**Minnesota Statewide Regional ITS Architecture**

**and Systems Engineering Checklist for**

**CLASS C: Large Scale/Complex ITS Projects**

**FHWA Final Rule 940 and FTA National ITS Architecture Policy**

For all ITS projects or projects with an ITS component, a Systems Engineering Checklist shall be completed and submitted with the Project Submittal Form. For questions regarding the completion of this checklist contact Rashmi Brewer, P.E. – MnDOT Office of Connected & Automated Vehicles (CAV-X) at 651-234-7063 or e-mail at [Rashmi.Brewer@state.mn.us](mailto:Rashmi.Brewer@state.mn.us).

*(Enter project name or type)*

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| **SECTION 1 – Project Information** | |
| **1.1 CONTACT PERSON (e.g. PROJECT MANAGER)**  Name/Title:       Agency:  Signature:       Date:  Telephone:       Email: | | |
| **1.2 PROJECT LOCATION** *(list all)* | **1.3 PROJECT NUMBER**  1.3A Federal Project Number:  1.3B State/Local Project Number: |
| **1.4 PROJECT SCHEDULE**  Letting Date:  Anticipated Start Date: | |
| **1.5 NATURE OF WORK** *(Check all that apply)*  Scoping  Design  Software/Integration  Construction  Operations & Management  Evaluations  Planning  Equipment Replacement  Research & Development  Others (Please Specify) | |

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| **1.6 PROJECT FEATURES AND TYPES OF ITS APPLICATIONS** *(Check all that apply)*  Arterial Management **STOP!** Please use Arterial Traffic Management or Traffic Signals Checklist  Freeway Management **STOP!** Please use Freeway Traffic Management Checklist  Work Zone Management  Incident and Emergency Management  Traveler Information  Parking Management  Transit  Data/Information Management  Commercial Vehicle Operations  Advanced Vehicle Technology  Others (Please Specify) | | | | | |
| **1.7 NEEDS ASSESSMENT**  *Please describe the problem statement, goals and objectives of the project.*    *How were these needs identified? (Check all that apply)*  Internal Assessment  Stakeholder Involvement  Regional ITS Architecture (Volume 9)  Systems Engineering Concept of Operations/Functional Requirements Documents  Other ITS Planning or Technical Documents (Please Specify)  Design Documents (Please Specify) | | | | | |
| **1.8 SYSTEMS ENGINEERING DOCUMENTATION** | | | | | |
|  | Existing | Existing To Be Modified | To Be Developed | Not Applicable | Document Reference (file number, name, or web link)/Comments |
| Alternatives Analysis |  |  |  |  |  |
| Concept of Operations |  |  |  |  |  |
| Requirements |  |  |  |  |  |
| Design |  |  |  |  |  |
| System Test Plan |  |  |  |  |  |
| System Verification Plan |  |  |  |  |  |
| Evaluation |  |  |  |  |  |
| Others (Please Specify) |  |  |  |  |  |

Systems Engineering/Concept of Operations/Functional Requirements have been reviewed:

Yes  No

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| **1.9 RELATIONSHIP TO OTHER PROJECTS AND PHASES**  *Please list any construction and tied projects.*  **Project Title Project Number** | |
| **SECTION 2 – Regional Architecture Assessment** |
| **2.1 PROJECT IS INCLUDED IN THE MINNESOTA STATEWIDE REGIONAL ITS ARCHITECTURE (***Refer to Sections 4.3 and 4.4 of the Implementation Volume,* ***Minnesota Statewide Regional ITS Architecture,*** *2018,* [*http://www.dot.state.mn.us/its/projects/2006-2010/mnitsarchitecture/*](http://www.dot.state.mn.us/its/projects/2006-2010/mnitsarchitecture/)*)*  Yes  No  If “No”, please list additional ITS devices, features, and/or functions that are not listed in **1.6** and send a copy of the complete checklist via email to the MnDOT Office of Connected & Automated Vehicles (CAV-X) contact person listed at top of page 1.    If “Yes”, Project ID (from *Sections 4.3 and 4.4 of the Implementation Volume*):  Is the project consistent with the description in the Architecture?  Yes  No  If “No”, please summarize the differences below and send a copy of the complete checklist via email to the MnDOT Office of Connected & Automated Vehicles (CAV-X) contact person listed at top of page 1. |
| **2.2 DOES THE DESIGN INCORPORATE NATIONAL ITS STANDARDS?**  Yes  No  If “Yes”, please specify what ITS Standards are being used:    General information on ITS Standards can be found at <http://www.standards.its.dot.gov/>.  \*Minnesota Standards are listed in Section 10 of Volume 13 of the *Minnesota Statewide Regional ITS Architecture* document as generated by RAD-IT. |
| **2.3 Is an Interagency agreement needed for this project?**  Existing  To be Developed  No  Please describe: (Agency name, agreement number, and nature of contract) |

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| **SECTION 3 – Procurement** |
| **3.1 Procurement Methods** *(Check all that apply)*  Construction Contract  Professional Technical Services Contract/Agreement  Joint Powers Contract/Agreement  Interagency Contract/Agreement  Work Order Contract/Agreement  Commodities Contract  Purchase Order (State/Local Furnish)  Other  Comments: |

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| **SECTION 4 – Operations and Management Commitment** |
| **4.1 Staffing and resources needed for operations and Management**  *(Staff hours covering, for example, device/system maintenance plus management. Estimate and specify per year and per site or for all sites in project)* |
| **4.2 Estimated annual operations and Management costs**  *(Question 4.1 staffing labor hours x average direct hourly rate, plus direct expenses)* |
| **Section 5 - Approval** |
| **Approval (Refer to page 7 of the HPDP ITS Systems Engineering Requirement for a list of approval agencies)**  I certify that to the best of my knowledge all of the information on this checklist is accurate. I acknowledge that I am aware of the requirements set forth in the HPDP – ITS Systems Engineering for this project. I also certify that the required systems engineering analysis has been/will be performed and all of the requirements are/will be met.  Name/Title:       Agency:  Signature:       Date:  Telephone:       Email: |