ITS Projects – Systems Engineering and Architecture Compliance (Rule 940) Checklist

for

Project Title:

This Checklist to be filled out by VDOT NRO's Planning Staff and the Project Manager

Checklist Status as of _____ (MM/DD/YYYY)

Section	Status	Name
1 Project Information	☐ Complete	
2 Needs Assessment	☐ Complete	
3 Regional Architecture Assessment and Concept Exploration	☐ Complete	
4 Alternatives Analysis	☐ Complete	
5 Concept of Operations	☐ Complete	
6 Requirements	☐ Complete	
7 Detailed Design	☐ Complete	
8 Implementation	☐ Complete	
9 Integration and Test	☐ Complete	
10 System Verification and Acceptance	☐ Complete	
11 Operations and Maintenance	☐ Complete	

ITS Projects – Systems Engineering and Architecture Compliance (Rule 940) Checklist

CHANGE LOG		
PROJECT TITLE		
DATE CREATED/MODIFIED	**CREATOR/MODIFIER NAME**	**NOTES**

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SECTION 1 – Project Information

1.1 PROJECT TITLE

1.2 PROJECT NUMBER

☐ New Project
☐ Modification to existing Project

1.3 BRIEF DESCRIPTION/PURPOSE

1.4 CONTACT PERSON/GROUP	1.5 PROJECT LOCATION	1.6 PERIOD OF PERFORMANCE	1.7 BUDGET & FUNDING SOURCE

1.8 NATURE OF WORK

☐ Scoping ☐ Design ☐ Software/Integration ☐ Implementation ☐ Operations ☐ Evaluations ☐ Others (Please Specify)

If Other, Please Specify

1.9 RELATIONSHIP TO OTHER PROJECTS AND PHASES

1.10 EQUIPMENT TO BE PURCHASED WITH PROJECT FUNDING

1.11 STATUS

☐ ECCB Approval
☐ TIP/STIP Amendment
☐ Environmental Clearance, if applicable
☐ FHWA PE Authorization
☐ FHWA CN Authorization

1.12 IS THERE A DOCUMENT FOR THIS PROJECT WITH TASK BREAKDOWN?

☐ No ☐ Yes, provide document reference ☐ To Be Developed

Please provide document reference here.

SECTION 2 – Needs Assessment

2.1 WHAT IS/ARE THE PROBLEM(S) WITH THE CURRENT SITUATION?

2.2 WHAT NEEDS DOES THIS PROJECT ADDRESS?

2.3 HOW WERE THESE NEEDS IDENTIFIED?

☐ Internal VDOT Assessment ☐ Stakeholder Involvement ☐ From Technical Reviews or other studies ☐ Other

Please provide details on how needs were identified – If other documentation was used as reference, please identify it here.

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SECTION 3 – Regional Architecture Assessment and Concept Exploration

3.1 WHAT ARCHITECTURES WERE EXAMINED FOR INPUTS TO THIS PROJECT?

☐ Northern VA ☐ VA Statewide ☐ DC Regional (MWCOG) ☐ Maryland Statewide ☐ Other VA Regional

3.2 STAKEHOLDERS FROM ARCHITECTURE INCLUDED IN PROJECT

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Turbo Architecture "Stakeholder Report" ☐ Attached ☐ Unavailable

3.3 INVENTORY ELEMENTS FROM ARCHITECTURE INCLUDED IN PROJECT

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Turbo Architecture "Inventory Report" ☐ Attached ☐ Unavailable

3.4 INTERFACE IMPACTS (I.E. INFORMATION EXCHANGES) DUE TO PROJECT. IDENTIFY PORTIONS OF ARCHITECTURE BEING IMPLEMENTED BY PROJECT.

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Turbo Architecture "Project Architecture Report" ☐ Attached ☐ Unavailable

Turbo Architecture "Interconnect and Flow Diagrams" ☐ Attached ☐ Unavailable

3.5 OTHER REGIONAL ARCHITECTURES IMPACTED BY PROJECT

☐ VA Statewide ☐ DC Regional (MWCOG) ☐ Maryland Statewide ☐ Other VA Regional

Impact communicated to appropriate architecture maintenance agencies? ☐ Yes ☐ No

3.6 CHANGES RECOMMENDED TO NORTHERN VIRGINIA AND/OR OTHER ITS ARCHITECTURES?

☐ Yes ☐ No

If "Yes", please specify and attach detail

Turbo Architecture "Region to Project Comparison Report" ☐ Attached ☐ Unavailable

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SECTION 4 – Alternatives Analysis

4.1 WERE ALTERNATIVE CONCEPTS/IDEAS/SOLUTIONS TO ADDRESS THE PROBLEM CONSIDERED DURING FEASIBILITY ANALYSIS OR CONCEPT EXPLORATION?

