CALTRANS) Standard Environmental Reference
SES	standardized emergency management system
SF_6	sulfur hexafluoride
SFHA	Special Flood Hazard Area

SHA	Seismic Hazard Analysis
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SLIC	spills, leaks, investigations, and cleanup
SMARA	Surface Mining and Reclamation Act
SO_2	sulfur dioxide
SOI	sphere of influence
SOP	standard operating procedure
SO_X	sulfur oxide
SPCC	spill prevention, containment, and control
SR	State Route
SRTP	Short-Range Transit Plan
SSCP	Safety and Security Certification Program
SSMP	Safety and Security Management Plan
SSP	system security plan
SSPP	system safety program plan
ST	short-term measurement
STA	stationing
Statewide Program EIR/EIS	*Final Program Environmental Impact Report and Environmental Impact Statement of the Proposed California High-Speed Train System*
STB	Surface Transportation Board
STIP	State Transportation Improvement Program
STU	shovel test unit
SVE	soil-vapor extraction
SVP	Society of Vertebrate Paleontology
SWPPP	Stormwater Pollution Prevention Plan
SWRCB	State Water Resources Control Board
SWS	switching station (with Autotransformer)
T	tesla
TAC	toxic air containment
TAG	Technical Assessment Group
TBM	tunnel boring machine
TCE	Trichloroethene
TCP	traditional cultural property
TDM	Transportation Demand Management
TEM	transmission electron microscope
TERPS	Terminal Instrument Procedure Surfaces

TESC	temporary erosion and settlement control
TGV	*Train à Grande Vitesse* (European high-speed train)
TIGER	Topologically Integrated Geographic Encoding and Referencing
TIP	Transportation Improvement Plan
TM	(HSR) technical memorandum
TMDL	total maximum daily load
TMP	Transportation Management Plan
TOD	transit-oriented development
TOG	total organic gas
TPH	total petroleum hydrocarbon
TPSS	traction power substation
TPZ	Timberland Protection Zone
TRB	Transportation Research Board
TSA	(U.S.) Transportation Security Administration
TSM	transportation systems management
TSMF	terminal storage and maintenance facility
TSMP	Transportation Systems Management Plan
TWG	Technical Working Group
U.S. DHS	U.S. Department of Homeland Security
U.S. DOA	U.S. Department of Agriculture
U.S. DOD	U.S. Department of Defense
U.S. DOI	U.S. Department of the Interior
U.S. DOT	U.S. Department of Transportation
U.S. DOT IG	Department of Transportation Inspector General
U.S.C.	U.S. Code
UBC	Uniform Building Code
UC	undercrossing *[editor's note: use in tables or figures only]*
UCMP	University of California, Berkeley, Museum of Paleontology
UFC	Uniform Fire Code
UIC	International Union of Railways
ULSD	ultra-low sulfur diesel fuel
UPRR	Union Pacific Railroad
URBEMIS	Urban Emissions Model
UrDAS	Urgent Earthquake Detection and Alarm System
USACE	U.S. Army Corps of Engineers
USBR	U.S. Bureau of Reclamation
USEO	U.S. (Presidential) Executive Order

USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USPS	U.S. Postal Service
USSOI	U.S. Secretary of Interior
UST	underground storage tank
V/C	volume-to-capacity ratio (used to help define the level of service or operating condition)
V/M	volts per meter
VdB	vibration velocity level
VELB	valley elderberry longhorn beetle
VHF	very high frequency
VHS	very high speed
VMT	vehicle miles traveled
VOC	volatile organic compound
VRM	visual resource management
VSA	vibration sensitive area
WB	westbound *[editor's note: use in tables or figures only]*
WBE	woman-owned business enterprise
WCD	Water Conservation District
WEAP	Worker Environmental Awareness Program
WiFi	wireless fidelity
WiMAX	worldwide interoperability for microwave access
WRAPP	Wetland and Riparian Area Protection Policy
WRCC	Western Regional Climate Center
WSA	water service area
WWTP	wastewater treatment plant
XPI	Extended Phase I
YOE	year-of-expenditure
µg	microgram
µT	microtesla

APPENDIX E: GLOSSARY OF TERMS

This Glossary of Terms identifies and defines common terms or phrases used in California High-Speed-Rail (HSR) project environmental impact report/environmental impact statement documents. The Regional Consultant will review and modify the list as needed to include all terms pertinent to the specific HSR project section (or project) or to remove terms not used in the specific HSR project section (or project).

The MS Word template for this list is available for download from the PMT Environmental SharePoint site (Work Templates tab in the Viewing Library): EIR-EIS_Chapter13_Glossary.

A

A horizon: The A horizon is the soil zone immediately below the surface from which soluble material and fine-grained particles have been moved downward by water seeping into soil. Varying amounts of organic matter give the A horizon a dark color.

Abatement: Reduction; often used to describe noise mitigation.

Accessibility: The ease with which a site or facility may be reached by passengers and others necessary to the facility's intended function. Also, the extent to which a facility is usable by persons with disabilities, including wheelchair users.

Action Alternative: An alternative that proposes some action by one or both of the co-lead agencies, in contrast to the No Project Alternative.

Active fault: A ground rupture that has occurred within approximately the last 11,000 years. A potentially active fault includes ruptures that occurred between 11,000 and 1.6 million years ago.

Actual use: The amount or type of use that actually occurs.

Adverse: Negative or detrimental.

Affected environment: The physical, biological, social, and economic setting potentially affected by one or more of the alternatives under consideration.

Air pollution: A general term that refers to one or more chemical substances that degrade the quality of the atmosphere.

Alignment: The specific horizontal and vertical route of a transportation corridor or path.

Alignment alternatives: The general location for HSR tracks, structures, and systems for the HSR system between logical points within study corridors.

Alluvium: A term applied to sediments deposited in a streambed, on a floodplain, a delta, or at the base of a mountain during comparatively recent geologic time.

Alquist-Priolo Earthquake Fault Zoning Act: A California law passed in 1972 to prevent construction of buildings used for human occupancy on surface traces of active faults.

Americans with Disabilities Act (ADA): Federal regulation establishing legal requirements for accessibility for those with disabilities.

Amplitude: The magnitude of a periodic wave; also describes the strength or intensity of a signal that travels in wave form, such as a radio signal.

Anthropogenic fugitive dust emission: All mechanically suspended dust from human activity, including agriculture, construction, mining, and demolition; vehicular movement on paved and unpaved surfaces; materials handling, processing, and transport; cooling towers; and animal movement on surfaces that have been disturbed or altered by humans beyond a natural range.

Approximate location: As defined in Government Code, Section 4216, as the "approximate location of subsurface installations" being a strip of land not greater than 24 inches wide on both sides of the exterior surface of the subsurface installation. Approximate location does not define depth.

Aquifer: Subsurface geologic unit (rock or sediment) that contains and transmits groundwater.

Arc, arcing: When an electrical discharge crosses the space between two contacts.

Area of Potential Effect (APE): The area along the project right-of-way potentially affected by the construction and operation of the Project; for archaeological properties, considered to be the area of ground proposed to be disturbed during construction of the undertaking, including grading, cut-and-fill, easements, staging areas, utility relocation, borrow pits, and biological mitigation areas; for historic architecture, considered to be the proposed construction footprint and properties near the undertaking where the undertaking would result in a substantial change from the historic use, access, or noise and vibration levels that were present 50 years ago, or during the period of significance of a property, if different; paleontological resources, considered to be a zone 250 feet on both sides of the right-of-way for a given alternative, and within 0.5 mile of any potential facilities, including potential stations.

Artifacts: Objects made by people, including tools such as projectile points, scrapers, and grinding implements, waste products from making flaked stone tools (debitage), and nonutilitarian artifacts (beads, ornaments, ceremonial items, and rock art).

At-grade: At ground surface level; used to describe roadways, river crossings, and track alignments.

Attainment: An air basin is considered to be in *attainment* for a particular pollutant if it meets the federal or state standards set for that pollutant. *See also* **maintenance, nonattainment.**

Authority: *See* **California High-Speed Rail Authority**.

A-weighted sound level: A measure of sound intensity that is weighted to approximate the response of the human ear so it describes the way sound will affect people in the vicinity of a noise source.

B

Ballasted track: Railways installed over a specific type of crushed rock that is graded to support heavily loaded rolling stock.

Ballast-less track: Rail lines installed over concrete slabs for support.

Barrier: A device intended to contain or redirect an errant vehicle by providing a physical limitation through which a vehicle would not typically pass.

Barrier offset distance: The lateral distance from the centerline of the track to the face of the barrier, trackside, or other roadside feature.

Baseline: Foundation or basis to use for comparison purposes.

Bas-relief: Sculptural element characterized by varied surface planes in low relief.

Beneficial visual impact: Impact resulting if a project alternative eliminates a dominant feature that currently detracts from scenic qualities or blocks landscape vistas.

Best management practices (BMP): Methods designed to minimize adverse effects to the environment. Examples of BMPs include practices for erosion and sedimentation controls, watering for dust control, perimeter silt fences, rice straw bales, and sediment basins.

Biface: A type of prehistoric stone tool that is flaked on both faces or sides.

Biological resources: Plant and wildlife species, terrestrial and aquatic habitats (including jurisdictional waters), and habitats of concern (including sensitive plant communities, critical habitat, core recovery areas, mitigation banks, and wildlife corridors).

Bogie: A structure underneath a train (otherwise named a wheel truck) that suspends the train on the axles connected to the wheels that roll over the rails.

B.P.: Years before the present, typically considered to be 1950.

British thermal unit: *See* **Btu**.

Btu: British thermal unit, equal to the amount of heat required to raise 1 pound of water 1 degree Fahrenheit at 1 atmosphere of pressure.

Buttressing: An action or structure that provides support or stability.

C

California Endangered Species Act (CESA): A law that mandates that state agencies do not approve a project that would jeopardize the continued existence of endangered species if reasonable and prudent alternatives are available that would avoid a jeopardy finding.

California Environmental Quality Act (CEQA): Legislation enacted in 1970 to protect the quality of the environment for the people of California by requiring public agencies and decision-makers to document and consider the environmental consequences of their actions. CEQA is the state equivalent of the National Environmental Policy Act (NEPA).

California High-Speed Rail Authority (Authority): The state governing board that has responsibility for planning, designing, constructing, and operating the California High Speed Rail (HSR) System. The Authority's mandate is to develop the HSR system in coordination with the state's existing transportation network, which includes intercity rail and bus lines, regional commuter rail lines, urban rail and bus transit lines, highways, and airports.

California High-Speed Rail (HSR): *See* **high-speed rail**.

California High-Speed Rail (HSR) System: *See* **high-speed rail system**.

Capital cost: The total cost of acquiring an asset or constructing a project.

Capitol corridor: An existing intercity rail alignment approximating the I-80 corridor; carries freight traffic, long-distance Amtrak service, and intrastate "Capitol" service.

Carbon dioxide (CO_2): A colorless, odorless gas that occurs naturally in the atmosphere; fossil fuel combustion emits significant quantities of CO_2.

Carbon monoxide (CO): A colorless, odorless gas generated in the urban environment primarily by the incomplete combustion of fossil fuels in motor vehicles.

Catenary wire: A suspended (overhead) wire system that supplies traction power from a central power source to an electric vehicle such as a train. *See* **contact wire** *and* **overhead contact system.**

Cathodic protection: Method for controlling the corrosion and deterioration of metallic structures in contact with most forms of electrolytically conducting environments (i.e., environments containing enough ions to conduct electricity such as soils, seawater, and basically all natural waters). Cathodic protection reduces the corrosion rate of buried steel and concrete.

