

IDAHO TRANSPORTATION DEPARTMENT

RESEARCH REPORT

Local Roads Data Management and Methodology Development Final Report

RP 334

By

SRF Consulting Group, Inc.

Prepared for

Idaho Transportation Department

[ITD Research Program, Planning and Development Services](#)

Highways Division

September 2026



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Technical Report Documentation Page

1. Report No. FHWA-ID-26-334	2. Government Accession No.	3. Recipient's Catalog No.	
4. Title and Subtitle Local Roads Data Management and Methodology Development Final Report		5. Report Date September 2026	
		6. Performing Organization Code 18756	
7. Author(s) Elizabeth A Stolz Steven Jessberger Jimoku Salum		8. Performing Organization Report No. N/A	
9. Performing Organization Name and Address SRF Consulting Inc. 3701 Wayzata Boulevard, Suite 100 Minneapolis, MN 55416		10. Work Unit No. (TRAIS)	
		11. Contract or Grant No. T003666	
12. Sponsoring Agency Name and Address Idaho Transportation Department (SPR) Highways Division, Planning and Development Services, Research Program PO Box 7129 Boise, ID 83707-7129		13. Type of Report and Period Covered Final Report [01/21/2026 - 09/30/2026]	
		14. Sponsoring Agency Code RP 334	
15. Supplementary Notes Project performed in cooperation with the Idaho Transportation Department and Federal Highway Administration.			
16. Abstract The purpose of this project is to develop a methodology and approach for local road traffic data management to achieve Federal Highway Administration (FHWA) Model Inventory of Roadway Elements (MIRE) compliance for the state of Idaho. This project will include researching other departments of transportation agencies methods and providing documentation to the state of Idaho so that the current ITD methods can be improved upon and new methods that help to improve the current methods can be implemented. Deliverables from this project include the following reports: Assessment of Practices, Gap Analysis, Implementation Plan and Roadmap, a Final Report and presentation slides.			
17. Key Words AADT, Local Roads, MIRE, Functional Class 7, GIS, MPO, Local AADT		18. Distribution Statement Copies available from the ITD Research Program	
19. Security Classification Unclassified	20. Security Classification Unclassified	21. No. of Pages 84	22. Price None

Acknowledgments

The authors wish to thank the Idaho Department of Transportation, the thirteen local agencies and three MPOs who contributed to this report and research. We also would like to thank the twelve agencies (mostly state DOTs) who have provided their latest research and work on local roadway AADT to support the FHWA MIRE requirements.

Technical Advisory Committee

Each research project is overseen by a Technical Advisory Committee (TAC), which is led by an ITD project sponsor and project manager. The TAC is responsible for monitoring project progress, reviewing deliverables, ensuring that study objectives are met, and facilitating implementation of research recommendations, as appropriate. ITD's Research Program Manager appreciates the work of the following TAC members in guiding this research study.

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Table of Contents

Executive Summary	12
1. Introduction	17
1.1 Background	17
1.2 Objectives for Improving Local Roadway Data Management.....	19
2. Project Approach, Work Plan, and Key Deliverables	20
3. Assessment of Current Local Road Traffic Data Collection and Management Practices (Report #1)	23
3.1 Local Agency (City and County) Survey, Stakeholders, and Results	23
3.1.1 Stakeholder Survey Responses Summary.....	23
3.1.2 Local Agency—City/County Results	23
3.2 Local Agency—MPO Survey Results	27
3.3 Idaho Gap Estimation Method	28
3.3.1 Gap Estimation Method Assumptions.....	29
3.3.2 Gap Estimation Method Details	29
3.4 Other Validation Tool Data Source Inputs	32
3.5 Local Roadway Traffic Data Findings, Best Practices, and Recommendations	32
3.5.1 Survey Key Findings.....	33
3.5.2 Local Agency Traffic Data Program Best Practices	33
4. Peer Agency Research and Best Practices Findings.....	36
4.1 Federal Guidance on Collecting Traffic Data from Local Agencies.....	36
4.1.1 Term Duration.....	36
4.1.2 Local Data	37
4.2 Peer Agency Practices for Local AADT Data Development	37
4.3 Peer Agency Local Data Program Management Best Practices	40
4.4 Local Agency TEACH-PDM Framework	40
4.4.1 Training.....	41
4.4.2 Establish Agreements	41
4.4.3 Communication.....	41
4.4.4 Harmonization and Standardization	41
4.4.5. Data Management (centralized)	41

4.4.6 Project Management.....	42
4.5 Other Local Agency Best Practices and Methods.....	42
5. Gap Analysis	46
Local Roadway Data Coverage and Gap Analysis.....	46
5.1 Existing Methods for Addressing Segment-Level Data Gaps	46
5.1.3 Recommended Improvements for Identified Data Gaps	46
5.1.4 Examples of Local Roadway Data Coverage Gaps.....	48
5.2 Peer Agency Approaches for Estimating Local Roadway Data Gaps	55
5.2.1 Florida DOT Approach to Local Roadway AADT Estimation	55
5.2.2 Kentucky Transportation Cabinet (KYTC) Approach to Local Roadway AADT Estimation.....	56
5.2.3 Tennessee DOT Approach to Local Roadway AADT Estimation	56
5.2.4 Texas DOT Approach to Local Roadway AADT Estimation	56
5.2.5 Virginia Dot Approach to Local Roadway AADT Estimation	57
5.2.6 Takeaways from Peer Agency AADT Methods.....	57
5.3 Local Roadway Data Issues and Opportunities to Strengthen Local Roadway Gap Estimation Methods	58
5.3.1 Examples of Local Roadway Data Issues	58
5.3.2 Opportunities for Strengthening Local Roadway Gap Estimation Methods	58
6.0 Summary of Findings and Next Steps	61
6.1 Recommended Strategies for Addressing Local Roadway Data Gaps.....	61
6.2 Data Analysis Summary	63
6.3 Coverage Gap	64
6.4 Data Quality Analysis.....	70
7. Conclusions and Recommendations.....	72
7.1 Key Findings and Conclusions	72
7.1.1 Fostering Data Sharing and Collaboration.....	72
7.1.2 Training	72
7.1.3 Create a Data Sharing Committee (DSC)	73
7.1.4 Data Management	73
7.2 Implementation Considerations and Next Steps	74
7.2.1 Host Annual Meeting.....	74

7.2.2 Develop Partnership MOUs	74
7.2.3 Evaluate Data Quality Practices	75
7.3 Conclusions and Other Recommended Strategies	76
7.4 Other Major Strategies	76
7.4.1 Major Strategy #1: Foster Data Sharing	76
7.4.2 Major Strategy #2: Provide Training	77
7.4.3 Major Strategy #3: Develop a Data Sharing Committee	77
7.4.4 Major Strategy #4: Be Transparent	77
7.5 Recommended Methodology	78
7.5.1 Conduct Annual Data Sharing Committee Meetings	78
7.5.2 Develop and Implement MOUs	78
7.5.3 Sustaining Data Quality Methods and Practices	78
8.0 References.....	80
9.0 Appendices.....	81
Appendix A. Project Work Plan and Kick-off Meeting Summary	81
Appendix B. Local Agency Survey	83
Appendix C. MPOs Survey	84
Appendix D. GIS Local Data Review Bins	86
Appendix E. External Links.....	87

List of Tables

Table 1. MIRE 2.0 Fundamental Data Elements (FDEs)	17
Table 2. Summary of Local Agency Traffic Data Collection Practices and Needs	24
Table 3. Local Agency Traffic Data Annualization Reporting Practices	25
Table 4. Local Agency Survey Summary of Types of Traffic Data.....	26
Table 5a. Local Agency Survey of Traffic Data Annualization Summary.....	26
Table 5b. Local Agency Survey Annualization Summary	26
Table 6. MPO Traffic Data Practices, Needs, and Coordination.....	27
Table 7. FHWA Guidance Documents for MIRE and Local AADT Data	37
Table 8. Peer Agency Reports and Methods for Local AADT Data Development	38
Table 9. Peer Agency Local Roadway Traffic Data Management Best Practices	44
Table 10. Gap Analysis Assistance Table	47
Table 11. Traffic Data Sources by Study Area	64
Table 12. Roadway Network Traffic Coverage and Coverage Gaps by Study Area	67

List of Figures

Figure 1. Traffic Data Source Types	30
Figure 2. AADT Off-System Traffic Data Processing and Estimation Workflow	31
Figure 3. State DOT Reports Reviewed Part of this Project	39
Figure 4. Local Agency Best Practices Framework TEACH-DPM	40
Figure 5. 2024 HPMS GIS traffic data layer with local roadway data missing	49
Figure 6. 2018 GIS traffic data layer with local roadway data missing (town of Weiser).....	50
Figure 7. Bannock County showing many missing local and minor collector roadway segment values with no color and light grey lines.....	51
Figure 8. Lewiston local GIS map with circles for cul-de-sac estimate opportunities and missing local roadways with white lines with no AADT data available	52
Figure 9. Lewiston Many FC 7 roadways can be estimated with VA DOT cul-de-sac method and missing local roadways with white lines with no AADT data available	53
Figure 10. City of Boise COMPASS and 2024 ITD HPMS data checks and missing local roadways with white lines with no AADT data available	53
Figure 11. City of Boise COMPASS and HPMS differences in reported value data checks and missing local roadways with white lines with no AADT data available	54
Figure 12. City of Boise COMPASS and 2024 ITD HPMS ramp data check and missing local roadways with white lines with no AADT data available	55
Figure 13. 2024 HPMS GIS and portable counts traffic data layer with local roadway data missing (COMPASS) with most light grey pictured local roadways that do not have AADT values	67
Figure 14. 2024 HPMS GIS traffic data layer with local roadway data missing (City of Lewiston).....	68
Figure 15. 2024 HPMS GIS traffic data layer with local roadway data missing (Bannock County)	69
Figure 16. Map of COMPASS Area Showing AADT Reported on Many Local Roadways	70
Figure 17. Map of COMPASS showing AADT where the analysis found data quality issues where conservation of flow principles was not followed with the data reported	71

List of Abbreviations and Acronyms

AADT	Annual Average Daily Traffic
AAWDT	Annual Average Weekday Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ACF	Axle Correction Factor
AEGIST	Applications of Enterprise Geographic Information Systems for Transportation
ATR (CCS)	Automatic Traffic Recorder (Continuous Count Station per FHWA)
ATIS	Advanced Traffic Information System
AWDT	Average Weekday Daily Traffic
BIA	Bureau of Indian Affairs
CCS	Continuous Count Station
CFR	Code of Federal Regulations
COMPASS	Community Planning Association of Southwest Idaho
DOT	Department of Transportation
DOW	Day of Week
ETL	Extract, Transform, and Load
FAS	Federal Aid System
FDE	Fundamental Data Element
FHWA	Federal Highway Administration
GIS	Geographic Information System
GPS	Global Positioning System
HOD	Hour of Day
HPMS	Highway Performance Monitoring System
HRC	Highway Railroad Crossing
HSIP	Highway Safety Improvement Program
HSM	Highway Safety Manual
ITE	Institute of Transportation Engineers
ITD	Idaho Transportation Department
LRSP	Local Roadway Safety Plan
LRS	Linear Referencing System
LTAP	Local Technical Assistance Program
Local	Roadways with functional classification 7 (rural or urban)

MAG.....	Maricopa Association of Governments
MIRE	Model Inventory of Roadway Elements
MOY	Month of Year
MPO.....	Metropolitan Planning Organization
MS2.....	Midwest Software Solutions
NBI	National Bridge Inventory
NFAS	Non-Federal Aid System
NHDOT	New Hampshire Department of Transportation
NTI	National Tunnel Inventory
NYS DOT.....	New York State Department of Transportation
ODOT	Ohio Department of Transportation
PAG	Pima Association of Governments
QA/QC.....	Quality Assurance / Quality Control
SEMCOG.....	Southeast Michigan Council of Governments
SQL.....	Structured Query Language
SME.....	Subject Matter Expert
SP&R	State Planning and Research
SRTS	Safe Routes To School
TMG	Traffic Monitoring Guide
TEACH-DPM	Training Establish Agreements Communication Harmonize (Standardize) – Data and Project Management
TMAS	Travel Monitoring Analysis System
VDOT.....	Virginia Department of Transportation
VMT	Vehicle Miles Traveled
WGS.....	World Geodetic System
WisDOT	Wisconsin Department of Transportation
WISLR.....	Wisconsin Information System for Local Roads
YOY	Year Over Year

Executive Summary

The purpose of this project was to develop a methodology and approach for managing local road traffic data to help the Idaho Transportation Department (ITD) achieve Federal Highway Administration (FHWA) Model Inventory of Roadway Elements (MIRE) compliance. The project included researching local roadway (functionally classified 6 rural and 7 urban or rural) traffic data methods used by other departments of transportation and documenting findings that the state of Idaho can use to improve current ITD practices and implement new methods for local traffic data collection, processing, management, and reporting.

This research identified opportunities for strengthening local annual average daily traffic (AADT) development in support of MIRE compliance, safety analysis, planning, reporting, and long-term traffic data stewardship. Local roadway traffic data are important because they provide the exposure information needed to evaluate roadway safety performance, prioritize projects, inform transportation planning decisions, and meet federal data expectations. This report documents current ITD practices, summarizes input from local agencies and metropolitan planning organizations (MPOs), reviews relevant FHWA guidance and peer agency methods, and identifies practical steps ITD can take to improve consistency, reliability, and usability of local roadway traffic data across Idaho.

The assessment indicates many local agencies and MPOs already collect and use traffic data, but collection practices, resources, and reporting methods vary widely across the state.

Some agencies have established traffic count programs, with local agencies collectively collecting more than 300 counts annually, while others have limited resources, infrequent collection schedules, and inconsistent methods for processing, annualizing, documenting, and sharing traffic data. Survey responses also show strong interest in greater coordination with ITD, including technical guidance, ITD's Midwest Software Solutions (MS2) Traffic Data Management System (TDMS) database and software support, QA/QC procedures, annualization methods, and clearer expectations for local AADT data collection and reporting. These findings highlight an opportunity for ITD to build on existing relationships and create a more coordinated statewide approach that supports local agency needs while improving data coverage and consistency across Idaho.

This report also summarizes ITD's Off-System Roads AADT Estimation and Validations Tools method, including the assumptions, data source types, and workflow (toolbox) steps used to estimate missing AADT values where observed traffic counts are limited or unavailable. While this study was taking place Idaho was able to generate local AADT data for use in MIRE. There is no requirement to report the local data for MIRE, just that it is available for use in safety analysis. Documenting these assumptions and methods supports transparency, repeatability, validation, and future refinement as additional local roadway data becomes available. The assessment also reviewed FHWA guidance and peer agency practices to understand how other agencies address local AADT data gaps, coordinate with local and regional partners, apply quality control procedures, and use centralized databases or Geographic Information System (GIS) tools to support local roadway traffic data programs.

The gap analysis reviewed ITD's 2024 HPMS GIS data, along with supplemental data from available local and regional sources, to evaluate traffic data coverage for local roadways in selected Idaho study areas.

At the time of this study the local AADT data was not available from ITD but has now been generated for the whole state system. The review considered several data quality and coverage conditions, including missing AADT values, outdated count information, large differences between adjacent segment values, conservation of flow issues, inconsistent or incomplete count records, and GIS network alignment concerns. The analysis found that local roadway AADT coverage is incomplete in many areas, with gaps occurring in both urbanized and rural parts of the state. Across three Idaho study areas, approximately 65 percent of local roadway segments did not have associated AADT values, indicating a substantial need for improved local data collection, estimation, coordination, and quality control procedures.

ITD's local roadway data management program provides a strong foundation for statewide reporting, while the gap analysis identified opportunities to improve the availability, documentation, and reliability of local roadway traffic data. ITD already has methods and tools for estimating and validating off-system AADT values, and supplemental data from MPOs, counties, and local agencies can provide valuable inputs for filling segment-level gaps. However, local roadway data are not consistently available across all areas, and where data exist, they may vary in age, format, completeness, annualization method, and level of quality review. These conditions can make it difficult to develop a complete, consistent, and defensible AADT network for MIRE, HPMS, safety analysis, planning, and other statewide transportation applications.

The research included a review of peer agency approaches from Florida Department of Transportation (DOT), the Kentucky Transportation Cabinet, Tennessee DOT, Texas DOT and Virginia DOT for estimating or documenting local roadway AADT values where direct count data are unavailable or incomplete. These examples show that agencies often combine multiple data sources and methods, including aerial imagery, roadway characteristics, land use, employment population and residential indicators, probe or observed traffic data, demographic inputs, adjustment factors, change rate methods, corridor balancing, virtual station relationships, and documented calculation methods. Key takeaways for ITD are a stronger local roadway AADT estimation process should not rely on a single method. Instead, ITD should use a combination of its lower functional classification data, local agency data (including MPO-provided counts), roadway context, land use or demographic indicators, documented adjustment factors, and clear metadata that identifies the source and methods used for each estimate.

Based on the gap analysis findings, this report identifies several opportunities for ITD to strengthen methods for estimating local roadway data gaps and improve the long-term quality of AADT datasets for FC 6 (rural) and 7 (urban and rural). Recommended strategies include establishing a Data Sharing Committee (DSC) to support annual coordination meetings with MPOs, counties, and local agencies. This includes:

- A) using shared data portals to create a consistent data exchange process;

- B) providing annual and periodic training on local traffic counting methods;
- C) developing standard templates for local roadway traffic data submissions; implementing automated and documented quality control checks; and
- D) improving coordination with local agencies on count schedules to support count collection, validation, GIS analysis, and long-term storage in systems such as MS2.

Together, these strategies are intended to improve data consistency, reduce formatting and quality issues, support earlier validation, and create a more reliable process for integrating local roadway traffic data into ITD's statewide datasets.

The report recommends a six-step implementation sequence for ITD:

1. Identify missing AADT values by county or city to prioritize areas where local roadway coverage gaps are concentrated.
2. Identify segments with count data more than 10 years old so outdated values can be prioritized for review or update.
3. Establish local roadway quality control and GIS reporting thresholds, including standard traffic count checks, temporal trend reviews, and acceptable GIS gap tolerances.
4. Evaluate segment-to-segment conservation of flow to identify unreasonable AADT changes between adjacent roadway segments and document issues identified during the gap analysis review.
5. Review GIS alignment against field conditions to confirm that mapped roadway segments accurately represent the network.
6. Communicate gap analysis findings to agencies and decision-making leaders to support funding discussions and future coordination with local partners.

This gap report concludes that improving local roadway AADT coverage will require a coordinated, repeatable, and well-documented program approach. ITD's most important next steps are to address missing local roadway AADT coverage, strengthen local agency data sharing and collaboration, coordination of needed counts, and establish dedicated program support for local roadway data. To support proper annualization, ITD should evaluate the need for additional permanent counters on FC 5, 6, and 7 roadways where appropriate so that axle and temporal correction factors can be developed and applied. Currently, ITD has 13 permanent sites on FC 5 roadways (nine on rural roadways and 4 on urban roadways) of which as of 2024 two were reported to FHWA in the Travel Monitoring Analysis System (TMAS) on FC 5 roadways. ITD has one site on FC 6 or 7 type roadways available for factor development. Survey and interview results indicate that many local agencies are willing to share data, participate in training, and collaborate with ITD. Fifteen agencies expressed interest in learning how to use MS2 or related software, creating an opportunity for ITD to support local partners through training, GIS traffic maps, data-sharing procedures, equipment support, memorandum of understanding, DSC coordination,

workshops, and potential grant opportunities. Establishing a dedicated local roadway data lead or program support role would help maintain momentum, coordinate agency participation, resolve data quality issues, and support long-term integration of local roadway traffic data into ITD statewide systems.

The gap analysis establishes the practical basis for implementation by identifying where ITD should concentrate its next efforts: filling missing FC 6 rural and 7 rural and urban AADT values if they are missing, updating older than 10-year-old counts, resolving abrupt segment-to-segment differences, strengthening annualization and metadata, and improving coordination with local and regional data providers. The implementation plan therefore carries forward the methods and practices developed in this report, including the use of observed counts with ITD's off-system estimation and validation tools; GIS-based conservation-of-flow, network-alignment, and cross-dataset checks; standardized count-duration, adjustment-factor, metadata, and QA/QC procedures; and coordinated collection, training, and data exchange through MS2, the Data Sharing Committee, MPOs, and local agencies. The phased actions that follow are intended to institutionalize these practices so that local roadway traffic data becomes more complete, consistent, defensible, and sustainable over time.

This implementation plan establishes a strategic framework built around five core program components: training and technical support, establishing agreements that include data sharing and integration, communication, harmonization and standardization and data and project management. These components will help ITD identify data gaps, improve local data quality, strengthen partnerships with MPOs, counties, cities, Tribal agencies, and other local and regional partners and support consistent statewide use of local roadway traffic data.

The roadmap recommends a three-phase implementation approach to help ITD advance the local roadway traffic data program over time.

