

## 13.0 Acronyms and Abbreviations

|           |                                                                    |
|-----------|--------------------------------------------------------------------|
| µg        | microgram                                                          |
| µT        | microtesla                                                         |
| AASHTO    | American Association of State Highway and Transportation Officials |
| AB        | (California) Assembly Bill                                         |
| ac        | acre(s)                                                            |
| ac        | alternating current                                                |
| ACGIH     | American Conference of Government Industrial Hygienists, Inc.      |
| ACHP      | Advisory Council on Historic Preservation                          |
| ACS       | U.S. American Community Survey                                     |
| ADA       | Americans with Disabilities Act                                    |
| ADRP      | archaeological data recovery program                               |
| ADT       | Average Daily Traffic                                              |
| Ag-MM     | Agricultural Lands Mitigation Measure                              |
| AMP       | Airport Master Plan                                                |
| ANSI      | American National Standards Institute                              |
| APE       | Area of Potential Effects                                          |
| APLIC     | Avian Power Line Interaction Committee                             |
| APN       | Assessor's Parcel Number                                           |
| APCD      | air pollution control district                                     |
| APTA      | American Public Transportation Association                         |
| AQMD      | air quality management district                                    |
| AQ-MM     | Air Quality Mitigation Measure                                     |
| AREMA     | American Railway Engineers and Maintenance-of-Way Association      |
| Arch-MM   | Archaeological Resources Mitigation Measure                        |
| ARRA      | American Recovery and Reinvestment Act of 2009                     |
| AST       | aboveground storage tank                                           |
| ASTM      | American Society for Testing and Materials                         |
| ATC       | automatic train control                                            |
| ATCM      | Airborne Toxic Control Measures                                    |
| ATP       | Archaeological Treatment Plan                                      |
| Authority | California High-Speed Rail Authority                               |

|                                            |                                                                                                                                  |
|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| BAAQMD                                     | Bay Area Air Quality Management District                                                                                         |
| BACT                                       | best available control technology                                                                                                |
| BART                                       | Bay Area Rapid Transit                                                                                                           |
| BAT                                        | best available technology                                                                                                        |
| Bay Area                                   | San Francisco Bay Area                                                                                                           |
| Bay Area to Central Valley Program EIR/EIS | <i>2008 Bay Area to Central Valley High-Speed Train Final Program Environmental Impact Report/Environmental Impact Statement</i> |
| BCC                                        | Birds of Conservation Concern                                                                                                    |
| BCT                                        | best (conventional pollutant) control technology                                                                                 |
| BETP                                       | Built Environment Treatment Plan                                                                                                 |
| bgs                                        | below ground surface                                                                                                             |
| Bio-MM                                     | Biological Resources and Wetlands Mitigation Measure                                                                             |
| BIOS                                       | Biogeographic Information and Observation System                                                                                 |
| BLM                                        | Bureau of Land Management                                                                                                        |
| BMP                                        | best management practice                                                                                                         |
| BNSF                                       | Burlington Northern Santa Fe Railway                                                                                             |
| BPS                                        | best practices standards                                                                                                         |
| BRAC                                       | Defense Base Realignment and Closure                                                                                             |
| BRMP                                       | Biological Resources Management Plan                                                                                             |
| Btu                                        | British thermal unit                                                                                                             |
| C&D                                        | construction and demolition                                                                                                      |
| CAA                                        | Clean Air Act                                                                                                                    |
| CAAQS                                      | California Ambient Air Quality Standards                                                                                         |
| CAC                                        | County Agricultural Commissioner                                                                                                 |
| CAFB                                       | Castle Air Force Base                                                                                                            |
| CAFE                                       | Corporate Average Fuel Economy                                                                                                   |
| cal                                        | calibrated                                                                                                                       |
| Cal Fire                                   | California Department of Forestry and Fire Protection                                                                            |
| CalEPA                                     | California Environmental Protection Agency                                                                                       |
| CALPIA                                     | California Prison Industry Authority                                                                                             |
| CalRecycle                                 | Department of Resources Recycling and Recovery                                                                                   |
| Caltrans                                   | California Department of Transportation                                                                                          |

