Federal Highway Administration

**Central Federal Lands Highway Division**

**Scoping Report**

# Federal Land Management Agency

**County**

**State**



**Project Number**

**Project Name**

**Prepared By:**

**April 10, 2022**

# Instructions – (Delete this text for final document)

1. Each CFL functional discipline is responsible for their section of this template. Updates should be made through the CFL Project Controls Team.
2. This template was developed for typical CFL projects. The template can be customized on a project by project basis to fit the specific needs (ex. add rows for data not found on typical projects, or deleting rows for repetitive information).
3. The intent of this document is for each functional area to develop and be responsible for their respective section of the document.
4. Comment fields: **[fields like this]** are intended for the author to complete based on project specific information. Text provided is guidance for providing information. The original text shown is meant to be overwritten.
5. Direction fields: *FIELDS LIKE THIS* are directions to the author to input data or copy tables as needed. This text is meant to be deleted.
6. Dropdowns: Dropdowns have been added to expedite the completion of this report. If an appropriate selection is not available, use the comment field to relay information.
7. Photos: Photos should be included as appropriate into document. Photos can be added within each section and/or as an appendix.

# PROJECT DESCRIPTION

1. **PROJECT SUMMARY**

|  |  |
| --- | --- |
| Description | Comment |
| General project description and nature of work | **[Summarize the transportation needs and deficiencies identified during the planning and programming phase. present the project’s goal. summarize the intended scope of work. determine, if necessary, the need to identify and evaluate alternatives with engineering analyses; otherwise state that identification and evaluation of alternatives are not needed.]** |
| Major issues and concerns | **[Provide narrative describing issues and concerns (risks) associated with, or potentially affected by, the Scope of Work that must be addressed in this project]** |
| Relevant project history | **[Provide narrative: including when project was programmed, recent projects, emergency event requiring project, etc.]** |

*Attach location and project map here or in appendices*

1. **ROUTE IDENTIFICATION & EXISTING CONDITIONS**

*COPY AND INCLUDE THE FOLLOWING TABLE FOR EACH ROAD THAT IS PART OF PROJECT:*

|  |  |  |
| --- | --- | --- |
| Description | Response | Comment |
| Road Name and Route ID Number: |  | |
| GPS Coordinates Start |  | |
| GPS Coordinates End |  | |
| Length |  | |
| Functional Classification | **Urban Minor Arterial** | **[If other, describe]** |
| Posted Speed | **30 mph** | **[Describe if speed changes through length of route]** |
| Terrain | **Rolling** | **[Describe if terrain changes through length of route]** |
| Existing Number of Lanes  (each direction) | **2 lanes** | **[Describe if the # of lanes changes]** |
| Existing Travel Way Width |  | **[Describe if the width varies]** |
| Existing Shoulder Width |  | **[Describe if the width varies]** |
| Existing Shoulder Type | **Select Shoulder Type** | **[Describe if the shoulder type changes through length of route]** |
| Existing Bench Width |  | **[Describe if the width varies]** |
| Clear Zone/Roadside Hazards |  | **[Describe existing clear zone and roadside hazards]** |
| Major Intersection Roads | *ADD ROW (LAYOUT>INSERT BELOW) FOR EACH INTERSECTING ROAD* | **[Provide any data regarding intersection road (ADT, purpose, etc.]** |
| Current ADT |  | **[Provide date and source of data]** |
| Seasonal ADT |  | **[Provide date and source of data]** |
| % Buses |  | **[Provide date and source of data]** |
| % Trucks |  | **[Provide date and source of data]** |

# PROJECT SUMMARY, SCHEDULE, FUNDING, & CONTACTS

1. **SUMMARY & SCHEDULE**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Description | Response |  | Description | Response |
| Type | **Select Project Type** |  | Partner Agency |  |
| Program Fiscal Year | **Select Program FY** |  | Maintaining Agency |  |
| PS&E Delivery Year | **Select PS&E Delivery FY** |  | FLMA Unit Name |  |
| State | **Select State** |  | County |  |

1. **FUNDING**

| Description | Response | Comment |
| --- | --- | --- |
| Main Funding Source | **Select Funding Source(s)** | **[Provide narrative on the funding source(s), matching funds, additional funding sources, etc.]** |
| Program Amount |  | **[Include all CN funding sources. describe if in phases and current program amount is not intended to fund all of design]** |
| Preliminary Construction Estimate (CN) |  | **[Provide preliminary estimates in appendix. Provide narrative as needed to discuss estimates, if there are alternatives or options, etc.]** |

1. **PROCUREMENT AND CONTRACTING**

| Description | Response | Comment |
| --- | --- | --- |
| Anticipated Contracting Method | **Select Contracting Method** | **[Discuss with Acquisitions. Provide narrative on the anticipated contracting method and the reason for this approach (pros and cons), understanding method may change based off market research or other known information.  Sealed Bid (includes small business set-aside and full and open) is default method, other methods to consider include Design/Build, A+B (contractor picks number of days to construct), 8(a) Negotiated (ability to negotiate items and schedule), and Best Value (rare but when warranted)]** |
| Anticipated Level of Acquisition Plan | **Select Acquisition Plan Level** | **[Use Tier 1 for < $2M, Tier 2 for $2M to < $20M, and Tier 3 for $20M or more. Allow time in project schedule to complete market research and go through the Acq plan process]** |
| Best Time to Advertise |  | **[Provide narrative on why the month or quarter was selected. Consider the best time to advertise to get more competition, weather limitations, potential environmental restrictions, etc.]** |

1. **PRINCIPAL CONTACTS**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Contact and Title | xxx, Project Manager |  | Contact and Title |  |
| Agency | **Central Federal Lands** |  | Agency |  |
| Phone Number | **720-963-xxxx** |  | Phone Number |  |
| Email Address | [**xxx@dot.gov**](mailto:xxx@dot.gov) |  | Email Address |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Contact and Title |  |  | Contact and Title |  |
| Agency |  |  | Agency |  |
| Phone Number |  |  | Phone Number |  |
| Email Address |  |  | Email Address |  |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Contact and Title |  |  | Contact and Title |  |
| Agency |  |  | Agency |  |
| Phone Number |  |  | Phone Number |  |
| Email Address |  |  | Email Address |  |