Central control facility: A facility for monitoring and controlling HSR operations. Co-located with the heavy maintenance facility, it provides central supervision over train and power dispatch facilities, serves as the hub for safety and security functions, manages real-time tracking of HSR vehicles, collects and records data, and controls access.

Centroid of flow of streams: The midpoint of that portion of a stream width that contains 50 percent of the total flow.

CCS 83: California Coordinate System of 1983—The system of plane coordinates established by the National Geodetic Survey for defining or stating the positions or locations of points on the surface of the earth within the State of California. CCS 83 is based on the North American Datum of 1983.

CEQA: *See* **California Environmental Quality Act**.

Check rail: The guiding rail between the two running rails that maintains a derailed wheel in the track alignment. Check rails are installed 36 cm from the rail and can be placed inside one or both of the running rails.

Chert: A form of quartz used for the manufacture of stone tools.

Class I trail: A trail within a separate right-of-way designated for exclusive use by bicycles and pedestrians. Cross traffic by motorists is minimized.

Class II trail: A trail within a restricted right-of-way designated for semi-exclusive use by bicycles, with traffic by motor vehicles or pedestrians at crossings.

Class III trail: A trail within a right-of-way designated by signs or permanent markings that is shared with pedestrians and motorists.

Clean Air Act (CAA): The law that defines the U.S. Environmental Protection Agency's responsibilities for protecting and improving the nation's air quality and the stratospheric ozone layer. The CAA protects the general public from exposure to airborne contaminants that are known to be hazardous to human health.

Clean Water Act (CWA): The primary federal law protecting the quality of the nation's surface waters, including wetlands. The CWA regulates discharges and spills of pollutants, including hazardous materials, to surface waters and groundwater.

CNEL: *See* **community noise equivalent level**.

CO_2e: Carbon dioxide equivalent, which is the concentration of CO_2 that would have global warming effects similar to other greenhouse gases

Cofferdam: Watertight enclosure from which water is pumped to expose the bottom of a body of water and allow construction.

Community cohesion: The degree to which residents have a sense of belonging to their neighborhood, a level of commitment to the community, or an association with neighbors, groups, and institutions, usually as a result of continued association over time.

Community noise equivalent level (CNEL): A 24-hour L_{eq} that has been adjusted to add a "penalty" of 5 dBA for evening noise (between 7:00 p.m. and 10:00 p.m.) and 10 dBA for nighttime noise (between 10:00 p.m. and 7:00 a.m.).

Community cohesion: The degree to which residents have a sense of belonging to their neighborhood, a level of commitment to the community, or an association with neighbors, groups, and institutions, usually as a result of continued association over time.

Concourse: Area for accommodating patrons at a high-speed rail station.

Concrete derailment walls: Tall curbs located close to the train wheels that, in the event of a derailment, keep the train within the right-of-way and upright**.**

Congestion management plan: A planning document that addresses strategies for reducing traffic congestion.

Connectivity: The degree of "connectedness" of a transportation system, such as a transit network, and the ease with which passengers can move from one point to another within the network or points outside the network.

Conservation easement: An easement that transfers property development rights to another entity, such as the local jurisdiction or an agricultural protection organization; the land remains in private ownership and may be farmed, but may not be developed with urban uses. *See also* **easement**.

Construction: Any activity that directly alters the environment, excluding surveying or mapping.

Construction laydown area: An area, typically adjacent to the HSR right-of-way and within a temporary construction easement that is used to stockpile materials and store equipment for building HSR or related improvements. In some cases, this area is also used to assemble or pre-fabricate components of guideway or wayside facilities before transport to installation locations. Construction laydown areas are part of the Project Footprint that is evaluated for potential environmental impacts, yet actual use of the area is left to the discretion of the design-build contractor. After conclusion of construction, this area is typically restored to pre-construction condition.

Contact wire: A suspended (overhead) wire system that supplies traction power from a central power source to an electric vehicle such as a train. *See* **catenary wire** *and* **overhead contact system.**

Containment curb: A low concrete wall along the track that is designed to guide the train wheels back onto its rail if they leave the line.

Containment parapet: A physical component of elevated guideways that, in the event of a derailment, keeps the train within the HSR right-of-way.

Contra-flow: Movement against the general direction of flow.

Cooperating agency: Any agency invited by the lead federal agency that has agreed to participate in the NEPA process, and has legal jurisdiction over, or technical expertise regarding, environmental impacts associated with a proposed action.

Corridor: A geographic belt or band that follows the general route of a transportation facility (e.g., highway or railroad).

Cowardin Classification System: A comprehensive classification system of wetlands and deepwater habitats developed for the U.S. Fish and Wildlife Service in 1979. Under this system, wetlands are of two basic types: coastal (also known as tidal or estuarine wetlands) and inland (also known as nontidal, freshwater, or palustrine wetlands).

Criteria pollutants: Pollutants for which federal and state air quality standards have been established: carbon monoxide (CO), sulfur oxides (SO_x), nitrogen oxides (NO_x), ozone (O_3), particulate matter with a diameter of 10 microns or less (PM_{10}), particulate matter with a diameter of 2.5 microns or less ($PM_{2.5}$), and lead (Pb).

Critical habitat: Designated areas that provide suitable habitat for federally listed threatened or endangered species, and in which are the geographical locations and physical features essential to the conservation of a particular species.

Cultural resources: Resources related to the tangible and intangible aspects of cultural systems, living and dead, that are valued by a given culture or contain information about the culture. Cultural resources include, but are not limited to, sites, structures, buildings, districts, and objects associated with or representative of people, cultures, and human activities and events.

Cumulative impact: (1) CEQA — the result of two or more individual impacts that, when considered together, are considerable or that compound or increase other environmental impacts; (2) NEPA — an impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions.

Cut and cover: Construction technique in which a trench is excavated, infrastructure is installed, and the trench is closed.

Cut and fill: Construction technique involving excavation or grading followed by placement and compaction of fill material.

Cut slope: A slope that is shaped by excavation or grading. *See also* **fill slope**.

D

Datum: A reference from which measurements are made for establishing horizontal and vertical control.

Debitage: Waste byproducts—chips or debris—resulting from the manufacture of stone tools; found in large quantities in a tool-making area.

Decibel (dB): A logarithmic measurement of noise intensity.

Dedicated corridor: Segment along the HSR alignment where HSRs operate in a right-of-way that is exclusive of other passenger or freight railroads.

Dedicated track: Segment along the HSR alignment where HSRs operate on tracks exclusive of other passenger and freight railroads.

Degree of curve: The central angle turned by a curve in 100 feet. It is closely approximated by Dc = 5,730 feet/radius. Railroad curves are defined by the Chord Definition, in which the length is described by a 100-foot-long tangent between two points on the arc of the curve.

Depositional environment: The conditions in which a sedimentary unit is deposited

Densification: The process of making an element more compact by reducing air space. Also refers to land development that increases the number of people who live or work within a particular area of land.

Derailment containment systems: Systems that ensure the train wheels do not leave the tracks even in the event of major seismic movements.

Design criteria. To determine each alternative's ability to meet the HSR project purpose, need, and objectives, alternatives are evaluated using HSR system performance criteria that distinguish design differences and qualities in the alignment and station locations.

Detention pond: A pond designed to temporarily store and slowly release the runoff that it receives.

Dewatering: The process of removing water from an area or substance, such as fill material.

Digital terrain model: A three-dimensional model of digital surfaces of topographic features.

Disturbance: A discrete natural or human induced-induced event that causes a change in the condition of an ecological system.

Dry utility: A wire, cable, pipeline, and support facility used to convey electricity, natural gas, gaseous chemicals, telecommunications, cable television, or other nonliquid products.

E

Easement: An interest in land owned in fee by another individual or organization that entitles its holder to a specific limited use.

Ecosystem: An interconnected network of living organisms, including people, and their local physical environment; often viewed as an ecological unit**.**

Effect: A change in the condition or function of an environmental resource or environmental value as a result of human activity.

Electric multiple units (EMU): A multiple-unit train consisting of self-propelled carriages that use electricity as the motive power. An EMU requires no separate locomotive, as electric traction motors are incorporated within one or a number of the carriages. Most EMUs are used for passenger trains, but some have been built or converted for specialized nonpassenger roles, such as carrying mail or luggage, or in departmental use, for example as de-icing trains. An EMU is usually formed of two or more semi-permanently coupled carriages, but electrically powered single-unit railcars are also generally classed as EMUs.

Electromagnetic field (EMF): The force field that extends outward from any moving electrical current, consisting of both a magnetic field and an electric field.

Electromagnetic interference (EMI): An electrical emission or disturbance that causes degradation in performance or results in malfunctions of electrical or electronic equipment, devices, or systems.

Electrostimulation: Nerve and muscle responses to the internal electric field in the body.

Elevated guideways: Railroad track and emergency walkways on both sides of a track that may range from approximately 20 to 60 feet high (or higher) in certain urban areas.

Emergent: (1) Arising naturally; (2) Vegetation rooted in periodically or continuously inundated substrate but with a portion of the plant extending above the water.

EMF: *See* **electromagnetic field.**

EMI: *See* **electromagnetic interference.**

Eminent domain: A jurisdiction or agency's legal right to take private property for public use in exchange for fair compensation.

Emission and Dispersion Modeling System (EDMS): Modeling system used by the Federal Aviation Administration to estimate airplane emissions generated from a specified number of landing and take-off cycles.

EMU: *See* **electric multiple units**.

Endangered species: Any species listed under the federal Endangered Species Act as being in danger of or threatened with extinction throughout all or most of its range.

Enplanement: The act of boarding an airplane.

Environmental impact report (EIR): Documentation of the detailed analysis of a project's potential significant effects upon the natural, cultural, and community resources, measures to mitigate significant adverse impacts to a less-than-significant level, and reasonable alternatives to avoid significant effects. The EIR is prepared as part of the CEQA environmental review process that is intended to disclose the potential consequences of a proposed project to the public and provide decision-makers with analytical information and public reactions in advance of a final decision on a proposed project.

Environmental impact statement (EIS): Documentation required by the National Environmental Policy Act (NEPA) for certain actions "significantly affecting the quality of the human environment." An EIS is a decision-making tool that presents detailed analysis of a proposed action and alternatives to the proposed action. The EIS presents the project's potential effects—both beneficial and adverse- and any mitigation measures to reduce adverse effects.

Environmental justice: Identifying and addressing the potential for disproportionately high and adverse effects of programs, policies, and activities on minority and low-income populations.

Erosion: Process by which earth materials are worn down by the action of flowing water, ice, or wind.

Ethnicity: A grouping or categorization of people based on shared cultural traits such as ancestral origin, language, custom, or social attitude.

F

Fare gate: Physical barrier that requires a valid HSR ticket to pass.

Farmland Mapping and Monitoring Program (FMMP): An automated map and database system administered by the California Department of Conservation that records changes in agricultural land use.

Farmland of local importance: Farmlands important to the local agricultural community, as determined by each county's board of supervisors and local advisory committee. *See also* **farmland of statewide importance** *and* **prime farmland.**

Farmland of statewide importance: Farmlands that are similar to **prime farmlands** but are less valuable because they have steeper slopes, less ability to retain moisture in the soil, or other characteristics that limit their use. To quality as Farmland of Statewide Importance, a property must have been used for production of irrigated crops at some time during the previous 4 years.

Farmland severance: The acquisition of part of a farm property that results in the severance (disconnection) of part of the land from agricultural use.

Fault: A fracture in the earth's lithosphere (brittle rocky shell) where movement has occurred or is occurring.

