Introduction to Transportation Data - Course Outline

Section 1: Introduction to Transportation Data	**Module 1.a. – Introductory Overview of ITS** • Define ITS and list where ITS exists across an agency • Build awareness that ITS is valuable for all agency employees **Module 1.b. – Transportation Data: The Basics** • Describe core tools for gathering, processing, and managing data • Define the main types of transportation data

Section 2: Data Use Cases & Applications	**Module 2.a. – What Can You Do with Data? Use Cases for Safety, Mobility, and Operational Efficiency**
	• Identify which priorities transportation data can help an agency fulfill
	
	Module 2.b. – Real-world Applications
	• Identify data used to improve safety
	  ○ Case study 1 "Prevent Crashes"
	  ○ Case Study 2 "Respond to Incidents"
	• Identify data used to increase mobility
	  ○ Case study 3 "Combating Congestion"
	• Identify data used to achieve organizational efficiency
	  ○ Case Study 4 "Improving Internal Efficiency"
	
	Module 2.c. – Where Things Go Wrong: Challenges with Using Data
	• Summarize the key challenges agencies face when implementing transportation data

Section 3: Data Capture & Transmission	**Module 3.a. – Capturing Transportation Data** • Describe ways that data is captured by agencies themselves • Describe 'crowd-sourced' / third-party data accessed by agencies • List the strengths and weaknesses of these approaches **Module 3.b. – Data Transmission & Connectivity** • Identify the main ways that agency transmit transportation data • Articulate advantages and drawbacks between different transmission methods
Section 4: Data Processing, Storage, and Sharing	**Module 4.a. – Data Processing & Storage** • Describe common pitfalls of inadequate data cleaning / processing • Articulate advantages and drawbacks between different storage methods • Articulate best practices for transportation data cleaning and processing **Module 4.b. – Data Organization & Access** • Describe steps to navigate data access in your organization • Articulate trade-offs between traditional/centralized data architecture and a democratized/big data approach • Best practices
Section 5: The Future of ITS / Conclusion	**Module 5.a. – The Future of Data in Transportation** • Describe how the landscape of transportation data is likely to change in the next 5 years **Module 5.b. – Final Takeaways** • List key takeaways from the course • Explain best practices for applying data solutions for a variety of outcomes • Describe next steps to be taken by the student and their organization to make the best use of their current transportation data, or to augment their current practices