Phase I: in the short term, ITD should establish a Data Sharing Committee (DSC), support and develop training and outreach, improve communication with local and MPO agencies, and begin addressing local AADT data gaps.

Phase II: In the medium term, ITD should identify data champions, use memoranda of understanding where appropriate, expand agency participation, and strengthen data-sharing practices.

Phase III: In the long term, ITD should evaluate progress, update training modules, document success stories, refresh the strategic plan, and demonstrate how improved (better safety, higher efficiency, maybe saved costs) local traffic data supports MIRE-related safety analysis, planning, reporting, and public information needs.

Successful implementation will require active project management, dedicated staff time, software support, training, local agency technical assistance, and practical data management tools. ITD's local AADT estimation tool and MS2 data management software can help agencies estimate and annualize counts, perform quality checks, store and map data, generate reports, and share local traffic data using

consistent methods. Ongoing training will help local agencies understand data formatting, QA/QC, annualization factors, GIS mapping, reporting expectations, and the value of submitting reliable local roadway traffic data.

The Training, Establish Agreements, Communication, Harmonization standards and Data and Project Management (TEACH-DPM) Framework connects the report's strategies to a practical implementation roadmap. The framework defines the core components of a successful local traffic data program, while the roadmap identifies phased actions for stakeholder engagement, training, data sharing, and quality control improvements. By applying these recommendations, ITD can move toward a more complete, accurate, accessible, and sustainable local roadway traffic data program that supports state, local, federal, and public uses.

Overall, the findings indicate that ITD can strengthen its local roadway traffic data program by formalizing coordination with local agencies and MPOs, expanding training and technical assistance, supporting data sharing and equipment sharing agreements, improving data transparency, and establishing clearer data quality expectations. Recommended implementation considerations include forming or using a Data Sharing Committee, hosting annual training or peer exchange meetings, developing partnership MOUs, providing equipment and data resources where appropriate, and recognizing agencies that demonstrate strong local data collection and quality practices. Together, these actions would help ITD build a sustainable statewide framework for collecting local roadway data once correctly and using it many times for safety, planning, reporting, and decision-making purposes.

1. Introduction

1.1 Background

The Idaho Transportation Department (ITD) initiated this project to develop a scalable and sustainable methodology for collecting, processing, managing, and reporting local roadway traffic data. The project is intended to support Federal Highway Administration (FHWA) requirements, improve statewide local Annual Average Daily Traffic (AADT) data consistency and strengthen ITD's ability to use local roadway traffic data for safety analysis, planning, reporting, and other state Department of Transportation (DOT) and local agency uses.

The FHWA requires State Departments of Transportation to maintain access to Model Inventory of Roadway Elements (MIRE) Fundamental Data Elements (FDE) on all paved public roads as part of the Highway Safety Improvement Program (HSIP). In accordance with 23 CFR 924.11(b), states are required to incorporate measurable improvements for MIRE fundamental data collection into their Traffic Records Strategic Plans and report progress toward statewide MIRE data availability by September 30, 2026.

Traffic data are among the key MIRE Fundamental Data Elements (FDEs) required by the FHWA and are essential for roadway safety analysis, transportation planning, and Highway Performance Monitoring System (HPMS) reporting. As shown in Table 1, MIRE 2.0 requires nine (9) FDEs for local paved roads and five (5) FDEs for local unpaved roads. Reliable traffic data, particularly AADT information, are critical for developing improved local roadway traffic estimates and supporting statewide transportation performance reporting requirements.

Therefore, this project focuses on establishing a documented methodology and approach for collecting, processing, managing, and reporting local roadway traffic data. This methodology is intended to support FHWA MIRE compliance while strengthening ITD's statewide traffic data management capabilities.

Table 1. MIRE 2.0 Fundamental Data Elements (FDEs)¹

Data Element	Non-Local Paved Roadway Segment	Non-Local Paved Intersection	Non-Local Paved Interchange/Ramp	Local Paved Roads	Local Unpaved Roads
Type of Government Ownership	X		X	X	X
Route Number	X				
Route/Street Name	X				
Begin Point Segment Descriptor	X			X	X
End Point Segment Descriptor	X			X	X

¹ FHWA (2017). Model Inventory of Roadway Elements MIRE 2.0. <https://highways.dot.gov/media/10711>

Data Element	Non-Local Paved Roadway Segment	Non-Local Paved Intersection	Non-Local Paved Interchange/ Ramp	Local Paved Roads	Local Unpaved Roads
Segment Identifier	X			X	X
Segment Length	X				
Direction of Inventory	X				
Functional Class	X		X	X	X
Rural/Urban Designation	X			X	
Federal Aid/Route Type	X				
Access Control	X				
Surface Type	X			X	
Number of Through Lanes	X			X	
Median Type	X				
AADT	X	X		X	
AADT Year	X	X			
One/Two-Way Operations	X				
Unique Junction Identifier		X			
Location Identifier for Road 1 Crossing Point		X			
Location Identifier for Road 2 Crossing Point		X			
Intersection/Junction Geometry		X			
Intersection/Junction Traffic Control		X			
Unique Approach Identifier		X			
Unique Interchange Identifier			X		
Interchange Type			X		
Ramp Length			X		
Ramp AADT			X		
Year of Ramp AADT			X		
Roadway Type at Beginning Ramp Terminal			X		
Location Identifier for Roadway at Beginning Ramp Terminal			X		
Roadway Type at Ending Ramp Terminal			X		
Location Identifier for Roadway at Ending Ramp Terminal			X		
Total Number of Required MIRE-FDE	18	8	11	9	5

1.2 Objectives for Improving Local Roadway Data Management

Improving local roadway data management is a core objective of this project because reliable, consistent, and well-documented traffic data are necessary to support ITD's statewide transportation planning, safety analysis, MIRE compliance, HPMS reporting, and local agency coordination. Strong data management practices help ensure that local roadway traffic data are collected using consistent methods, properly processed and annualized, quality checked, documented with clear metadata, and stored in a format that can be shared and used over time. For example, improved data management can help ITD identify roadway segments with missing or outdated AADT values, compare local agency count data with ITD GIS and HPMS datasets, flag unusual changes between adjacent segments, document the source and year of each count, and prioritize locations where additional traffic counts or quality control reviews are needed. It can also make local agency coordination more efficient by establishing common data formats, submittal expectations, metadata standards, and shared procedures for using systems such as MS2. By improving how local roadway data are managed, ITD can strengthen confidence in local AADT estimates, reduce duplicated data collection efforts, support more consistent safety and planning analyses, improve transparency for federal reporting, and create a sustainable framework for maintaining local roadway traffic data across Idaho.

The following objectives guide the project's work to improve ITD's local roadway traffic data management practices:

1. Evaluate ITD's current local roadway traffic data collection, processing, management, and reporting practices.
2. Research peer State DOT practices for local roadway traffic data collection, AADT estimation, data management, quality control, and MIRE compliance.
3. Identify gaps between current ITD and local agency practices and FHWA MIRE traffic monitoring data requirements, including locations where local roadway AADT estimates may require additional analysis, validation, or quality control review.
4. Develop recommendations for ongoing local roadway traffic data management, quality assurance, data sharing, reporting and long-term program implementation.

2. Project Approach, Work Plan, and Key Deliverables

This section summarizes the project work plan, technical approach, and key deliverables developed to support ITD's local roadway traffic data management and methodology development effort. The project approach was organized to first understand existing practices and data needs, then evaluate peer agency methods and available guidance, identify gaps in local roadway traffic data coverage and quality, and develop practical recommendations for improving local AADT development, MIRE compliance, quality assurance, data sharing, and long-term program implementation. Together, the tasks and deliverables described in this section provide the foundation for the findings, gap analysis, recommended framework, and implementation roadmap presented throughout the report.

The project approach was organized around the primary tasks needed to understand existing local roadway traffic data practices, evaluate available guidance and peer agency methods, identify data coverage and quality gaps, and develop practical recommendations for ITD's local roadway data management program. The primary components of the project approach included the following:

Stakeholder Engagement

Coordinate with ITD staff, local agencies, MPOs, highway districts, counties, cities, and other stakeholders to gather input on current practices, traffic data needs, data-sharing practices, and implementation considerations. Obtain data sets where available and provided for a gap analysis.

Literature Review

Review FHWA guidance, MIRE requirements, technical references, and industry best practices related to local roadway traffic data collection, estimation, management, and reporting.

Agency Surveys and Interviews

Conduct surveys and discussions with local agencies and MPOs to better understand current traffic data collection practices, annualization methods, reporting tools, quality control procedures, staffing and resource limitations, and future traffic data needs.

Peer-State Research

Evaluate practices used by peer State Departments of Transportation (DOTs) for local roadway traffic data collection, AADT estimation, GIS integration, local agency coordination, and the use of emerging technologies such as probe data, radar systems, and automated data management tools.

Assessment of Current Practices

Assess existing local agency traffic data collection and management practices to identify strengths, limitations, and opportunities for improvement. The assessment considers factors such as traffic count

frequency, annualization practices, reporting procedures, data availability, metadata consistency, and data validation methods.

Gap Analysis

Identify gaps between current practices and FHWA MIRE traffic monitoring data requirements, including areas where local roadway traffic estimates may be unreliable or insufficient for statewide reporting and safety analysis purposes.

Framework Development

Develop a recommended methodology and framework for local roadway traffic data collection, processing, management, quality assurance, and reporting that supports statewide consistency and long-term sustainability.

Implementation Planning

Prepare implementation recommendations and a roadmap to support future deployment of the framework, including recommendations for coordination, data-sharing, quality assurance, standardization, technology integration, and ongoing program management activities.

Deliverables

The project deliverables are as follows:

1. Project Work Plan and Kick-off Meeting Summary
2. Assessment of Current Practices Report (Report #1)
3. Gap Analysis Report (Report #2)
4. FHWA MIRE-Compliant Methodology Document
5. Implementation Plan and Roadmap (Report #3)
6. Final Report and Presentation Materials (Incorporates all three reports)

The Project Work Plan and Kick-off Meeting Summary is included in the appendices of this report. The remaining deliverables are incorporated throughout the main body of the report and provide the basis for the assessment of current practices, gap analysis, MIRE-compliant methodology, implementation roadmap, final recommendations, and presentation materials.

The sections that follow build from the project approach into the technical findings and recommendations that support ITD's local roadway traffic data management needs. First, the report summarizes current local agency and MPO traffic data collection practices, including survey findings, available data sources, annualization practices, and coordination needs. It then reviews peer agency

methods and best practices to identify approaches that may be applicable to Idaho, followed by a gap analysis that evaluates local roadway AADT coverage, data quality, and opportunities for improvement. These sections establish the basis for the recommended methodology, implementation framework, and roadmap for improving local roadway traffic data collection, validation, reporting, and long-term program management across Idaho.

3. Assessment of Current Local Road Traffic Data Collection and Management Practices (Report #1)

To better understand existing practices, the researchers developed a traffic data survey and provided it to ITD for review, oversight and distribution to several local agencies. The survey results provided valuable insights to inform ITD's future methodologies for managing local roadway traffic data.

3.1 Local Agency (City and County) Survey, Stakeholders, and Results

To gather information on current local roadway traffic data collection and management practices, the researcher staff worked with ITD and the Local Highway Technical Assistance Council (LHTAC) to develop and distribute a survey to local agencies throughout Idaho. The survey was designed to document how agencies collect, store, process, and use traffic data; identify available data sources and technology platforms; and better understand local agency needs, gaps, and opportunities for coordination with ITD. The following section summarizes the findings and key results from these surveys.

3.1.1 Stakeholder Survey Responses Summary

ITD provided the 13 received survey responses from local jurisdictions, highway districts, counties, cities, and public works agencies, which are summarized in Table 2 and Table 3. ITD coordinated with MPOs and local agencies using survey questions tailored to each agency type. For example, the MPO and major agency survey included more detailed questions, while smaller agencies received a shorter version focused on core traffic data collection and management practices.

3.1.2 Local Agency—City/County Results

The survey results show substantial variation in traffic data collection practices among local agencies. Some jurisdictions conduct extensive annual traffic counts, while others collect little or no traffic data. Most agencies identified a continued need for additional traffic information (including local counts), including updated volume counts, speed data, truck volumes, collision data, and bicycle and pedestrian counts. Overall, the findings highlight the growing need for reliable local roadway traffic data, along with ITD-provided technical support and harmonized practices for data collection, formatting, storage, and management.

Table 2 and Table 3 summarize local agency practices related to traffic data collection, annualization, and use of traffic data reports. The results show that most Idaho local agencies do not currently annualize their traffic data, although many expressed interest in using ITD methods or annualizing the data themselves. Several agencies also reported using traffic data reports and software tools from ITD, vendor platforms, or internal systems. These findings highlight opportunities to expand data sharing, provide technical support to local agencies, and establish a statewide Data Sharing Committee (DSC) to support ongoing coordination.

Table 2. Summary of Local Agency Traffic Data Collection Practices and Needs

Agency	Yearly Volume Counts	Yearly Speed Counts	Yearly Class Counts	Yearly Ped/Bike Counts	Other Data	Need Traffic Data	Local Unpaved Roads
Weiser Valley Highway District	0	0	0	0	0	Yes	Volume of trucks
City of Ponderay	0	0	0	0	-	Yes	Volume, speed, bike/ped
Worley Highway District	156	156	156	0	-	No	NA
City of Gooding	0	0	0	0	-	Yes	Traffic counts and collision data
Bonner County Road & Bridge Department	30	30	30	0	0	Yes	We need far more traffic data than we can collect annually with the current resources available.
City of Middleton	-	-	-	-	-	No	-
Oneida County Road and Bridge	5	5	5	0	0	No	The data that we are able to collect seems to work for our jurisdiction
South Latah Highway District	10	0	0	0	0	Yes	Having more up to date volume counts would help us prioritize projects and maintenance. Speed surveys would help us to understand how speed is affecting the road surface, and maintenance frequencies.
City of Moscow	12	25	-	2	-	Yes	Major intersections counts, speeds, volume growth
Idaho Falls Public Works	10	10	0	5	30	Yes	Consistent turning movement counts at signals; approximately yearly ADT volumes on arterial roads
City of Worley	35	35	35	0	0	Yes	Bike/ped
City of Lewiston	40	40	40	0	7	Yes	Up to date volume data from adjoining agencies
Unknown	1	-	-	-	-	No	-

Table 3. Local Agency Traffic Data Annualization Reporting Practices

Agency	Does the agency annualize traffic data?	How data is annualized	Interest in using ITD methods	Agency use of traffic data report(s)	Where agencies get the report(s)
Weiser Valley Highway District	No	NA	Yes	Yes	ITD website. They have a counter on Olds Ferry Rd.
City of Ponderay	No	NA	Yes	Yes	AADT is available from ITD website
Worley Highway District	Yes	3-year rotating approach*	No	Yes	Use Houston Radars due to reporting capabilities.
City of Gooding	No	NA	Yes	No	No response
Bonner County Road & Bridge Department	No	NA	No	No	No response
City of Middleton	No	NA	Yes	No	No response
Oneida County Road and Bridge	Yes	The program we use does it for us.	No response	Yes	Have used LHTAC.
South Latah Highway District	No	NA	Yes	No	No response
City of Moscow	Yes	Through our GIS coordinator	No response	No	No response
Idaho Falls Public Works	No	NA	Yes	Yes	PetraPro and StarNext reports for collected data
City of Worley	No	NA	Yes	Yes	MetroCount Software
City of Lewiston	No	NA	Yes	Yes	Internally generated by STARnext software (Jamar Co.)
Unknown	No	NA	No	Yes	Use for Capital Improvement transportation plans.

*We use a three-year rotating approach by dividing the highway district into three sub-districts with separate schedules: A, B, and C. In Year 1, Schedule A is collected in the spring, Schedule B in the summer, and Schedule C in late summer. In Year 2, the rotation shifts to Schedule C in the spring, Schedule A in the summer, and Schedule B in late summer. In Year 3, Schedule B is collected in the spring, Schedule C in the summer, and Schedule A in late summer. Once all data has been collected, we combine the results from the three years and average them to calculate average daily traffic values. We believe this rotating methodology provides more reliable speed studies and more representative average daily traffic counts.

The Table 4 local agency survey summary of types of traffic data table highlights a wide variation in how local agencies across Idaho collect various traffic data. Some agencies conduct annual volume, speed, and classification counts, while others report limited or no routine traffic data collection. This is a large opportunity for ITD. Several agencies also identified a need for more current and complete traffic information, including updated volume counts, truck volumes, speed data, collision data, and bicycle and pedestrian counts. These findings indicate that local agencies have differing levels of traffic data

coverage, technical capacity, and available resources. Table 4 details the data by type summary for each local agency survey results.

Table 4. Local Agency Survey Summary of Types of Traffic Data

Data Type	Agencies Collecting	Agencies Not Collecting	No Answer
Volume	9	3	1
Speed	7	4	2
Classification	5	5	3
Bike/Ped	2	9	2
Other Data	2	6	5

Table 5a and Table 6b show the summary results of the local agency survey which clearly shows the potential for ITD to provide annualization training, software methods and ongoing support that will help properly annualize the counts performed by local agencies.

Table 5a. Local Agency Survey of Traffic Data Annualization Summary

Question	Yes Response	No Response	No Answer
Do You Annualize	3	10	0
Interested in ITD Assistance	8	3	2
Uses Traffic Reports	8	5	0

Table 6b. Local Agency Survey Annualization Summary

Interest in Annualization	Agencies' Response	No Answer
Interested	8	3
Not Interested	2	0

The summary results from Table 4 and Table 5 (a and b) identify opportunities for ITD to provide additional guidance and coordination to improve consistency in local roadway traffic data collection and reporting. A statewide approach that supports data sharing, standardized formats, technical assistance, and common quality control practices would help local agencies make better use of available data and support more reliable local AADT development. These findings reinforce the value of continued collaboration between ITD, MPOs, counties, cities, and highway districts to improve statewide local roadway traffic data collection and management.

3.2 Local Agency—MPO Survey Results

MPO responses indicate that traffic volume and directional data are the most important datasets for transportation planning, modeling, and congestion management. Agencies rely heavily on ITD traffic data, continuous counters and temporal factors, as well as local data collection programs, while also expanding their use of technologies such as non-intrusive radar and video counters, smart detection systems, and GIS-integrated databases. The responses also show growing interest in improved data sharing, more accurate micromobility data collection, enhanced vehicle classification data, and more consistent statewide coordination and standardization of traffic data.

Table 7 details the three MPO survey responses received in the research and how each counting program collects traffic information and how they operate.

Table 7. MPO Traffic Data Practices, Needs, and Coordination

Question	COMPASS MPO	KMPO	BTPO
1. Most Useful Traffic Data	Hourly/15-min directional volumes; seasonal and classification data occasionally used.	Hourly directional volumes, seasonal/growth factors, classification data, AADT.	Volume and directional data most important; axle/classification secondary.
2. Traffic Data Collection and Sources	Uses ACHD (>1,000 counts/year), NHD (>100 counts/year), ITD ATR data, StarNext processing, and PMID-linked GIS databases.	Relies on local jurisdictions, ITD database, traffic cameras, and StreetLogic processing; limited bike/ped counts.	Collects data using radar counters, Miovision cameras, IRD tubes, smart signal detection systems, and ATR sites.
3. Standards and Guidance	No formal standards used.	Uses older Oregon DOT guidance occasionally.	Uses formal Traffic Data Program Guide (2015).
4. Deadlines and Scheduling Needs	TIPs, plans, and model validation require updated data. Prefers Mar–May and Sept–Oct count periods.	Prefers counts collected during Mar–May and Sept–Oct periods.	Reviews HPMS annually and develops local seasonal factors from ATR data.
5. Future Traffic Data Needs	Expects similar needs; still prefers tube/camera counts over probe data.	Need more consistent counts on I-90, US-95, SH-41, and external stations.	Expanding smart detection systems and non-motorized data collection.
6. Data Completeness and Coverage	Need more classification data for freight corridors.	AADT segments are sometimes too long and not representative.	No concerns reported.
7. Most Useful ITD Data Sources	ATR and INRIX data used extensively.	Continuous counters, adjustment factors, INRIX, corridor data.	Continuous and short-term counters most valuable.
8. GIS Integration	GIS-linked roadway database with PMIDs. Established ~10 years ago.		

Question	COMPASS MPO	KMPO	BTPO
9. Time increments for Traffic Datasets	GIS mapping started but incomplete.		
10. Additional Comments	Publishes traffic counts online through ArcGIS.		
11. Data Quality Checks			
12. Data Sharing with ITD	Hourly and 15-minute directional data.	Monthly, day-of-week, hourly, 15-minute, and AADT data used.	Use hourly, 15-minute, and live data when available.