# AVAILABLE DATA & WORK LIMITATIONS

1. **As-Builts and Reports**

*Add or delete rows as appropriate*

| Data | Description |
| --- | --- |
| **Select type of data** | **[Provide summary of data, source, etc. Ensure that all NPS inventory program data has been collected (bridge, retaining wall, guardrail, road, etc.]** |
| **Select type of data** |  |
| **Select type of data** |  |

1. **Work Limitations**

|  |  |  |
| --- | --- | --- |
| Description | Response | Comment |
| Designated Staging Area(s)? | **Yes/No** | **[If yes, describe]** |
| Designated Material Source? | **Yes/No** | **[Provide location(s)]** |
| Hauling or Load Restrictions | **Yes/No** | **[If yes, describe]** |
| Potential Water Sources? | **Yes/No** | **[If yes, describe]** |

# FUNCTIONAL CONSIDERATIONS

1. **HIGHWAY DESIGN & SAFETY**

*COPY AND INCLUDE THE FOLLOWING TABLE FOR EACH ROAD THAT IS PART OF PROJECT:*

*Insert typical section for each road into file or in appendices:*

| Description | Response | Comment |
| --- | --- | --- |
| Road Name and Route ID Number: |  | |
| **PROPOSED DESIGN STANDARDS** | | |
| Design Vehicle | **Select Design Vehicle** | |
| Design ADT |  | **[Describe how calculated]** |
| Design Speed | **Select Speed** | **[Describe if design speed will change through length of route, if yes, recommend dividing into segments]** |
| Travel Way Width |  | **[Describe standard used and if exception]** |
| Shoulder Width |  | **[Describe standard used and if exception]** |
| Shoulder Type | **Select Type** | **[Describe standard used and if exception]** |
| Min. Horiz. Radius |  | **[Describe standard used and if exception]** |
| Crown |  | **[Describe standard used and if exception]** |
| Superelevation |  | **[Describe standard used and if exception]** |
| Superelevation Runoff |  | **[Describe standard used and if exception]** |
| Min. Vertical Curve (K Value) |  | **[Describe standard used and if exception]** |
| Maximum Grade |  | **[Describe standard used and if exception]** |
| Min. Stopping Sight Distance |  | **[Describe standard used and if exception]** |
| Horiz. Clearance to Structure |  | **[Describe standard used and if exception]** |
| Min. Clear Zone |  | **[Describe standard used and if exception]** |
| Safety Pavement Edge | **Yes/No** | **[If no, provide justification]** |
| **PROPOSED DESIGN FEATURES** | | |
| Realignment or grade change required? | **Yes/No** | **[If yes, describe]** |
| Will there be any widening off the existing bench? | **Yes/No** | **[If yes, describe]** |
| Will profile be raised due to proposed pavement structural section? | **Yes/No** | **[If yes, provide narrative on if the roadway and foreslopes will still fit on the existing bench. Describe proposed pavement edge slope and pavement edge drop-off (should be 2” max). Also provide information if roadside and/or median barrier heights will need to be corrected.]** |
| Additional work required at intersections or driveways? | **Yes/No** | **[If yes, describe the type of work required at intersections to accommodate alignment changes or operational deficiencies, particularly major realignments of driveways or intersecting roads in addition to scope elements such as auxiliary lanes, traffic lights, lighting, etc.]** |
| Exist/Proposed Parking/ Pullouts/Vistas? | **Yes/No** | **[If yes, describe if any are to be preserved or if new ones are proposed]** |
| Exist/Proposed Pedestrian and/or Bicycle Facilities, including any pedestrian crossings?? | **Yes/No** | **[If yes, describe and changes or standards to accommodate new]** |
| Exist/Proposed Roadside Features (gates, shelters, etc.)? | **Yes/No** | **[Describe anticipated replacement or installation of new roadside features (type and locations)]** |
| Exist/Proposed Fencing? | **Yes/No** | **[If yes, indicate anticipated type]** |
| ADA Accommodations? | **Yes/No** | **[If yes, describe]** |
| Slope Stabilization Plan (i.e. Seeding and Vegetation, Mulch, Terracing, etc)? | **Yes/No** | **[Describe scope of seeding and revegetation – e.g., will our contractor be responsible, or will the FMLA be responsible in addition to the expected extents of seeding.]** |
| Special Features (Railroad Crossings, etc.)? | **Yes/No** | **[If yes, describe]** |
| Architectural or decorative aspects to be incorporated (stone masonry, stone curb, rock facing, etc.)? | **Yes/No** | **[If yes, describe]** |
| **SAFETY CONSIDERATIONS** | | |
| Crash History Requested? | **Yes/No** | **[Provide date requested and source of data]** |
| Crash History Obtained and Analyzed? | **Yes/No** | **[Provide analysis period, and a brief summary here]**  **[If not analyzed, describe reasons why crash history will not be analyzed]** |
| Anecdotal Crash History? | **Yes/No** | **[Provide information gathered from others (EMS, law enforcement, maintenance personnel, etc.]**  **[Provide information on physical evidence (gouge marks on trees and/or guardrails, skid marks, debris, etc.]** |
| Superelevation corrections? | **Yes/No** | **[If yes, indicate if survey will be obtained]** |
| Clear Zone and Roadside Hazards? | **Yes/No** | **[Describe the average existing clear zone and any unique locations where roadside hazards are present (fill slopes, poles, etc.)]** |
| NPS – Traffic Barrier Inventory recommend improvements? | **Yes/No** | **[If yes, describe if improvements have been recommended]** |
| Are there existing or proposed/relocated Traffic Count Stations within the limits of the project? | **Yes/No** | **[If yes, describe work associated to install or maintain the count station(s), e.g. remove/replace inductive loops, and include site photographs. Specify if they belong to NPS Transportation Program Office (FOTSC), NPS Visitation Use Statistics Office (PUSO) or the specific park unit. If no traffic engineer available, contact FOTSC POC A.J. Nedzesky at 303-969-2177 or PUSO POC Pamela Ziesler at 970-225-3564.]** |
| Existing/Proposed Barrier? | **Yes/No** | **[Describe reasons for installing new or replacing existing barrier (crashworthiness, height, etc.). describe reasons for keeping existing barrier.]** |
| Proposed signing and supports? | **Yes/No** | **[If yes, describe]** |
| Proposed Pavement Markings? | **Yes/No** | **[If yes, describe]** |
| Exist/Proposed permanent traffic control (special signs, markings, rumble strips, etc.)? | **Yes/No** | **[If yes, describe]** |
| Additional work required to address Sight Distance Issues? | **Yes/No** | **[Describe additional work to address intersection sight distance (ISD) and/or stopping sight distance (SSD).]** |
| Construction Problems from Previous Projects? | **Yes/No** | **[If yes, describe]** |
| Will alternate routes (detours/diversions) be provided for during construction? | **Yes/No** | **[Discuss with partners and describe known or anticipated limitations on road closures and detours/diversions such as width, location, durations, time of year, etc. Include detour/diversion information for bridge projects as well. If not determined at the time of scoping, indicate what alternatives will be considered during development.]** |
| Temporary traffic control/traffic restrictions during construction? | **Yes/No** | **[Indicate any known or anticipated restrictions during construction related to rush hours, special events, allowable delays, holidays, etc.]** |
| Can the road be closed for construction? | **Yes/No** | **[If yes, describe restrictions to closures. if no, describe maximum allowable delays to public traffic]** |
| Exist/Proposed Trails or Sidewalks within the construction limits? | **Yes/No** | **[Consider pedestrian traffic during construction. What accommodations are needed to keep people safe and prevent trespassing? Additional fencing or signage? Barricades? Consider additional flaggers if needed for safety.]** |
| Is a Traffic Management Plan required (TMP)? | **Yes/No** | **[If yes, indicate the recommended level of TMP required and elements that are anticipated to be included (TTC, Transportation Operations (TO) Assessment, Work Zone Impacts Assessment Report, Public Information, etc.). TMPs are not usually utilized on CFL projects; however, it may be required by a State DOT.]** |