Fault creep: (1) The slow, continuous movement of crustal blocks along a fault; (2) measurable surface displacement along a fault in the absence of notable earthquakes.

Fault rupture: A rupture in which the fault extends to the ground surface and causes the ground to break, resulting in an abrupt, relative ground displacement. Surface-fault ruptures are the result of stresses relieved during an earthquake, and they often damage structures astride the typically narrow rupture zone.

Feasible: Capable of being implemented.

Fecundity: Fertility; the potential to be fruitful in offspring or vegetation.

Federal Endangered Species Act (ESA): The Federal ESA and subsequent amendments (Sections 7, 9, and 10) provide guidance for conserving federally listed species and the ecosystems upon which they depend.

Federal Railroad Administration (FRA): An agency within the U.S. Department of Transportation that administers financial assistance programs and regulates the operation and safety of freight and passenger rail throughout the United States. FRA is the federal lead agency under NEPA for the HSR program.

Feeder route: Branch routes that feed into main (arterial) routes.

Fenestration: The arrangement, proportioning, and design of windows and doors in a building; openings in a building wall, such as windows and doors, designed to permit the passage of air, light, and people.

Fiber optic cable system: A data transmission technology that relies on light rather than electricity, conveying data through a cable consisting of a central glass core surrounded by layers of plastic.

Fill slope: A slope shaped by the placement and compaction of loose fill material, which may be reused from elsewhere on the construction site or imported.

Fiscally or financially constrained plans: Plans that are limited by the foreseen availability of project funding in a region.

Flyover: A bridge that carries one road or rail alignment aerially over another.

Footprint: The area covered by a facility or affected by construction activities. *See* **project footprint.**

Formation: A geologic unit (e.g., Modesto Formation and the Riverbank Formation).

Fossil localities: Areas where fossils have been found.

Fossils: The remains or traces of ancient plants, animals, and other organisms.

Freeboard: Stream bank or levee height above the high-water mark of a defined high-flow event such as the 100-year flood.

Free area: Area within the station that is open to the general public.

Frequency: The number of times a field, such as an electromagnetic field, changes direction in space each second. Also, the number of trains, flights, or other transportation service that occur in a given period.

Full parcel acquisition: A permanent acquisition of an entire parcel of land as necessary to implement a project.

G

G force: A force with a magnitude equal to the gravitational force acting on a body at sea level; expressed as 1.0 g.

Gauss: The unit of measure describing the strength of a magnetic field. Near the earth surface, the magnetic field measures approximately 0.5 gauss (0.1 Tesla). *See also* **tesla**.

General Conformity Rule: Federal, state, tribal, and local governments work in air quality nonattainment or maintenance areas to ensure that federal actions conform to the initiatives established in the applicable state implementation plan or tribal implementation plan.

General plan: A planning document, usually at the city or county level, that articulates policies for land use and development over a specified period of time. A general plan may be supplemented by specific plans that implement land use and development policies for particular portions of a planning jurisdiction, such as historic districts or areas slated for redevelopment.

Geographic information system (GIS): An information management system designed to store and analyze data referenced by spatial or geographic coordinates.

Giga: Prefix meaning 1 billion.

GIS: *See* **geographic information system.**

Grade crossing: The intersection of a railroad and a highway at the same elevation (grade); an intersection of two or more highways; an intersection of two railroads.

Grade, gradient: Slope changes in elevation, defined in percentage, as feet of rise in 100 feet of run along a single horizontal line.

Grade-separated: At different elevations; on separate levels.

Greenhouse gases: A class of air pollutants believed to contribute to the greenhouse global warming effect, including nitrogen oxides (NO_x), hydrocarbons (HC), and carbon dioxide (CO_2).

Grid: A system of interconnected power generators and power transmission lines managed to meet the requirements of energy users connected to the grid at various points.

Groundwater: Water contained and transmitted through open spaces within rock and sediment below the ground surface.

Growth inducement: Contribution to the rate or extent of development in an area.

Guard rail: A short guidance rail in the guideway. When a wheel passes over a switch frog in a nonguided section, the opposite wheel is guided by the guard rail, which acts on the back of the wheel flange.

Guideway: A track or riding surface that supports and physically guides transit vehicles specially designed to travel exclusively on it (as defined by the Orange County Transportation Authority). Similarly, *Fixed Guideway* is a public transportation facility using and occupying a separate right-of-way or rail for the exclusive use of public transportation and other high-occupancy vehicles or a fixed catenary system useable by other forms of transportation (as defined by the Federal Railroad Administration).

Guideway system: For the purposes of this California High-Speed Rail project, the integrated linear system of infrastructure components (e.g., track structures; tunnel, trench, embankment, or bridge structures; overhead contact system; traction power substations; switching and paralleling stations; signaling and train control elements; perimeter access controls, guideway operations and maintenance access, linear right-of-way) that enables the high-speed train to travel along the high-speed rail alignment.

H

Habitat: An environment where plants or animals naturally occur; an ecological setting used by animals for a particular purpose (e.g., roosting habitat or breeding habitat).

Hazardous materials: Any material that, because of quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety, or the environment, if released.

Hazardous waste: A hazardous material that is no longer of use and will be disposed of. Hazardous waste is regulated by the U.S. Environmental Protection Agency under the Resource Conservation and Recovery Act. California hazardous waste law is in some cases more stringent than federal law, and waste can often be defined as California hazardous waste (or non-RCRA hazardous waste).

Headway: The time between buses, trains, or other transit vehicles at a given point. For example, a bus route operating on 15-minute headway means that one bus arrives every 15 minutes.

Heavy maintenance facility (HMF): A maintenance facility that typically supports delivery, testing, and commissioning, train storage, inspection, maintenance, retrofitting, and overhaul on a completed segment of the HSR System.

Herbaceous: Plants that have little or no woody tissue. Herbaceous plants typically survive for only a single growing season.

Heritage resources: An alternate term for cultural resources used in some planning documents. *See* **cultural resources.**

Hertz: A unit of measure that describes **frequency**; equal to cycles (number of reversals) per second.

High risk utility: Utility facilities conducting or carrying specific materials identified in Section 2 of the *Caltrans Project Development Procedures Manual,* Appendix LL—Utilities. Other utilities that could disrupt the operation of HSR.

High-speed rail system: The system that includes the HSR tracks, structures, stations, traction-powered substations, maintenance facilities, and train vehicles able to travel at or above 220 mph.

High-speed steel-wheel-on-steel-rail train: An improvement of traditional railroad passenger technology that has been designed to operate at speeds of 100 to 150 mph (160 to 240 kph) on existing rail infrastructure.

High-speed train: A train designed to operate safely and reliably at speeds near 220 mph (350 kph).

High visual impacts: Impacts sustained if features of a project alternative are very obvious, such that they begin to dominate the landscape and detract from the existing landscape characteristics or scenic qualities.

HMF: *See* **heavy maintenance facility.**

Holocene: The period following the Pleistocene, from 10,000 years before present to the present.

HSR alternative alignment: The specific location of an HSR guideway within the study corridor; HSR alternative alignments may be along or adjacent to, but may also diverge from existing transportation corridors.

HSR alignment segment: A portion of a project section alignment that is distinguished from other segments within the alignment by fundamentally different geographic, community, or project characteristics (e.g., valley versus mountain, rural versus suburban versus urban, main line predominantly at grade versus main line predominantly above-ground or below-ground).

HSR network alternatives: Different ways to implement the HSR System in the study area with combinations of HSR alternative alignments and station locations.

Hydrocarbons: Various organic compounds, including methane, emitted principally from the storage, handling, and combustion of fossil fuels.

I

Impact: A change in the condition or function of an environmental resource or environmental value as a result of human activity.

Impervious surface: Surface covered by impenetrable materials, such as paved parking lots or buildings, which increases the potential for water runoff and reduces the potential for groundwater recharge.

Important farmland: Categorized as **prime farmland, farmland of statewide importance, unique farmland,** or **farmland of local importance** under the Farmland Mapping and Monitoring Program. The categories are defined according to U.S. Department of Agriculture land inventory and monitoring criteria, as modified for California.

Indigenous species: A native species; any plant or animal species that occurs naturally in a wilderness area.

Infrastructure: The facilities required for a societal function or service (e.g., transportation and utility infrastructure).

Initial Study: An environmental study carried out in compliance with CEQA to evaluate the potential for a proposed project to result in a significant adverse impact on the environment.

In Lieu of: Instead of or in place of.

Insertion loss: The actual noise-level reduction at a specific receiver due to construction of a noise barrier or some other intervention between the noise source (e.g., traffic) and the receiver.

In-situ: In the original or natural position.

Intactness: A measure of the visual integrity of the natural and human-built landscape and its freedom from encroaching elements.

Intermediate station: A train station between two other stations.

Intermittent stream: A stream that only flows only during part of the year**.**

Intermodal: Transportation that involves more than one mode (e.g., walk, bike, automobile, transit, taxi, train, bus, or air) during a single journey.

Intermodal station: A transit station for more than one mode of transportation**.**

Interoperability: The aptitude of the railway network or infrastructure to allow different high-speed trains to run safely and continuously within specified performance parameters.

Intrusion: An errant vehicle's exit out of its right-of-way and entry into the operating space of another transportation system's right-of-way.

Intrusion detection technology: Technology used in the fencing around HSR operations to protect a train from the derailment of an adjacent train. When an intrusion detection system is activated, HSR operations are stopped by the signaling system.

Inversion: A region where atmospheric temperature increases rather than decreases with height, suppressing atmospheric mixing and tending to trap pollutants near the ground surface where adverse effects on health and materials are accentuated.

Invertebrate: Organisms lacking a vertebral column.

Investment-grade ridership forecast: Ridership forecast that is sufficiently detailed and reliable to permit responsible decision-making about capital expenditures.

K

Key viewpoints (KVP): Viewpoints that represent the range of visual character and visual quality in the project viewshed, which is the portion of the surrounding landscape within which a project is potentially visible.

Kilo: Prefix meaning 1 thousand.

Kilovolt: A unit of potential equal to a thousand volts.

Kiss-and-ride: Facility for private vehicles to drop-off or pick-up HSR patrons.

L

Landscape unit: An area of distinct, but not necessarily homogenous, visual character.

Landslide: Movement of earth or rock materials down a slope under the influence of gravity.

Land use compatibility assessment: An analysis of the compatibility of a proposed project or land use with existing and projected land uses in nearby areas based on the sensitivity of various land uses to change related to the study alternatives, and the impact of these changes on the land use.

Lead (Pb): A stable element that can have toxic effects and that persists and accumulates in the environment, humans, or animals.

Lead agency: The public agency that has the principal responsibility for carrying out or approving a project or action and is responsible for preparing environmental review documents in compliance with CEQA and NEPA.

$\mathbf{L_{eq}}$: A measure of the average noise level during a specified period of time.

Leq (h), dBA: Equivalent or average noise level for the noisiest hour, expressed in **A-weighted decibels.**

Less than significant: In CEQA or NEPA usage, describes an impact that is not sufficiently adverse, intense, or prolonged to require **mitigation**.

Levee: An earthen berm or other constructed wall used to raise the hydraulic height of a riverbank.

Level of service (LOS): A rating using qualitative measures to characterize operational conditions within a traffic stream and perceptions of operational conditions by motorists and passengers.

Linguistic isolation: Defined by the U.S. Census Bureau as living in a household in which all members aged 14 years and older speak a non-English language and also speak English less than "very well" (i.e., have difficulty with English).