|                 |                                                                       |
|-----------------|-----------------------------------------------------------------------|
| CARB            | California Air Resources Board                                        |
| CAS             | Climate Adaptation Strategy                                           |
| CASQA           | California Stormwater Quality Association                             |
| CBOC            | California Burrowing Owl Consortium                                   |
| CBOE            | California Board of Equalization                                      |
| CCAA            | California Clean Air Act                                              |
| CCR             | California Code of Regulations                                        |
| CCWF            | Central California Women's Facility                                   |
| CDCR            | California Department of Corrections and Rehabilitation               |
| CDFA            | California Department of Food and Agriculture                         |
| CDFG            | California Department of Fish and Game                                |
| CDMG            | California Department of Conservation Division of Mines and Geology   |
| CDOF            | California Department of Finance                                      |
| CDSM            | cement deep soil mixing                                               |
| CEC             | California Energy Commission                                          |
| CEDD            | California Employment Development Department                          |
| CEQ             | Council on Environmental Quality                                      |
| CEQA            | California Environmental Quality Act                                  |
| CERCLA          | Comprehensive Environmental Response, Compensation, and Liability Act |
| CESA            | California Endangered Species Act                                     |
| CFGC            | California Fish and Game Code                                         |
| CFR             | Code of Federal Regulations                                           |
| CGS             | California Geological Survey                                          |
| CH <sub>4</sub> | methane                                                               |
| CHRIS           | California Historical Resource Information System                     |
| CIDH            | cast-in-drill hole                                                    |
| CIMIS           | California Irrigation Management Information System                   |
| CIWMB           | California Integrated Waste Management Board                          |
| cm              | centimeter                                                            |
| CMA             | Congestion Management Agencies                                        |
| CMP             | Congestion Management Program                                         |
| CNDDB           | California Natural Diversity Database                                 |

|                   |                                                                                    |
|-------------------|------------------------------------------------------------------------------------|
| CNPS              | California Native Plant Society                                                    |
| CO                | carbon monoxide                                                                    |
| CO <sub>2</sub>   | carbon dioxide                                                                     |
| CO <sub>2</sub> e | carbon dioxide equivalent                                                          |
| COG               | Council of Governments                                                             |
| CPUC              | California Public Utilities Commission                                             |
| CR                | County Road                                                                        |
| CRHR              | California Register of Historical Resources                                        |
| CRM               | crash energy management                                                            |
| CSHPs             | Construction safety and health plans                                               |
| CSUF              | California State University Fresno                                                 |
| CTS               | California tiger salamander                                                        |
| CUPA              | Certified Unified Program Agency                                                   |
| CVFPB             | Central Valley Flood Protection Board                                              |
| CVFPP             | Central Valley Flood Protection Plan                                               |
| CVP               | Central Valley Project                                                             |
| CWA               | Clean Water Act                                                                    |
| CWD               | Chowchilla Water District                                                          |
| D/B               | design-build                                                                       |
| dB                | decibel                                                                            |
| dBA               | decibel, A-weighted                                                                |
| dc                | direct-current                                                                     |
| DEM               | Digital Elevation Model                                                            |
| DO                | design option                                                                      |
| DOC               | Department of Conservation                                                         |
| DOGGR             | Division of Oil, Gas, and Geothermal Resources                                     |
| DOT               | Department of Transportation                                                       |
| DPM               | diesel particulate matter                                                          |
| DSOD              | Division of Safety of Dams                                                         |
| DTSC              | California Environmental Protection Agency, Department of Toxic Substances Control |
| DWR               | Department of Water Resources                                                      |
| EB                | eastbound                                                                          |