|  |  |  |
| --- | --- | --- |
| Description | Response | Comment |
| Potential Major Impacts to Cost or Schedule | **Yes/No** | **[Describe any potential for major impacts to cost or schedule based on proposed scope of work]** |
| Constructability Concerns | **Yes/No** | **[Describe any constructability concerns for project]** |

1. **SURVEY**

| Description | Response | Comment |
| --- | --- | --- |
| Existing survey, mapping, and/or control? | **Yes/No** | **[Provide support to response]** |
| Special features requiring survey? | **Yes/No** | **[If yes, describe]** |
| Seasonal restrictions? | **Yes/No** | **[If yes, describe]** |
| Describe terrain (slopes, vegetation, etc.)? | **[Describe how terrain and vegetation will affect survey field work]** | |
| Is field survey required? | **Yes/No** | **[Describe]** |
| Recommended survey | **Type** | **[Provide support for selected type]** |

|  |  |  |
| --- | --- | --- |
| Description | Response | Comment |
| Potential Major Impacts to Cost or Schedule | **Yes/No** | **[Describe any potential for major impacts to cost or schedule based on proposed scope of work]** |

1. **ENVIRONMENT**

| Description | Response | Comment |
| --- | --- | --- |
| **SUMMARY** | | |
| Type of FHWA National Environmental Policy Act (NEPA) class of action anticipated | **Select** | **[describe federal agency roles and explain if another agency also has a NEPA action]** |
| California Environmental Quality Act (CEQA) compliance required (CA Projects)? | **Yes/No** | **[if yes, identify agency(ies) responsible for CEQA compliance and complete CA-specific table below; consider State-issued permits (e.g., 401) if no state or local agency partner]** |
| Potential use of programmatic agreements or other programmatic documents? | **Yes/No** | **[if yes, identify which one(s) might apply or for what specific process]** |
| Public involvement or outreach needed? | **Yes/No** | **[if yes, explain anticipated level]** |
| **AIR QUALITY** | | |
| Non-attainment or maintenance area? | **Yes/No** | **[if yes list which pollutants]** |
| Exempt from conformity requirements per Clean Air Act (40 CFR 93.126)? | **Yes/No** | **[consider adding/removing lanes, signalization, alignment changes, etc.; if yes, describe why exemption applies]** |
| If conformity applies, is the project included in the STIP or regional TIP? | **Yes/No** | **[if yes, explain]** |
| State or local air quality studies required? | **Yes/No** | **[if yes, explain what is expected]** |
| **BIOLOGICAL RESOURCES** | | |
| Previous documentation for biological survey or investigation in or near project area? | **Yes/No** | **(if yes, provide date and extent of documentation)** |
| Federally listed species with potential to occur or be affected? | **Yes/No** | **[review FWS IPaC resource and NMFS lists and identify species]** |
| Designated critical habitat in the project area? | **Yes/No** | **[if yes, identify species]** |
| Local knowledge of any special-status species in the area? E.g., federally listed, state listed, BLM/USFS Sensitive | **Yes/No** | **[if yes, identify which may be a concern]** |
| Potential for migratory bird or raptor nesting in or adjacent to the project area? | **Yes/No** | **[if no, explain why]** |
| Wildlife or aquatic organism passage issues? | **Yes/No** | **[if yes, explain concerns; this may affect hydraulic design of culverts]** |
| In an area with Essential Fish Habitat (EFH)? | **Yes/No** | **[review NMFS EFH mapper to identify proximity to EFH, if yes, identify if consultation with NMFS expected]** |
| Biological resource surveys required? | **Yes/No** | **[if yes, describe who will perform and what is expected (e.g., habitat assessment, protocol surveys)]** |
| Will a Biological Assessment (BA) and/or Biological Evaluation (BE) be needed? | **Yes/No** | **[explain response]** |
| Is Endangered Species Act (ESA) Section 7 consultation expected? | **Yes/No** | **[explain approach, consider use of partner Programmatic BOs or other consultation documents]** |
| **CULTURAL RESOURCES** | | |
| Previous cultural resources investigation or evaluation that covers project area? | **Yes/No** | **[if yes, provide date and extent of documentation; if bridges present, look into State bridge inventory/evaluation]** |
| Evidence or previous documentation of cultural resources in project area? E.g., historic buildings, bridges, culverts, road, irrigation ditches; National Register sites; Traditional Cultural Properties | **Yes/No** | **[if yes, note resources that could be a concern]** |
| Tribes who may have an interest in the project? | **Yes/No** | **[identify if any known, otherwise state the point of contact for obtaining a tribal mailing list]** |
| Cultural resource surveys needed? | **Yes/No** | **[if yes, describe who will perform; these are typically required]** |
| Is National Historic Preservation Act (NHPA) Section 106 consultation expected? | **Yes/No** | **[explain approach, consider use of partner Programmatic Agreements]** |
| **GEOLOGY** | | |
| Do discussions with Geotechnical staff indicate any concerns? | **Yes/No** | **[if yes, explain concern]** |
| **HAZARDOUS MATERIAL** | | |
| Known hazardous sites in or adjacent to the project area? | **Yes/No** | **[search the federal and state hazmat databases for any sites in the project area; If yes, identify if any sites may be a concern]** |
| Known or possible hazardous material (e.g., lead-based paint, creosote-treated wood, asbestos) in the project area? | **Yes/No** | **[if yes, identify what may be a concern]** |
| Potential for disturbance of hazardous material or disposal of hazardous waste? | **Yes/No** | **[ex. Asbestos, timber treated with creosote, lead-based paint on existing structures; if yes, identify what may be a concern]** |
| **LAND USE / PLANNING** | | |
| Planning and Environmental Linkages? | **Yes/No** | **[are there any past planning studies, corridor studies, or PEL efforts involving the project area? If yes, identify which ones]** |
| Require land use actions from FLMA or local jurisdictions (e.g., BLM- or USFS-managed lands, State Park, National Wildlife Refuge)? | **Yes/No** | **[if yes, identify which agencies]** |
| Concerns regarding consistency with federal, state, or local land use policies or plans? | **Yes/No** | **[if yes, explain concerns]** |
| Coastal Zone Management Act apply? | **Yes/No** | **[if yes, identify approach for compliance]** |