Liquefaction: A type of ground failure in which soils or sediments lose their internal cohesion, cease to behave as a solid, and flow like a liquid.

Lithic: Pertaining to or describing a stone tool or artifact.

Local geology: Geologic units in the immediate vicinity of the area of potential effect.

Logarithmic scale: A measurement in which the ratio of successive intervals is not equal to 1 (which is typical for linear scales) but is some common factor larger than the previous interval (a typical ratio is 10, so that the marks on the scale read: 1, 10, 100, 1000, 10000, etc.). Logarithmic scales are useful for graphing values that have a very large range.

Longitudinal: A facility located parallel to and within a highway or railway right-of-way.

LOSSAN: Los Angeles to San Diego rail corridor.

Low risk utility: All utilities that are not identified as high risk facilities (as defined in Section 2 of the *Caltrans Project Development Procedures Manual,* Appendix LL—Utilities).

Low visual impacts: Impacts sustained if features of a project alternative are consistent with the existing line, form, texture, and color of other elements in the landscape and do not stand out.

M

Magnetic levitation (maglev): A high-speed rail technology that relies on attractive or repulsive magnetic forces to lift and propel a train along a guideway.

Mainline: The portion of a principal highway or railroad that is exclusive of connectors, ramps, spurs, etc.

Main line: The tracks allocated to high-speed rail traffic at normal commercial speed and not normally allowed for stops, shunting, or garage.

Maintenance: Activities associated with the inspection, provisioning, cleanup, repair, or replacement of HSR infrastructure, facilities, trains, or other equipment. Also an air basin that was formerly in nonattainment but now meets the established standards for that pollutant. *See also* **attainment** *and* **nonattainment**.

Maintenance of way: A maintenance activity for a railway right-of-way and track, including tracks, roadways, buildings, signals, and communication and power facilities.

Maintenance-of-way facility: A facility with offices for inspection and maintenance staff, and storage areas for essential equipment and materials, such as rail ballast, ties, sections of rail, OCS poles, and diesel-powered maintenance trains.

Maintenance-of-way program: A program of preventative and corrective maintenance, schedules for inspection and maintenance activities, and safety regulations for HSR employees.

Maintenance siding: A dead-end track dedicated to park maintenance trains and connected to a passing, turnout or station connection track, never to the main line.

Major investment study (MIS): A study that evaluates project alternatives for their ability to solve an area's transportation problems.

Master plan: A comprehensive planning document intended to guide the long-range growth and development of a community or region, or the long-term management and use of parkland.

Mean high-water mark: The elevation reached by the water surface at the mean (average) high water level (average high tide elevation or average flood elevation), often indicated by physical characteristics such as erosion, lines of vegetation, or changes in type of vegetation.

Measure M: A measure that provides for a sales tax of 0.5 cent for countywide transportation improvements; approved by Orange County voters in November 1990.

Medium visual impact: Impacts sustained if features of a project alternative are readily discernable but do not dominate the landscape or detract from existing dominant features.

Megafauna: Mammoth, bison, horse, camel, dire wolf, and other large animals.

Megafossils: Fossils large enough to be seen with the unaided eye.

Mesoscale: Describes regional air quality analysis.

Microrelief: Relief forms that are details of larger surface forms, e.g., knolls, channel banks and spits, small sinkholes, and sand ripples.

Microscale: Describes local air quality analysis.

Midden: Refuse accumulation associated with prehistoric use of a site or area.

Miocene: The period between 23 and 5.3 million years before present.

Mitigation: Action or measure undertaken to minimize, reduce, eliminate, or rectify the adverse impacts of a project, practice, action, or activity.

Mitigation bank: A large block of land that is preserved, restored, and enhanced for the purpose of mitigating for projects that take (disturb, injure, or kill) special-status species, convert wetlands or otherwise vegetated biological communities.

Mitigation Monitoring and Enforcement Plan (MMEP): Document outlining the strategy for implementing, monitoring, and ensuring the effectiveness of mitigation measures described in the EIR/EIS and committed to as part of project approval.

Mixed-use development: Development that incorporates residential and nonresidential uses.

MMEP: *See* **Mitigation Monitoring and Enforcement Plan.**

Modal: A transportation system defined on the basis of specific rights-of-way, technologies, and operational features.

Modal alternative: A hypothetical, reasonable build alternative to the proposed HSR system consisting of expansion of highways and airports serving the same geographic areas.

Monitoring: The collection of information to determine the effects of resource management and to identify changing resource conditions or needs.

Monoculture: The cultivation of a single product to the exclusion of other uses of land.

N

NAD 83: North American Datum of 1983—The horizontal control datum for the United States based on the Geodetic Reference System 1980 and with a geocentric origin.

National Ambient Air Quality Standards (NAAQS): Federal standards stipulating the allowable ambient concentrations of specific criteria pollutants.

National Environmental Policy Act (NEPA): Federal legislation that establishes national policies and goals for the protection of the environment and requires federal agencies to consider the environmental impacts of major federal projects or decisions, to share information with the

public, to identify and assess reasonable alternatives, to identify appropriate measures to mitigate potential impacts, and to coordinate efforts with other planning and environmental reviews taking place. Codified at: 42 U.S.C. § 4331 et seq.

NAVD 88: North American Vertical Datum of 1988—The vertical control datum established for surveying elevations in the United States based on the General Adjustment of the North American Datum of 1988.

NEPA: *See* **National Environmental Policy Act**.

Nitrogen oxides (NO_x): A class of pollutant compounds that include nitrogen dioxide (NO_2) and nitric oxide (NO), both of which are emitted by motor vehicles. *See* **criteria pollutants.**

No Action: Under NEPA, refers to an alternative under which no action would be taken (no infrastructure would be built and no new management or operational practices would be instituted). *See* **No Project**.

No Project: Under CEQA, refers to an alternative under which no action would be taken (no infrastructure would be built and no new management or operational practices would be instituted). *See* **No Action**.

No Project Alternative: Represents the regional and state transportation system (e.g., highway, air, and conventional rail) as it is today and with implementation of programs or projects that are in regional transportation plans and have identified funds for implementation by 2050. The No Project Alternative represents the baseline conditions for comparison with the HSR alternatives.

Nonattainment: An air basin that exceeds federal or state standards for a particular pollutant. *See also* **attainment**, **maintenance**.

Nondisturbance exclusion zones: Areas designated off-limits for construction and off-limits to construction personnel and equipment.

Nonelectrified steel-wheel-on-steel-rail train: Conventional intercity diesel-electric locomotive train equipment (e.g., Amtrak California Corridor trains).

Nonpoint source pollution: Pollution that collects from a wide area and cannot be traced to a single source. Examples include pesticides or fertilizers from farms or developed lands that wash into rivers or percolate through the soil into groundwater.

Nonwater-contact recreation: Describes recreational activities where contact with the water is not likely, such as photography, wildlife viewing, etc.

Notice of Intent (NOI): Formal notice published in the *Federal Register* by the federal lead agency stating that an environmental impact statement will be prepared for a proposed project.

Notice of Preparation (NOP): Formal notice issued by the state lead agency stating that an environmental impact report will be prepared for a proposed project.

Noxious weed: A plant that has been defined as a pest by law or regulation. The state of California and the federal government maintain lists of plants that are considered threats to the well-being of the state or the country.

NPL/Superfund List: A federal list of sites that have been identified as posing an immediate public health hazard and where an immediate response is necessary.

Nuclear magnetic resonance (NMR): Property that magnetic nuclei have in a magnetic field and applied electromagnetic (EM) pulse or pulses that cause the nuclei to absorb energy from the EM pulse and radiate this energy back out. The energy radiated back out is at a specific resonance frequency that depends on the strength of the magnetic field and other factors.

O

Obsidian: A jet-black to gray, naturally occurring volcanic glass that is formed by the rapid cooling of viscous lava.

OCS: *See* **overhead contact system.**

Off-site: Outside of the HSR project footprint.

Ordinary high-water mark: The line on the shore of a body of water established by the fluctuation of water levels.

Overhead contact system (OCS): A simple two-wire system, a messenger wire and a contact wire, with overhead wires supported by cantilevers and attached to poles alongside the tracks. *See* **catenary wire** *and* **contact wire.**

Overdraft: A condition where groundwater pumping exceeds the natural replenishment (recharge) to an aquifer.

Ozone (O_3): A photochemical oxidant that is a major cause of lung and eye irritation in urban environments.

P

Paleontological: Related to the study of life in past geologic time.

Paleontological potential: The probability that a geologic unit contains fossils.

Paleontological productivity: The relative abundance of fossils that have been encountered in a specific geologic unit.

Paleontological resource monitor: A person trained in the identification of fossils in the field and who monitors construction activities for paleontological resources.

Paleontological resource specialist (PRS): A person with advanced degree(s) in paleontology or paleobiology and trained in paleontological resources management. A PRS is usually responsible for compliance with the laws, ordinances, regulations, and standards addressing that resource.

Paleontological resources: Fossils and the remains of ancient plants, animals, other organisms.

Paleontological sensitivity: The probability of a geologic unit to yield fossils, based on historic paleontological productivity. Often used synonymously with **paleontological potential**.

Paleontologist: A scientist who studies fossils.

Paleosol: A layer of ancient or fossil soil buried beneath other sediments or deposits.

Pantograph power pickup: A device for collecting current from an overhead wire consisting of a hinged vertical arm operated by springs or compressed air and a wide, horizontal contact surface that slides along the wire.

Paralleling station: An HSR traction power facility that functions with switching stations to balance the electrical load between HSR tracks and to switch power off or on to either track in an emergency.

Parcel: A distinct, continuous portion or tract of land.

Park-and-ride: Facility where HSR patrons can leave personal vehicles.

Partial parcel acquisition: A permanent acquisition of a portion of a parcel of land as necessary to implement a project. Also describes a temporary acquisition of a parcel of land that requires the occupants to move during the construction period.

Particulate matter: Liquid and solid particles of a wide range of sizes and compositions; of particular concern for air quality are particles smaller than or equal to 10 microns and 2.5 microns in size (PM_{10} and $PM_{2.5}$, respectively).

Particulate pollution: Air pollution such as dust, soot, and smoke that is irritating but usually not poisonous. Particulate pollution also can include bits of highly toxic solid or liquid substances. Of particular concern are particles smaller than, or equal to, 10 microns (PM_{10}) or 2.5 microns ($PM_{2.5}$) in size.

Passing track: A track connected to the main line on both ends that allows a train to stop for commercial reasons (in a station for example) or operating purposes (to deal with a delayed train or a train with technical issues), and that allows other trains to pass.

Perennial stream: A stream that flows continually throughout the year.

Pesticide: Any substance intended to prevent the presence of, destroy, repel, or mitigate any pest. The term pesticide applies to insecticides and various other substances used to control pests, including herbicides.

Photogrammetry: The art, science, and technology of obtaining reliable information about physical objects and the environment through the process of recording, measuring, and interpreting images and patterns of electromagnetic radiant energy and other phenomena.

Pick-up and drop-off: Facility for private and semi-private vehicles to drop-off or pick-up HSR patrons; could include facilities for taxis, private shuttles, and rental cars.

Plat: A plan or map of a plot of ground.

Platform: Station area adjacent to tracks where trains stop to allow passengers to board and alight.

Pleistocene: The period between 2.6 and 0.01 million years before present.

Pliocene: The period between 5.3 and 2.6 million years before present.

Point source pollution: Pollution that can be traced to a single source (e.g., a smokestack at a factory).

Polychlorinated biphenyls (PCB): Chemicals used in electrical transformers, hydraulic equipment, capacitors, and similar equipment.

