SYSTEMS ENGINEERING REVIEW FORM (SERF)
(Example for New Traffic Signal with Interconnect.)

This form needs to be filled out for all ITS projects. For all major ITS projects, this completed form needs to be submitted to FHWA for review and approval prior to PE authorization (Phase 1 PE authorization).

For all major ITS projects, a Systems Engineering Management Plan (SEMP), which includes the seven items below, must be submitted to FHWA for review and approval, prior to PE authorization for component detailed design (Phase 2 PE authorization). Required FHWA approvals are limited to major ITS projects.

For guidance in filling out the seven items below, see last part of this exhibit.

1. **Identification of portions of the Regional ITS Architecture being implemented:**
   The project is an expansion of an existing signal system, in which roadway traffic signal controls (equipment package) will be installed for positive right-of-way control at the intersection of Garfunkel Avenue and Simon Street in the City of Harmony, as well as coordination with at least one other traffic signal on the major route, Garfunkel Avenue.

2. **Identification of participating agencies roles and responsibilities:**
   The City of Harmony, California has designed the project and will advertise the project for construction purposes by a suitable traffic signal contractor. The city will also administer the construction project providing inspection and technical review during installation and implementation of the equipment installed. The County of Los Angeles Dept. of Public Works will, at the request of the City, provide system integration services as well as system timing monitoring and revision services in the future. Maintenance of the system will be provided by the City’s signal maintenance contractor.

3. **Requirements definitions:**
   The traffic signals will be fully actuated based on sensor data and will utilize both in the pavement detector loops and video detection sensors. This location will be coordinated with adjacent traffic signals using a GPS based universal time clock and time based coordination parameters.

4. **Analysis of alternative system configurations and technology options to meet requirements:**
   Various detection options were considered; however, the local standard of using loops for advance detection and video for limit line detection was chosen as easiest to maintain and sufficient for required tasks. Time-based coordination was chosen over the more expensive physical wiring and telephone options. The Type 170 controller in a Type 332 cabinet was chosen over NEMA controls for compatibility with current City controls, equipment, and maintenance standards.

5. **Procurement options:**
   It is the City’s standard approach to competitively bid the construction of the project and to award the work to the lowest responsible bidder using city, state and federal procedures and standards.

6. **Identification of applicable ITS standards and testing procedures:**
   The equipment is the same type of equipment installed elsewhere in the City and involves no technology new to the City and no new types of interconnections. Controller clocks will be synchronized using a GPS based universal time clock. Clock timing will also be monitored during the City’s established monthly preventative maintenance procedures by its traffic signal maintenance contractor. Equipment and materials will be tested and/or certified before placement and implementation and after it is in operation subject to established warranty requirements and procedures.

7. **Procedures and resources necessary for operations and management of the system:**
   Under existing arrangements and procedures, the Engineering Department of the City of Harmony will operate and manage the system. Preventative and extraordinary maintenance of the system will be performed by the City’s traffic signal maintenance contractor, under the direction of the City.