| Could farmland be in or adjacent to project area, as defined by Farmland Protection Policy Act? E.g., prime, unique, statewide or local importance | **Yes/No** | **[if yes, identify what type and where; review state farmland mapping or NRCS soil web survey]** |
| Any other specially designated or protected lands (e.g., timberlands, wilderness, wild and scenic rivers) that may be affected? | **Yes/No** | **[if yes, identify what type and where]** |
| **NOISE** | | |
| Is a noise study needed (e.g., for shift in horizontal or vertical alignment, added travel lanes, or new alignment)? | **Yes/No** | **[if yes, discuss approach for study]** |
| Potential for sensitive noise receptors near project area during construction? | **Yes/No** | **[if yes, identify who and where]** |
| **SECTION 4(f)** | | |
| Parks, wildlife refuges, historic properties, recreational areas, campgrounds, trails, etc. along road? | **Yes/No** | **[if yes, identify which 4(f) properties are nearby]** |
| Potential for use of 4(f) resources via expanded easements or ROWs? | **Yes/No** | **[if yes, explain approach, consider use of exemptions, Programmatic Agreements, de minimis]** |
| **SECTION 6(f)** | | |
| Land & Water Conservation Funds used to acquire parks in project area or to make improvements, etc.? | **Yes/No** | **[if yes, identify where and explain approach for compliance]** |
| **SOCIOECONOMICS** | | |
| Are building displacements or relocations anticipated or could the project disrupt communities? | **Yes/No** | **[if yes, explain concern]** |
| Right of way to be acquired for the project? | **Yes/No** | **[if yes, identify involved entities]** |
| Potential for any effect on minority, low income, or other specific interest groups? | **Yes/No** | **[if yes, explain concern and who/where]** |
| **VISUAL** | | |
| Designated state or federal scenic route? | **Yes/No** | **[review state and federal scenic route maps; identify which route and where]** |
| Is a visual study needed (e.g., for major cuts/fills or tree removal, new structures, visual sensitivities or concerns)? | **Yes/No** | **[if yes, explain approach for study]** |
| Federal Land Management Agency (FLMA) visual quality standards? | **Yes/No** | **[if yes, identify agency and any concerns]** |
| **FLOOD ZONES / WATER RESOURCES AND QUALITY** | | |
| Within FEMA 100-year floodplain or regulated floodway? | **Yes/No** | **[review FEMA FIRMs or flood zone data for area; if yes, identify where and coordinate with hydraulics]** |
| Water quality impaired stream (303(d) listed) in or near project area? | **Yes/No** | **[if yes, identify which stream(s) and concerns]** |
| Outstanding Resource Waters nearby? | **Yes/No** | **[if yes, identify which waters and where]** |
| Are any wells nearby? | **Yes/No** | **[if yes, identify proximity and if they might be used as a water source]** |
| **WETLANDS AND WATERS OF THE U.S.** | | |
| Previous survey for aquatic resources? | **Yes/No** | **[if yes, provide date and type of documentation]** |
| Potential for aquatic resources that may be waters of the U.S. or State? | **Yes/No** | **[review NHD and NWI data/mappers and aerial imagery; if yes, identify what types and where]** |
| Riparian or wetland vegetation evident from visual inspection (e.g., aerial imagery or photographs)? | **Yes/No** | **[if yes, identify where]** |
| Delineation of aquatic resources necessary? | **Yes/No** | **[explain approach for study and who does]** |

\*If project is in California and includes a state or local agency as a partner, include the below table; otherwise delete. Review CEQA Environmental Checklist when considering resource issues and topics to evaluate.

| Description | Response | Comment |
| --- | --- | --- |
| **SUMMARY** | | |
| Type of CEQA document anticipated | **Select** | **[Check with CEQA lead agency; if unsure, assume IS or make assumption based on internal guidance and level of NEPA; if IS or EIR and we need an EA or EIS, consider combining the documentation and processes]** |
| Should we prepare preliminary environmental checklist (Appendix G to CEQA Guidelines) to support CEQA lead agency? | **Yes/No** | **[Assume helpful for IS or EIR, but not necessary for Exemption; coordinate with CEQA lead agency on doing this]** |
| Include CEQA-required biological considerations in biology study (e.g., special-status species, sensitive natural communities)? | **Yes/No** | **[Typically only necessary if IS or EIR, but consider tailored (simpler) version for Exemption; if yes, assume biological resources report scope]** |
| Are focused or protocol-level surveys for special-status species anticipated? | **Yes/No** | **[Assess based on species with potential to occur (review CNDDB), timing of project, and state agency requirements/expectations; identify species requiring survey; consider floristic inventory if high potential for special-status plants]** |
| Include AB 52 tribal coordination and consultation (if tribes interested)? | **Yes/No** | **[Only required if IS or EIR; coordinate with CEQA lead agency on incorporating into 106 requirements]** |
| Evaluate cultural resources for listing to California Register of Historical Resources and consider tribal cultural resources in cultural study? | **Yes/No** | **[Typically only necessary if IS or EIR, but should not be much additional effort to include]** |
| Is modeling required for air quality, noise, or traffic? | **Yes/No** | **[if yes, describe approach and how modeling will meet federal and state requirements; assume needed if EIR or if federal requirements triggered; not typically needed for Exemption or IS based on nature of our projects]** |
| Is an environmental site assessment (hazardous materials) necessary to meet State requirements? | **Yes/No** | **[if yes, describe approach and level of assessment (e.g., phase I or II); typically needed if hazardous materials may be present and warrant testing or further assessment; not typically done for Exemptions]** |
| Is specific assessment for waters of the State or CDFW stream jurisdiction necessary? | **Yes/No** | **[if yes, describe approach and integration with delineation or biology report; consider potential for isolated waters and extent of riparian corridor]** |
| Consider state coastal zone requirements? | **Yes/No** | **[if yes, describe approaches for studies (e.g., coastal wetlands) and coastal permit or consistency review]** |
| Is compliance with any local ordinances or codes anticipated? | **Yes/No** | **[if yes, describe assumptions and coordinate with local agency on expectations]** |