Positive train control (PTC) infrastructure: Integrated command, control, communications, and information systems for controlling train movements that improve railroad safety by significantly reducing the probability of collisions between trains, casualties to roadway workers, and damage to equipment.

Positive train control (PTC) systems: The Rail Safety Improvement Act requires that railroads implement PTC systems to prevent train-to-train collisions on certain rail lines by the end of 2015.

Pothole/test pit: An excavation to expose an underground facility.

Poverty level: The income at which a family or individual is considered poor. In 2009 the U.S. Census Bureau defined the poverty level for a family of four as an income of $21,954 or less.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Preferred Alternative: The alternative identified as preferred by the lead agencies.

Prehistoric archaeological sites: Places where Native Americans lived or carried out activities during the prehistoric period (as late as AD 1769).

Prime farmland: Rural land that has the best combination of physical and soil chemistry characteristics for producing food, feed, forage, fiber, and oilseed crops, and is available for these uses.

Program-level/programmatic: Refers to a CEQA or NEPA environmental review that covers the broad spectrum of a large, complex, regionally extensive effort comprised of a number of smaller, regionally focused projects or phases.

Project: The combination of decisions and actions taken by a lead agency to implement a plan of action or construct a facility or operate a service. In the context of HSR, projects include the construction of guideway and associated infrastructure; maintenance, station, and other facilities; passenger rail operation and maintenance activities; and implementation of measures to mitigate the significant adverse impacts of HSR construction, operation, and maintenance.

Project footprint: The area needed to construct, operate and maintain all permanent HSR features (including tracks and guideway structures, train signaling and controls and communications facilities, traction power distribution and substations, switching and paralleling stations, passenger platforms and stations, maintenance-of-way facilities, maintenance facilities, HSR perimeter security controls, passenger station access, HSR facility operation or maintenance access, sound walls or other peripheral features owned and maintained by the Authority), freight or passenger or transit railroad grade separations, roadway grade separations and adjoining street or intersection changes, contiguous access to severed parcels, new utility features, existing utility relocations, access to new or relocated utility features, drainage facilities, any other physical changes within the area needed to construct and operate HSR, and HSR property rights or licenses to accommodate HSR construction, operation and maintenance (temporary and permanent ground or aerial fee properties, easements or licenses for HSR facility and associated feature sites, HSR operations and maintenance activities, operation or maintenance access, utility connections and maintenance, HSR stormwater and wildlife management features, construction activities, mobilization, staging and access).

Project-level: Refers to more detailed, site-specific environmental analysis focusing on the implementation of a single project that is part of a program of projects.

Project viewshed: The area within which the project alternatives could be visible.

Public transportation: Includes bus, trolley bus, streetcar or trolley car, subway or elevated, railroad, ferryboat, and taxicab service.

Purpose and need: The reason(s) for undertaking a project or action, and the need(s) the project or action is intended to meet or fulfill.

Q

Qualified paleontologist: *See* **paleontological resources specialist.**

Quality level: A level of accuracy scale used (1) to identify the location of underground and above ground utility facility information needed to develop capital projects and (2) for acquiring and managing that level of information during the project development process.

Queuing area: Station area where passengers can wait in a line without disrupting other passenger flow.

R

Radio frequency: The frequency range of the electromagnetic spectrum used for radio communication.

Rail guideway: A track that supports and physically guides high-speed trains.

Rail line: A length of railroad track and railbed.

Railbed: The substructure of a railroad, underlying the tracks.

Ranchette: A rural or semi-rural ranch-style residence with a comparatively small acreage.

Reactive organic gas (ROG): Reactive **Hydrocarbon** pollutants.

Reconductoring: The upgrade of an existing electrical power transmission or distribution line to increase electrical current carrying capacity.

Regional Transportation Improvement Plan (RTIP): A listing of all transportation projects proposed over a six-year period for a given region. The regional transportation improvement program is prepared to implement projects and programs listed in the **Regional Transportation Plan,** and is developed in compliance with state and federal requirements.

Regional transportation plan (RTP): A long-range (20+ year) transportation plan. The regional transportation plan identifies major challenges as well as potential opportunities associated with growth, transportation finances, the future of airports in the region, and impending transportation system deficiencies that could result from growth anticipated in the region. There are typically two components of the RTP: a financially constrained and financially unconstrained version. The financially constrained version of the RTP includes projects and programs that fit within existing and planned funding sources.

Relocations: The removal, rearrangement, reinstallation, or adjustment of a utility facility required by a transportation improvement project. Also describes assistance to property occupants that would be displaced from parcels acquired to implement the HSR construction, operation, or maintenance.

Retention pond: A pond designed to hold and infiltrate most or all of the runoff that it receives.

Remnant: The portion of a property that is not acquired for HSR purposes.

Richter scale: A logarithmic scale measuring the severity of earthquakes based on the magnitude of ground motion.

Ridership: The number of people who ride a transportation system.

Right-of-way: A legal right of passage over a defined area of real property. In transit usage, it represents the corridor along a roadway or railway that is controlled by a transit or transportation agency/authority.

Riparian: Relating to, living, or located on the bank of a natural water course, lake, or tidewater.

Riparian corridor: The area along a natural water course, lake, or tidewater where wildlife moves or migrates.

Riprap: A form of watercourse bank armoring consisting of placed rock or concrete objects to strengthen or protect an earthen embankment from **erosion**.

Rock or geologic unit: A body of rock or unconsolidated sediment that has a distinct origin and distinctive attributes allowing its distribution to be mapped.

Rolling stock: Wheeled railway vehicles.

Route mile: The distance traveled over tracks between two points. Route miles may have one or multiple sets of parallel tracks

Ruderal: Weedy vegetation, commonly including or dominated by introduced species, characteristic of areas where native vegetation has been disturbed or removed.

Runoff: The flow of water over land from rain, snowmelt, or other sources.

S

SCADA: *See* **Supervisory Control and Data Acquisition.**

Scale: A graduated line representing a proportionate size.

Scarp: The inner slope of a ditch.

Scenic corridor: A corridor with landscapes and vistas of high scenic quality.

Scoping: A process used under CEQA and NEPA to determine the set of issues to be discussed and for identifying issues of particular concern related to the proposed action or project to be analyzed in an EIR (under CEQA) or an EIS (under NEPA).

Scour: Erosion caused by fast-flowing water.

Screenline: An imaginary line across parallel roadways that defines a zone of analysis.

Seasonal riverine: A classification of wetland found along rivers and streams**.**

Section 4(f): Provisions originally enacted as Section 4(f) of the U.S. Department of Transportation Act of 1966 codified in 49 United States Code, Subtitle I, Section 303(c). Section 4(f) addresses the potential for conflicts between transportation needs and the protection of land for recreational use and resource conservation by providing protection for publicly owned parkland, recreation areas, and historic sites from use. Specifically, the provisions prohibit the Secretary of Transportation from approving any program or project that would require the use of any publicly owned land from a public park, recreation area, wildlife or waterfowl refuge, or land of an historic site of national significance as determined by the officials having jurisdiction over these lands unless there are no feasible and prudent alternatives to the use of these lands. In addition, a proposed program or project must include all possible planning to minimize harm resulting from the proposed use.

Section 6(f): Section 6(f) of the Land and Water Conservation Fund Act of 1964 prohibits the conversion of property acquired or developed with funds granted through the act to a nonrecreational purpose without the approval of the National Park Service. Section 6(f) directs the Department of the Interior to ensure that replacement lands of equal value (monetary), location, and usefulness are provided as conditions to such conversions. State and local governments often obtain grants to acquire or make improvements to parks and recreation areas (16 U.S.C. § 460-4 through 460-11, September 3, 1964, as amended 1965, 1968, 1970, 1972–1974, 1976–1981, 1983, 1986, 1987, 1990, 1991, 1993–1996). Consequently, where such conversions of Section 6(f) lands are proposed, replacement land must be provided.

Sedimentary rock: Rock resulting from the consolidation of sediment.

Sedimentary rock units: Rock units composed of sediment, as distinct from those composed of igneous rocks (volcanic or granite). Sedimentary rock units yield fossils.

Sediments: Fragments of material originating from the physical or chemical weathering of rocks and minerals, from the decomposition of organic matter, or from atmospheric fallout. Clay, mud, and sand are all types of sediment.

Seiche: Oscillation or “sloshing” of water in a lake, bay, or other enclosed body as a result of landsliding or seismic ground shaking.

Seismic monitoring devices: Devices that detect ground movements and automatically shut down power to high-speed trains and apply the on-board emergency brakes.

Senate Bill 45: A law that consolidates various funding programs into the **State Transportation Improvement Program (STIP)** and increases accountability for programming and delivery of STIP projects to the regions in the state and the various Caltrans districts.

Sensitive natural communities: Communities of plants and wildlife interacting in the same ecosystem whose extent has been much reduced in the state and which are locally rare.

Sensitive receiver: Noise-sensitive or vibration-sensitive locations where increased annoyance can occur, such as residences, schools, hotels/motels, or medical facilities.

Sensitive receptors: Locations considered more sensitive to adverse effects from air pollution (e.g., residences; preschools and kindergarten through grade 12 schools; daycare centers; health-care facilities such as hospitals, retirement homes, and nursing homes; and parks and/or playgrounds).

Sensitivity analysis: An analysis that assesses how sensitive the outcomes predicted by modeling are to changes in different model inputs (assumptions or variables).

Service: The portion of the electrical, gas, water, or sewer system that connects a customer, usually at the meter location, to the utility distribution or supply system. Also refers to passenger transportation provided by transit and other carrier operations.

Shadow impact: A shadow impact ranking would be high if a new (not existing) elevated structure were within 75 feet (23 meters) of residential or open space, natural areas, or parkland.

Shared right-of-way: An HSR alignment where HSR operates in proximity to and within the existing operating rights-of-way of other transportation systems, including conventional passenger railroads or freight railroads, without sharing tracks. Also includes highways.

Shared use corridor: A segment along the HSR alignment where high-speed trains operate on exclusive tracks located along rail corridors proximate to existing rights-of-way where conventional passenger and freight railroads currently operate.

Shared use track: A segment along the HSR alignment where HSR operates with other passenger railroads (i.e., Caltrain, MetroLink, and Amtrak), on the same track.

Shinkansen: The Japanese high-speed train.

Significant: In CEQA usage, describes an impact that is sufficiently adverse, intense, or prolonged to require mitigation. For NEPA usage, see 40 C.F.R. Part 1508.27.

Slab track: Railroad track installed on concrete slabs for support.

Sleeve: A pipe in which a pipeline or conduit is inserted.

Snowbelt: A North American region, much of which lies downwind of the Great Lakes, where heavy snowfall is particularly common on predominantly eastern and southern shores of the Great Lakes.

Society of Vertebrate Paleontology: An international society of paleontologists, with an emphasis on vertebrate paleontology.

Soil densification: Soil compaction that can lead to erosion.

South Coast Air Quality Management District: The regional regulatory agency with primary responsibility for improving air quality in the South Coast Air Basin.

Special provision: Specific clauses setting forth the conditions or requirements peculiar to the work and supplement the project's standard specifications.

Special-status plant communities: Significant or rare vegetation types (as defined by the California Department of Fish and Wildlife) or plant communities that are of limited distribution statewide or within a county or region.

Special-status species: Plants and animals that are legally protected under the Federal Endangered Species Act of 1973, the California Endangered Species Act, or other regulations, such as those species that meet the definitions of rare or endangered under CEQA Guidelines Sections 15380 and 15125.