☐ Yes ☐ No

Please specify how the best concept was selected

[ ]

4.2 REFERENCE DOCUMENTS (If any)

[ ]

SECTION 5 – Concept of Operations

5.1 IS THERE A CONCEPT OF OPERATIONS (COO) FOR THIS PROJECT?

☐ Yes ☐ No ☐ To Be Developed

If "No" was selected, please specify reason

[ ]

5.2 IF "Yes" WAS SELECTED, PLEASE FILL OUT THE FOLLOWING

COO Contains:
- Scope (Geographic, Timeframe, Region, etc.)   ☐ Yes ☐ No
- Operational Description (Stakeholder Roles and Responsibilities)   ☐ Yes ☐ No
- Operational Needs   ☐ Yes ☐ No
- System Overview (System Description, Project Architecture)   ☐ Yes ☐ No
- Operational and Support Environment   ☐ Yes ☐ No
- Operational Scenarios   ☐ Yes ☐ No
- Next Steps   ☐ Yes ☐ No

If "No" was checked in any of the boxes, please specify reason

[ ]

5.3 HAVE ALL STAKEHOLDERS AFFECTED BY THIS PROJECT REVIEWED AND ACCEPTED THE CONCEPT OF OPERATIONS?

☐ Yes ☐ No

5.4 IF "No" WAS SELECTED, WHICH STAKEHOLDERS HAVE NOT BEEN INVOLVED?

[ ]

5.5 PLEASE PROVIDE COO DOCUMENT REFERENCE IF AVAILABLE

[ ]

Turbo Architecture – "Roles and Responsibilities Report"   ☐ Attached   ☐ Unavailable

SECTION 6 – Requirements Definitions (High-Level and Detailed)

6.1 ARE HIGH-LEVEL FUNCTIONAL REQUIREMENTS WRITTEN AND DOCUMENTED?

☐ Yes ☐ No ☐ To Be Developed

6.2 IF "Yes" WAS SELECTED, PROVIDE REQUIREMENTS DOCUMENT REFERENCE IF AVAILABLE

[ ]

Turbo Architecture "Functional Requirements Report"   ☐ Attached   ☐ Unavailable

6.3 WERE REQUIREMENTS DERIVED FROM OTHER SOURCES SUCH AS ITS MASTER PLANS? ☐ Yes ☐ No

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SECTION 7 – Detailed Design

7.1 IS THERE A DESIGN DOCUMENT AVAILABLE?

☐ Yes   ☐ No   ☐ To Be Developed

Please provide reference to design document

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7.2 IF "Yes" WAS SELECTED, PLEASE FILL OUT THE FOLLOWING

- Are the design details well documented   ☐ Yes   ☐ No
- Do the details of the design trace to requirements definitions   ☐ Yes   ☐ No
- Are boundaries and interfaces of the system clearly identified   ☐ Yes   ☐ No
- Is there a process for Configuration Control   ☐ Yes   ☐ No

If "No" was checked in any of the boxes, please specify a reason

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7.3 DOES THE DESIGN INCORPORATE NATIONAL ITS STANDARDS?

☐ Yes   ☐ No

If "Yes", please list what ITS Standards are being incorporated

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Turbo Architecture "Standards Report"   ☐ Attached   ☐ Unavailable

7.4 DOES THE DESIGN INCORPORATE ANY VDOT ENTERPRISE STANDARDS?

☐ Yes   ☐ No

If "Yes", please list the VDOT Enterprise Standards being incorporated

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SECTION 8 – Implementation

8.1 PROCUREMENT DETAILS (include type of procurement, reason this approach taken, etc.)

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8.2 IF USING AN EXISTING CONTRACT VEHICLE, ARE THERE ANY CONTRACT LIMITATIONS SUCH AS PERIOD OF PERFORMANCE, BUDGET CEILINGS, SCOPE OF WORK, ETC.?

☐ Yes   ☐ No

If "Yes", please identify the Contract Limitations

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8.3 REFERENCE DOCUMENTS (if any)

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SECTION 9 – Integration and Test

9.1 IS THERE AN INTEGRATION PLAN?

☐ Yes   ☐ No   ☐ To Be Developed

If "Yes", please provide reference

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9.2 IS THERE A TEST PLAN?

☐ Yes   ☐ No   ☐ To Be Developed

If "Yes", please provide reference

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SECTION 10 – System Verification and Acceptance

10.1 IS THERE A SYSTEM VERIFICATION AND ACCEPTANCE PLAN? (verification of the entire system and acceptance criteria)

☐ Yes   ☐ No   ☐ To Be Developed

If "Yes", please provide reference

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10.2 IF "YES", PLEASE FILL OUT THE FOLLOWING

- Is there a clear criteria for completion   ☐ Yes   ☐ No
- Are there clear performance metrics for system acceptance   ☐ Yes   ☐ No
- Will there be adequate system documentation for all users and maintainers   ☐ Yes   ☐ No

If "No" was checked in any boxes, please provide reason

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SECTION 11 – Operations and Maintenance

11.1 WHO WILL MAINTAIN THE SYSTEM?

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11.2 IS THERE A SCHEDULE FOR UPGRADES/ENHANCEMENTS TO THE SYSTEM?

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11.3 WILL THERE BE AN EVALUATION OF THE SYSTEM?

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11.4 WILL TRAINING BE PROVIDED WITH THE NEW SYSTEM?   ☐ Yes   ☐ No

11.5 WILL THE SYSTEM OPERATING PROCEDURES (SOP) BE UPDATED?   ☐ Yes   ☐ No