|  |  |  |
| --- | --- | --- |
| Description | Response | Comment |
| Potential Major Impacts to Cost or Schedule | **Yes/No** | **[describe any potential for major impacts to cost or schedule based on proposed scope of work]** |
| Constructability Concerns | **Yes/No** | **[describe any constructability concerns for project]** |

1. **PERMITS**

|  |  |  |
| --- | --- | --- |
| Description |  | Comment |
| **Section 404 / 401 Permit** | | |
| Potential for discharge of dredge or fill into a water of the U.S.? | **Yes/No** | **[if yes, explain approach for permitting, e.g., NWP, other general, or individual]** |
| Individual water quality certification? | **Yes/No** | **[Review state-wide certification for NWPs and verify if individual certification needed; if NWP does not apply, assume individual unless another general permit is used and has been certified]** |
| Is compensatory mitigation anticipated? | **Yes/No** | **[If yes, explain approach; consider use of USACE approved banks or in-lieu fee program and review RIBITS].** |
| **NPDES Permit** | | |
| Is coverage under construction general permit anticipated for stormwater discharges? | **Yes/No** | **[identify GP that may be used, review thresholds and requirements]** |
| Subject to any state, county or local sediment/erosion management plan (MS4)? | **Yes/No** | **[if yes, identify which one]** |
| **Other Permits / Authorizations** | | |
| Are other CFL-obtained permits anticipated? | **Yes/No** | **[if yes, identify which one(s); consider state permits, such as species take permits or stream alteration permits]** |

|  |  |  |
| --- | --- | --- |
| Description | Response | Comment |
| Potential Major Impacts to Cost or Schedule | **Yes/No** | **[describe any potential for major impacts to cost or schedule based on proposed scope of work]** |
| Constructability Concerns | **Yes/No** | **[describe any constructability concerns for project]** |

1. **UTILITIES**

| Description | Response | Comment |
| --- | --- | --- |
| Known utilities within project area? | **Yes/No** | **[If yes, provide list of utility, location, owner, and contact]** |
| Anticipated utility impacts? | **Yes/No** | **[If so, describe location and type, owner, agency responsible for coordination, and the agency which will pay for the utility work]** |
| Existing utility agreements or easements? | **Yes/No** | **[If yes, describe]** |
| Special considerations or utility impact or relocation? | **Yes/No** | **[Hazardous or environmental sensitive situation, time restrictions on interruption, time and process for design and relocation, proximity to guardrail installation]** |
| Irrigation ditches? | **Yes/No** | **[If yes, describe any mandatory operation periods, owner and contact information]** |

|  |  |  |
| --- | --- | --- |
| Description | Response | Comment |
| Potential Major Impacts to Cost or Schedule | **Yes/No** | **[Describe any potential for major impacts to cost or schedule based on proposed scope of work]** |
| Constructability Concerns | **Yes/No** | **[Describe any constructability concerns for project]** |

1. **RIGHT OF WAY**

|  |  |  |
| --- | --- | --- |
| Description | Response | Comment |
| Existing ROW? | **Yes/No** | **[If yes, describe. if only prescriptive rights exist – describe the width to be asserted by the agency for the right of way certification]** |
| Additional ROW Required? | **Yes/No** | **[If yes, describe]** |
| FLMA Transfer? | **Yes/No** | **[If yes, describe]** |
| Private Parcel Acquisition? | **Yes/No** | **[If yes, describe number of parcels]** |
| ROW Fence Requirements? | **Yes/No** | **[If yes, describe]** |
| Maintaining Agency involved with Permit to Enter process for field work? | **Yes/No** | **[If yes, describe]** |

|  |  |  |
| --- | --- | --- |
| Description | Response | Comment |
| Potential Major Impacts to Cost or Schedule | **Yes/No** | **[Describe any potential for major impacts to cost or schedule based on proposed scope of work]** |
| Constructability Concerns | **Yes/No** | **[Describe any constructability concerns for project]** |

1. **GEOTECHNICAL**

| Description | Response | Comment |
| --- | --- | --- |
| Regional and Local Geological Setting? | **Yes/No** | **[Provide brief description of the geological setting and soil/rock types for the site]** |
| Existing and potential geological hazards? | **Yes/No** | **[Describe geological hazards, landslides, rock falls, organic soils and peat, sensitive clays, coastal hazards, etc.]** |
| Nearby faults and seismicity design parameters? | **Yes/No** | **[Describe fault locations and earthquake magnitudes, peak ground acceleration, , seismic zone, likely site class, etc.]** |
| Existing geotechnical structures? | **Yes/No** | **[If yes, describe condition (retaining walls, structure foundations, etc.]** |
| Geotechnical Repair Areas? | **Yes/No** | **[Describe subgrade failures, poor soil conditions, subexcavation, slope failures, potential landslides, debris flow, rock falls etc.]** |
| Surface or groundwater problem areas? | **Yes/No** | **[Describe ground water seepage areas, subsidence due to water withdraw, etc.]** |
| Subsurface investigation requirements and access? | **Yes/No** | **[Describe access, clearing required, easements, permits, approvals, environmental requirements, utility concerns, type of rig needed, geophysical methods, etc.]** |
| Wall Inventory Program recommendations? | **Yes/No** | **[If yes, describe]** |

|  |  |  |
| --- | --- | --- |
| Description | Response | Comment |
| Potential Major Impacts to Cost or Schedule | **Yes/No** | **[Describe any potential for major impacts or risks to cost or schedule based on proposed scope of work]** |
| Constructability Concerns | **Yes/No** | **[Describe any constructability concerns for project]** |
| Summary of geotechnical features/design | **[Summarize the proposed improvements such as added structures (bridges walls/types, slope stabilization, or removal of walls, etc.) State the assumptions for the number/depth of borings required for this project for estimating costs of investigations. List geotechnical related available information and any available geotechnical/hazard reports. Anticipated types of foundations needed (shallow vs deep) Drainage requirements, geo-hazard mitigation, any stormwater features that require geotechnical input.** **Discuss alternatives and recommendations based on the field scoping.]** | |

