



Appendix C- All Artificial Intelligence (AI) Use Cases

January 2026 AI Strategic Plan Update

Table 1: Use Case Groupings and Use Case Titles

Major Groupings	Use Case Titles
AA. AI-Powered Optimization for Stockpiles, Fleet, and Asset Management	1. AI-Powered Stockpile Location and Material Inventory Management
AA. AI-Powered Optimization for Stockpiles, Fleet, and Asset Management	2. Intelligent Material Allocation and Sharing
AA. AI-Powered Optimization for Stockpiles, Fleet, and Asset Management	3. Comprehensive Asset Management for Roadways, Facilities, and Fleet
AA. AI-Powered Optimization for Stockpiles, Fleet, and Asset Management	4. AI-Enabled eTicketing for Material Management
AA. AI-Powered Optimization for Stockpiles, Fleet, and Asset Management	5. Predictive Material Usage Analysis and Forecasting
AA. AI-Powered Optimization for Stockpiles, Fleet, and Asset Management	6. Automated Equipment Ordering and Lifecycle Management
A. Using AI to Analyze TxDOT's Infrastructure	1. Intelligent Utility Mapping and Conflict Detection
A. Using AI to Analyze TxDOT's Infrastructure	2. AI-Assisted Bridge Inspection and Deterioration Prediction
A. Using AI to Analyze TxDOT's Infrastructure	3. AI-Driven Sign Inventory and Compliance
A. Using AI to Analyze TxDOT's Infrastructure	4. Automated Survey Data Collection and Processing
A. Using AI to Analyze TxDOT's Infrastructure	5. AI-Powered Environmental Impact Assessment
A. Using AI to Analyze TxDOT's Infrastructure	6. Intelligent Inventory Management and Maintenance
A. Using AI to Analyze TxDOT's Infrastructure	7. AI-Assisted ITS Device Monitoring and Troubleshooting
A. Using AI to Analyze TxDOT's Infrastructure	8. Predictive Material Testing and Quality Control

Major Groupings	Use Case Titles
A. Using AI to Analyze TxDOT's Infrastructure	9. AI-Powered Pedestrian and Bicycle Data Collection and Analysis
BB. Streamline IT Infrastructure with AI-Powered Optimization	1. AI-Driven Equipment Usage Monitoring and Optimization
BB. Streamline IT Infrastructure with AI-Powered Optimization	2. Intelligent Inventory Management for IT Assets
BB. Streamline IT Infrastructure with AI-Powered Optimization	3. AI-Powered IT Infrastructure Gap Analysis
BB. Streamline IT Infrastructure with AI-Powered Optimization	4. Automated Software Renewal and Purchase Optimization
BB. Streamline IT Infrastructure with AI-Powered Optimization	5. Comprehensive IT Asset Inventory Management
BB. Streamline IT Infrastructure with AI-Powered Optimization	6. Proactive IT System Monitoring and Downtime Prevention
B. Strategic Project Prioritization at TxDOT with AI Insights	1. Project Prioritization
B. Strategic Project Prioritization at TxDOT with AI Insights	2. Funding Optimization and Allocation
B. Strategic Project Prioritization at TxDOT with AI Insights	3. Planning for Portfolio Resilience
B. Strategic Project Prioritization at TxDOT with AI Insights	4. Predictive Maintenance Planning
B. Strategic Project Prioritization at TxDOT with AI Insights	5. Automated Workflows and Documentation
B. Strategic Project Prioritization at TxDOT with AI Insights	6. Optimizing Facilities and Resources for Truck Needs
B. Strategic Project Prioritization at TxDOT with AI Insights	7. AI-Powered Conflict Analysis for Construction
B. Strategic Project Prioritization at TxDOT with AI Insights	8. Infrastructure Design and Land Acquisition Predictions
C. AI in Plans, Specifications, and Estimates (PS&E) Review	1. Design Verification & Error Detection
C. AI in Plans, Specifications, and Estimates (PS&E) Review	10. Design Refinement & Best Practices
C. AI in Plans, Specifications, and Estimates (PS&E) Review	11. 3D Modeling & Data-Driven Design