|            |                                                                        |
|------------|------------------------------------------------------------------------|
| E.O.       | Executive Order                                                        |
| ECAs       | Essential Connectivity Areas                                           |
| EDMS       | Emission and Dispersion Modeling System                                |
| EDR        | Environmental Data Resources, Inc.                                     |
| EF         | electric field                                                         |
| EFH        | Essential Fish Habitat                                                 |
| EIR        | Environmental Impact Report                                            |
| EIR/EIS    | Environmental Impact Report/Environmental Impact Statement             |
| ELF        | extremely low frequency                                                |
| EMC        | electromagnetic compatibility                                          |
| EMCCP      | Electro Magnetic Compatibility Control Plan                            |
| EMF        | electric and magnetic fields                                           |
| EMF/EMI    | electromagnetic fields and electromagnetic interference                |
| EMF/EMI-MM | Electromagnetic Fields/Electromagnetic Interference Mitigation Measure |
| EMFAC      | (California) Emission Factors Model                                    |
| EMI        | electromagnetic interference                                           |
| EMU        | electric multiple unit                                                 |
| EMUs       | electric multiple units                                                |
| EO         | Executive Order                                                        |
| EPA        | Environmental Protection Agency                                        |
| ESA        | Federal Endangered Species Act of 1973                                 |
| ESRP       | Endangered Species Recovery Program                                    |
| ESU        | evolutionary significant unit                                          |
| F.R.       | <i>Federal Register</i>                                                |
| FAA        | Federal Aviation Administration                                        |
| FARRC      | Fresno Area Residents for Rail Consolidation                           |
| FAT        | Fresno Yosemite International Airport                                  |
| FAX        | Fresno Area Express                                                    |
| FCC        | Federal Communications Commission                                      |
| FCWCA      | Madera County Flood Control and Water Conservation Agency              |
| FEMA       | Federal Emergency Management Agency                                    |
| FESA       | federal Endangered Species Act                                         |
| FHWA       | Federal Highway Administration                                         |

|               |                                                                     |
|---------------|---------------------------------------------------------------------|
| FIRM          | Flood Insurance Rate Map                                            |
| FLSPs         | Fire/life safety programs                                           |
| FMFCD         | Fresno Metropolitan Flood Control District                          |
| FMMP          | Farmland Mapping and Monitoring Program                             |
| FPPA          | Farmland Protection Policy Act                                      |
| FRA           | Federal Railroad Administration                                     |
| FSZ           | Farmland Security Zone                                              |
| ft            | feet                                                                |
| FTA           | Federal Transit Administration                                      |
| FTIPs         | Federal Transportation Improvement Programs                         |
| g             | acceleration due to gravity                                         |
| G             | gauss                                                               |
| GAMAQI        | (California) Guide for Assessing and Mitigating Air Quality Impacts |
| GC            | general conformity                                                  |
| GC thresholds | general conformity de minimis applicability thresholds              |
| GHG           | greenhouse gas                                                      |
| GHz           | gigahertz                                                           |
| GIS           | geographic information system                                       |
| GWh           | gigawatt hour                                                       |
| GWP           | Global Warming Potential                                            |
| H.P.          | Historic Place                                                      |
| HABS          | Historic American Building Survey                                   |
| HAER          | Historic American Engineering Record                                |
| HALS          | Historic American Landscape Survey                                  |
| hazmat        | hazardous material                                                  |
| HCM           | Highway Capacity Manual                                             |
| HCP           | Habitat Conservation Plan                                           |
| HFC           | hydrofluorocarbon                                                   |
| HFE           | hydrofluorinated ether                                              |
| Hist-MM       | Historic Architectural Resources Mitigation Measure                 |
| HMF           | heavy maintenance facility                                          |
| HMMH          | Harris Miller Miller & Hanson, Inc.                                 |
| HMMP          | Habitat Mitigation and Monitoring Plan                              |

|             |                                                               |
|-------------|---------------------------------------------------------------|
| HMW-MM      | Hazardous Materials and Wastes Mitigation Measure             |
| HP          | Heritage Property                                             |
| HSC         | Health and Safety Code                                        |
| HSR         | Historic Structure Report                                     |
| HST         | high-speed train                                              |
| HU          | hydrologic unit                                               |
| HUC         | Hydrologic Union [Unit] Code                                  |
| Hz          | hertz                                                         |
| 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 |
| ID          | Irrigation District                                           |
| IEEE        | Institute of Electronic and Electrical Engineers              |
| in/sec      | inch per second                                               |
| ISO         | International Organization for Standardization                |
| kHz         | kilohertz                                                     |
| km          | kilometers                                                    |
| kV          | kilovolt                                                      |
| kV/m        | kilovolts per meter                                           |
| KVP         | key viewpoint                                                 |
| LAX         | Los Angeles International Airport                             |
| $L_{dn}$    | day-night average sound level                                 |
| LEDPA       | Least Environmentally Damaging Practicable Alternative        |
| LEED        | Leadership in Energy and Environmental Design                 |
| $L_{eq}$    | equivalent sound level                                        |
| $L_{eq}(h)$ | equivalent noise level for an hour of noise sensitivity       |
| LESA        | Land Evaluation and Site Assessment                           |
| $L_{max}$   | loudest 1 second of noise over a measurement period           |
| LOS         | level of service                                              |
| LUST        | leaking underground storage tank                              |
| LWCF        | Land and Water Conservation Fund                              |