1. **PAVEMENTS AND MATERIALS**

| Description | Response | Comment |
| --- | --- | --- |
| Pavement construction or maintenance history known? | **Yes/No** | **[If yes, describe, including pavement structure depths. If no, provide an estimate of the age and depth of the pavement. Summarize chronic pavement maintenance issues and locations. Describe current surfacing type (seal coat, OGFC, HMA, etc.)]** |
| Does CFLHD or the road owner have reports, studies, or pavement management data from the project site (or relavent adjacent sites)? | **Yes/No** | **[If yes, upload to project folder and review]** |
| Pavement distress? | **Yes/No** | **[If yes, describe types of distress, locations, and apparent cause including aging/oxidation, fatigue from loads, subsurface moisture, soft subgrade, swelling or expansive soils. Take photos of distress.]** |
| Is pavement rehabilitation, reconstruction, or preservation treatments appropriate for segments of the roadway or the entire project? | **Choose Option** | **[If yes to any method, describe locations and rationale]** |
| Will segments or areas of the project have unbound surfacing material (i.e. gravel)? | **Yes/No** | **[If yes, describe locations and rationale]** |
| Areas of special concern for pavement design, material selection, and/or follow-up field investigation? | **Yes/No** | **[If yes, describe (use of a special riding surface such as SMA, bus parking, bus stops, trail crossings, soft or expansive subgrade soil, grade raise restrictions, material availability, aesthetics, low water crossings, potential for recycling, porous pavements or other BMP’s, etc.)]** |
| How will traffic volumes and truck percentages by classifications be determined? | **Choose Option** | **Provide method that data was or will be collected (i.e. use CFL’s temporary traffic data collectors).** |
| CFL standard specifications, SCRs, and design procedures expected to be used? | **Yes/No** | **[If no, list design process, material, or specification needing amended (or new specification written) and include reasons/background]** |
| Identify local material sources | **Choose Option** | **[Provide addresses and contacts for local sources of aggregate, asphalt, concrete, and other materials of significance. If appropriate, make arrangements to sample and/or evaluate materials.]** |
| Is it appropriate to mark boring or coring locations for utility locates? | **Yes/No** | **[If yes, mark locations with white paint following utility locate requirements. Call in locations within one month of marking.]** |
| Was investigative work or sampling completed during scoping? | **Yes/No** | **[If yes, briefly summarize (i.e. grab samples, DCP testing, etc.)]** |
| Use of innovative materials, specifications, or standards? | **Yes/No** | **[If yes, include suggested material, standard, or specification and include reasons/background. Examples include: use of intelligent compaction specifications, high strength concrete, self-consolidating concrete, new AASHTO test standards, etc.]** |

|  |  |  |
| --- | --- | --- |
| Description | Response | Comment |
| Potential Major Impacts to Cost or Schedule | **Yes/No** | **[Describe any potential for major impacts to cost or schedule based on proposed scope of work]** |
| Constructability Concerns | **Yes/No** | **[Describe any constructability concerns for project]** |
| Summary of Preliminary Pavement & Materials Investigation Scope and Recommendations (including unbound surfacing and pavement preservation treatments) | **[Summarize preliminary recommendations for pavement improvements. Describe planned scope of investigation. Include whether or not investigations will require encroachment permits. Describe access constraints for drilling equipment. Confirm that temporary road closures will be allowed for investigation work (night work would be an alternative). Determine if there are equipment inspections or site training requirements (for environmental concerns) that drillers would need to complete before beginning work. Review onsite material for use as backfill of borings.]** | |
| Insert photos below indicating typical pavement condition as well as areas of concern. |  | |

1. **HYDROLOGY/HYDRAULICS**

| Description | Response | Comment |
| --- | --- | --- |
| Specific state or local design standards requirements (local water boards)? | **Yes/No** | **[Discuss and get concurrence on design criteria with CFT and partners at scoping.]**  **[If yes, describe design floods, roadway overtopping, backwater, freeboard, analytical methods as waterway crossings and identify differences from PDDM design standards]**  **[If no, include whether project will be High or Low standard road based on PDDM]** |
| Existing hydraulics-related data, reports, studies, topographic mapping, etc.? | **Yes/No** | **[If yes, include details.]** |
| Major drainage structures (greater than or equal to 48”) | **Yes/No** | **[If yes, describe type, size, location, condition, etc. Provide photos, including upstream and downstream. Describe the character of channel bed and bank material, observations of high water marks, flood indicators, channel stability, bankful geometry, etc. Identify if structure should be replaced, rehabbed or retained. Include preliminary recommendations for any work associated with crossing based on qualitative assessment.]** |
| Exist/Proposed LWCs? | **Yes/No** | **[If yes, describe. Include any field indicators of performance issues on existing structures. Provide photos as necessary. Describe the character of channel bed material, observations of high water marks, flood indicators, channel stability, bankful geometry, etc. Identify if structure should be replaced, rehabbed, or retained. Include preliminary recommendations for any work associated with crossing based on qualitative assessment.]** |
| Scour, erosion, deposition of sediment or debris, abrasion or corrosion of structure material at structure inlets or outlets? | **Yes/No** | **[If yes, describe. Provide photos. Include preliminary recommendations for protection based on qualitative assessment.]** |
| Open bottom structures? | **Yes/No** | **[If yes, describe the character of channel bed and bank material, observations of high water marks, flood indicators, channel stability, bankful geometry, etc. Provide photos including upstream and downstream. Identify if structure should be replaced, rehabbed, or retained. Include preliminary recommendations for any work associated with crossing based on qualitative assessment.]** |
| Fish passage concerns? | **Yes/No** | **[If yes, describe. Identify preferred design criteria for any aquatic organism passage structures. Describe the character of channel bed and bank material, observations of high water marks, flood indicators, channel stability, bankful geometry, etc. Provide photos including upstream and downstream. Identify if structure should be replaced, rehabbed, or retained. Include preliminary recommendations for any work associated with crossing based on qualitative assessment.]** |
| Channel migration concerns? | **Yes/No** | **[If yes, describe. Provide photos and discussion on impacts to structures or roadway embankment and preliminary recommendation for mitigiation based on qualitative assessment.]** |
| Within floodplain regulated by FEMA? | **Yes/No** | **[If yes, describe. Include location of regulatory floodplains/floodways, identify floodplain regulations (federal, state, and/or local) and permit requirements, communicate potential risk to schedule below]** |
| Within 100 miles of coastline? | **Yes/No** | **[If yes, describe. Consider corrosion/abrasion issues, environmental requirements, tsunami requirements.]** |
| Bridge on project (>= 20’)? | **Yes/No** | **Include culverts with opening greater than or equal to twenty feet as measures along centerline.**  **[If yes, describe. Include existing type, size, and any pertienent information from inspection reports. Describe the character of channel bed and bank material, observations of high water marks, flood indicators, channel stability, bankful geometry, etc. Provide photos including upstream and downstream. Identify if structure should be replaced, rehabbed, or retained.]** |
| Condition or performance problems with minor drainage structures? | **Yes/No** | **[If yes, describe. Include observations of high water marks/flood indicators and stability issues. Provide photos as necessary.]** |
| Temporary or permanent stormwater quality or quantity treatments required? | **Yes/No** | **[If yes, describe. Coordinate this effort with Environmental staff.]** |