Spiral: A curve of variable radius used to connect a straight section of track with the radius of the body of the curve. Sometimes called a transition or a transition spiral in European publications.

State Implementation Plan (SIP): Statewide plan for complying with the federal Clean Air Act. The SIP consists of narrative, rules, and agreements that California will use to clean up polluted areas.

State streambeds: California Department of Fish and Wildlife (CDFW) has not released an official definition of lake or streambed and therefore the extent of the area regulated under Section 1602 remains undefined. However, CDFW jurisdiction generally includes the streambed and bank, together with the adjacent floodplain and riparian vegetation.

State Transportation Improvement Program (STIP): A multi-year capital improvement program of transportation projects on and off the state highway system, funded with revenues from the State Highway Account and other funding sources. STIP programming generally occurs every two years.

Station: Area that would provide intermodal connectivity, drop-off facilities, an entry plaza, a station house area for ticketing and support services, a station box where passengers wait and access the HSR, and parking facilities.

Stormwater Pollution Prevention Plan (SWPPP): A plan that specifies site management activities to be implemented during site development, including construction stormwater best management practices, erosion and sedimentation controls, dewatering (nuisance water removal), runoff controls, and construction equipment maintenance.

Straddle bent: A pier structure that spans the functional/operational right-of-way limit of a roadway, highway, or railway.

Strata: Geologic units composed of sedimentary rocks usually thought of as overlying one another in layer-cake fashion.

Stratigraphically long-ranging: Fossils that are present in multiple geologic units.

Strike-slip fault: A fault along which the dominant direction of movement is parallel to the fault trace (the expression of the fault on the ground surface).

Stub end: A track that terminates at one end.

Study corridor: a linear geographic belt or band connecting different parts of the study region that follows the corridor alignment selected for the HSR system at the program level for evaluation at the project level.

Study region: A geographic region that encompasses one or more selected corridors of the HSR system, such as the Bay Area to Central Valley, the Central Valley, Southern Mountain Crossing, and Los Angeles Basin.

Subsidence: Sinking or lowering of the ground surface.

Subsistence remains: Remains that include the inedible portions of foods, such as animal bone and shell, and edible parts that were lost and not consumed, such as charred seeds.

Sulfur Oxides (SOx): Sulfur-oxygen compounds that include the important criteria pollutants sulfur dioxide (SO_2) and sulfur trioxide (SO_3).

Superelevation: The difference in elevation between the outside rail of the curve and the inside rail of the curve measured between the highest point on each rail head. Normally called *cant* in European publications.

Supervisory Control and Data Acquisition (SCADA): A function for the acquisition and management of real-time information on project components that is part of the central control facility.

Surface Transportation Board (STB): A bipartisan, independent regulatory body within the U.S. Department of Transportation. The STB has jurisdiction over the construction and operation of new rail lines, including HSR.

Surficial geology: Unconsolidated Quaternary-era geologic materials lying on top of bedrock. Common surficial materials include sand and gravel, glacial tills, and clay and silts.

Swale or sheetflow runoff: Runoff from a low tract of land, especially one that is moist or marshy.

Switch: A mechanical installation enabling trains to be guided from one track to another at a railway junction.

Switch frog: The point in the switch where two rails cross. The frog is designed to ensure the wheel crosses the gap in the rail without dropping into the gap; the wheel and rail profile ensures that the wheel is always supported by at least one rail.

Switching station: An HSR traction power facility that functions with paralleling stations to balance the electrical load between HSR tracks and to switch power off or on to either track in an emergency.

T

Take: To harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct (as defined in Section 3 of the **Federal ESA**).

Taxon: A general term for a named group of related organisms.

Tectonic activity: Movement of tectonic plates that result in earthquakes, volcanoes, and mountain building.

Terminal station: The first or last station of a passenger railway route.

Tesla: Unit of measure describing the strength of a magnetic field. *See also* **gauss**.

Thermocline: A thin but distinct layer in a large body of water such as an ocean or lake in which temperature changes more rapidly with depth than it does in the layers above or below.

Tiering: Refers to the practice of addressing general issues in broader environmental impact reports or statements, such as **Program-Level** documents, and providing more detailed site-specific analyses in subsequent (typically **Project)** documents that incorporate the initial broad analysis by reference.

Topographic map: A map of the surface features of the earth.

Total organic gases (TOG): A pollutant classification that includes all **Hydrocarbons**, both reactive and nonreactive.

Track mile: The literal number of miles of single track.

Trackway: The route of a train.

Trackwork: The design of train tracks.

Traction power supply station (TPSS): An electrical substation that supplies power to the HSR System.

Traditional cultural properties and resources (TCP): Places associated with the cultural practices or beliefs of a living community that are rooted in that community's history. Examples of TCPs include, but are not limited to, any place where people practice a ritual activity or festival; any place where something happened that is of significance to a group or community and is referred to in stories; any place that is a vital and beloved part of the community and that may give the community a special identity or defining character.

Trainset: A complete unit of **rolling stock** that makes up a single train.

Transit-dependent population: The population over the age of 16 (workers) who use **public transportation** to travel to and from work, typically without the means to use a personally owned automobile.

Transit node: A connection, station, or terminal on a transit network.

Transportation demand management: The operation and coordination of various transportation system policies and programs to manage travel demand to make the most efficient and effective use of existing transportation services and facilities.

Transportation system management: Actions that improve the operation and coordination of transportation services and facilities to realize the most efficient use of the existing transportation system.

Transverse: A facility passing from one side of the right-of-way to the other side of the right-of-way.

Travel time: The time spent traveling from a place of origin to a place of destination. *Total travel time* includes the time required to reach a station or an airport, time spent waiting for the next scheduled train or flight, time spent getting to the boarding area, time spent checking and retrieving luggage, time spent getting a rental car or taxi, as well as time spent to reach the final destination.

Tributary watercourse: A stream feeding a larger stream or lake.

Trinomial: An alphanumeric abbreviation for a previously identified historic or prehistoric resource, such as CA-ORA-1352, representing the state (e.g., California [CA]), the county (e.g., Orange [–ORA]), and a unique number assigned by the State Historic Preservation Office (e.g., -1352).

Tsunamis: Waves that travel in the open ocean and that are caused by an undersea earthquake, landslide, or volcanic activity.

U

Unavoidable: In CEQA and NEPA usage, describes an impact that cannot be entirely avoided, reduced, or compensated for.

Unbalance, unbalanced superelevation: The difference between the superelevation and equilibrium superelevation. In European publications, unbalance is called cant deficiency if the actual superelevation is less than the equilibrium superelevation, and is called excess cant if the actual superelevation is greater than the equilibrium superelevation.

Unique farmland: Farmland with soils of lower quality than either **prime farmland** or **farmland of statewide importance**, but still used for the production of crops. Unique farmlands are usually irrigated, but may include nonirrigated orchards or vineyards in some of California's climate zones. To qualify as unique farmland, a property must have been in crops at some time during the previous 4 years.

Uplift: The action of a portion of the earth's surface as it rises above adjacent areas, an area of higher elevation than surrounding areas; an area that has been uplifted.

V

Value capture: A station area development principle that is a criterion for selecting an HSR station site.

Variance: Approved deviation, or exception, from a minimum design criteria or standard.

V/C ratio: Volume to capacity ratio; describes the relationship between the amount of traffic a roadway was designed to carry and the amount of traffic it actually carries. Related to the **level of service (LOS)** the roadway can provide.

Vertebrate: Organisms with a vertebral column.

Vernal pool: An ephemeral wetland that predictably forms in permanent basins during the cooler part of the year but which turns dry during summer.

Vertical curve: The transition between grades is normally parabolic in the United States and Asian practices and circular arc radii in European practices.

Very high speed steel-wheel-on-steel-rail train: A train capable of maximum operating speeds near 220 mph using steel-wheel-on-steel-rail technology.

Viaduct: A bridge that conveys a road or a railroad over a valley often constructed of a series of arches supported by piers.

Viewer group: Roadway/highway/rail users, residents, commercial viewers, office viewers, park and trail users, and agricultural and industrial workers within a viewshed.

Viewshed: The total area visible from a single observer position, or the total area visible from multiple observer positions. Viewsheds include scenes from highways, trails, campgrounds, towns, cities, or other viewer locations. Viewshed types include corridor, feature, or basin viewsheds.

Visual character: The physical attributes of the landscape.

Visual intactness: The aesthetic integrity of the visual environment and its freedom from encroaching elements.

Visual quality: The character or inherent features of a viewshed.

Visual resources: The natural and artificial features of a landscape that characterize its form, line, texture, and color.

Visual unity: The visual coherence and compositional harmony of a landscape considered as a whole.

Visual vividness: The visual power or memorability of landscape components as they combine in patterns experienced by the viewer.

Vividness: *See* **visual vividness.**

Volt: Standard unit of measure for electrical potential.

W

Waterbody: Any significant accumulation of water. The term *body of water* most often refers to large accumulations of water, such as oceans, seas, and lakes, but it may also include smaller pools of water such as ponds, puddles, or wetlands.

Waters of the State: Isolated wetlands that may not be subject to regulations under federal law (as defined by the Porter-Cologne Water Quality Control Act (§ 1305(e)). An area is a wetland if, under normal circumstances, it (1) is saturated by ground water or inundated by shallow surface water for a duration sufficient to cause anaerobic conditions within the upper substrate; (2) exhibits hydric substrate conditions indicative of such hydrology; and (3) either lacks vegetation or the vegetation is dominated by hydrophytes (San Francisco Estuary Institute 2009).

Waters of the United States (U.S.): The federal Clean Water Act defines waters of the U.S. as (1) All waters that are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters subject to the ebb and flow of the tide; (2) All interstate waters including interstate wetlands; and (3) All other waters, such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation, or destruction of which could affect interstate or foreign commerce (33 C.F.R. Part 328.3[a]).

Water-contact recreation: Recreational activities in which contact with the water is intended or likely, such as swimming, water-skiing, and fishing.

Watershed: The area that contributes water to a drainage system or stream.

Watt: Standard unit of measure for electrical power.

Wayside power: Electrical power provided from the utility grid to the electrified railroad right-of-way at convenient locations from the side of the rail tracks or corridor.

Weir: A small dam that restricts flow in a stream to raise the water level or diverts flow into a desired course.

Wet utility: A pipeline that conveys liquid through gravity or pressured systems for public purposes (i.e., water and wastewater).

Wetland: An area of land with soil that is saturated with moisture, either permanently or seasonally. According to the *U.S. Army Corps of Engineers Wetland Delineation Manual*, three criteria must be satisfied to classify an area as a jurisdictional wetland: (1) a predominance of plant life that is adapted to life in wet conditions (hydrophytic vegetation), (2) soils that saturate, flood, or pond long enough during the growing season to develop anaerobic conditions in the upper part (hydric soils), and (3) permanent or periodic inundation or soils saturation, at least seasonally (wetland hydrology).

Wildlife corridor: A belt of habitat that is essentially free of physical barriers such as fences, walls, and development, and connects two or more larger areas of habitat, allowing wildlife to move between physically separate areas.

Wingwall: A wall at the abutment of a bridge that extends beyond the bridge to retain the earth behind the abutment.

Wye connection: A railway that connects different sections of track. The transition to a wye requires splitting two guideways into four guideways crossing over one another before the wye legs diverge in opposite directions to allow bidirectional travel.

Y

Yard track: Dead-end track dedicated to operation needs and connected to a passing track, never to the main line railway.