|                       |                                                   |
|-----------------------|---------------------------------------------------|
| m/s                   | meter/second                                      |
| m <sup>3</sup>        | cubic meter                                       |
| MBTA                  | Migratory Bird Treaty Act                         |
| MCAG                  | Merced County Association of Governments          |
| MCE                   | Merced Municipal/Macready Field                   |
| MCTC                  | Madera County Transportation Commission           |
| ME                    | Moderate Effect                                   |
| ME/SI                 | Moderate Effect/Significant Impact                |
| MEP                   | maximum extent practicable                        |
| MF                    | magnetic field                                    |
| mG                    | milliGauss                                        |
| mgd                   | million gallons per day                           |
| MICR                  | maximum individual cancer risk                    |
| MM                    | mitigation measure                                |
| MMBtu                 | million Btu                                       |
| MMcf                  | million cubic feet                                |
| MMRP                  | Mitigation, Monitoring, and Reporting Program     |
| MMT                   | million metric tons                               |
| MMT CO <sub>2</sub> e | million metric tons of CO <sub>2</sub> equivalent |
| MOA                   | Memorandum of Agreement                           |
| MOU                   | Memorandum of Understanding                       |
| MPE                   | maximum permissible exposure                      |
| mph                   | miles per hour                                    |
| MPO                   | metropolitan planning organization                |
| MRI                   | magnetic resonance imaging                        |
| MS4                   | municipal separate storm sewer system             |
| MSAT                  | mobile source air toxics                          |
| MSATs                 | mobile source air toxics                          |
| MSE                   | Mechanically Stabilized Earth                     |
| MT                    | metric tons                                       |
| MTA                   | Metropolitan Transportation Authority             |
| MW                    | megawatt                                          |
| mW/cm <sup>2</sup>    | milliWatts per square centimeter                  |

|                  |                                                           |
|------------------|-----------------------------------------------------------|
| N&V              | noise and vibration                                       |
| N&V-MM           | Noise and Vibration Mitigation Measure                    |
| N <sub>2</sub> O | nitrous oxide                                             |
| N/A              | not available                                             |
| NA               | not applicable                                            |
| NAAQS            | National Ambient Air Quality Standards                    |
| NAHC             | Native American Heritage Commission                       |
| NASA             | National Aeronautics and Space Administration             |
| NAVD 88          | North American Vertical Datum of 1988                     |
| NB               | northbound                                                |
| NCCP             | Natural Communities Conservation Plan                     |
| NCES             | National Center for Education Statistics                  |
| NCRP             | National Council on Radiation Protection                  |
| n.d.             | no date                                                   |
| NEPA             | National Environmental Policy Act of 1969                 |
| NESHAP           | National Emissions Standards for Hazardous Air Pollutants |
| NEWI             | North East Wales Institute                                |
| NF <sub>3</sub>  | nitrogen trifluoride                                      |
| NFIP             | National Flood Insurance Program                          |
| NFPA             | National Fire Protection Association                      |
| NHLs             | National Historic Landmarks                               |
| NHPA             | National Historic Preservation Act                        |
| NHTSA            | National Highway Traffic Safety Administration            |
| NI               | No Impact                                                 |
| NIEHS            | National Institute of Environmental Health Sciences       |
| NMFS             | National Marine Fisheries Service                         |
| NO               | nitric oxide                                              |
| NO/NI            | No Effect/No Impact                                       |
| NO <sub>2</sub>  | nitrogen dioxide                                          |
| NOA              | naturally occurring asbestos                              |
| NOA              | notice of availability                                    |
| NOC              | notice of completion                                      |
| NOAA             | National Oceanic and Atmospheric Administration           |

