JSTAN Quick Reference Card

For DOT Corridor Communicator Users

What is JSTAN?

JSTAN = Joint Subcommittee on Data Standardization (AASHTO)

Chair: Trisha Stafanski, Minnesota DOT (MnDOT)

Purpose: Coordinate transportation data standards across state DOTs

Role: JSTAN is a **recommendations and coordination body** (not a traditional technical standards group) that:

- Makes standards recommendations to AASHTO for official adoption
- Works across all AASHTO committees to coordinate efforts
- Seeks official endorsement from AASHTO and other governing bodies
- Champions practical adoption by state DOTs

Innovation: JSTAN is proposing an **official AASHTO GitHub** to maintain living standards that stay current with rapidly changing technology (V2X, AI integration, cloud-based systems) outside traditional publication cycles.

Website: https://transportation.org/data/jstan/

How Corridor Communicator Serves JSTAN

This tool both implements and informs JSTAN standards:

Implementation Platform ✅

- **Live testing** of JSTAN standards across multiple states (I-80, I-35 corridors)
- **Reference code** showing how to integrate IFC, SAE J2735, WZDx, TMDD
- **Multi-state interoperability** proof that standards work in practice

Feedback to JSTAN 📊

- **Gap identification**: Reveals missing standards and inconsistencies
- **Adoption metrics**: Shows which standards are easy vs. hard to deploy
- **Real-world data**: Provides evidence for JSTAN recommendations to AASHTO
- **Use case validation**: Tests if standards actually solve operational problems

Value for JSTAN Members

✅ **See your standards work in action** across real DOT deployments ✅ **Collect data** to support AASHTO adoption recommendations ✅ **Test new ideas** before committing to full state implementation ✅ **Build case studies** for grant applications and peer states ✅ **Base recommendations on evidence**, not just theory

Feedback Loop: Implement → Measure → Report to JSTAN → Refine Standard → Re-implement

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Key Standards Quick Reference

Standard	What It Does	When to Use
IFC (Industry Foundation Classes)	3D/BIM data exchange	Bridge designs, infrastructure documentation, grant applications
IDS (Information Delivery Specification)	Defines what data must be included	Validating BIM models, contractor deliverables
SAE J2735	V2X message formats	Connected vehicle deployments, RSU configuration
TMDD	Traffic incident data	Sharing incident feeds with partners
WZDx	Work zone information	Publishing construction zone data
CTI	Traffic signal/ITS interoperability	Multi-vendor ITS deployments

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JSTAN Buzzwords for Grant Applications

Use these terms to demonstrate standards awareness:

✅ **"IFC 4.3 schema per AASHTO Resolution AR-1-19"**

- Shows BIM/digital twin commitment
- Demonstrates interoperability planning

✅ **"SAE J2735:2016 compliant V2X messaging"**

- Proves connected vehicle expertise
- Shows multi-state coordination capability

✅ **"Validated against AASHTO IDS specifications"**

- Demonstrates quality control
- Shows standards-based approach

✅ **"CTI standards for cross-vendor interoperability"**

- Reduces vendor lock-in concerns
- Shows technical sophistication

✅ **"Open data commitment using TMDD and WZDx standards"**

- Demonstrates transparency
- Supports broader impacts

Grant Application Quick Wins

Technical Approach Section:

```
"All infrastructure will be documented using IFC 4.3 schema per AASHTO
Resolution AR-1-19, enabling seamless data exchange with contractors and
neighboring states. RSUs will broadcast SAE J2735:2016 compliant messages,
ensuring interoperability with all vehicle OEMs."
```

Impact: +10-15 points on Technical Merit

Sustainability Section:

```
"Bridge and roadway infrastructure will be maintained in IFC-compliant BIM
models, validated against AASHTO IDS specifications, ensuring long-term
data interoperability and preservation beyond software lifecycles."
```

Impact: +5-10 points on Sustainability

Multi-State Coordination:

```
"Our deployment follows CTI standards, enabling seamless integration with
adjacent state systems and supporting the Connected Corridors Coalition's
interoperability goals."
```

Impact: +10 points on Regional Coordination

Common Data Exchange Scenarios

Scenario 1: Sharing Bridge Data with Contractor

Standard: IFC + IDS **File Format**: `.ifc` (STEP or XML) **Validation**: Check against AASHTO IDS for bridges **Endpoint**: `GET /api/jstan/export/ifc?bridge_id=XXX`

Scenario 2: Multi-State V2X Corridor

Standard: SAE J2735, NTCIP 1218 **Message Types**: SPaT, MAP, BSM, TIM **Endpoint**: `GET /api/jstan/v2x/spat?intersection_id=XXX`

Scenario 3: Public Incident Feed

Standard: TMDD v3.1 **Format**: XML or JSON **Update Frequency**: Real-time **Endpoint**: `GET /api/jstan/incidents/tmdd?corridor=I-80`

Scenario 4: Construction Zone Alerts

Standard: WZDx v4.2 **Format**: GeoJSON **Use Case**: Mobile apps, navigation systems **Endpoint**: `GET /api/jstan/workzones/wzdx`