BTPO = Bannock Transportation Planning Organization

COMPASS = Community Planning Association of Southwest Idaho

KMPO = Kootenai Metropolitan Planning Organization

The MPO survey findings show that traffic volume, directional data, and time-based count information are key inputs for regional planning, travel demand modeling, congestion management, and project prioritization. From these results we know that many local agencies do not annualize their data but want to learn how to do so. MPOs rely on a combination of ITD traffic data, continuous counters, short-term (duration) counts, local jurisdiction data, and software or GIS-based tools to support these activities. The responses also indicate that MPOs have varying levels of data coverage, collection frequency, technology use, and formal data standards.

Overall, the MPO results highlight opportunities for ITD and MPOs to strengthen coordination around traffic data collection, quality control, GIS integration, and data sharing. Improved access to consistent AADT, classification, seasonal adjustment, micromobility, and corridor-level data would help support regional planning needs while also improving statewide local roadway traffic data management. Continued collaboration among ITD, MPOs, and local agencies will help establish more consistent traffic data formats, shared reporting expectations, and common methodologies for developing and maintaining reliable local roadway traffic data.

3.3 Idaho Gap Estimation Method

To support networkwide segment-level AADT estimates where data are missing, Idaho developed a missing-segment-level AADT estimation method through a contractor-provided model that uses several input values to generate segment-level AADT data as needed. The “ITD Off-System Roads AADT Estimation and Validation Tools” method is summarized below, including these key model inputs used in the tool:

1. Traffic Analysis Zones (TAZ)
2. County information
3. Employment values

4. Census blocks
5. Data files in shapefile formats
6. Temporality of the data (this is not an input but important to consider)

3.3.1 Gap Estimation Method Assumptions

The gap estimation method relies on a set of documented assumptions to support consistent AADT estimates for off-system roadways where observed traffic count data are limited or unavailable. Off-system roadways are roadways maintained by local agencies, such as counties, cities, highway districts, and other local jurisdictions, rather than by ITD. Clearly documenting the assumptions used in the estimation process is important because these assumptions establish how missing or incomplete roadway attributes are handled, support transparency and repeatability, and provide a basis for reviewing, validating, and updating estimated values as improved local data become available.

The ITD off-system gap estimation method includes the following assumptions:

- If functional classification is unknown, the roadway is assumed to be Functional Class 7, or local.
- If surface type is unknown, roads are assumed to be paved in urban areas and unpaved in rural areas.
- If the number of through lanes is unknown, the roadway is assumed to have two lanes, with one lane in each direction.
- If an urban or rural designation is missing, roadways within MPO boundaries are assumed to be urban, and all other roadways are assumed to be rural.
- Road network density is measured as the miles of roadway within a 5-mile radius.

3.3.2 Gap Estimation Method Details

The following gap estimation details describe how the ITD off-system AADT estimation tool is organized and applied. ITD was recently able to use this tool to generate local roadway AADT values for the state after the project gap analysis was performed. The first section summarizes the data collection source types used to support the estimation process, which is important because each source may differ in coverage, format, age, reliability, and level of validation. Understanding these source types helps clarify how available traffic, roadway, geographic, and demographic information contributes to estimating AADT where direct count data are missing. The next section then outlines the toolbox steps used to process the input data, apply the estimation method, and supports review of the resulting values. Documenting both the data source collection types and the toolbox steps is important for transparency, repeatability, quality control, and future updates as additional local roadway data become available.

The following two figures provide additional detail on key components of the ITD developed estimation tool.

3.3.2.1 Estimation Tool AADT Data Sources

Figure 1 summarizes the primary data collection source types used to support the off-system AADT gap estimation process. The graphic shows that the estimation method draws from multiple types of information, including available traffic count data, roadway inventory attributes, geographic reference data, and demographic or land use inputs. Organizing these sources by collection type is important because each source may have different levels of completeness, accuracy, age, and spatial coverage. Understanding these differences helps ITD evaluate how each dataset contributes to the estimation process, identify where local roadway data gaps remain, and determine where additional data review or collection may be needed.

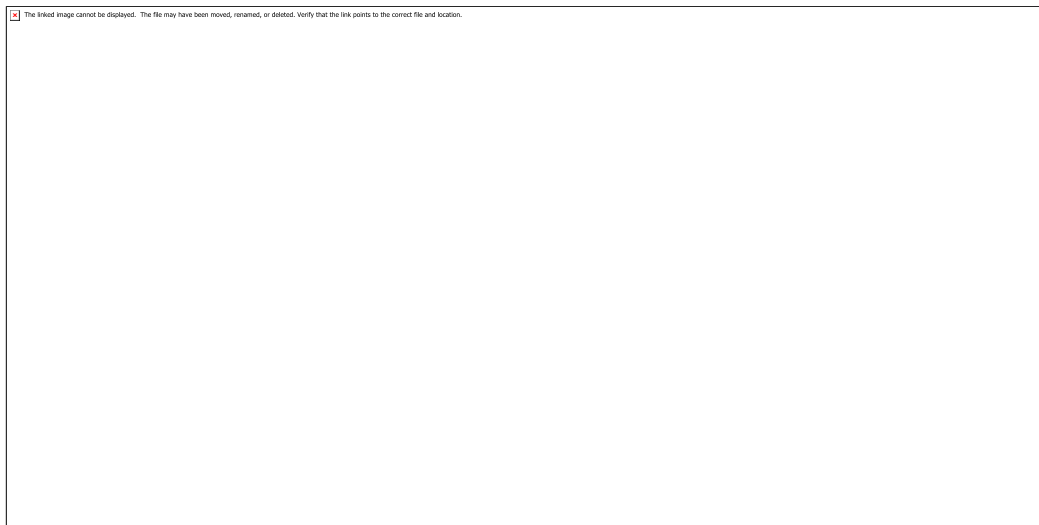


Figure 1. Traffic Data Source Types

3.3.2.2 AADT Data Estimation Tool Process

Figure 2 details the estimation method workflow with the sequential process used to prepare inputs, apply the estimation method, and review the resulting off-system AADT values. The workflow shows how source data are brought together, processed through the estimation tool, checked against validation procedures, and organized for successful estimations. This figure documents these steps to clarify how the tool moves from raw input data to estimated AADT values, supports consistent application of the method, and provides a repeatable process for quality control, troubleshooting, and future refinement as new local roadway data become available.

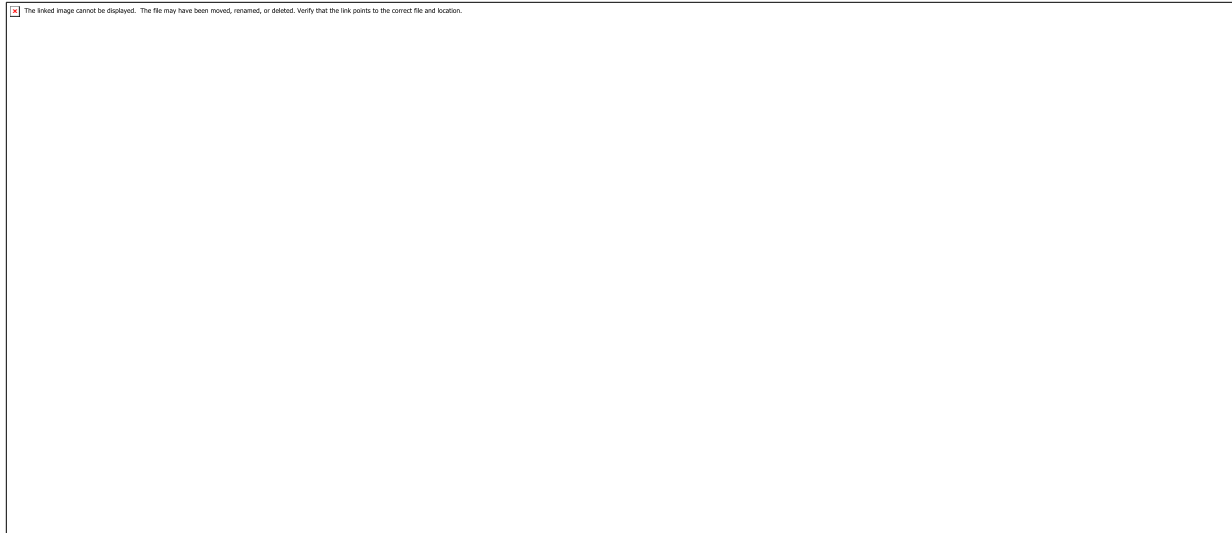


Figure 2. AADT Off-System Traffic Data Processing and Estimation Workflow

ITD's method includes a validation process for estimating AADT on off-system public roads. Validation is used both to select the most appropriate geospatial interpolation model and to confirm that the selected model produces AADT estimates within acceptable accuracy ranges. Because validation compares estimated AADT values with AADT values developed from observed counts, the process also helps identify where additional count data may be needed, particularly in areas currently underrepresented by off system counts. ITD may be able to use this process and related methods to review locally provided data, compare those values with model-generated estimates, and determine whether local counts fall within ITD's acceptable accuracy ranges.

This research did not include direct application of the tool; however, the methods available through the tool may be useful for evaluating local AADT values. These methods could support quality control by comparing locally provided AADT values against ITD's established estimation and validation procedures and helping confirm whether those values are consistent with the assumptions, rules, and acceptable accuracy ranges already used by ITD.

It is recommended that ITD initiate a follow-on project to provide analytical services to refine these methods using available ITD, MPO, and local agency data. This effort should include reviewing local AADT submissions and comparing local values with model-generated estimates, identifying outliers or locations where additional counts may be needed, documenting quality control findings, and recommending updates to assumptions, validation thresholds, and data management procedures. This recommended follow-on work would help ITD move from research findings to practical implementation by establishing a repeatable analytical process for evaluating local roadway traffic data and improving confidence in off-system AADT estimates.

3.4 Other Validation Tool Data Source Inputs

In addition to the baseline inputs used in ITD's current validation methodology, other data sources can help support AADT estimation, validation, and gap-filling for FC 6 rural and 7 rural and urban roadways. These sources may include HPMS GIS data, county or MPO-provided traffic count information, locally collected GIS datasets, and project-level or special-purpose counts. Reviewing these supplemental sources helps identify where reliable local data could already exist, where data may need additional quality checks or annualization, and where coordination with local agencies could improve the completeness and consistency of ITD's segment-level traffic datasets.

Additional ITD and partner agency data sources used for local roadways include the following:

- HPMS GIS data is used for sample-based reporting, network-level reporting, and spatial review of local roadway coverage.
- County or MPO provided GIS data, including locally collected traffic count locations, segment attributes, and related roadway information.
- Other traffic data collected for specific purposes, such as turning movement counts, special counts, project-level counts, contractor-supported data collection, and counts used to inform project decisions.
- Non-traditional local data sources are available such as intersection counts (Some available systems include Grid Smart, ISS Intellisession, Traffic Logix and others...) and "Your Speed Is" devices provide both speed and counts for all types of roads at which they are installed. A third sometimes overlooked source is ITS/TMC data (this can include ramp data and construction zone data) is available which may have missing time increments which requires a good method (such as the FHWA AADT method for processing the data is recommended) to mitigate this issue.

3.5 Local Roadway Traffic Data Findings, Best Practices, and Recommendations

This section summarizes the key findings, best practices, and recommendations identified through the local agency and MPO survey results, stakeholder discussions, and review of available traffic data practices. The intent is to connect the survey findings to practical next steps ITD can use to strengthen statewide local roadway traffic data collection, improve local AADT coverage and consistency, support MIRE compliance, and establish more repeatable processes for coordination, quality control, data sharing, and long-term program management.

3.5.1 Survey Key Findings

Survey responses and local agency meetings indicate that ITD has already made meaningful progress in building relationships with local agencies and gathering information needed to improve local AADT data availability. The research also identified several opportunities to expand on this work and strengthen a statewide local roadway traffic data program:

The survey results and local agency discussions identified three key findings that are important for shaping ITD's future local roadway traffic data program. Together, these findings show that many local agencies already collect and use traffic data, but that additional coordination, technical guidance, standardized methods, and data sharing processes are needed to improve statewide local AADT coverage, consistency, and usability.

1. **FINDING #1:** Approximately 60 percent of local agencies who responded to the survey already perform regular traffic counts on their roadways (300+ are performed annually). Leveraging this local expertise would help ITD obtain more complete local AADT data and improve statewide coverage.
2. **FINDING #2:** Local agencies would benefit from ITD's technical expertise in the MS2 software, traffic count factoring, and QA/QC procedures. More than half of responding agencies expressed interest in learning ITD methods, and approximately 65 percent reported that they do not currently annualize their data. Training and guidance in these areas would support more consistent collection, processing, and reporting of local AADT data.
3. **FINDING #3:** Most responding local agencies already use traffic data reports, which creates a strong foundation for expanding MS2 data sharing, providing targeted training, and supporting continued dialogue between ITD and local agencies. Building on this existing use of reports can help establish more consistent statewide methods and long-term processes for sharing local AADT traffic data.

Survey responses from local agencies and MPOs show that traffic data collection and management practices vary widely across Idaho. Some agencies have established traffic counting programs and use advanced data processing tools, while others have limited resources, infrequent collection schedules, and inconsistent procedures for managing and reporting traffic data. These findings demonstrate the need for a more coordinated and standardized statewide approach to local roadway traffic data management that produces repeatable methods, verifiable results, and consistent data that can be replicated across agencies.

3.5.2 Local Agency Traffic Data Program Best Practices

Local agency traffic data best practices provide a framework for improving the consistency, reliability, and usability of local roadway traffic data across Idaho. These practices are intended to help ITD, MPOs, cities, counties, and highway districts establish common expectations for how traffic data are collected, processed, annualized, quality checked, documented, and shared. Establishing these practices is

important because local AADT data are used for MIRE compliance, safety analysis, transportation planning, project prioritization, and statewide reporting. The following best practice considerations focus on traffic data coverage, count term (duration), count frequency, and annualization procedures.

Traffic volume, typically reported as Average Daily Traffic (ADT) or Annual Average Daily Traffic (AADT), is one of the most important MIRE Fundamental Data Elements because it provides the exposure data needed for roadway safety analysis, network screening, and performance evaluation. The assessment identified several traffic data best practice considerations related to coverage, count term, count frequency, and annualization.

3.5.2.1 Traffic Data Coverage

Some agencies reported limited traffic count coverage or identified a need for additional traffic data. In some cases, traffic counts are not available for MIRE use on local roadways, while others noted that existing roadway segments may be too long to accurately reflect changes in traffic volume. Limited coverage can reduce the availability of traffic exposure data needed to support MIRE-based safety analysis. ITD may have local roadway segments with AADT gaps (new roads for example) and will need to re-apply the gap estimation tool to assist with filling in those gaps. Then the ITD GIS analysis staff can identify areas where additional local count data or reviews may be needed.

3.5.2.2 Traffic Count Term

Agencies reported needing traffic data from a range of short-term counts to continuous monitoring. For MIRE purposes, count-term (duration) should be sufficient to support reliable AADT estimates and annualization procedures. Short-term counts of 24 to 48 hours can often provide useful volume data when properly factored, and FHWA allows 24-hour counts for certain HPMS volume reporting situations, including roadways with AADT greater than 5,000.

3.5.2.3 Traffic Count Frequency

Agencies collect traffic counts at varying frequencies, ranging from annual programs to counts conducted only as needed. FHWA guidance and traffic monitoring best practices emphasize the importance of maintaining current traffic volume information to support reliable AADT estimation and safety analysis. Infrequent counts may not reflect changes in traffic demand, land use, or roadway conditions, which can reduce the accuracy of traffic exposure data used for MIRE-related analysis. As an initial statewide goal, ITD should work with local agencies to maintain local roadway traffic counts that are no more than 10 years old, with more frequent updates where traffic patterns are changing or where safety analysis requires more current data.

3.5.2.4 Annualization Practices

Most responding local agencies do not currently annualize traffic counts or apply temporal adjustment factors, although many expressed interest in using ITD methods or receiving technical support for AADT

estimation. Consistent annualization procedures are critical for developing reliable local AADT estimates. Training through a statewide data sharing committee (DSC), technical guidance, and coordinated meetings could help local agencies, MPOs, and ITD apply common methods, including axle correction factors (ACF), hour-of-day (HOD) factors, day-of-week (DOW) factors, month-of-year (MOY) or seasonal factors, and year-to-year (YTY) change factors.

4. Peer Agency Research and Best Practices Findings

The project team gathered information on local agency traffic data management practices from peer state DOTs through phone calls, National Travel Monitoring Exposition and Conference (NaTMEC) sessions, and in-person discussions with agency staff. The team also identified five federal reports directly related to this research, as seen in Table 7, which will be included with the list of reference documents provided with the final report. The research and best practice review focused on how agencies collect and integrate local roadway traffic data, coordinate with local jurisdictions and MPOs, apply quality control procedures, use GIS and centralized databases, and incorporate emerging data sources such as probe vehicle data and automated traffic monitoring technologies.

4.1 Federal Guidance on Collecting Traffic Data from Local Agencies

FHWA guidance documents provide an important foundation for understanding the data requirements, collection methods, and implementation considerations associated with MIRE and local roadway AADT development. Table 8 details many of the federal guidance documents used in this project. These documents describe how roadways, traffic, and safety data support data-driven safety analysis, Highway Safety Improvement Program activities, and the development of more complete roadway inventories. They also provide practical information for agencies working to collect MIRE Fundamental Data Elements, estimate AADT on non-Federal-aid and local roads, and improve the consistency of roadway and traffic data used in safety and planning applications. For this research, the FHWA MIRE and other guidance documents are important because they provide a common reference point for evaluating ITD's current practices, identifying data gaps, and recommending future methods for local roadway traffic data collection, annualization, quality control, and data sharing. They also help connect Idaho's local AADT development needs to national best practices and federal reporting expectations. Using these documents as a reference can support a more consistent statewide approach, improve confidence in local AADT estimates, and help ITD align future implementation steps with MIRE compliance and broader safety data management goals.

4.1.1 Term Duration

Per the 2022 Traffic Monitoring Guide (TMG) in Program Design Process Overview Section, Term (duration) of Short Counts on page 3-15; for functionally classified collector and local roadways, if a State has a monitoring duration (term) that is less than 48 hours, they must be able to demonstrate no loss in data quality based on documented statistical analysis provided to FHWA's Office of Highway Policy Information via FHWA's Division Office located in their respective States. To help clarify this information, agencies need to see if there is expected growth for the roadway segment and that the shorter-term count has similar accuracy as those over 48 hours or more in length (duration).

4.1.2 Local Data

Per the 2022 TMG on page 3-4; local data can also be provided to FHWA. To obtain this data, the State highway agency may have to acquire software that processes, collects and reports the data. Some agencies have elected to include local segment data in their annual HPMS submittal.

Listed in Table 8 are the federal reference documents that were found part of this study and research.

Table 8. FHWA Guidance Documents for MIRE and Local AADT Data

Year	Name of Federal Report
2013	MIRE Data Collection Guidebook (pdf)
2020	Local Road Safety Implementation Plan (pdf)
2020	Office of Safety MIRE Data Collection and AADT Estimation for NFAS Roads (2020) (pdf)
2021	Local Road Safety Plans (pdf)
2025	MIRE_2.1_AUG2025(final) (pdf)

4.2 Peer Agency Practices for Local AADT Data Development

Similar to this ITD research effort, many peer state DOTs and regional agencies have evaluated methods for improving MIRE-related AADT data on local and non-Federal-aid roadway networks. The project team identified and reviewed 15 state DOT and agency reports or methods, as listed in Table 9, which will also be provided with the final report and supporting reference materials. These summaries of the 15 reports identify how agencies across the country are working to address a common challenge: developing reliable AADT estimates for roadway segments where direct traffic counts are unavailable, incomplete, outdated, or limited in coverage. Many of the peer efforts focus on local functionally classified roadways and other off-system facilities where traffic data are needed for safety analysis, MIRE compliance, HPMS-related reporting, project prioritization, and broader transportation planning. For ITD off road includes even roadways that are unpaved.

This section summarizes other local agencies' best practices and methods identified through the peer agency research, with Table 9 providing a consolidated summary of the reports and methods reviewed. The table highlights examples from state DOTs, MPOs, and regional agencies that address local AADT data development, MIRE-related data needs, data sharing, GIS and database integration, quality control, local agency coordination, and approaches for estimating traffic volumes where direct counts are limited or unavailable. These examples provide practical reference points for ITD as it considers how to improve local AADT coverage, strengthen data consistency and documentation, and develop a more sustainable statewide local roadway traffic data program.

Figure 3 highlights the states the project team identified as having reports, documented methods, or agency practices related to local AADT data development. These states were included because their materials provide examples of how peer agencies are addressing local roadway traffic data gaps,

estimating AADT where direct counts are limited or unavailable, coordinating with local agencies and MPOs, and supporting MIRE-related safety data needs. The highlighted states therefore provide a geographic summary of the peer agency research reviewed for this project and help illustrate where relevant local AADT practices and methods were found. The Table 9 peer agency reports and methods listing for all of the agencies that provided reference material are detailed in the reference section at the end of this report in Section 8. These are provided as references but also will be provided to the ITD staff in electronic form reports as resources where they were available for ITD to utilize as these ideas, concepts and methods are needed.