|                   |                                                                     |
|-------------------|---------------------------------------------------------------------|
| NOI               | Notice of Intent                                                    |
| NO <sub>x</sub>   | nitrogen oxides                                                     |
| NPDES             | National Pollutant Discharge Elimination System                     |
| NPPA              | Native Plant Protection Act                                         |
| NPS               | National Park Service                                               |
| NRCS              | Natural Resources Conservation Service                              |
| NRHP              | National Register of Historic Places                                |
| NSA               | noise-sensitive area                                                |
| NWI               | National Wetlands Inventory                                         |
| O&M               | operations and maintenance                                          |
| O <sub>3</sub>    | ozone                                                               |
| OCC               | Operations Control Center                                           |
| OCS               | overhead catenary system                                            |
| OET               | Office of Engineering and Technology                                |
| OHP               | Office of Historic Preservation                                     |
| OSHA              | Occupational Safety and Health Administration                       |
| PA                | Programmatic Agreement                                              |
| PAH               | polynuclear aromatic hydrocarbon                                    |
| PCC               | Portland Cement Concrete                                            |
| PEC               | Potential Environmental Concern                                     |
| PEMC              | Palustrine Emergent Seasonally Flooded                              |
| PFC               | perfluorocarbon                                                     |
| PFO               | palustrine forested                                                 |
| PG&E              | Pacific Gas and Electric Company                                    |
| PHA               | preliminary hazard analysis                                         |
| PM                | particulate matter                                                  |
| PM <sub>10</sub>  | particulate matter smaller than or equal to 10 microns in diameter  |
| PM <sub>10</sub>  | particulate matter                                                  |
| PM <sub>2.5</sub> | particulate matter smaller than or equal to 2.5 microns in diameter |
| Policy Council    | San Joaquin Valley Regional Planning Agency Policy Council          |
| PP-MM             | Parks, Recreation, and Open Space Mitigation Measure                |
| ppm               | parts per million                                                   |
| PPV               | peak particle velocity                                              |

|                    |                                                                        |
|--------------------|------------------------------------------------------------------------|
| PRM                | paleontological resources monitor                                      |
| PRMMP              | Paleontological Resource Monitoring and Mitigation Plan                |
| PRMs               | Paleontological resources monitors                                     |
| Program<br>EIR/EIS | Program Environmental Impact Report/ Environmental Impact<br>Statement |
| PRS                | paleontological resources specialist                                   |
| PTC                | Positive Train Control                                                 |
| PTO                | Permit to Operate                                                      |
| PUE-MM             | Public Utilities and Energy Mitigation Measure                         |
| RCD                | Resource Conservation District                                         |
| RF                 | radio frequency                                                        |
| RFI                | radio frequency interference                                           |
| RFPs               | requests for proposals                                                 |
| RIMS               | Regional Input-Output Modeling System                                  |
| RMP                | Regional Management Plan                                               |
| RMS                | root-mean-square                                                       |
| ROG                | reactive organic gases                                                 |
| ROWD               | Report of Waste Discharge                                              |
| RPA                | Rule of Particular Applicability                                       |
| RRP                | restoration and revegetation plan                                      |
| RTAC               | Regional Targets Advisory Committee                                    |
| RTIP               | Regional Transportation Improvement Program                            |
| RTP                | Regional Transportation Plan                                           |
| RTPA               | Regional Transportation Planning Agency                                |
| RTPs               | regional transportation plans                                          |
| RWQCB              | Regional Water Quality Control Board                                   |
| S&S-MM             | Safety and Security Mitigation Measure                                 |
| SB                 | (California) Senate Bill                                               |
| SB                 | southbound                                                             |
| SCAQMD             | South Coast Air Quality Management District                            |
| SCS                | Sustainable Community Strategy                                         |
| SE                 | Significant Effect                                                     |
| SEL                | sound exposure level                                                   |