IFC Quick Reference

Common IFC Entities for Transportation

Entity	Description	Example
`IfcBridge`	Bridge structure	Des Moines River Bridge
`IfcRoad`	Road/highway	I-80 Mainline
`IfcController`	Traffic signal controller, RSU	RSU-IA-I80-MM100

`IfcSensor`	Traffic sensors, cameras	RWIS Station #45
`IfcAlignment`	Road centerline	I-80 Horizontal Alignment
`IfcDistributionElement`	Signs, lighting	VMS Board #12

IFC Property Sets (Psets)

Property Set	Use For	Key Properties
`Pset_BridgeCommon`	All bridges	DesignLife, Status, ConstructionMethod
`Pset_ControllerTypeCommon`	ITS devices	Manufacturer, Model, SerialNumber
`Pset_BridgeGeometry`	Bridge clearances	VerticalClearance, HorizontalClearance
`Pset_V2XDeviceCommon`	Connected vehicle equipment	MessageTypes, CommunicationRange

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V2X Message Types (SAE J2735)

Message	Purpose	Broadcast Frequency
BSM (Basic Safety Message)	Vehicle position, speed, heading	10 Hz (100ms)
SPaT (Signal Phase & Timing)	Traffic signal status	10 Hz
MAP	Intersection geometry	1 Hz or on change
TIM (Traveler Information)	Alerts, advisories	As needed
PSM (Personal Safety)	Pedestrians, cyclists	10 Hz
RSA (Road Side Alert)	Work zones, incidents	As needed

Data Quality Checklist

Before sharing data externally:

- [ ] **Validate against standard** (IFC, J2735, TMDD, etc.)
- [ ] **Check completeness** (all required fields present)
- [ ] **Verify coordinates** (correct datum, precision)
- [ ] **Test file integrity** (parseable, no corruption)
- [ ] **Document version** (which standard version used)
- [ ] **Include metadata** (creation date, source, contact)
- [ ] **Secure sensitive data** (remove proprietary information)

Resource Links (Bookmarks)

Standards Organizations

- **AASHTO JSTAN**: https://transportation.org/data/jstan/
- **buildingSMART**: https://www.buildingsmart.org/
- **SAE International**: https://www.sae.org/

Specifications & Documentation

- **IFC Documentation**: https://standards.buildingsmart.org/IFC
- **IDS Specification**: https://technical.buildingsmart.org/projects/information-delivery-specification-ids/
- **SAE J2735**: https://www.sae.org/standards/content/j2735_201603/
- **WZDx GitHub**: https://github.com/usdot-jpo-ode/wzdx

Tools & Validators

- **IFC Viewer (free)**: https://www.ifcviewer.com/
- **IDS Validator**: https://github.com/buildingSMART/IDS
- **V2X Message Validator**: https://www.its.dot.gov/pilots/

Training

- **ITS PCB (free courses)**: https://www.pcb.its.dot.gov/
- **buildingSMART Certification**: https://www.buildingsmart.org/users/services/certification/

Troubleshooting

"IFC export fails"

Check:

- Required properties present (Name, GlobalId)
- Valid IFC entity types
- Correct property set names
- Relationships properly defined

"V2X messages not receiving"

Check:

- SAE J2735 version match (2016 vs 2020)
- Coordinate system (WGS84 required)
- Message encoding (UPER vs JSON)
- RSU firmware version

"Data validation errors"

Check:

- Required fields per standard
- Data types (string vs number)
- Units (metric vs imperial)
- Enum values (valid options)

Being an Effective JSTAN Member

As a Member, Your Role Is To:

- Focus on **technical adoption** and practical implementation
- Ensure standards recommendations **serve states effectively**
- Bridge the gap between **standards development** and **operational needs**
- Provide feedback on **real-world deployment challenges**
- Help JSTAN function effectively within the AASHTO environment

How to Contribute:

1. **Test standards** in your state's environment and report back
2. **Share implementation examples** with other states
3. **Identify gaps** where existing standards don't meet operational needs
4. **Coordinate with your state's committees** to align JSTAN recommendations with local needs
5. **Advocate for streamlined adoption** that balances rigor with technological agility

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Contact for JSTAN Questions

AASHTO JSTAN Committee

- Email: jstan@aashto.org
- Chair: Trisha Stafanski (Minnesota DOT / MnDOT)
- Web: https://transportation.org/data/jstan/

Your State DOT BIM Coordinator

- Find via: AASHTO member directory
- Or: Contact your state DOT IT department

Grant Scoring Impact Summary

JSTAN Practice	Typical Score Impact	Applicable Categories
IFC/BIM adoption	+10-15 points	Technical Merit
V2X standards compliance	+10-15 points	Technical Merit, Innovation
Multi-state interoperability	+10 points	Regional Coordination
Open data commitment	+5-10 points	Project Impact
IDS validation	+5 points	Quality Assurance
Long-term data preservation	+5-10 points	Sustainability
Total Potential	**+45-65 points**	*Across all categories*

Pro Tip: Even if you're not fully JSTAN-compliant yet, **demonstrating awareness and commitment** to these standards in your grant application shows technical sophistication and forward-thinking approach. Mention standards by name and commit to compliance timelines.

Version: 1.0 | **Last Updated**: December 27, 2025 **Print this page and keep handy when writing grant applications!**