Table 9. Peer Agency Reports and Methods for Local AADT Data Development

State	Document Name	Highlight	Year
AZ	AZ DOT importing Local and Tribal for MIRE	Research looked at using the AASHTOware SafetyAnalyst on local roadway segments, using a central DB for QC is recommended	2016
DE	DVRPC Innovative Traffic Data Sharing Case Study	Sharing tools for local roadways and even bike and ped was detailed, involving people with varied backgrounds helped	2016
FL	Roadmap for Collecting MIRE Case Study	Forming partnerships with locals and academia is helpful, some local data can be collected by routine procedures	2022
LA	MIRE Data Governance and Local Partnerships Safety Data Case Study	MPO found coordination with localities hampered efforts (including technologies utilized), in person meetings were helpful	2021
MN	Model using Estimated AADT for All Public Roads	Statewide model of AADT on all public roads (FC 6 and 7), a practical method to estimate AADT on NFAS roads was detailed	2025
MT	AADT for All Public Roads Case Study	Report looked at IL and MS results and considered using fuel receipts to fill in data gaps on local roadways	2024
NH	Evaluate Count and Probe data	Analysis of using probe-based data for NFAS roadway segments in MIRE work	2026
NY	NFAS Estimate Table	Analysis table of local roadway information that shows ranges of values and research results	2024
NY	MIRE Data Integration in CLEAR New York State's Safety Management Tool Safety Data Case Study	Executive management support is crucial for success, using an iterative approach to allow for refinement as improvements are made and good data governance helps	2020
NY	MIRE traffic data email	Needed local counts with first attempt to have local FC 6/7 roadway coverage, using a by county method	2026
NY	Engagement of Local Agencies Case Study	Local agency partnerships (MOU) and random sampling procedure to collect short term counts – 10% of locals sampled	2016
OH	Intersection Case Study	Intersection level inventory and data on all public roads, then data integration with network data for MIRE use	2022
MI	SEMCOG Case Study	Segment level estimation method for uncounted segments using interpolation	2016
VA	Case Study cul-de-sac estimation method	Better cul-de-sac local data results using new arial photos method (cal'd method with trip estimation and actual counts)	2016
WI	Local and 3rd party data source study	Madison and state DOT sharing local data by using the same system, numerous studies detailed in the information review	2021

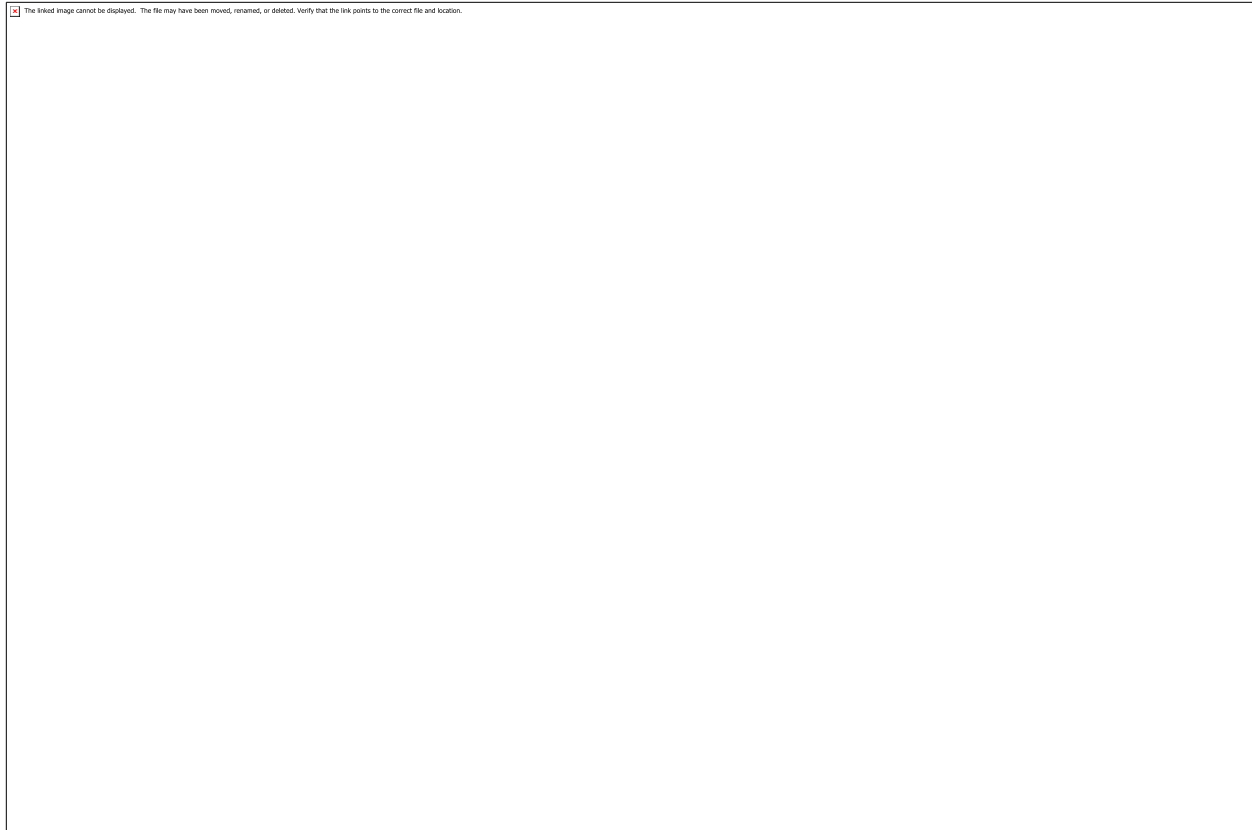


Figure 3. State DOT Reports Reviewed Part of this Project

Based on feedback from ITD staff during project meetings, the research also considered whether peer agencies have established policies or practices related to the age of local roadway traffic counts and when those counts should be updated or replaced. The project team identified varying approaches among peer DOTs. For example, Florida DOT references a local count frequency of no less than every five years, while Montana DOT references Illinois DOT guidance indicating a five-year cycle for unmarked routes outside District 1 and the Chicago area. Virginia DOT on the other hand did not identify a specific count-age replacement policy. The team has prior experience where agencies they have been employed with have recommended a maximum of 10 years at most before new counts are performed (whether local or other types of routes).

These findings indicate that ITD has an opportunity to establish a more consistent statewide framework for local roadway traffic data collection, count update frequency, quality assurance, data management, and reporting. A statewide framework would improve data reliability, support FHWA MIRE compliance, strengthen traffic monitoring capabilities, and provide local agencies with clearer technical guidance and support. The research also identified additional uses for local volume data beyond MIRE and AADT development, including the Safe Routes to School (SRTS) program, the National Bridge Inventory (NBI) reporting, the National Tunnel Inventory (NTI) reporting, and the Highway Railroad Crossing (HRC) analysis and reporting where these unique needs fall on local roadway networks.

4.3 Peer Agency Local Data Program Management Best Practices

Peer agency research identified several program management practices that can help agencies improve how local roadway traffic data are collected, maintained, shared, and used over time. These practices emphasize the importance of clear roles and responsibilities, consistent data standards, formal coordination with local agencies and MPOs, documented quality assurance and quality control procedures, centralized data storage, and regular communication among participating agencies. For ITD, these peer agency examples provide useful guidance for developing a sustainable local data program that supports reliable AADT development, MIRE compliance, safety analysis, planning, reporting, and long-term traffic data stewardship.

4.4 Local Agency TEACH-PDM Framework

The TEACH-DPM framework provides a structured approach for organizing local roadway traffic data program management best practices into practical implementation areas. Figure 4 provides a table with detailed content describing the TEACH–DPM Framework below.

(T) Training	(E) Establish (A) Agreements	(C) Communication	(H) Harmonize/ Standardization	(D) Data and (P)Project (M) Management
Provide regular local agency data processing, management and integration training (including MS2 software training)	Create local agency data MOUs and traffic data management (exchange) agreements	Define and document program stakeholders	Create standard data formats and submittal guidelines, including GIS	Create local agency data alternatives with usage standards and methods (i.e., probe, ITS, “Your Speed is” or intersection data)
Provide onsite training at the local agency		Create local agency partnerships	Create local agency metadata standards	Create Local agency integration methods or tools for: MIRE, NTI, NBI, SRTS, and HRC
		Create a statewide Data Sharing Committee (DSC)	Tie data submittals to funding	Create local agency data warehouse that allows for transparent exchange between local agencies and ITD
		Establish schedules for local agency data submittals (deadlines tied to funding)		Quality assurance and quality control methods well documents and understood

Figure 4. Local Agency Best Practices Framework TEACH-DPM

TEACH-DPM emphasizes Training, Establish Agreements, Communication, Harmonization with Data and Project Management as key components for building a sustainable statewide local data program. Together, these elements help define how ITD, MPOs, and local agencies can coordinate roles and responsibilities, establish consistent data expectations, improve data quality and documentation, support ongoing communication, and maintain reliable local AADT data over time. This framework is intended to translate peer agency findings and survey results into actionable program management strategies that support MIRE compliance, safety analysis, traffic monitoring, and long-term data stewardship.

4.4.1 Training

Many agencies provide equipment, software, technical guidance, and training to local agencies in exchange for traffic count data sharing and statewide coordination.

4.4.2 Establish Agreements

Partnerships with MPOs, counties, cities, tribal agencies, universities, consultants, and third-party data providers are commonly used to expand traffic data collection coverage and technical capabilities.

4.4.3 Communication

Effective communication using coordination with local jurisdictions to improve data reliability and more complete statewide coverage.

4.4.4 Harmonization and Standardization

Several agencies have expanded the use of alternative and emerging traffic data sources, including probe vehicle data, radar systems, continuous count stations (CCS), video detection systems, and GIS-based estimation tools. These approaches are often used to supplement traditional short-term traffic counts, particularly on low-volume local roads where routine data collection may be difficult or cost prohibitive. Meta data information standards and training on accuracy needs, count terms, count frequency, formats and other standards such as GIS reporting will greatly improve data use and consistent use of the data by ITD and local agencies.

4.4.5. Data Management (centralized)

Many agencies have developed centralized traffic data management systems that integrate local agency traffic counts, roadway inventory information, GIS platforms, and quality assurance procedures into a unified statewide TEACH-DPM framework.

4.4.6 Project Management

GIS data sets are complicated and often require integration and conflation methods. These both play a significant role in roadway inventory management, traffic count location tracking to ensure a reliable network of counts, AADT estimation practices, and MIRE compliance reporting are some of the major areas under the local traffic data project management. Scheduling of counts, leadership of the Data Sharing Committee (DSC), tracking agency progress, performing data analysis, assisting agencies with improvement work, etc. are all parts of Project Management.

4.5 Other Local Agency Best Practices and Methods

There are several common successful statewide traffic data program best practices and methods that the team identified. This section summarizes additional local agency best practices and methods identified through peer agency research, stakeholder discussions, and review of available guidance documents. While many practices focus directly on AADT development and MIRE compliance, other methods support broader local roadway data management needs, including data governance, count scheduling, interagency coordination, GIS integration, data sharing agreements, quality control, and use of traffic volume data for related programs. These practices provide useful examples for ITD as it considers how to build a more consistent, sustainable, and scalable local roadway traffic data program that supports safety analysis, planning, reporting, and long-term data stewardship.

Table 10 provides a consolidated summary of peer agency practices reviewed as part of this study and highlights their relevance to ITD. The reference section details each of these agencies as the sources of information for a more consistent statewide local roadway traffic data program. These practices include approaches for coordinating with local agencies and MPOs, establishing data sharing expectations, improving count collection and update procedures, documenting QA/QC methods, supporting GIS or database integration, and using local traffic volume data for safety, planning, reporting, and related program needs. Together, these practices provide practical examples ITD can adapt to strengthen local AADT data development, improve data consistency, and support long-term traffic data stewardship.

Table 10. Peer Agency Local Roadway Traffic Data Management Best Practices

Agency	Best Practice(s)	Traffic Data Collection / Estimation Approach	Partnership	Relevance to ITD
Arizona DOT	- Implements ETL process, validation, and integration into ATIS - Imports local and Tribal data (CSV file format) into a statewide system	- Local agency traffic count submissions - Tribal roadway traffic data submissions - Spreadsheet/CSV-based data exchange	- Local/Tribal agencies - MPOs/regional planning agencies - Consultants	Useful model for standardized local data submission and statewide integration
Delaware DOT	- Possesses centralized roadway and traffic data management practices - Integrates roadway inventory, traffic, and safety datasets into enterprise GIS systems	- Traffic count integration with roadway inventory systems - GIS-based roadway and traffic data management	- MPOs/regional agencies - Internal GIS, traffic, and safety groups	Useful example of centralized roadway and traffic data integration to support MIRE compliance
Florida DOT	- Use multiple data sources, including connected vehicle and probe data - Coordinates with county agencies to obtain local counts - Maintains RCI roadway section data every 5 years - Maintains HPMS sample data every 3 years	- County local counts - Probe/connected vehicle data - Geospatial roadway inventory updates	- County agencies - Third-party data providers - Partners with Florida State University	Good example of combining traditional counts with emerging data sources for all-public-road coverage
Louisiana DOTD	- Coordinates with regional planning agencies to improve local road traffic data coverage - Uses flexible local agency data-sharing approaches - Leverages open-source and geospatial tools for roadway data integration	- Local agency traffic count submissions - GIS-based roadway data integration - Imagery and geospatial analysis support	- MPOs/regional planning agencies - Local agencies - Universities/co nsultants	Good example of coordinating local agencies with varying technical capabilities for statewide traffic data improvement
Montana DOT	- Uses centralized database management system for local data submissions - Regulates MPO submission schedules and metadata consistency - Uses innovative estimation techniques for uncounted roads	- Portable traffic counts 6-year local road count cycle - Fuel-receipt-based AADT estimation - Radar/video count technology evaluation	- MPOs - Local data suppliers - Contractors	Useful example of centralized management and alternative estimation approaches for rural local roads

Agency	Best Practice(s)	Traffic Data Collection / Estimation Approach	Partnership	Relevance to ITD
New Hampshire DOT	- Evaluates probe vehicle data to supplement traditional traffic counts - Assesses coverage limitations of third-party AADT estimates on local roads - Uses GIS conflation techniques to compare probe and count-based AADT	- Traditional traffic counts - Probe vehicle data - GIS-based roadway conflation and AADT comparison	- Third-party data providers - FHWA DATA Team consultants	Useful example of evaluating strengths and limitations of probe data for local road AADT estimation
New York DOT	- Uses MOAs with counties and MPOs for local traffic counting - Provides equipment, software, and training to local agencies - Uses random sampling to improve local road coverage - Standardizes statewide traffic monitoring procedures	- Pneumatic tube counters 48–72 hour short-term counts - GPS-based traffic count location tracking	- Counties - Cities - MPOs	Strong example of providing equipment/training in exchange for local counts
Ohio DOT	- Develops statewide digital intersection inventory - Collects MIRE FDEs to support safety analysis - Integrates traffic and roadway data into enterprise GIS systems	- Intersection inventory collection - MIRE-based roadway and intersection data collection - GIS-enabled data integration	- FHWA AEGIST pooled fund study - Internal planning, GIS, and safety groups	Useful framework for integrating local roadway traffic and safety data into statewide systems
Virginia DOT	- Uses trip generation techniques for low-volume roads - Automates traffic data QA/QC procedures - Maintains extensive local road monitoring coverage	24-hour local road traffic counts - Continuous count stations - Trip generation estimates for cul-de-sacs and low-volume roads	- Regional and district offices - Consultants	Practical example of supplementing field counts with estimation methods to reduce collection costs
Wisconsin DOT	- Uses centralized Jackalope Traffic Data Management System - Incorporates local government AADT updates into WISLR - Evaluates probe vehicle data for local roads - Uses automated QA/QC and factor generation	- Pneumatic tube counters - Wavetronix radar sensors - Probe vehicle data - Local government-submitted AADT updates	- City of Madison - MPOs - Third-party data providers - FHWA pooled fund study	Strong example of integrating local agency and third-party traffic data into statewide monitoring systems
SEMOG (Michigan Region)	- Maintains centralized regional traffic count database - Uses extensive QA/QC procedures - Automates AADT estimation using GIS and Python	- Local agency short-term counts - GIS-based AADT interpolation - Continuous count factor application	- Local agencies - MPO partners - Software vendors	Good model for centralized validation and automated AADT estimation on local roads

5. Gap Analysis

Local Roadway Data Coverage and Gap Analysis

This section summarizes the gap analysis conducted to evaluate local roadway traffic data coverage, completeness, and consistency within selected Idaho study areas. The analysis focused on identifying where AADT values and supporting traffic data are missing, outdated, inconsistent, or potentially unsuitable for statewide reporting and analysis. Using ITD's 2024 HPMS GIS data as the primary source, supplemented by available local and MPO data, the review applied spatial and data quality checks to identify coverage gaps, assess potential data reliability issues, and highlight opportunities to improve the completeness and usefulness of ITD's local roadway traffic datasets.

A gap analysis was performed for numerous areas in Idaho using GIS data from ITD's 2024 HPMS submission. Supplemental data from other agencies were also reviewed where available, including COMPASS data. The analysis applied specific criteria to evaluate data completeness and quality, including missing data, conservation of flow checks, large variances between adjacent segments, and other consistency checks.

5.1 Existing Methods for Addressing Segment-Level Data Gaps

This section summarizes existing methods and data sources used to address segment-level traffic data gaps, with an emphasis on approaches that help estimate or validate AADT values where direct count data are unavailable or incomplete. These methods provide a foundation for understanding how ITD currently evaluates off-system and local roadway traffic data and where additional refinements may improve consistency, completeness, and reliability. The discussion begins with ITD's current validation tool inputs and then considers how these inputs support gap identification, estimation, and quality review across local roadway segments.

5.1.3 Recommended Improvements for Identified Data Gaps

This section summarizes recommended improvements for the data gaps identified through the local roadway traffic data coverage review. The recommendations are organized around common gap types, including missing AADT values, large differences between adjacent segment values, outdated count information, inconsistencies between ITD and local agency datasets, and incomplete count records. Together, these findings help define where enhancements to data collection, validation, documentation, and coordination could improve ITD's ability to manage local roadway data.

The current state of ITD's local roadway data management program reflects a strong foundation for statewide reporting but also shows opportunities to improve local roadway coverage and data consistency. ITD has established methods and tools for estimating and validating off-system AADT values, and supplemental data from MPOs, counties, and local agencies can provide valuable inputs for

filling segment-level gaps. However, the analysis indicates that local roadway traffic data are not consistently available across all areas, and where data exist, they may vary in age, format, completeness, annualization method, and level of quality review. These conditions create challenges for developing a complete and reliable local roadway AADT network for MIRE, HPMS, safety analysis, planning, and other data-driven applications.

Table 11 summarizes the primary data coverage and quality issues identified through the gap analysis and organizes them by requirement, current state, identified gap, and recommended improvement. This table can help ITD translate the analysis findings into practical next steps by showing which issues affect local roadway AADT completeness, where additional validation or documentation is needed, and what actions could improve future data collection and reporting. By using the table as a working reference, ITD can prioritize improvements, coordinate with local agencies, refine quality control procedures, and develop a more consistent approach for addressing local roadway data gaps.

Table 11. Gap Analysis Assistance Table

Requirement	Current State	Gap Identified	Recommended Improvement
Missing data	FC 6 and 7 missing segments	See GIS images of missing data - 60% or more is missing data. (as the gap analysis showed)	Between each roadway segments missing values can be provided that GIS wise - follow conservation of flow that fills in missing values.
Data reported but conservation of flow principles do not work	Variances of 400% exist and ranges of values related to different segment data are present	Even with values reported analysis shows data issues due to large changes between segments (see GIS images).	GIS local data to ensure local roadway conservation of flow characteristics are followed. Check locally sourced data against ITD GIS traffic data maps.
Data is older than 10 years.	Data exists but is 10 or more years old.	Are newer counts from the segment or nearby segments showing significant changes.	Show year of count for all FC 6 and 7 segments. With any data from local agencies, require year of count meta data.
Data inconsistencies between ITD and local agency segment data.	Some local count data may not be annualized, or it may have quality issues.	Apply uniform checks to all data even if from untraditional sources of local agencies.	Mark all data that has been uniformly quality checked. Perform as many of the QC checks as possible to verify data meets existing standards.
Data not for a full 24 hours or is missing some lanes and/or directions	Some counts may be for 23 of fewer hours or may be missing some lanes	With data quality checks completeness of data is important.	Ensure the term of the count meets minimum standards and that all lanes for at least one direction are present to use the count

The gap analysis summary table shows that ITD’s primary local roadway traffic data needs are related to missing FC 6 rural and 7 rural and urban AADT values, inconsistent data availability across jurisdictions, and varying levels of documentation, annualization, and quality review. Since the gap analysis was performed ITD has run their local roadway estimation tool that has filled many of these missing values. The table highlights the importance of using GIS-based reviews, local and MPO-provided traffic count data, documented metadata, and consistent QA/QC procedures to identify where traffic data are missing, outdated, or potentially unreliable. Addressing these gaps will require a coordinated approach that combines additional local data collection, improved data sharing, standardized submittal formats, validation checks, and clear procedures for estimating or updating AADT values. Together, these improvements would help ITD strengthen the completeness, consistency, and defensibility of local roadway traffic datasets used for MIRE compliance, HPMS reporting, safety analysis, planning, and long-term data management.