|                           |                                                                                                                                          |
|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| SEMS                      | Standardized Emergency Management System                                                                                                 |
| SF6                       | sulfur hexafluoride                                                                                                                      |
| SFHA                      | Special Flood Hazard Area                                                                                                                |
| SFO                       | San Francisco International Airport                                                                                                      |
| SHPO                      | State Historic Preservation Office                                                                                                       |
| SI                        | Significant Impact                                                                                                                       |
| SIP                       | state implementation plan                                                                                                                |
| SJVAB                     | San Joaquin Valley Air Basin                                                                                                             |
| SJVAPCD                   | San Joaquin Valley Air Pollution Control District                                                                                        |
| SLIC                      | Spills, leaks, investigations and cleanup                                                                                                |
| SMAQMD                    | Sacramento Metropolitan Air Quality Management District                                                                                  |
| SO-MM                     | Socioeconomics, Communities, and Environmental Justice Mitigation Measure                                                                |
| SO <sub>2</sub>           | sulfur dioxide                                                                                                                           |
| SOI                       | Secretary of the Interior                                                                                                                |
| SO <sub>x</sub>           | sulfur oxides                                                                                                                            |
| SPCC                      | Spill Prevention, Control, and Countermeasures                                                                                           |
| SPRR                      | Southern Pacific Railroad                                                                                                                |
| SR                        | State Route                                                                                                                              |
| SSC                       | Species of Special Concern                                                                                                               |
| SSPPs                     | System safety program plans                                                                                                              |
| Statewide Program EIR/EIS | <i>2005 Final Program Environmental Impact Report/Environmental Impact Statement for the Proposed California High-Speed Train System</i> |
| STIP                      | State Transportation Implementation Program                                                                                              |
| SVP                       | Society of Vertebrate Paleontology                                                                                                       |
| SWPPP                     | Stormwater Pollution Prevention Plan                                                                                                     |
| SWRCB                     | State Water Resources Control Board                                                                                                      |
| T                         | tesla                                                                                                                                    |
| TAC                       | toxic air contaminant                                                                                                                    |
| TCE                       | temporary construction easement                                                                                                          |
| TCP                       | traditional cultural property                                                                                                            |
| TDA                       | tire-derived aggregate                                                                                                                   |
| TEA-21                    | Transportation Equity Act for the 21st Century                                                                                           |

|                        |                                                                                  |
|------------------------|----------------------------------------------------------------------------------|
| TGV                    | Train à Grande Vitesse                                                           |
| THPO                   | Tribal Historic Preservation Officer                                             |
| TLV                    | threshold limit value                                                            |
| TMDL                   | total maximum daily load                                                         |
| TOD                    | transit-oriented development                                                     |
| TOG                    | total organic gas                                                                |
| TPSS                   | traction power substation                                                        |
| TR                     | transportation                                                                   |
| TR-MM                  | Transportation Mitigation Measure                                                |
| TVA                    | threat and vulnerability assessment                                              |
| TWG                    | technical working group                                                          |
| U.S.C.                 | United States Code                                                               |
| UCD                    | University of California at Davis                                                |
| Uniform Relocation Act | Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 |
| UPRR                   | Union Pacific Railroad                                                           |
| URBEMIS                | Urban Emissions Model                                                            |
| USA                    | Underground Service Alert                                                        |
| USACE                  | U.S. Army Corps of Engineers                                                     |
| USDA                   | U.S. Department of Agriculture                                                   |
| USFWS                  | U.S. Fish and Wildlife Service                                                   |
| USGS                   | U.S. Geological Survey                                                           |
| UST                    | underground storage tank                                                         |
| V/C                    | volume to capacity ratio                                                         |
| VdB                    | vibration velocity level                                                         |
| VELB                   | valley elderberry longhorn beetle                                                |
| VMT                    | vehicle miles traveled                                                           |
| VOC                    | volatile organic compound                                                        |
| VQ-MM                  | Aesthetics and Visual Resources Mitigation Measure                               |
| VSA                    | vibration-sensitive area                                                         |
| VSPW                   | Valley State Prison for Women                                                    |
| WB                     | westbound                                                                        |
| WPT                    | western pond turtle                                                              |

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|       |                                                  |
|-------|--------------------------------------------------|
| WR-MM | Hydrology and Water Resources Mitigation Measure |
| WRAPP | Wetland and Riparian Area Protection Policy      |
| WRCC  | Western Regional Climate Center                  |
| WST   | western spadefoot toad                           |
| WWTP  | wastewater treatment plant                       |
| YARTS | Yosemite Area Regional Transportation System     |