|  |  |  |
| --- | --- | --- |
| Description | Response | Comment |
| Potential Major Impacts to Cost or Schedule | **Yes/No** | **[Describe any potential for major impacts to cost or schedule based on proposed scope of work. Consider floodplain analysis/permitting, additional analysis and permitting requirements for environmental impacts, etc.]** |
| Constructability Concerns | **Yes/No** | **[Describe any constructability concerns for project. Consider replacement of deep structures, complex work items, environmental issues, seasonal construction requirements, etc.]** |
| Summary of Preliminary Hydraulic Design | **Summarize all preliminary recommendations from scoping site visit. Include existing conditions and proposed improvements with location indicator (GPS location, Milepost, etc.). Include alternatives to proposed improvements where applicable.** | |

1. **STRUCTURES**

|  |  |  |
| --- | --- | --- |
| Description | Response | Comment |
| Existing structures (bridge, retaining wall, and tunnel)? | **Yes/No** | **[If yes, describe structure data]** |
| **BRIDGE DESIGN STANDARDS** | | |
| Bridge Width |  | **[Describe]** |
| Bridge Loading | **MS of HS** | **[Describe]** |
| Bridge Railing | **Select** | **[Describe]** |

*for each structure on the project, copy table and provide required information*

| Description | Comment |
| --- | --- |
| Structure as-builts, contract plans, inspection reports, structure ratings, NBIS reports, etc… available? | **[Describe]** |
| Determine type and measure span length, bridge width, curb-to-curb width, etc. | **[Describe]** |
| Hydraulic conditions including bridge opening (waterway) characteristics, visible scour, deposition of sediment, debris passage, or apparent instabilities around the structure. | **[Describe]** |
| Foundation conditions including shallow or deep, founding material (rock or soil) and groundwater conditions. | **[Describe]** |
| Apparent structure condition. | **[Describe. Note if load posted]** |
| Bridge railing, transitions, and existing utilities. | **[Describe]** |
| Potential structure removal issues, i.e. hazardous material (paint), access limitations, etc.? | **[If yes, describe]** |
| Provide photos of all structures, any apparent deficiencies, and upstream and downstream stream channels. | **[Describe]** |
| Document typical roadway section and approach railing. When available, obtain roadway plan and profile sheets, mapping, and ROW limits. | **[Describe]** |
| Document potential environmental issues and apparent ROW limits. | **[Describe]** |
| Posted speed? | **[Describe]** |
| Discuss structure design criteria or special design criteria (exceptions to AASHTO LRFD Design Specifications) required by local/state/owner agencies. Include special loading conditions (i.e. snow loads, overload vehicles, etc.) and load rating requirements. | **[Describe]** |
| Note bridge superstructure and substructure types along the route. | **[Describe]** |
| Note bridge rail types in the vicinity. Include owner agency preferences and crash test level requirements. | **[Describe]** |
| Locate nearest ACI ready mix concrete plants, PCI girder fabrication plant, and AISC structural steel fabrication plants as applicable. | **[Describe]** |
| Describe work areas adjacent to proposed alignment. Determine available staging areas and potential erection locations. | **[Describe]** |
| Describe site accessibility including local roadway geometry and local bridge weight limits as it affects member hauling limitations. | **[Describe]** |
| Discuss road/bridge closure and detour options, with consideration to temporary bridge if necessary. Investigate existing structure for construction staging feasibility. | **[Describe]** |
| Consider feasibility of spill through vs. vertical abutment types for the structural layout. | **[Describe]** |
| Locate possible locations for retaining walls and potential wall types. | **[Describe]** |
| Consider possible foundation types and semi integral vs. integral abutment types. | **[Describe]** |
| Address economical structure types to meet the serviceability requirements of the agency or route as they relate to type and volume of traffic. | **[Describe]** |
| Determine estimated construction season limits and multi-season impacts to project. | **[Describe]** |
| Determine aesthetic requirements and owner agency special requests. | **[Describe]** |
| Determine maintenance concerns (i.e. chloride use on roads, painting vs. weathering steel, drift issues). | **[Describe]** |

|  |  |  |
| --- | --- | --- |
| Description | Response | Comment |
| Potential Major Impacts to Cost or Schedule | **Yes/No** | **[Describe any potential for major impacts to cost or schedule based on proposed scope of work]** |
| Constructability Concerns | **Yes/No** | **[Describe any constructability concerns for project]** |
| Summary of Preliminary Structure Design |  | |

# TECHNOLOGY AND INNOVATION INITIATIVES

Under Round 5 of the Every Day Counts initiative (<https://www.fhwa.dot.gov/innovation/everydaycounts/edc_5/>) the Federal Lands Highway has chosen to deploy and track the selected innovations in the following table. Innovations deployed from the four previous rounds of EDC are considered integrated into the Federal Lands Highway program, and are not being tracked for further deployment.