5.1.4 Examples of Local Roadway Data Coverage Gaps

The following examples illustrate local roadway data coverage gaps identified during the spatial review of ITD’s 2024 HPMS GIS traffic data layer. These gaps generally occur where local roadway segments do not have an associated AADT value or where available traffic data are incomplete, outdated, or not consistently connected to the GIS roadway network. In some areas, missing local roadway coverage creates breaks in the traffic data network, making it more difficult to evaluate segment-level conditions, compare adjacent roadway values, apply conservation of flow checks, or support statewide reporting needs. Documenting these examples helps ITD understand where additional counts, local agency coordination, data integration, or estimation methods may be needed to improve the completeness and reliability of FC 6 rural and 7 rural and urban roadway traffic data.

It should be noted that ITD, since this project gap analysis was carried out, has now generated local AADT data estimates across their system. This data set will be helpful in knowing traffic flows and AADT values for most local roadways.

Figure 5 provides another example of local roadway segments without associated AADT values in the 2024 HPMS GIS traffic data layer. The missing coverage shown in this example reinforces that local roadway data gaps may occur across multiple areas of the network rather than being isolated to a single location. These gaps can affect ITD’s ability to develop a complete picture of local roadway traffic conditions, identify reasonable traffic volume patterns, and support consistent reporting for FC 6 and 7 roadways. Reviewing examples such as Figure 5 can help ITD determine where targeted data collection, supplemental local agency data, or estimation procedures may be needed to improve overall dataset completeness.

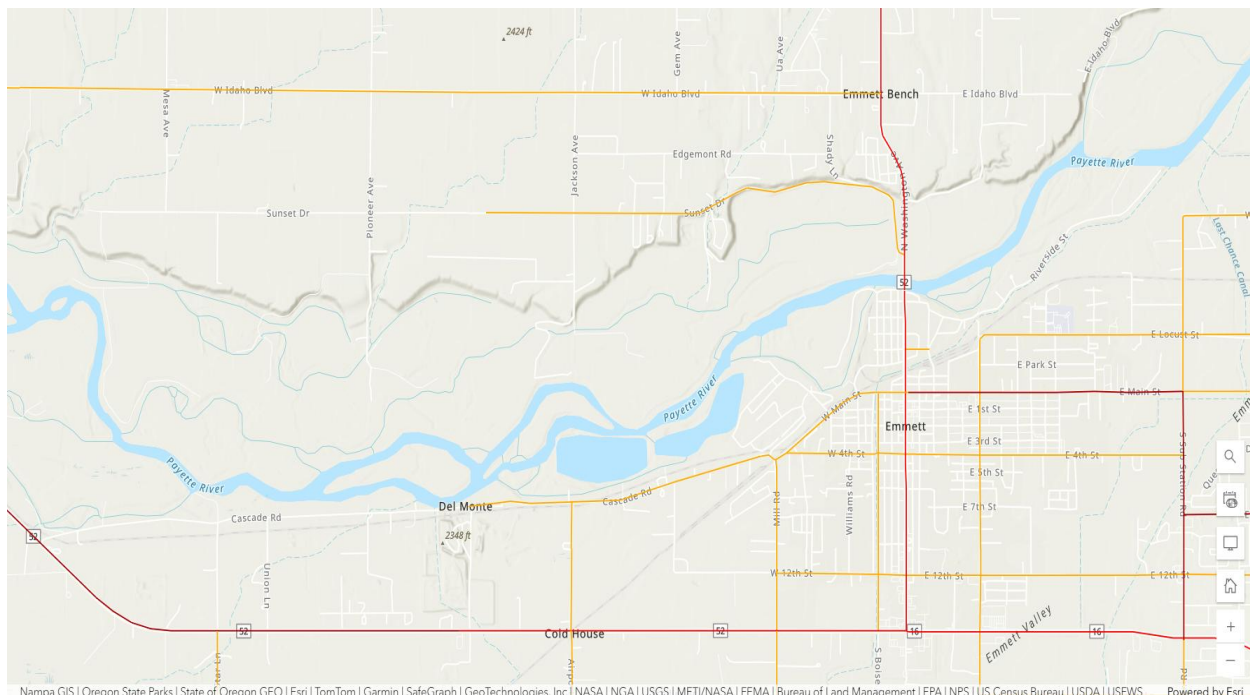


Figure 5. 2024 HPMS GIS traffic data layer with local roadway data missing

Figure 6 shows an example of the ITD reported 2018 GIS data which was obtained online has missing local roadway traffic data coverage in the Idaho town of Weiser. This example helps demonstrate that local roadway AADT gaps are not limited to urbanized or MPO areas and may also occur in more rural parts of the state. Missing coverage in these areas can make it more difficult for ITD to evaluate local roadway traffic conditions, understand connectivity between segments, and support consistent statewide reporting for FC 6 and 7 roadways. Identifying examples such as Figure 6 can help ITD determine where additional coordination with local agencies, targeted data collection, or estimation procedures may be needed to improve coverage in rural and regionally distributed parts of the network.

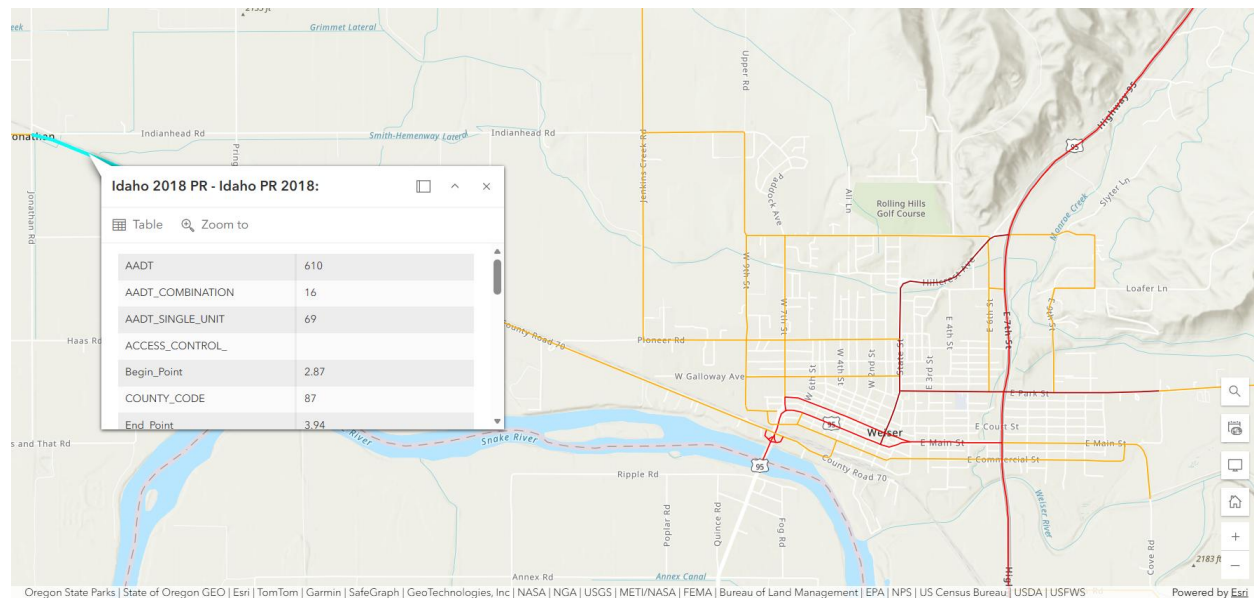


Figure 6. 2018 GIS traffic data layer with local roadway data missing (town of Weiser)

Together, Figure 5 and Figure 6 demonstrate that local roadway traffic data coverage gaps occur in multiple geographic contexts and can affect both urbanized and rural portions of Idaho’s roadway network. The examples show that missing AADT values create discontinuities in the GIS traffic data layer, limiting ITD’s ability to assess segment-level conditions, compare adjacent traffic volumes, apply conservation of flow checks, and support consistent MIRE, HPMS, safety, and planning applications. These examples reinforce the need for a more systematic approach to identifying missing local roadway data, incorporating supplemental agency sources, documenting count age and quality, and applying consistent validation or estimation procedures. Addressing these gaps will help ITD strengthen the completeness, reliability, and usability of FC 6 and 7 roadway traffic datasets and provides a logical transition to the following discussion of other systems and agencies that may offer gap estimation methods for consideration. The following Figure 7 through 12 utilize the 2024 ITD HPMS GIS dataset and other GIS data provide by local agencies.

Figure 7 shows the ITD reported HPMS data for Bannock County. The major city has some lower FC roadway AADT values but most of the county is missing AADT data on the off-state highway system.

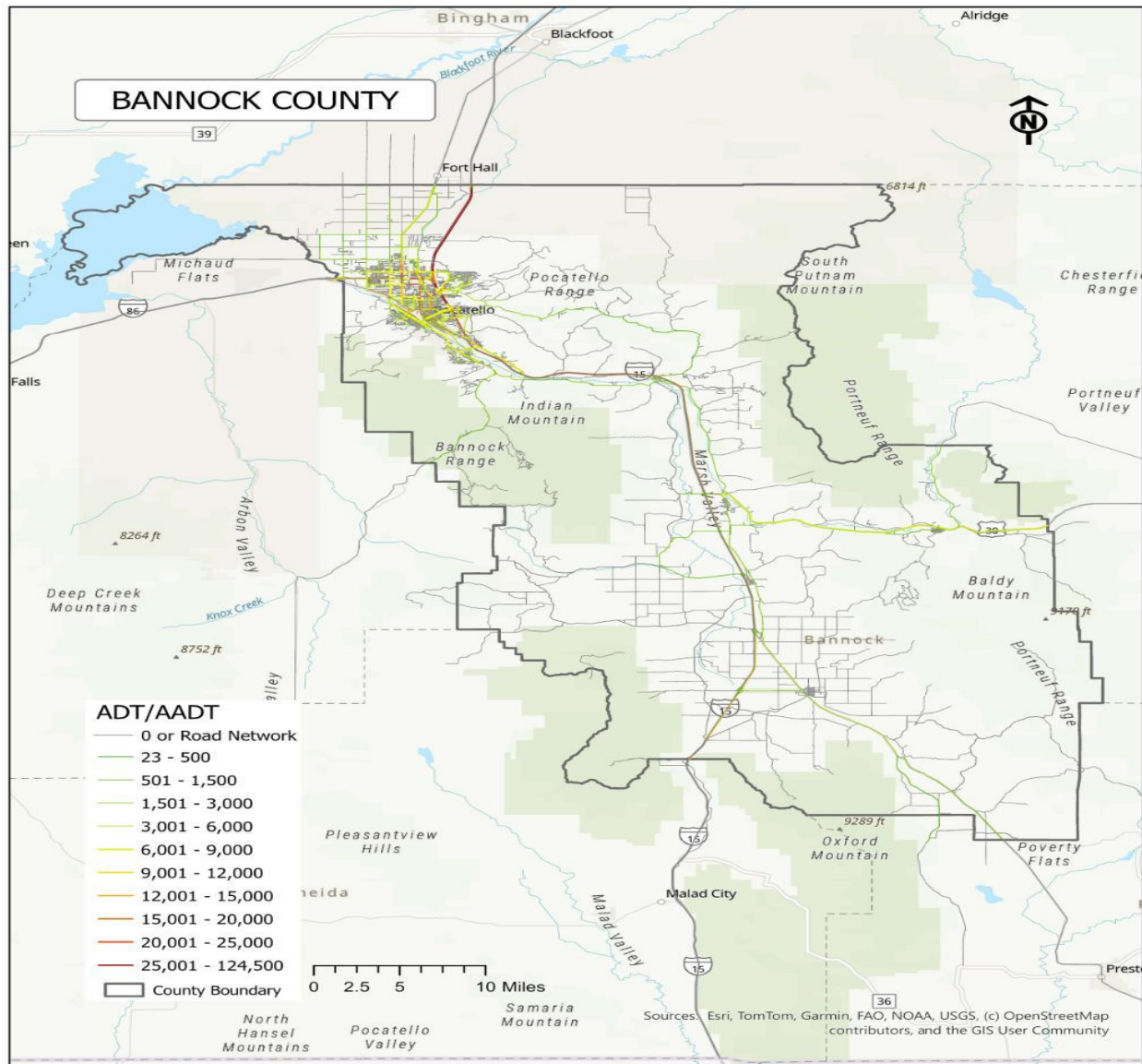


Figure 7. Bannock County showing many missing local and minor collector roadway segment values with no color and light grey lines

Figure 8 shows the ITD HPMS AADT data for the town of Lewiston. Most local roadway segments are missing AADT values. There is one segment in teal that shows a large change rate that does not follow engineering conservation of flow principles. There are five instances of cul-de-sac areas where the VA DOT method could be deployed using the existing map to provide local data.

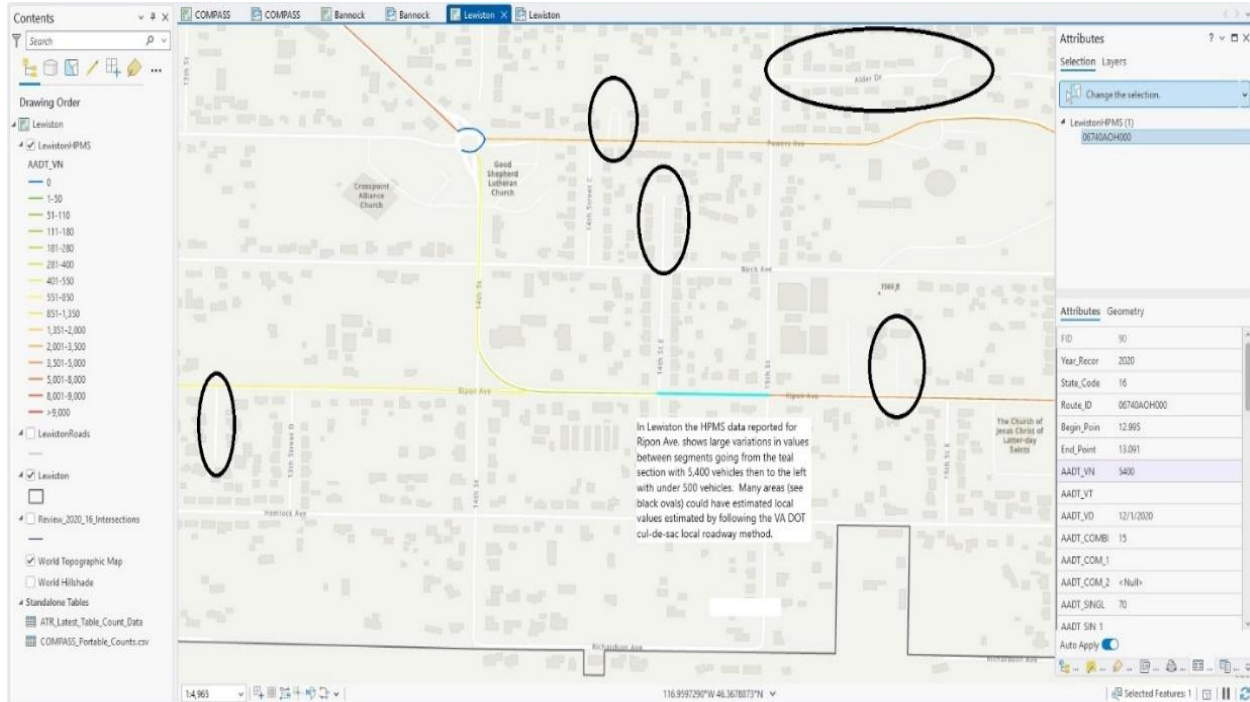


Figure 8. Lewiston local GIS map with circles for cul-de-sac estimate opportunities and missing local roadways with white lines with no AADT data available

Figure 9 shows the ITD HPMS AADT data for the town of Lewiston. Most local roadway segments are missing AADT values. There is one segment in teal that shows a large change rate that does not follow traffic engineering conservation of flow principles. There are fifteen instances of cul-de-sac areas where the VA DOT method could be deployed using the existing map to provide local data.

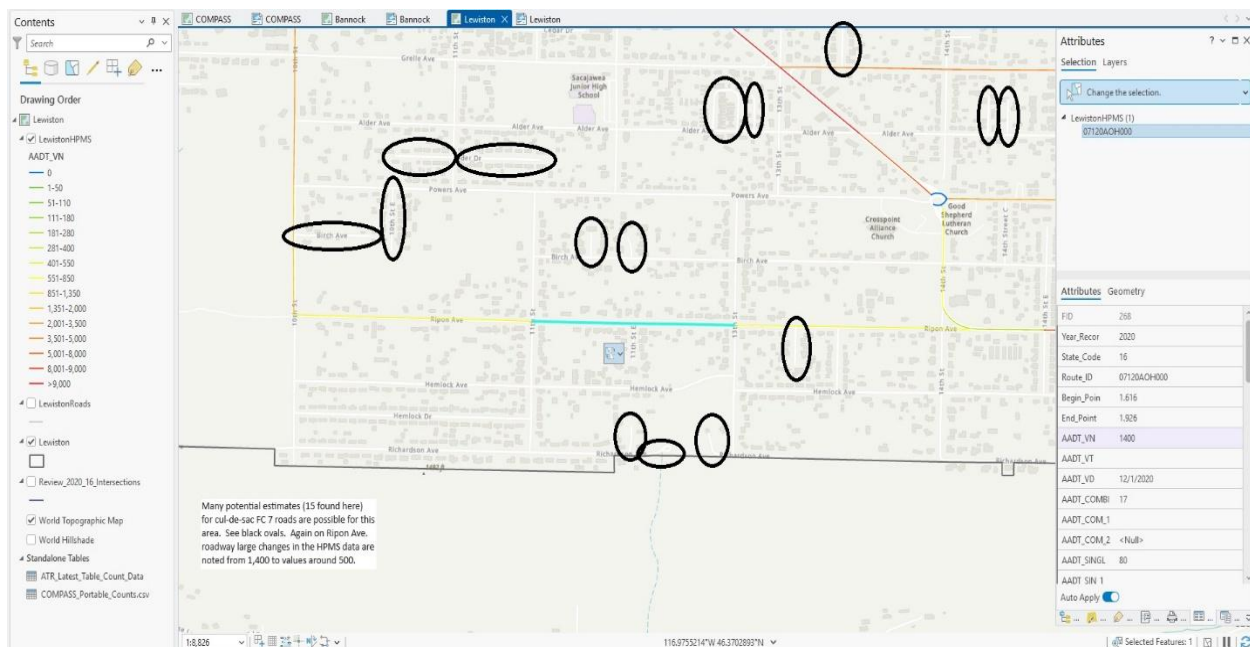


Figure 10 shows the ITD HPMS AADT data for the city of Boise and COMPASS GIS AADT data. Most local roadway segments are missing AADT values. There is one segment in teal where proper conservation of flow does not occur. There are differences in values as reported for HPMS and COMPASS for this roadway.

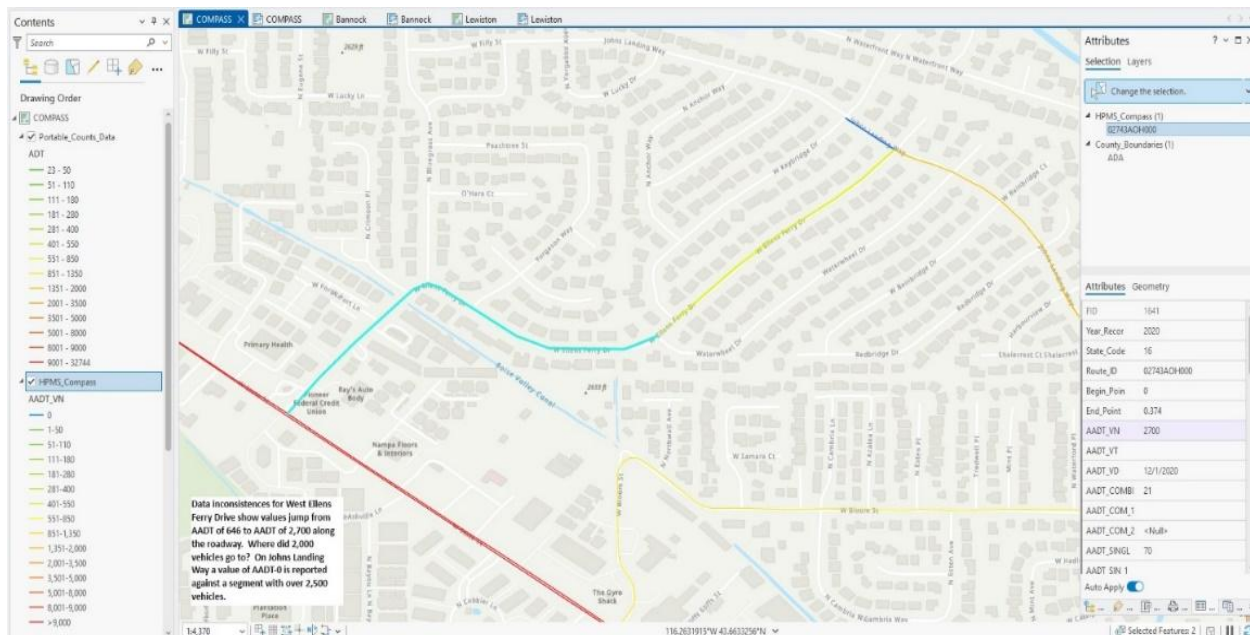


Figure 11 shows the ITD HPMS AADT data for the city of Boise and COMPASS GIS AADT data. Most local roadway segments are missing AADT values. There is one segment in teal where proper conservation of flow does not occur. There are differences in values as reported for HPMS and COMPASS for this roadway. This difference may be due to the local school.