APPENDIX F: ELECTRONIC SUBMITTAL OF ENVIRONMENTAL IMPACT STATEMENTS TO EPA

Instructions for filing EIR/EIS are available at http://www.epa.gov/compliance/nepa/submiteis/.

e-NEPA

Electronic Submittal of Environmental Impact Statements to EPA

About e-NEPA

e-NEPA is EPA's tool for submitting EIS documents electronically. The system meets EPA's requirements for EIS filing, and eliminates the need to mail hard copies of EISs to EPA. As before, to have your agency's EIS appear in EPA's Federal Register Notice of Availability, submit by 5:00 pm Eastern Standard Time on the prior Friday.

Please note that using e-NEPA for filing does not affect agencies' responsibilities for public distribution of EISs. Additionally, e-NEPA registration is only open to government employees: contractors cannot submit EIS documents through e-NEPA.

How to Register for e-NEPA

1. Go to https://cdx.epa.gov/epa_home.asp and select ***"Register with CDX"***
2. Read and accept the Terms and Conditions. Select ***"Proceed"***
3. In the Request Program Service screen select ***"e-NEPA: NEPA Electronic Filing System"*** (See Figure 1)
4. On the Request Role Access Screen, select the role Federal Agency EIS Filer and select ***"Request Role Access"*** (See Figure 2)
5. On the Registration Information Screen, input User and Organization Information. If your Organization does not show up in the search results, select ***"request that we add your organization"*** and input Organization information to add to the system and select ***"Submit Request for Access"*** (See Figures 3 and 4)
6. A confirmation screen appears, and soon you will receive a confirmation e-mail with a verification link to activate your account. When you receive the email, click the link and log in to create additional security questions for signature verification.
7. You are now able to submit documents

Figure 1

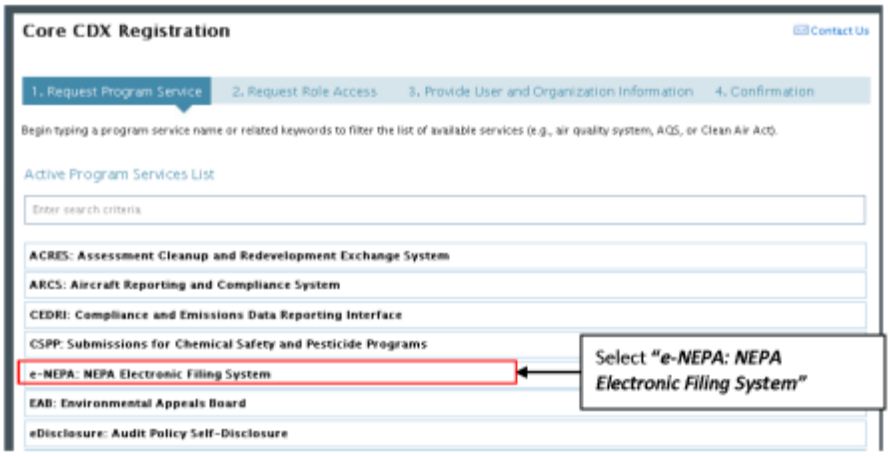
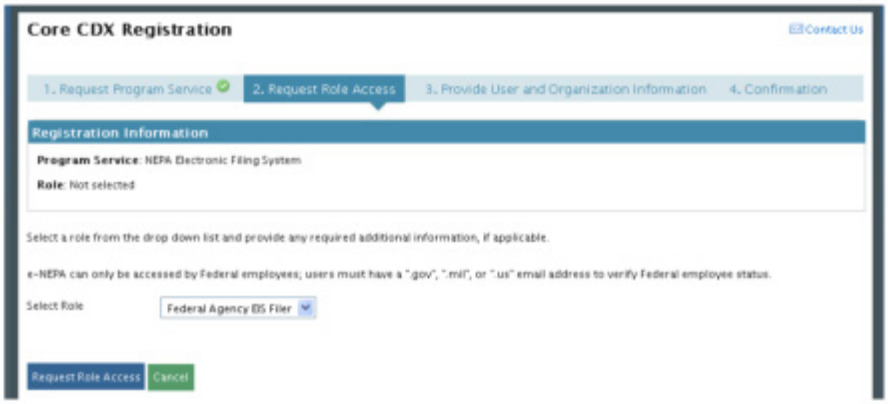


Figure 2



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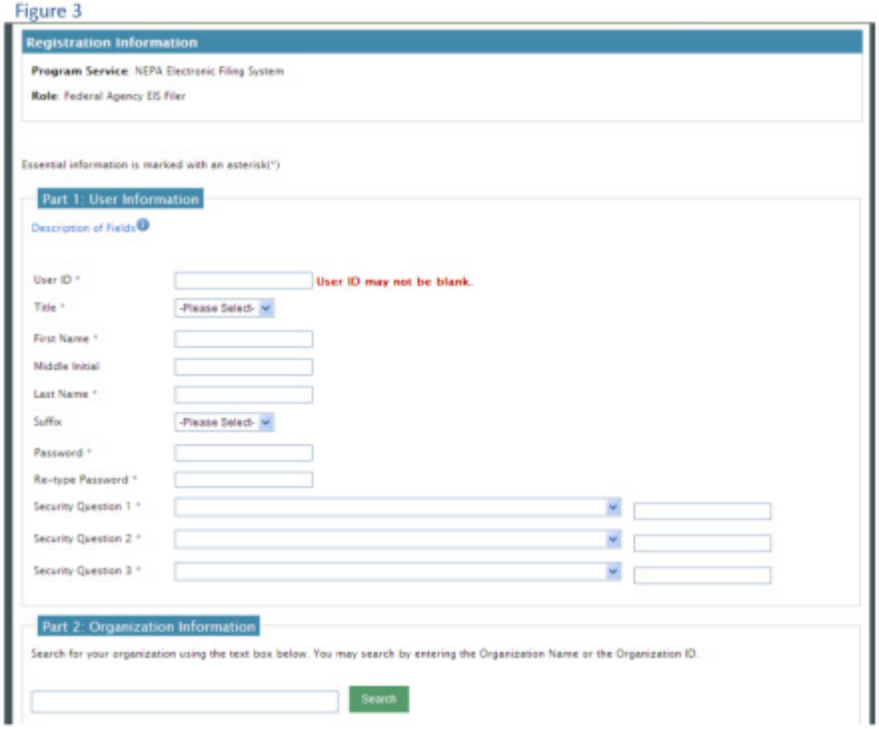

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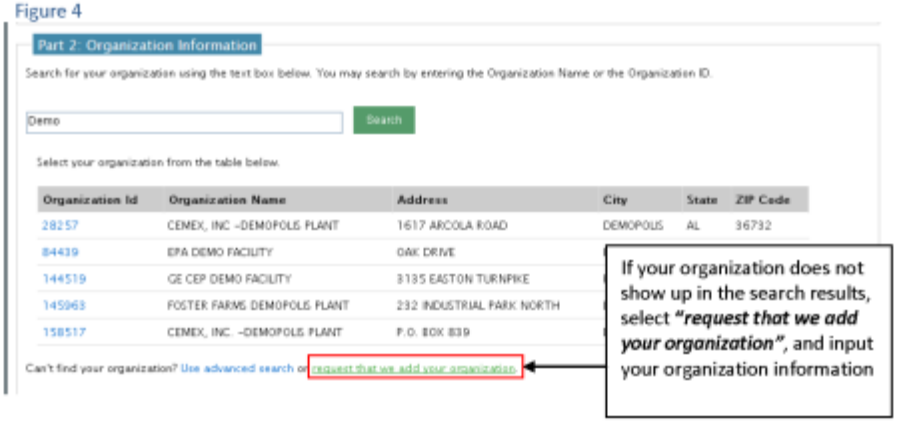

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- If the document is larger, please divide it into chapters or subchapters, if necessary.
- Adobe's ***Reduce File Size*** option will compress portions of the document, and offers the opportunity to limit backwards compatibility, which can further reduce file sizes.
  Further Information on How to Save and Compress PDF Files
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Formatting your EIS Document for Electronic Submission

- It is recommended to format the filenames with the chapter or subchapter number first, followed by its name
  Example: *Chapter 1 – Purpose and Need*
- If submitting a single file, please use the full EIS title as the filename.
- All documents must be searchable. Most PDFs that, other than scanned documents, are already searchable. For documents with unsearchable text, please run an optical character recognition.
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- EPA requires metadata be entered in ***Document Properties*** for ***Title***, ***Subject***, ***Author***, and ***Keywords***.
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How to Submit Your Document

1. When you are ready to submit your document, return to https://cdx.epa.gov
2. Log in with your username and password
3. Upon logging-in select ***"Submit an EIS"*** (See Figure 5)
4. You will then be directed to the form shown in Figure 6.
5. After clicking ***"Submit"*** you will be prompted to digitally sign the uploaded files (See Figure 7)
6. Once signed, you will receive a confirmation email verifying your signature and submission.
7. Congratulations! You've completed filing your EIS with e-NEPA.

Figure 5

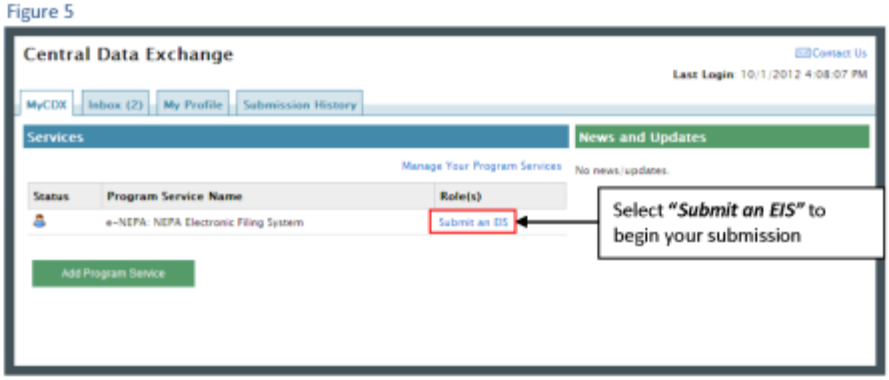
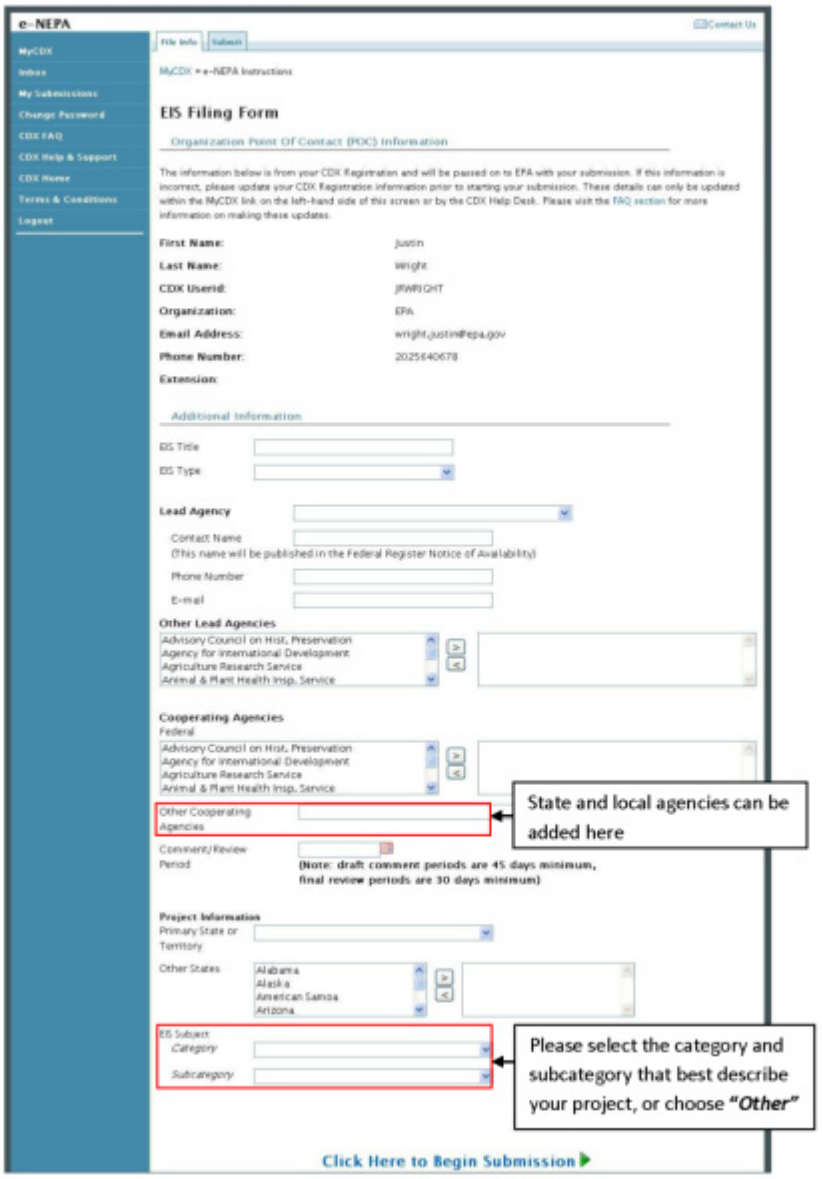