Complete the following table and discuss Every Day Counts Round 5 innovations that can be suitably deployed on this project. Provide justification for those EDC initiatives that do not apply or were not considered.

| GEOTECHNICAL | | |
| --- | --- | --- |
| Description | Applicable to Project? | Justification |
| Advanced Geotechnical Methods in Exploration (A-GaME) | **Yes/No** | **[Potential use or justification why not applicable]** |

| SAFETY | | |
| --- | --- | --- |
| Description | Applicable to Project? | Justification |
| Reducing Rural Roadway Departures | **Yes/No** | **[Potential use or justification why not applicable]** |

| HYDRAULICS | | |
| --- | --- | --- |
| Description | Applicable to Project? | Justification |
| Collaborative Hydraulics: Advancing to the Next Generation of Engineering (CHANGE) | **Yes/No** | **[Potential use or justification why not applicable]** |

| SURVEY | | |
| --- | --- | --- |
| Description | Applicable to Project? | Justification |
| Unmanned Aerial Systems (UAS) | **Yes/No** | **[Potential use or justification why not applicable]** |

Shown below is a summary of the entire innovation list from all five EDC rounds. Opportunities still exist to routinely consider these innovations of both those the Federal Lands Highway chose to deploy and some of those which they did not. Include those innovations that may be beneficial to the project to save time and money, and improve safety.

**EDC-5:** <https://www.fhwa.dot.gov/innovation/everydaycounts/edc_5/>

**Adopted by the FLH**

* Advanced Geotechnical Methods in Exploration (A-GaME)
* Reducing Rural Roadway Departures
* Collaborative Hydraulics: Advancing to the Next Generation of Engineering (CHANGE)
* Unmanned Aerial Systems (UAS)

***Not adopted by the FLH***

* Crowdsourcing for Operations
* Value Capture: Capitalizing on the Value Created by Transportation
* Project Bundling
* Weather-Responsive Management Strategies
* Safe Transportation for Every Pedestrian (STEP)
* Virtual Public Involvement

**EDC-4:** [**https://www.fhwa.dot.gov/innovation/everydaycounts/edc\_4/**](https://www.fhwa.dot.gov/innovation/everydaycounts/edc_4/)

***Adopted by the FLH***

• Ultra-High Performance Concrete Connections for Prefabricated Bridge Elements

• e-Construction and Partnering

• C.H.A.N.G.E. (Collaborative Hydraulics Advancing to the Next Generation of Engineering)

• Pavement Preservation: When, Where, & How

• Integrating NEPA and Permitting

• Data-Drive Safety Analysis

• Safe Transportation for Every Pedestrian (STEP)

***Not adopted by the FLH***

• Automated Traffic Signal Performance Measures (ATSPMs)

• Community Connections

• Using Data to Improve Traffic Incident Management

• Road Weather Management – Weather Savvy Roads

o Pathfinder

o Integrating Mobile Observations (IMO)

**EDC-3:** [**https://www.fhwa.dot.gov/innovation/everydaycounts/edc-3.cfm**](https://www.fhwa.dot.gov/innovation/everydaycounts/edc-3.cfm)

***Adopted by the FLH***

• Regional Models of Cooperation

• Improving Collaboration and Quality Environmental Documentation (eNEPA and IQED)

• 3D Engineered Models: Schedule, Cost, and Post-Construction

• e-Construction

• Geosynthetic Reinforced Soil – Integrated Bridge System

• Smarter Work Zones

• Data-Driven Safety Analysis

• Ultra-High Performance Concrete Connections for Prefabricated Bridge Elements

***Not adopted by the FLH***

• Locally Administered Federal-Aid Projects: Stakeholder Partnering

• Improving DOT and Railroad Coordination (SHRP2 R16)

• Road Diets (Roadway Reconfiguration)

**EDC-2:** [**https://www.fhwa.dot.gov/innovation/everydaycounts/edc-2.cfm**](https://www.fhwa.dot.gov/innovation/everydaycounts/edc-2.cfm)

***Adopted by the FLH***

• 3D Engineered Models for Construction

• Accelerated Bridge Construction

o Geosynthetic Reinforced Soil - Integrated Bridge System

o Prefabricated Bridge Elements and Systems

o Slide-in Bridge Construction

• Alternative Technical Concepts

• Construction Manager/General Contractor

• Design Build

• High Friction Surface Treatments

• Implementing Quality Environmental Documents

• Intelligent Compaction and Construction

• Intersection and Interchange Geometrics: Roundabouts

• Locally-Administered Federal Aid Projects: IDIQ

• Programmatic Agreements

***Not adopted by the FLH***

• First Responder Training

• Geospatial Data Collaboration

**EDC-1:** [**https://www.fhwa.dot.gov/innovation/everydaycounts/edc-1.cfm**](https://www.fhwa.dot.gov/innovation/everydaycounts/edc-1.cfm)

***Adopted by the FLH***

• Construction Manager/General Contractor

• Design Build

• Expanding the Use of Programmatic Agreements

• Geosynthetic Reinforced Soil-Integrated Bridge System

• Prefabricated Bridge Elements and Systems

• Safety Edge

• Warm Mix Asphalt

***Not adopted by the FLH***

• Adaptive Signal Control

• Clarifying the Scope of Preliminary Design

• Enhanced Technical Assistance with Ongoing EISs

• Flexibilities in ROW

• Flexibilities in Utility Accommodation and Relocation

• Planning and Environmental Linkages

• Use of In-Lieu Fee and Mitigation Banking

Identify potential new, emerging, innovative, and underused technologies that may be beneficial to the project other than those from the lists above. These ideas may come from a variety of other programs such as:

* FHWA’s Turner Fairbanks Highway Research Facility including its Research Partnership Programs  [www.fhwa.dot.gov/research/](http://www.fhwa.dot.gov/research/),
* FHWA’s Highways for Life [www.fhwa.dot.gov/hfl](http://www.fhwa.dot.gov/hfl) or other FHWA programs;
* Transportation Research Board (TRB) National Cooperative Highway Research Program <http://www.trb.org/NCHRP/NCHRP.aspx> and its Synthesis Program <http://www.trb.org/SynthesisPrograms/SynthesesNCHRP.aspx>, and
* Strategic Highway Research Program 2 (SHRP2) <https://www.fhwa.dot.gov/goshrp2/Solutions/All/List>.

Consult the Functional Team Leads for new, ready to implement technologies appropriate for the project.