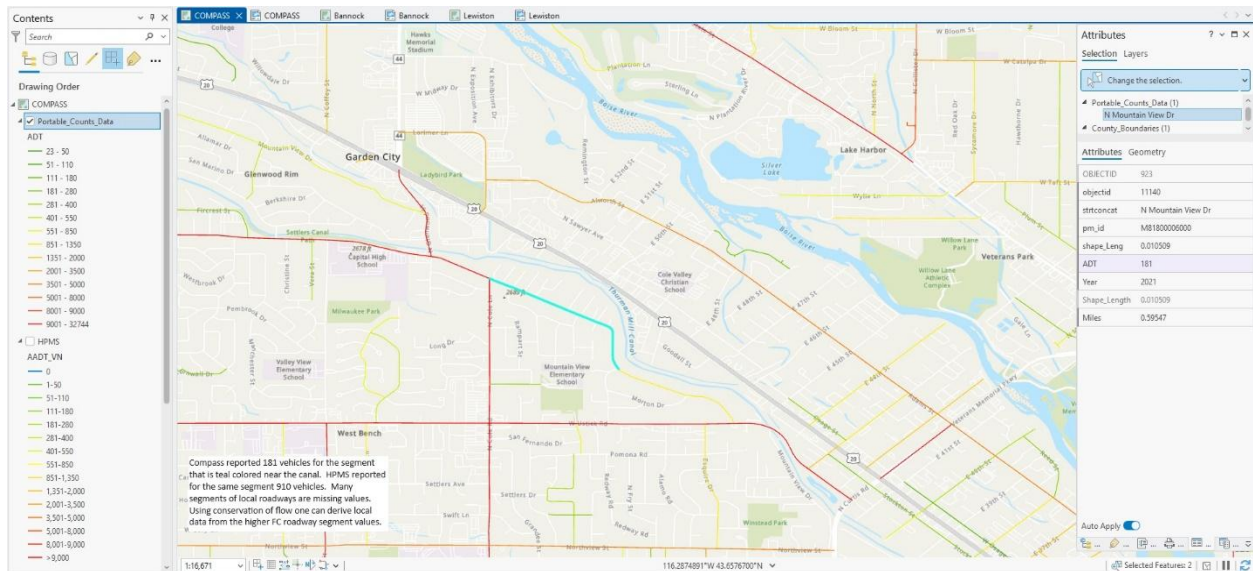


Figure 11. City of Boise COMPASS and HPMS differences in reported value data checks and missing local roadways with white lines with no AADT data available

Figure 12 shows the ITD HPMS AADT data for the city of Boise and COMPASS GIS AADT data. Most local roadway segments are missing AADT values. There is one segment in teal where the ramp has a default value of 1 reported for all ramps in this interchange. This is an instance where using the Compass provided data would easily augment the ITD data and better information would be available. There are differences in values as reported for HPMS and COMPASS for this roadway.

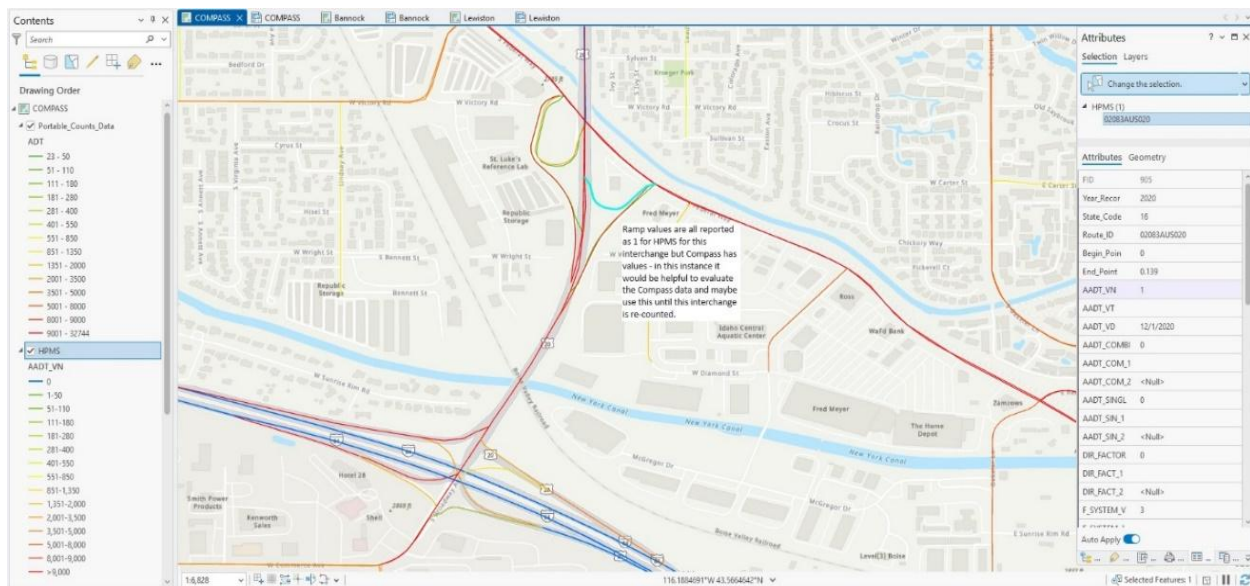


Figure 12. City of Boise COMPASS and 2024 ITD HPMS ramp data check and missing local roadways with white lines with no AADT data available

5.2 Peer Agency Approaches for Estimating Local Roadway Data Gaps

Research into peer agency practices identified several methods that may help estimate AADT values for local roadway segments where direct count data are unavailable or incomplete. These approaches use different combinations of roadway characteristics, land use, demographic information, travel behavior, and network relationships to develop reasonable estimates for segments with data gaps. The examples below summarize methods used by other state DOTs that provide useful procedures for ITD to consider as potential improvements to its local roadway gap estimation process.

5.2.1 Florida DOT Approach to Local Roadway AADT Estimation

The Florida DOT approach provides an example of using available roadway, traffic, and land use characteristics to estimate AADT values where direct local roadway count coverage is limited. Florida maintains statewide traffic information resources, including AADT data derived from its Traffic Characteristics Inventory and traffic monitoring program, and collects traffic data on state highways and many non-state highways through continuous monitoring and short-term count programs. For local roadway gap estimation, this type of approach can use variables such as job density, number of lanes, roadway speed, and residential characteristics to develop reasonable segment-level estimates in areas without complete AADT coverage. For ITD, the Florida example is useful because it demonstrates how existing spatial and contextual datasets can be combined with traffic data to support a more systematic estimation process for FC 6 rural and 7 rural and urban roadways.

5.2.2 Kentucky Transportation Cabinet (KYTC) Approach to Local Roadway AADT Estimation

The Kentucky Transportation Cabinet (KYTC) provides another useful example for estimating AADT on local roadways where direct count data are limited. KYTC maintains statewide traffic count resources that include traffic count station locations and current AADT information, but research supporting local roadway estimation has also recognized that local roads often lack the same level of direct count coverage as state-maintained routes. One Kentucky-based method developed regional local-road AADT models using variables such as probe count data, residential vehicle registrations, and curve rating, with results adjusted to county-level daily vehicle miles traveled control totals. For ITD, the KYTC example is relevant because it shows how local roadway estimates can combine available traffic observations, socioeconomic indicators, roadway characteristics, and regional calibration to develop reasonable values for segments with missing AADT data.

5.2.3 Tennessee DOT Approach to Local Roadway AADT Estimation

The Tennessee DOT (TDOT) provides a useful example of combining statewide traffic monitoring data, HPMS reporting needs, and documented AADT calculation methods to support roadway traffic estimates. TDOT maintains traffic point and line datasets that include AADT, VMT, truck percentages, FC, and calculation method information, with AADT values identified as actual counts or values developed through methods such as change rate (growth), combining directional counts, corridor balancing, virtual station relationships, or scaled vehicle movement data. TDOT also converts short-term ADT counts to AADT using monthly (seasonal), day-of-week, vehicle classification, and axle correction (adjustment) factors. For ITD, the Tennessee example is useful because it shows how clearly documenting the source and calculation method for each AADT value can strengthen confidence in estimated local roadway values and help distinguish between direct counts, adjusted values, and modeled estimates for segments with data gaps.

5.2.4 Texas DOT Approach to Local Roadway AADT Estimation

The Texas DOT (TxDOT) provides an example of combining local roadway count programs with statistical methods to support AADT and VMT reporting. TxDOT publishes statewide AADT datasets through its open data portal, including annual AADT count data and five-year statewide AADT traffic counts that include local and county roads. These datasets document how AADT values are calculated, including use of 24-hour pneumatic tube counts, axle correction factors, monthly adjustment factors, and, in some cases, ramp balancing or other agency-approved methods. TxDOT has also supported research to explore improved data-driven methods for estimating VMT on local roads because the size of the local road network makes complete short-term count coverage financially challenging. For ITD, the Texas example is useful because it shows how stratified or statistical estimation methods can be paired with documented count programs, adjustment factors, demographic inputs, and roadway data to support more complete local roadway traffic estimates where direct AADT coverage is limited.

5.2.5 Virginia Dot Approach to Local Roadway AADT Estimation

The Virginia DOT studied utilizing aerial imagery to obtain AADT estimates on cul-de-sacs in all areas in their state. They obtain the cul-de-sac geometry from either plans or aerial imagery and then performed actual local roadway counts at various locations throughout the state to ensure results met accuracy needs. Using the actual data, they determined a formula approach to estimating counts that uses inputs of aerial imagery, the length of the road to the end area, the diameter of the cul-de-sac and other attributes to determine local roadway estimates. This same approach can easily be adopted in Idaho with some actual local counting to verify or adjust the formulas to utilize for effective methods using existing aerial imagery. Some GIS maps have already been provided where this approach was detailed on how it can be applied to provide local roadway AADT values.

5.2.6 Takeaways from Peer Agency AADT Methods

The peer agency examples show that there is no single approach for estimating local roadway AADT values where direct count data are unavailable or incomplete. Florida DOT demonstrates how roadways, land use, employment, speed, lane, and residential characteristics can be combined to support segment-level estimates. KYTC illustrates the value of incorporating available traffic observations, socioeconomic indicators, roadway characteristics, and regional calibration to estimate local-road AADT values and align them with broader VMT controls. Tennessee DOT highlights the importance of documenting how each AADT value is developed, including whether values are based on actual counts, adjusted short-term counts, growth methods, corridor balancing, virtual station relationships, or scaled vehicle movement data. Texas DOT shows how documented count programs, adjustment factors, demographic inputs, and stratified or statistical estimation methods can support broader AADT and VMT reporting for local and county roads. Virginia DOT illustrates how to collect some values and develop cul-de-sac estimation formulas which reflect travel patterns to the state's unique conditions.

These peer approaches are important because they provide field tested practical examples of how agencies improve local roadway data coverage without relying solely on new field counts for every missing segment. For ITD, the key takeaway is that a stronger local roadway AADT estimation process should combine available ITD data, local and MPO-provided counts, roadway characteristics, land use or demographic indicators, documented adjustment factors, and clear metadata describing the source and method used for each value. ITD can use these findings to refine its own gap estimation methodology, prioritize which supplemental data sources should be incorporated, improve confidence scoring or quality documentation for estimated values, and develop a more transparent process for filling FC 6 rural and 7 rural and urban roadway data gaps. Applying these lessons can help ITD move toward a more complete, consistent, and defensible local roadway traffic dataset that supports MIRE, HPMS, safety analysis, planning, and other statewide transportation data needs.

5.3 Local Roadway Data Issues and Opportunities to Strengthen Local Roadway Gap Estimation Methods

The initial review of data provided by Idaho identified several local roadway data issues and opportunities for ITD to strengthen local roadway data quality, improve segment-level coverage, and refine methods for filling missing or incomplete AADT values. These opportunities focus on improving the consistency, documentation, validation, and integration of FC 6 and 7 roadway data so that ITD can develop a more complete and reliable local roadway traffic dataset for safety analysis, HPMS and MIRE reporting, planning, and other statewide data needs.

5.3.1 Examples of Local Roadway Data Issues

The examples below highlight common local roadway data issues that can affect the completeness, reliability, and usability of ITD's local roadway AADT datasets. These issues are intended to illustrate the types of conditions ITD may encounter when reviewing spatial traffic data, incorporating local agency information, or evaluating whether a segment-level value is appropriate for reporting and analysis. Identifying these issues helps define where improved coordination, standardized data requirements, GIS-based quality checks, and documented validation procedures may strengthen ITD's ability to fill data gaps and maintain a more consistent local roadway traffic dataset.

Examples of local roadway data issues include the following:

- Missing local roadway coverage in ITD's GIS traffic data layer.
- Missing or incomplete local roadway traffic data from counties, MPOs, or local agencies.
- Overlapping datasets with different count years or collection periods.
- Potential inconsistencies between ITD and local agency datasets, although none have been identified to date.
- Limited documented validation procedures and GIS-level quality checks for local roadway traffic data.

5.3.2 Opportunities for Strengthening Local Roadway Gap Estimation Methods

The following methods and improvement areas are presented for ITD's consideration as it works toward a more complete, consistent, and usable FC 6 rural and 7 rural and urban roadway AADT dataset. These strategies focus on improving coordination with local agencies, standardizing data formats and quality expectations, documenting validation procedures, and supporting long-term storage and use of local roadway traffic data for safety analysis, MIRE and HPMS reporting, planning, and other transportation applications.

5.3.2.1 Hold Annual Coordination Meetings with Local and MPO Organizations

ITD could hold an annual coordination meeting with MPOs, counties, and local agencies to support consistent communication, training, and collaboration around local roadway traffic data. These meetings should include training on data systems, traffic data collection equipment, count collection methods, reporting expectations, and program goals. They would also provide a forum for agencies to exchange ideas, discuss challenges, share best practices, and identify opportunities to improve local roadway AADT coverage and data quality. Improved coordination with MPOs, counties, and local agencies can help ITD obtain additional local and lower FC roadway counts, apply consistent quality control checks, and incorporate validated local segment counts into MS2 for GIS analysis, long-term storage, and future use. This coordination could include identifying priority data gaps, assisting agencies with count collection needs, supporting equipment or training needs, and establishing a repeatable process for submitting and reviewing local roadway data. Strengthening this coordination would help ITD build a more complete, reliable, and sustainable local roadway AADT dataset.

5.3.2.2 Use Shared Data Portals

Shared data portals can provide a consistent location for local agencies, MPOs, counties, and ITD to exchange traffic data, supporting documentation, and GIS-based information. Providing regular training on portal use (MS2 or others), data submission expectations, formatting requirements, and early quality control checks can help ensure that submitted data is complete, consistent, and suitable for statewide use. A shared portal (like MS2) also supports transparency by giving participating agencies a common process for submitting, reviewing, and accessing local roadway traffic data.

5.3.2.3 Develop Standard Data Templates

Standard templates can help reduce data format and quality issues by establishing consistent fields, required metadata, and common reporting expectations for local roadway traffic data. These templates should identify key information such as count location, roadway segment, count date, term (duration), direction, annualization method, equipment type, and quality review status. Using a consistent method across various local agencies would make it easier for ITD to integrate local agency data into statewide systems and support more efficient sharing, comparison, and long-term use of traffic count information. There is also a need for local traffic data accuracy to be used as these can be much wider and have more influences affect the results than other types of higher functionally classified roads.

5.3.2.4 Implement Automated and Documented Quality Control Checks

Automated and documented quality control checks can help ITD evaluate whether local roadway traffic data meet established quality standards before the data are used for reporting, estimation, or analysis. These procedures may include GIS network-level checks for large changes in AADT between adjacent segments, such as changes greater than 200 to 400 percent; identification of missing segments that may be filled using nearby data or estimation methods; and review of data completeness, count term

(duration), lane coverage, directionality, and count year. Once data meet established quality standards, ITD could share the validated information back with local agencies and MPOs to support consistent use across participating organizations.

5.3.2.5 Harvest Data from Existing Non-Traditional Sources

Prior research performed by the research team in other studies have shown promise in the ability to obtain data from non-traditional resources such as “Your Speed Is” signs, signalized intersections, from any device that detects vehicles for speed and other sources such as ITS/TMC data sets. Utilizing these sources can help augment permanent site data for ITD, can help provide lower FC roadway data such as FC 6 rural and 7 rural and urban roads actual ADT/AADT data and can provide temporal factoring to help ITD with the spatial coverage of the roadway network. Most of this data will require study and checks annually at a minimum to ensure the information provided is accurate and does not have excessive holes that have missing time periods.

6.0 Summary of Findings and Next Steps

This section summarizes the primary findings from the local roadway traffic data gap analysis and identifies recommended next steps for improving ITD's local roadway AADT datasets. The findings are based on the data coverage review, peer agency research, local data issue examples, and opportunities for strengthening gap estimation methods described in the previous sections. Together, these concluding findings provide a framework for ITD to prioritize missing data needs, improve quality control and GIS-based validation procedures, strengthen coordination with MPOs, counties, and local agencies, and develop a more complete, consistent, and sustainable local roadway traffic data management program.

6.1 Recommended Strategies for Addressing Local Roadway Data Gaps

The following strategies provide a framework for identifying, evaluating, and addressing local roadway data gaps across ITD's local roadway networks. These strategies focus on improving the way missing values, outdated counts, inconsistent segment data, GIS alignment issues, and quality control concerns are identified and documented. By applying these strategies consistently by county, city, or other jurisdictional boundary, ITD can better prioritize data collection needs, refine estimation methods, improve confidence in local roadway AADT values, and support more complete datasets for MIRE, HPMS, safety analysis, planning, and other statewide transportation data applications.

The six steps identified below provide a recommended implementation sequence for ITD to reduce local roadway data gaps and improve the completeness, accuracy, and reliability of FC 6 rural and 7 rural and urban AADT datasets.

Step #1: Identify Missing AADT Values by County or City

The analysis of numerous study areas in Idaho found that approximately 65 percent of local roadway segments did not have associated AADT values. This represents a substantial coverage gap that may need to be addressed through a combination of targeted traffic counts, supplemental local agency data, and estimation methods. For new or existing counts to support MIRE and other local roadway data needs, short-term ADT values must be properly converted to AADT using appropriate axle correction and temporal factors. To support this process, ITD may need to expand access to permanent local roadway count data, identify existing local count sources, or conduct a study to determine whether factors developed from other roadway types can provide acceptable results for local roadway applications.

Step #2: Evaluate Segment-to-Segment Conservation of Flow or Over 10 years of Age Issues

Segment-to-segment conservation of flow should be evaluated through GIS-based QA/QC using centerline topology, segment endpoints, functional class, facility type, directionality, AADT, and count-

year attributes. ITD should compare connected local roadway segments, ramps, and local roadway links to flag large AADT changes, such as values exceeding 200 percent for review or 400 percent for high-priority investigation, unless supported by roadway context such as ramps, cul-de-sacs, traffic generators, one-way operations, or network termini. The review should also flag null or placeholder AADT values, counts older than 10 years, inconsistent ITD versus local agency values, and short-term counts lacking documented annualization. Each flagged segment should include count year, term (duration), lane and direction coverage, source, adjustment method, QC status, and reviewer notes. Failed checks should move to a resolution workflow using local agency verification, nearby counts, MPO data, updated field counts, corridor balancing, growth adjustment, or documented estimation.