Figure 6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CDX Home
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The information below is from your CDX Registration and will be passed on to EPA with your submission. If this information is incorrect, please update your CDX Registration information prior to starting your submission. These details can only be updated within the MyCDX link on the left-hand side of this screen or by the CDX Help Desk. Please visit the FAQ section for more information on making these updates.
First Name: Justin
Last Name: Wright
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Additional Information
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Lead Agency
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Other Lead Agencies
Advisory Council on Hist. Preservation
Agency for International Development
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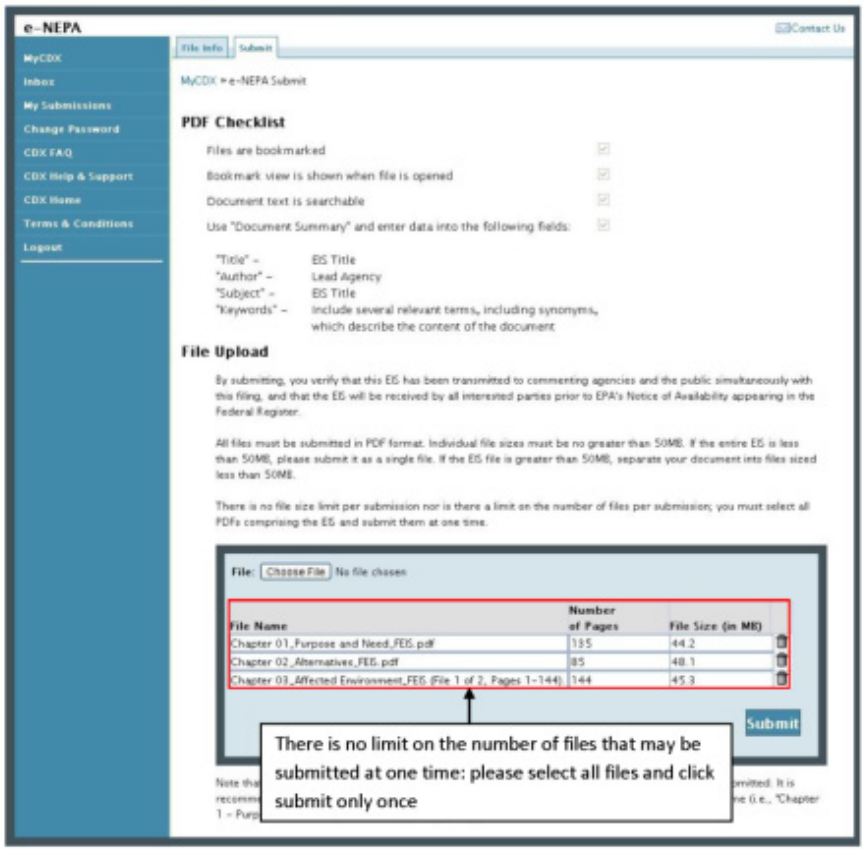
Cooperating Agencies
Federal
Other Cooperating Agencies
State and local agencies can be added here
Comment/Review Period
(Note: draft comment periods are 45 days minimum, final review periods are 30 days minimum)
Project Information
Primary State or Territory
Other States
Alabama
Alaska
American Samoa
Arizona
EIS Subject
Category
Subcategory
Please select the category and subcategory that best describe your project, or choose "Other"
Click Here to Begin Submission

Figure 7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Contact Us
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Inbox
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CDX Help & Support
CDX Home
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There is no limit on the number of files that may be submitted at one time: please select all files and click submit only once

APPENDIX G: SECTION 508 COMPLIANCE

The rules for preparing a document for 508 compliance[10] are basically the same as those for preparing any good-quality document. Documents prepared in the following way using MS Word should transfer most accessibility information when converted to pdf. Some fine tuning may need to be done using Acrobat Pro after the conversion, but it is much easier if the following steps are taken in the MS Word file. *[Editor's note: MS Word and Adobe Pro commands and style names are highlighted for ease of identification.]*

File

- Create a file name that is concise and identifies file contents—**DO NOT** use spaces or special characters in the document file name
- Complete/revise document Properties—author, title, subject, keywords (2007: Office Button > Prepare > Properties) (2010, 2013: File > Info > Properties [on the right side of the screen])
- Confirm that English (U.S.) is the selected language (2007: Review > Set Language) (2010, 2013: Review > Language > Set Proofing Language)

Text

- Use these basic MS Word default styles *[editor's note: these are the styles provided in the project templates discussed in Section 4.2.2]*
  - Heading 1 through 4 (and Heading 5 through 9 only if absolutely necessary)
  - Body Text (and Body Text 2 and 3 if needed)
  - List Bullet (and List Bullet 2 through 5 if needed)
  - Caption (for table and figure titles)
  - TOC Heading
  - TOC 1 through 3
  - Table of Figures (for lists of tables, figures, appendixes in the TOC)
- Use only MS Office default fonts (e.g., Times New Roman, Verdana, Arial, Tahoma, Helvetica, Calibri)
- Type only one space after all punctuation (use a global search and replace to eliminate extra spaces)
- Use spacing before or spacing after commands (Page Layout ribbon, Paragraph group) to space between paragraphs (**DO NOT** use the Enter key to add extra white space—these empty paragraphs will be read out loud as "blank")
- Do not include any important content solely in the header or footer (they will not be read)
- Use the Insert Hyperlink command (Insert ribbon, Links group) for links to the Internet—make sure links go to correct destinations
- Use the Insert Footnote or Insert Endnote commands (References ribbon, Footnotes group)
- Place content in a logical reading order, left to right and top to bottom (i.e., no double column bullets)
- Accept all tracked changes and delete all comments
- Do not use watermarks or background images

[10] Section 508, an amendment to the United States Workforce Rehabilitation Act of 1973, is a federal law mandating that all electronic and information technology developed, procured, maintained, or used by the federal government be accessible to people with disabilities. It was enacted in 2008.

- Avoid using text boxes *[editor's note: text boxes are considered a graphic and need to follow the instructions under Graphics below]*

Helpful tips

TIP 1: Use Word's Document Map (2007) or Navigation Pane (2010, 2013) feature to verify that all heading styles have been applied correctly. To open this feature, click on View ribbon tab and check the box labeled "Document Map" in the Show/Hide group (2007) or "Navigation Pane" in the Show group (2010, 2013). The Map/Pane will open up on the left side of your screen.

TIP 2: Turn on the Styles Task Pane every time you open a document (Ctrl + Alt + Shift + S). The Task Pane will open up on the right side of your screen and styles can easily be found and applied. In the Task Pane, click on Options (lower right corner) and uncheck the three boxes below "Select formatting to show as styles" to get rid of a lot of the clutter. This only needs to be done once for a file.

TIP 3: Heading styles can be applied using keyboard shortcuts: Heading 1 = Ctrl + Alt + 1, Heading 2 = Ctrl + Alt + 2, etc., through Heading 5. Keyboard shortcuts can be assigned to the remaining heading styles if desired.

TIP 4: If you have Word 2010 or 2013, use the Check Accessibility option to test the document (File > Info > Check for Issues > Check Accessibility). The file must be a 2010 or 2013 version (not a 2003 or 2007 compatible version).

Tables

- For columnar information, create a table using MS Word's Insert > Table command (select number of columns needed and at least two rows to start)
- Type the caption above the table (not in the first row of the table) using Caption style
- Include column headings in the first row of the table
- Highlight the headings row and select Repeat Header Rows from the Table Tools Layout ribbon (Data group)
- Do not merge cells (columns or rows) if at all possible—this is where fine tuning often needs to be done in the pdf
- Enter information in a logical order—left to right, top to bottom
- Highlight all rows and uncheck Allow row to break across pages (Table Tools > Layout > Properties > Row)

Graphics

- Insert graphics "in line with text" (2007: right click on graphic and select Text Wrapping > In Line with Text) (2010, 2013: right click on graphic and select Wrap Text > In Line with Text)
- Do not place graphics in text boxes
- Do not create graphics or add text boxes to existing graphics in Word—instead, add to an existing graphic in another program and insert into the Word file as a single graphic

Alternative text tips

Provide descriptive text for graphics, photos, text boxes, and sometimes tables as follows:

- Describe the object as if you were talking to someone over the phone
- Copy and paste the text information from a text box or callout box into the alternative text box
- Begin by describing the type of image, such as "Photo of xxx," "Map of xxx," "Graph of xxx," "Definition of xxx," etc. (in 2010, 2013 this information will go in the Title box)
- Do not duplicate information that is already provided in the text or in the caption
- Keep the description as short and simple as possible while still relaying critical information—ask yourself "what is the key point the graphic is intended to display to someone who can see it?"

Recommendation: Start a new Word document and prepare the "alternative text" for each graphic in this file—do all editing in this file before copying and pasting to alternative text box in the final document.

- Apply alternative text to graphics as follows:
  - Right click on the graphic
  - 2007: Select Size > Alt Text, clear the graphic file name from the Alternative text window, and copy the alternative text (*see* callout box recommendations) into the window
  - 2010, 2013: Select Format Picture > Alt Text from the drop-down menu and paste the alternative text (from the separate file described above) into the Description window *[editor's note: **DO NOT** repeat the caption in the Title window if it has already been included in the document]*
  - Click Close to return to the document

Converting to Adobe pdf—with file open in MS Word

- Select the MS Word Acrobat ribbon
- Select Preferences
- Check the "Enable Accessibility and Reflow with tagged Adobe PDF" feature
- Click OK
- Click Create PDF icon

PDF accessibility check—with file open in Acrobat X Pro

- Add language to PDF—File > Properties > Language > English
- Set document structure
  - Open page thumbnail panel
  - Select all pages in the document
  - Right click on any page in the thumbnail panel—Page Properties > Tab order > Use Document Structure
- Run accessibility check—Tools > Accessibility > Full Check > Start checking

Go through the detailed report and make the changes/suggestions. The report includes hints for repairs. To make repairs, you will be working from the tags panel. Tags are created in word and are similar to html/xml—View > Show/Hide > Navigation Panel > Tags.