Step #3: Establish Local Roadway Quality Control and GIS Reporting Thresholds

To help obtain local data ITD needs to provide to local agencies and MPOs standard on the quality control to be used for local roadway counting. These tolerances tend to be much wider than higher functionally classified roadways. In nearly all aspects the travel patterns for local travel are significantly different than you would find for other roadways. Such as number of consecutive zero values will be more, the variance day to day can be more than double what you would find on high FC roadways. The influence of travel to school, weather, and special events can easily change travel patterns significantly. For example, if there was a garage sale on a local road the travel patterns could easily be 50% higher for the day. To help local agencies ITD needs to have documented accuracy tolerances, terms, and frequency standards for local counts. The DSC can help with training and QC to aid local agencies in their data collection and processing work by helping them use MS2 and other methods. The GIS network also will be areas to help local agencies by providing GIS maps of the data so they know their network data and can own the responsibility to have good quality local roadway data that meets MIRE, planning and other ITD needs.

Step #4: Strengthen Local Agency Data Sharing and Collaboration by Forming the DSC

Survey results and interview responses indicate that many local agencies are willing to share data, participate in training, and collaborate with ITD to help fill local roadway AADT data gaps. Fifteen agencies expressed interest in learning how to use MS2 or related software to improve traffic data collection, analysis, and reporting. Because many agencies already collect traffic data annually, ITD has an opportunity to develop schedules, maps, and data needs summaries that show how local counts can support both statewide reporting requirements and local agency planning needs. This coordination could be advanced through District Safety Committees, local workshops, equipment-sharing agreements, memoranda of understanding, and potential grant opportunities that support safety-related data needs. A stronger partnership approach would allow ITD to provide the data needs, resources, tools, and training needed to help willing local agencies contribute more complete and useful local roadway traffic data.

Assigning a dedicated local roadway data champion would help ITD maintain consistent focus on local roadway traffic data coordination, quality review, and long-term program improvement. This role could

support communication with local agencies, help resolve data format and quality issues, coordinate count needs and collection schedules, and guide integration of local roadway traffic data into statewide systems such as MS2. Having a dedicated staff member or program lead who understands the challenges of collecting, validating, and managing local roadway traffic data would help ITD make measurable progress toward obtaining, maintaining, and using more complete local roadway AADT data over time.

Step #5: Review Factors For Annualizing Local Count Data

For an effective local count program ITD must have temporal and axle correction factors that represent all areas of local roadways. Through the research of ITD data there are no permanent data sources available for knowing the hour of day, day of week, month or year and year to year variances for factors to apply to short term counts. In addition to temporal factors ITD needs to have axle correction factors (ACF) that can be applied to any single road tube count. Not applying correct ACF to portable axle counts can lead to significant error in the AADT results. Sometimes this error can be larger than any of the other errors associated with portable counting. It is recommended that there be enough 24/7 site data (the 2022 TMG recommends a minimum of 6 sites per factor group) to have factors for all areas of Idaho and that those factors and how to use them is properly provided to local and MPO agencies so they can utilize these factors to improve their data quality and accuracy of their local count programs.

Step #6: Obtain Local Roadway Data From Non-Traditional Sources That Directly Address the Gap Analysis Results

The gap analysis identified many roadways with missing local data, with some areas with 65% missing values. By harvesting non-traditional sources that already are being collected and have sites around Idaho, many counts can be obtained. Additionally, with some of the non-traditional sources there can be 24/7 data which will provide temporal factors to augment the ITD permanent count program. This finding will directly lead to more available local data and likely will be minimal effort to secure the new data. There are 7 national companies with “Your Speed Is” signs that all have volume data. Many DOTs have evaluated intersection count data for approach legs and have found the volume data to be accurate and helpful. By utilizing new processing formulas like the FHWA new AADT formula any agency can take the data from ITS/TMC sensors and obtain ADT, AADT and temporal factors.

6.2 Data Analysis Summary

The gap analysis was undertaken to assess the adequacy of existing traffic data coverage and identify roadway segments where traffic information, particularly AADT, is unavailable or insufficient for traffic monitoring and reporting purposes. The assessment used the 2024 Highway Performance Monitoring System (HPMS) GIS traffic data layer as the primary traffic data source, supplemented by available roadway network and portable count data.

The analysis focused on identifying gaps in traffic coverage on the off-highway roadway system, with particular attention to local roads that are not adequately represented in the available HPMS traffic dataset. The assessment compared the available traffic data with the corresponding roadway network to identify locations where roadway coverage exists, but traffic information is missing.

The data sources reviewed for each study area are summarized below in Table 12.

Table 12. Traffic Data Sources by Study Area

Area	Data
Bannock County	• 2024 HPMS GIS traffic data layer • Road Network Primary
COMPASS	• 2024 HPMS GIS traffic data layer • Road Network Primary • Portable Counts
City of Lewiston	• 2024 HPMS GIS traffic data layer • Road Network Primary

The assessment indicates a coverage gap for local roads, particularly where roadway segments are present in the roadway network but are not represented by corresponding traffic count or AADT data in the available HPMS dataset.

6.3 Coverage Gap

The coverage gap analysis compared the available roadway network with the 2024 ITD HPMS GIS traffic data layer to identify roadway segments without traffic coverage. As shown in

Table 13, the combined network comprises approximately 6,785 miles, of which 2,121 miles (31.3%) are covered. This results in an overall coverage gap of 4,664 miles (68.7%). This information is detailed in

Table 13. The gaps as found in the analysis have mostly been greatly reduced due to ITD running the local roadway estimation tool after the gap analysis was performed.

The results shown in Figure 13 to Figure 16 illustrate that the coverage gaps are distributed across substantial portions of the roadway network, particularly on local roads that are not represented in the HPMS traffic layer. Light grey and white segments show local roadways with no reported AADT data. The findings indicate a need for additional traffic counts and, where field data are unavailable, a consistent method for estimating AADT from nearby and comparable roadway corridors.

Table 13. Roadway Network Traffic Coverage and Coverage Gaps by Study Area

Area	Network (mi)	Coverage (mi)	Gap (mi)	Gap (%)
Bannock County	971	276	695	71.6%
COMPASS	5,546	1,778	3,768	67.9%
City of Lewiston	268	67	200	74.8%
Total	6,785	2,121	4,664	68.7%

Prior to the ITD local roadway estimation process, Figure 13 shows the white roadway segments as missing AADT values and on the higher roadway types of traffic volumes with green to yellow to orange then red line colors to show traffic flows.

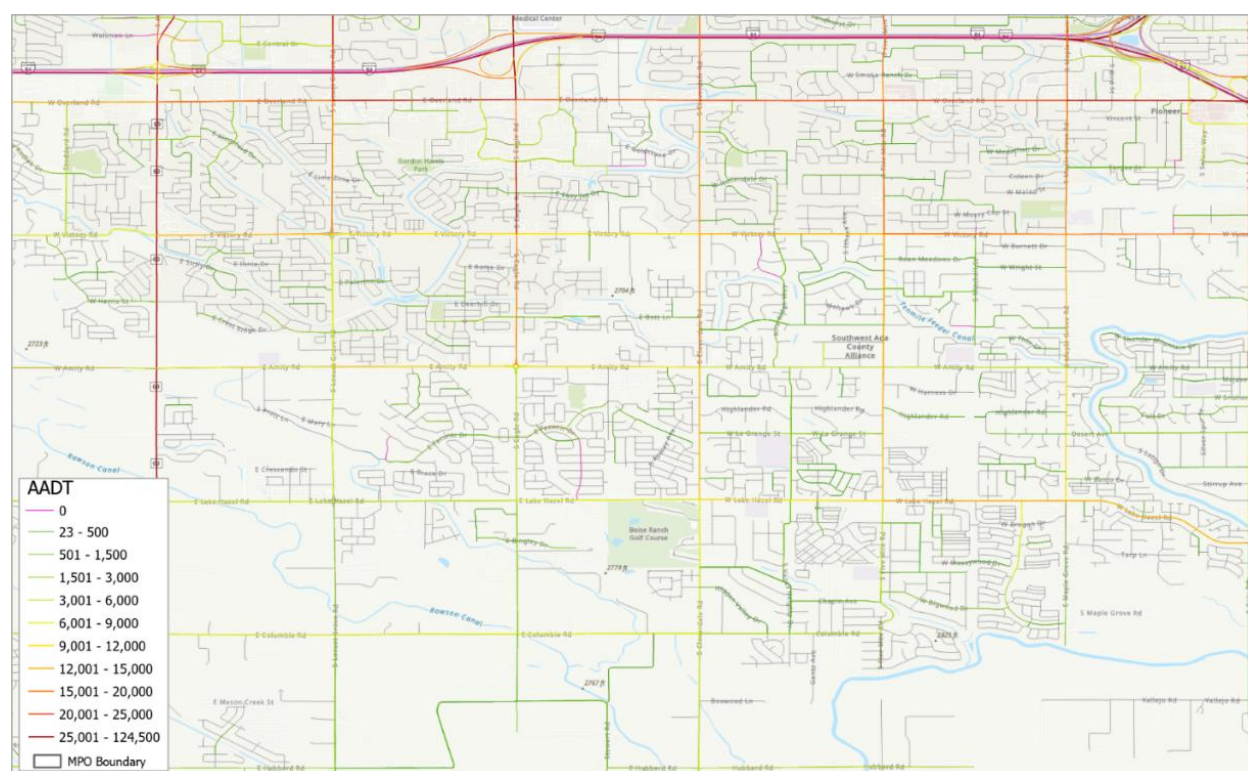


Figure 13. 2024 HPMS GIS and portable counts traffic data layer with local roadway data missing (COMPASS) with most light grey pictured local roadways that do not have AADT values

In the town of Lewiston shown in Figure 14 the roadway network has higher functionally classified roadways show colored lines and the local roadways have grey lines which show no AADT values.

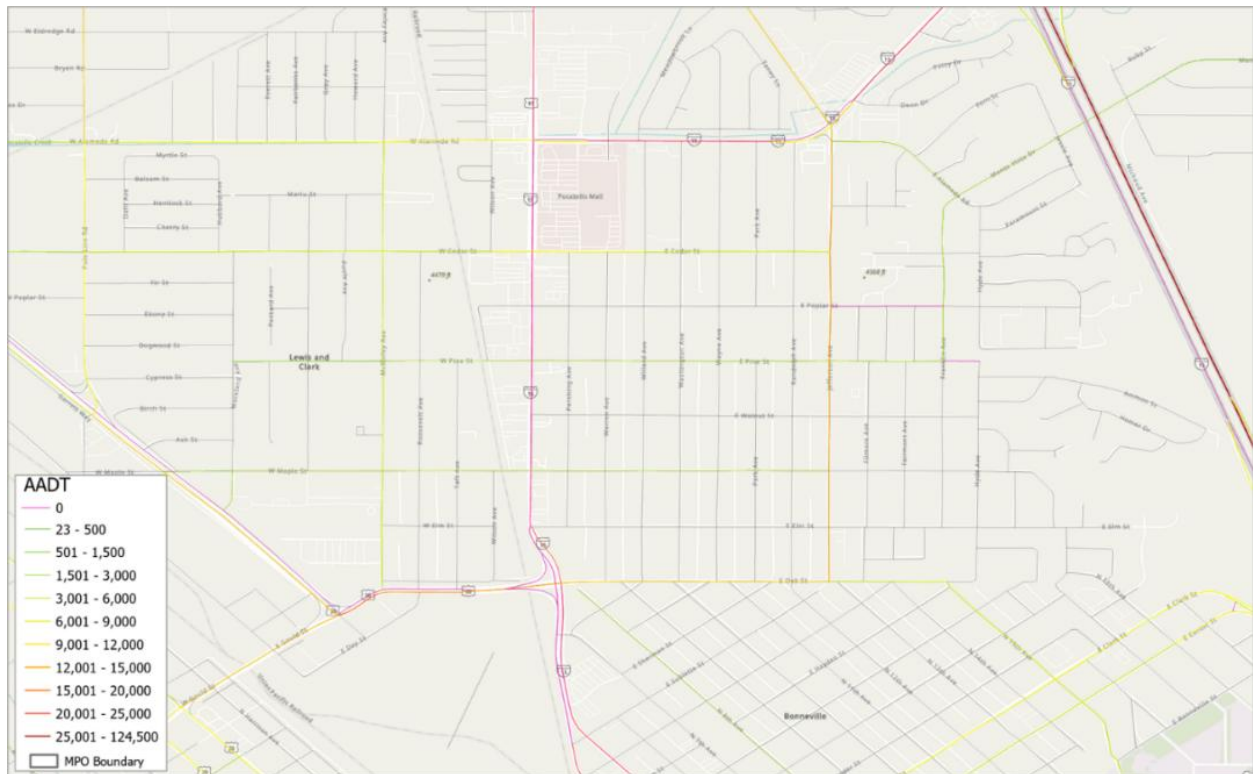


Figure 15. 2024 HPMS GIS traffic data layer with local roadway data missing (Bannock County)
Most light grey pictured local roadways do not have AADT values.

In contrast to other areas studies for the gap analysis Figure 16 shows the COMPASS GIS dataset that had more local roadway data than any other area but even this dataset was missing local AADT data for some local roadway segments. As with other analysis of the GIS data, the data for the most part showed very consistent good quality with conservation of flow attributes followed rather well.

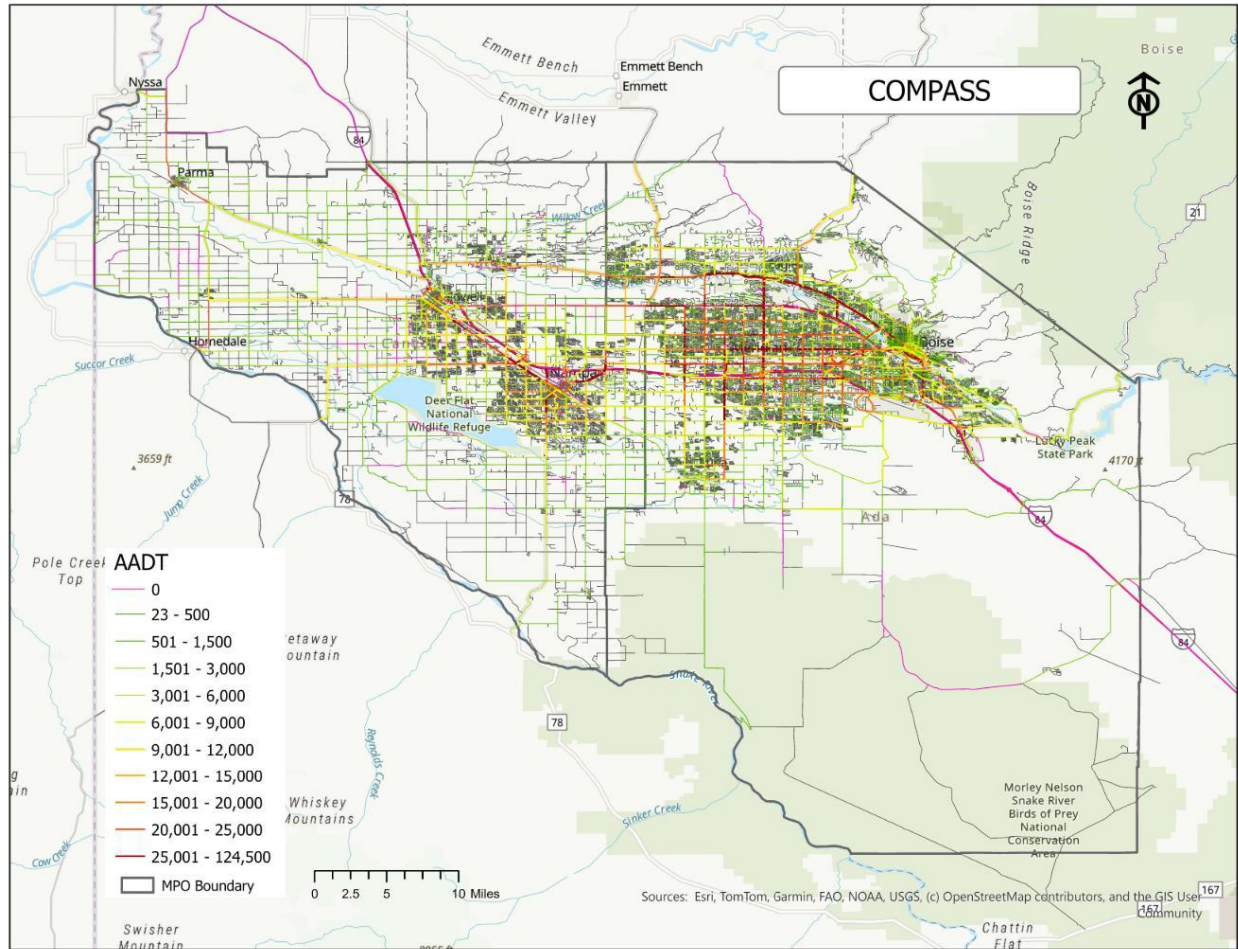


Figure 16. Map of COMPASS Area Showing AADT Reported on Many Local Roadways

6.4 Data Quality Analysis

The gap analysis also identified instances where reported traffic volumes appear inconsistent with the surrounding roadway network, indicating possible data quality issues. As shown in Figure 7, W Rossi St. is assigned an AADT of 20,000, yet the roadways connecting to it carry substantially lower volumes, W Parkcenter Boulevard, the primary arterial in this area, reports 5,600, and the adjacent local streets range from roughly 540 to 1,400. Because a segment's traffic volume is generally consistent with the corridors that feed it, an isolated value of this magnitude more likely reflects a data entry or coding error than actual conditions. Segments exhibiting this type of inconsistency may need to be reviewed and verified against field counts or an established AADT estimation method.

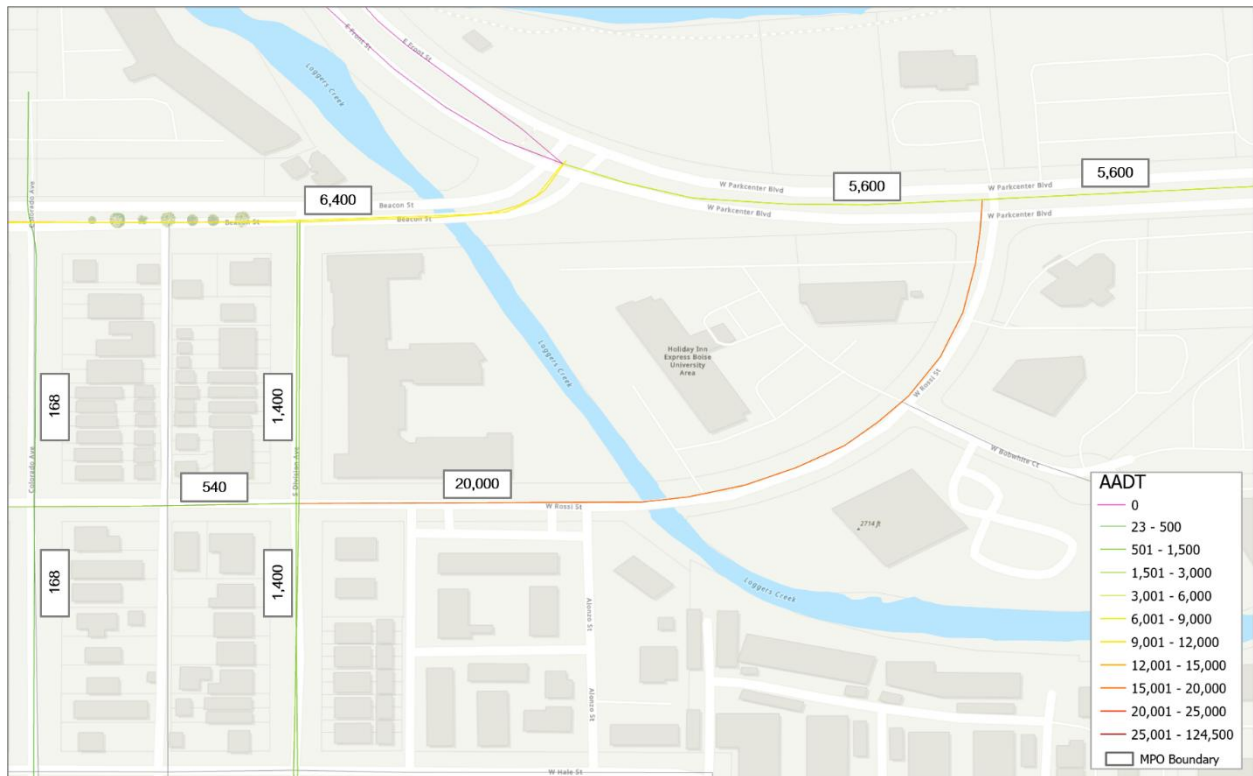


Figure 17. Map of COMPASS showing AADT where the analysis found data quality issues where conservation of flow principles was not followed with the data reported

7. Conclusions and Recommendations

The assessment findings indicate that ITD has made meaningful progress in engaging local agencies and MPOs in traffic data sharing, communicating appropriate data uses, and helping agencies make more effective use of available traffic data. ITD's use of MS2 provides an important platform for annualizing, reporting, storing, and managing traffic data in a way that supports the principle of collecting data once, collecting it correctly, and using it many times for future planning, safety, reporting, and decision-making needs. This principle is especially important for local roadway data because local traffic information may come from a variety of traditional and nontraditional sources, including signalized intersections, probe-based devices, "Your Speed Is" signs, local count programs, and other agency-led collection efforts. Establishing consistent methods for processing, validating, documenting, and sharing these data will help ITD and its local partners improve confidence in local AADT values and support broader statewide traffic data management goals.

7.1 Key Findings and Conclusions

7.1.1 Fostering Data Sharing and Collaboration

ITD can continue to strengthen local roadway data sharing by building collaborative partnerships with local agencies and MPOs, supporting adoption of consistent QA/QC practices, assisting agencies with their traffic data needs, and clearly demonstrating the value of high-quality local roadway data. Survey responses and stakeholder discussions indicate that local agencies are interested in working with ITD on local roadway traffic data. By building on this interest, ITD can establish a more coordinated, team-oriented approach that improves data reliability, supports consistent local AADT development, and creates a stronger foundation for long-term statewide traffic data management.

7.1.2 Training

ITD should provide local agencies and MPOs with accessible training opportunities, such as recorded video sessions, live webinars, or in-person workshops, to support consistent traffic data collection, QA/QC, annualization, and data sharing practices. Training should focus on how agencies can use MS2 and ITD-supported methods to review, annualize, and validate local traffic data. Providing this support would help local agencies better understand the results of their data collection efforts, identify where additional counts may be needed, and recognize the value of collecting high-quality traffic data that can be used for multiple planning, safety, reporting, and decision-making purposes. These training efforts could also help foster future data sharing agreements by building trust, improving transparency, and establishing common expectations between ITD, MPOs, and local agencies.

7.1.3 Create a Data Sharing Committee (DSC)

ITD should consider forming a Data Sharing Committee (DSC) to support ongoing coordination with local agencies and MPOs. The DSC could provide a forum for annual training, data sharing discussions, QA/QC guidance, and review of common data issues affecting both ITD and local agencies. Establishing a central champion or coordinator within the committee would help manage questions, resolve data challenges, understand local agency processes, and maintain consistency in how local traffic data are collected, processed, annualized, documented, and shared. This committee would also help sustain long-term collaboration and support a more coordinated statewide approach to local roadway traffic data management.

7.1.4 Data Management

ITD should continue to promote the need for local roadway traffic data, documenting existing data gaps, and the importance of data quality. Local agencies should understand how their traffic data management is important to successfully perform safety analysis, bridge and asset management, planning, reporting, and other statewide and local decision-making needs. Clear communication about data (GIS mapping and others...) uses can also help demonstrate how incomplete, outdated, or inaccurate data may lead to incorrect assumptions, incorrect assessment of needs, or less reliable prioritization of safety, bridge, and other transportation improvements. By improving transparency, ITD can help local agencies recognize the value of high-quality data and support more consistent participation in data collection, QA/QC, and sharing efforts.

Listed here are some local traffic data quality control (QC) methods to consider:

1. Maximum value threshold – initially set it to 500 or something less based on historical data from the site.
2. Directional data check – using a 40%-60% threshold from a 50% split often is suitable check on local roads. This is a lot wider value than higher FC roads (normally 47% to 53%).
3. 3 am vs. 3 pm check – with the afternoon value expected to be higher.
4. Zeros check (consecutive and/or adjacent) – use 6 or 7 at least with maybe for really low volume roads like a cul-de-sac being maybe 10-12 consecutive zero's being used.
5. If class data is available perform a by class check – this can be a great check for axle spacing issues and others.
6. Historical data check – 200% to 400% variance or could use % based above a threshold (using a 100 or 200 vehicle threshold) or number of vehicles if check is below the threshold.
7. Speed check for anything over say 45 mph being an issue for a 20 or 25-mph road.
8. HOD and DOW temporal checks – trending for local counts can show large shifts over hours with errors in the data and this can be done temporally

All of these and other checks should have ranges for what has historically taken place and what is acceptable. For example, if a road is local but has sometimes speeders who go 50 mph, then you might for that site set the QC speed to be 55 mph. Same can be true for consecutive zeros if the historical data shows 4 hours of zeros at most then use QC that is set to 6 hours of consecutive zeros. If the historical data has 10 zeroes, then set this check to be a wider 11-12 consecutive zeros in a row. This consecutive zeros check can also be performed across days if sophisticated QC is available that can provide this feature.

7.2 Implementation Considerations and Next Steps

The implementation considerations identify practical steps ITD can take to move from assessment findings to a more coordinated statewide local roadway traffic data program. These considerations focus on actions that will strengthen partnerships with local agencies and MPOs, improve traffic data quality and consistency, expand use of MS2 and related QA/QC procedures, support training and technical assistance, and establish repeatable processes for data sharing, annualization, documentation, and long-term program management. Together, these considerations provide a path forward for improving local AADT coverage, supporting MIRE compliance, and increasing confidence in local roadway traffic data quality and completeness when used for safety, planning, reporting, and decision-making.

7.2.1 Host Annual Meeting

ITD should consider hosting an annual in-person meeting or training day through the Data Sharing Committee (DSC) to bring local agencies, MPOs, and ITD staff together with a focus around local roadway traffic data practices. The meeting could include training on traffic data collection equipment, MS2 and related software tools, QA/QC procedures, annualization methods, and reporting resources that help agencies understand how their data are processed and used. The event could also include peer learning opportunities where agencies share successful approaches, common challenges, and lessons learned from their own traffic data programs. To demonstrate the value of local counts, ITD could include end-use examples detailing how local AADT data supports planning, safety analysis, project prioritization, bridge or asset management, or other transportation decisions. This annual meeting will strengthen relationships, improve technical consistency, and reinforce the importance of collecting and sharing high-quality local roadway traffic data.

7.2.2 Develop Partnership MOUs

ITD should consider developing memoranda of understanding (MOUs) with local agencies to formalize traffic data collection, sharing, and use expectations. These agreements could help incentivize local participation by providing access to traffic counters, supplies needed for count locations, and maps identifying local roadway segments where additional counts are needed. Local agencies could use the equipment to collect data on priority segments at minimal cost, creating a mutually beneficial approach that helps ITD fill local AADT data gaps while also providing local agencies with useful traffic information

for their own planning and decision-making needs. In return, ITD could provide schedules with mapped data outputs, corridor reports, and summarized traffic data products that local agencies can use for Safe Routes to School, MIRE-related safety analysis, local planning, project prioritization, and other transportation program needs.

7.2.3 Evaluate Data Quality Practices

ITD should take a long-term approach to sustaining local roadway traffic data quality by providing resources, guidance, and support to local agencies and MPOs, as allowed under applicable DOT policies. This support could include access to traffic counting equipment, needed supplies, training, data reports, and clear QA/QC methods so agencies understand how their data are reviewed, validated, and used. ITD should also consider the permanent sites on local roadways and ensure enough exist for proper factor development. Continually communicating and listening to local agency concerns related to staffing, equipment availability, collection schedules, technical capacity, and reporting needs, will reduce barriers and obstacles. Establishing clear data quality standards, needed accuracy and expectations (count schedules to be completed) would help agencies understand the level of accuracy, completeness, documentation, and timeliness needed for local AADT data. ITD could also consider incentives for agencies that meet these expectations, such as recognition from ITD leadership, an annual award for outstanding local or MPO traffic data collection efforts, access to additional resources, or consideration in prioritizing future safety or data-related support.

This document provides ITD with a foundation information for improving how local roadway traffic data are collected, managed, shared, and used across Idaho. The assessment findings show that many local agencies and MPOs already collect and use traffic data, but practices vary widely in terms of count coverage, frequency, annualization, quality control, documentation, and data sharing. The report also identifies opportunities for ITD to build on existing relationships, expand use of MS2, provide training and technical guidance, support peer learning, and establish more consistent statewide expectations for local AADT data development. These actions are important because reliable local roadway traffic data supports FHWA MIRE compliance, safety analysis, planning, project prioritization, bridge and asset management, reporting, and other transportation decision-making needs. By implementing the recommendations in this assessment, ITD can strengthen statewide traffic data stewardship, improve confidence in local AADT values, and create a sustainable framework for collecting data once, collecting it correctly, and using it many times.

The gap analysis confirms that improving local roadway AADT coverage will require a coordinated, repeatable, and well-documented approach that combines data identification, quality control, local agency coordination, and long-term program support. Key next steps for ITD include identifying missing and outdated local roadway AADT values by jurisdiction, establishing clear QC and GIS reporting thresholds, reviewing temporal trends and conservation of flow, resolving GIS alignment issues, and communicating findings in a format that supports agency review and good decision-making. ITD should also continue building partnerships with MPOs, counties, and local agencies through shared data portals, standard templates, annual coordination meetings, MS2 training, and documented data-sharing

procedures. Advancing these actions, supported by dedicated local roadway data program ownership, will help ITD develop a more complete, consistent, and defensible local roadway traffic dataset for MIRE, HPMS, safety analysis, planning, and other statewide transportation data needs.

7.3 Conclusions and Other Recommended Strategies

The implementation plan and roadmap demonstrate that ITD has made meaningful progress engaging local and MPO agencies in traffic data sharing. These partners collect valuable traffic data that has not always been provided to ITD because of differences in formats, processes, resources, or annualization methods. Using MS2 to annualize, report, store, and manage local traffic data will support the principle of collecting data correctly - once and using it many times for future planning, safety, reporting, and decision-making needs. This approach is especially important for local data that may come from non-traditional sources, such as signalized intersections, probe-based data, third-party datasets, or individual local collection efforts. Applying consistent processing and quality control criteria will help ITD and its partners use these varied data sources more effectively and strengthen the statewide local roadway traffic data program.

7.4 Other Major Strategies

7.4.1 Major Strategy #1: Foster Data Sharing

ITD should foster data sharing by building a team-focused approach with local and MPO agencies. This includes helping agencies adopt QA/QC practices, supporting their data needs, and demonstrating how high-quality local roadway data supports better planning, safety analysis, reporting, and decision-making. By emphasizing shared responsibility and the value of reliable data, ITD can strengthen partnerships and help establish a more coordinated, statewide approach to local roadway traffic data management. Agencies have also expressed interest in working with ITD on local roadway data, which provides a strong foundation for continued collaboration.

7.4.1.1 Major Strategy Action #1 for Strategy #1: Make Local Agency Roadway Data on-Site Visits

ITD should conduct LOCAL AGENCY ROADWAY DATA ON-SITE VISITS with local agencies to support data sharing, review existing quality control practices, and identify data gaps or quality issues that need to be addressed. These visits provide an opportunity to discuss local roadway count programs directly with agency staff, understand how data are collected and managed, and identify practical steps for improving data completeness and reliability. By engaging agencies in the field, ITD can elevate the importance of local roadway data, strengthen relationships with data providers, and encourage greater ownership of the information submitted for statewide use.

7.4.2 Major Strategy #2: Provide Training

ITD should establish regular training opportunities for MPOs, counties, cities, and local agencies through live sessions, recorded videos, and hands-on support. Training should focus on building consistent practices for data sharing agreements, data formatting, QA/QC, annualization, and centralized loading of local roadway traffic data into MS2. Providing recurring training will help agencies understand ITD's data requirements, improve the quality and consistency of submitted data, and strengthen statewide coordination around local roadway traffic data management.

7.4.2.1 Action for Strategy #2: Provide Training

ITD should provide regular training to help local agencies and MPOs properly format local traffic data, apply quality control methods, and annualize counts consistently. Training should be offered online, in person, or at local agency locations where ITD is working to obtain and improve local roadway traffic data.

7.4.3 Major Strategy #3: Develop a Data Sharing Committee

ITD should establish a Data Sharing Committee (DSC) to improve communication and coordination among ITD, MPOs, and local agencies. The DSC would provide a central point of accountability for identifying, tracking, and resolving local roadway traffic data issues. It would also help ITD better understand local agency methods and processes while supporting consistent data sharing, quality control, and program coordination across agencies.

7.4.3.1 Action for Strategy #3: Engage Members

ITD should establish an active and well-supported Data Sharing Committee with clear oversight responsibilities and practical tools for local AADT data sharing. The committee should hold annual training, track and resolve data-sharing issues, document success stories, and regularly engage local and MPO agencies. These activities will help reduce missing local roadway data, improve data quality, and strengthen agency participation in the statewide traffic data program.

7.4.4 Major Strategy #4: Be Transparent

ITD should improve transparency around the need for local roadway data and the locations where data are missing, old or incomplete. This strategy will help local agencies, MPOs, counties, and other partners understand how local traffic data are needed and why accurate, complete data are important for safety, bridge, traffic operations, and planning decisions. By clearly communicating data gaps and the consequences of missing and/or inaccurate data, ITD can encourage stronger local participation and support more informed transportation decisions.

7.4.4.1 Action for Strategy #4: Be Transparent

Through the Data Sharing Committee, ITD should clearly communicate local roadway data issues to the agencies and partners responsible for or affected by those areas. Sharing this information will help local agencies understand the specific data gaps, quality concerns, and decision-making needs they can help to address. ITD should also establish actionable goals that show how improved local traffic data can lead to better outcomes, such as more accurate safety analysis, stronger project prioritization, and more informed transportation decisions.

7.5 Recommended Methodology

7.5.1 Conduct Annual Data Sharing Committee Meetings

ITD should conduct, at a minimum, annual Data Sharing Committee meetings and provide one in-person training day for local agencies to learn from one another. Training should include data collection equipment, software tools, reporting options, and examples that show how local traffic data are used in decision-making. Providing practical end-use cases will help agencies understand the value of submitting local counts and demonstrate how reliable data can support planning, safety analysis, reporting, and other informed transportation decisions.

7.5.2 Develop and Implement MOUs

ITD should consider developing and implementing memoranda of understanding (MOUs) with local agencies to support local roadway traffic data collection. These agreements could incentivize participation by providing traffic counters, supplies, and a documented loaner counter program for roadway segments where additional counts are needed. Through this approach, local agencies could collect data on priority segments at minimal cost while also expanding ITD's access to local roadway traffic data. ITD could further support participating agencies by providing maps, corridor reports, and data summaries that can be used for Safe Routes to School, MIRE safety analysis, and local planning activities.

7.5.3 Sustaining Data Quality Methods and Practices

Incentivize data collection improvement quality measures by providing resources as permitted by ITD such as types of equipment, supplies, training and data reports. Give time during workshops and data sharing events for those around the state to share what they do so others can be inspired by each other. Provide documented QC methods for the agencies to know how data needs to be reviewed. Take a long-term goal approach, listening to local agencies collection issues, staffing challenges and other concerns and work to mitigate or remove as many of these challenges as possible. Provide an award (given out by ITD leadership) for the best local collection effort by a local, county or MPO agency each year. Set

standards or expectations for the agencies. When these are met some type of incentive is provided to the agency (additional funding or higher priority for safety improvements).

8.0 References

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- Wisconsin Department of Transportation. 2021. Local and 3rd Party Data Sources Study.

Note: Many of these references are for those entries in Table 9, titled Peer Agency Local Roadway Traffic Data Management Best Practices.

9.0 Appendices

Appendix A. Project Work Plan and Kick-off Meeting Summary

Kick-off Meeting Summary

Date: February 3, 2026

Location: Virtual Meeting

Subject: Project Kick-off Meeting

Attendees: Margaret Pridmore, Liz Stolz, Steven Jessberger

Meeting Purpose

The kick-off meeting was conducted to initiate the project, confirm the scope of work, establish communication procedures, and review the overall project schedule and deliverables.

Key Discussion Items

- Review of the project scope and associated tasks
- Review of the project work plan and schedule
- Review of anticipated project deliverables
- Discussion of invoicing procedures and administrative coordination

Project Work Plan Summary

The project work plan was developed to guide execution of the study and ensure completion of all project objectives within the established schedule. Key elements of the work plan included the following:

Project Goals

Provide technical expertise and recommendations related to local roadway traffic data collection programs and practices to support ITD in managing roadway data resources, particularly for Functional Class 6 and 7 roadways.

Project Assumptions and Constraints

- Regular project coordination and status updates would be conducted throughout the project duration.

- Existing traffic data collection processes and procedures are sufficiently documented and available for review.
- Timely access to data, staff, and stakeholder input would be provided as needed.

Project Risks and Scope Control

- Maintaining project activities within the approved Scope of Work (SOW).
- Ensuring project tasks remain aligned with the agreed project objectives, schedule, and deliverables.

Project Methods and Approach

- Coordinate closely with ITD staff throughout the project.
- Review and evaluate practices used by peer agencies and external organizations.
- Incorporate stakeholder feedback and research findings as they become available.
- Explore innovative and scalable methods for local roadway traffic data collection and management.

Project Schedule and Deliverables

The project schedule established milestones and deliverables necessary to achieve project completion by September 30, 2026, including submission and approval of the final technical document.

Kick Off	Research, Gather Information, ITD Assessment	Gap Analysis	Develop Methods and Approach	Develop Implementation Plan	Develop Final Report
Month 1	Months 2-3	Months 4-5	Months 5-6	Month 7	Month 8

Roles

- **SRF:** Lead all technical work, stakeholder engagement, and deliverable development.
- **ITD:** Provide access to data, staff, and resources; review and approve deliverables; facilitate stakeholder coordination.

Appendix B. Local Agency Survey

Questions

1. What is the name of your local jurisdiction?
2. How many of each type of traffic counts do you perform each year?
 - a. Volume
 - b. Speed
 - c. Class
 - d. Ped/Bike
 - e. Other
3. Do you have a need for traffic data? (Yes or No)
4. If answered yes to the previous question, what data would be helpful that you do not already have?
5. Do you annualize your traffic data? (Yes or No)
6. If you answered yes to the previous question, how is it done?
7. If you answered no, would you be interested to use the ITD method?
8. Do you use any traffic data report? (Yes or No)
9. If you answered yes, what are they and where do you get the reports? Any additional comments?

Appendix C. MPOs Survey

Questions

1. What data does your MPO find useful for their processes? (such as Volume, classification, seasonal factors, growth factors, axle factors, directional information, etc.)
2. How do you obtain your traffic data (for both motorized and non-motorized)? Please describe who provides the data and the type of data provided. It can be categorized (example: "we collect our own traffic data and Pocatello supplements it") or it can be as specific as you wish it to be (example: "ACHD provides speed, class, and volume files from pneumatic tube counts").
3. Are there documented standards or guides that you reference for collection, analysis, and modeling? (Such as the Traffic Monitoring Guide, the Model Inventory of Roadway Elements, etc.?)
4. What kinds of deadlines does your MPO have that require traffic data and that may be impacted by collection and data publication from other entities, such as the DOT, local highway districts, cities, and other agencies?
5. Will your office in the future need less, more, or the same amount of traffic data or data collection efforts?
 - a. More
 - i. What is needed that is currently missing?
 - b. Less
 - i. What isn't needed that is collected now?
(Example, some agencies may anticipate that eventually data will be purchased via probe data once the saturation levels and consistency have become more accurate, and in doing so physical collection may be reduced.)
6. Are there specific levels of data completeness for your processes and methods to be successful? (Examples: More classification data, weight data, speed data, lane-level data, classification data)
7. What are the most useful sources of traffic data currently provided by ITD? (INRIX, Continuous Counters, Short Term (duration), etc.?)
8. Is your agency's transportation-related data available in a GIS file? For example, are the actual traffic counts displayed on a map?
9. What time-slices do MPOs need for traffic data?
 - a. Annual
 - b. Monthly
 - c. Day of Week

- d. Hourly
- e. Quarter-Hour
- f. 5-Minutes
- g. Live

For example, hourly and quarterly data can be used for analyzing peak hour information, while monthly data provides the seasonal distribution of traffic at a location.

10. Is there any aspect of your work that these questions didn't cover that you would like the reviewers of these interviews to know about, that would properly help guide our project?
11. What data quality checks do you perform?
12. Would your MPO be open to sharing local traffic data with ITD for statewide transportation planning (e.g., safety)? What conditions or barriers would need to be met (e.g., data use agreements, anonymization)?

Appendix D. GIS Local Data Review Bins

Recommended GIS data ranges to be used for local roadway visual checks and conservation of flow, with 16 AADT bins. Use these suggested segmented bins for FC 6 and 7 roadway AADT reviews.

- 0 – bright pink or blue with line weight (thickness) of 2
- 1–35
- 36–70
- 71–120
- 121–200
- 201–350
- 351–600
- 601–1,000
- 1,001–1,800
- 1,801–2,000
- 2,001–3,800
- 3,801–6,000
- 6,001–10,000
- 10,001–17,000
- 17,001–25,000
- >25,001

Appendix E. External Links

- <https://data-iplan.opendata.arcgis.com/>
- [The Community Planning Association of Southwest Idaho \(COMPASS\) is the Metropolitan Planning Organization \(MPO\) for Ada and Canyon Counties, Idaho](#)
- [COMPASS MPO GIS data open data](#)
- [COMPASS MPO Portable Counts](#)
- [COMPASS MPO ATR Counts](#)
- <https://share-open-data-compassidaho.hub.arcgis.com/search>