Major Groupings	Use Case Titles
C. AI in Plans, Specifications, and Estimates (PS&E) Review	2. Safety Optimization
C. AI in Plans, Specifications, and Estimates (PS&E) Review	3. Document Clarity & Consistency
C. AI in Plans, Specifications, and Estimates (PS&E) Review	4. Quality Assurance & Insights
C. AI in Plans, Specifications, and Estimates (PS&E) Review	5. Expert Support
C. AI in Plans, Specifications, and Estimates (PS&E) Review	6. Data-Driven Design
C. AI in Plans, Specifications, and Estimates (PS&E) Review	7. Long-Term Design Viability
C. AI in Plans, Specifications, and Estimates (PS&E) Review	8. Pavement Optimization
C. AI in Plans, Specifications, and Estimates (PS&E) Review	9. Statewide Best Practices and Design Standardization
CC. AI Predictive Project Planning	1. AI-Powered Project Scheduling Automation
CC. AI Predictive Project Planning	2. Intelligent Resource and Roadway Overlap Optimization
CC. AI Predictive Project Planning	3. AI-Assisted Project Progress Monitoring and Delay Analysis
CC. AI Predictive Project Planning	4. Automated Plan Comparison and Discrepancy Detection
CC. AI Predictive Project Planning	5. AI-Driven Project Management Efficiency Evaluation
DD. AI-Powered Vehicle Management	1. AI-Powered Vehicle Performance Analysis
DD. AI-Powered Vehicle Management	2. Predictive Equipment Failure Detection
DD. AI-Powered Vehicle Management	3. Integrated Fleet Telematics Data Analysis
DD. AI-Powered Vehicle Management	4. Single Point of Failure Prediction
DD. AI-Powered Vehicle Management	5. AI-Assisted Vehicle Maintenance Imaging

Major Groupings	Use Case Titles
D. Objective Bid Item Estimation: Optimizing TxDOT Project Analysis with AI Insights	1. AI-Powered Bid Prediction and Estimation
D. Objective Bid Item Estimation: Optimizing TxDOT Project Analysis with AI Insights	2. Intelligent Bid Comparison and Vendor Selection
D. Objective Bid Item Estimation: Optimizing TxDOT Project Analysis with AI Insights	3. AI-Assisted Change Order Management
D. Objective Bid Item Estimation: Optimizing TxDOT Project Analysis with AI Insights	4. Predictive Models for Accurate Bid Pricing and Estimation:
D. Objective Bid Item Estimation: Optimizing TxDOT Project Analysis with AI Insights	5. Automated Bid Analysis and Validation
E. TxDOT's AI-Powered Approach to Traffic Flow Management	1. AI-Powered Signal Timing Optimization
E. TxDOT's AI-Powered Approach to Traffic Flow Management	10. AI-Optimized Communication Strategies for Traffic Management
E. TxDOT's AI-Powered Approach to Traffic Flow Management	2. Shortened Green Light Phases When Unneeded
E. TxDOT's AI-Powered Approach to Traffic Flow Management	3. Dynamic Signal Phasing for Daily High-Volume Traffic
E. TxDOT's AI-Powered Approach to Traffic Flow Management	4. AI-Powered Signal Timing for Special Events
E. TxDOT's AI-Powered Approach to Traffic Flow Management	5. AI-Powered Incident Response
E. TxDOT's AI-Powered Approach to Traffic Flow Management	6. AI-Powered Traffic Management Solutions
E. TxDOT's AI-Powered Approach to Traffic Flow Management	7. Data-Driven Safety and Infrastructure Insights
E. TxDOT's AI-Powered Approach to Traffic Flow Management	8. AI-Assisted Analysis for Complex Traffic Solutions
E. TxDOT's AI-Powered Approach to Traffic Flow Management	9. AI-Informed Design Standard Improvements
F. AI for Data-Driven Crash Hotspot Mitigation	1. AI-Driven Hot Spot Detection

Major Groupings	Use Case Titles
F. AI for Data-Driven Crash Hotspot Mitigation	2. Comprehensive Crash Data Analysis
F. AI for Data-Driven Crash Hotspot Mitigation	3. Automated Countermeasure Evaluation
F. AI for Data-Driven Crash Hotspot Mitigation	4. Crash Data Screening and Anomaly Detection
F. AI for Data-Driven Crash Hotspot Mitigation	5. Privacy-Compliant Problem Driver Identification
F. AI for Data-Driven Crash Hotspot Mitigation	6. Safety Measure Effectiveness Analysis
G. AI-Enabled Decision Support for Emergencies	1. AI-Powered Resource Optimization for Disruptive Events
G. AI-Enabled Decision Support for Emergencies	10. AI-Enhanced Traffic Management Centers
G. AI-Enabled Decision Support for Emergencies	11. Real-Time Situational Awareness
G. AI-Enabled Decision Support for Emergencies	12. Emergency Coordination & Collaboration:
G. AI-Enabled Decision Support for Emergencies	2. Weather Monitoring and Asset Vulnerability Prediction
G. AI-Enabled Decision Support for Emergencies	3. Emergency Fleet Optimization Pre-Event
G. AI-Enabled Decision Support for Emergencies	4. Weather-Related Closure Recommendations
G. AI-Enabled Decision Support for Emergencies	5. Tornado Detection via Weather System Tracking
G. AI-Enabled Decision Support for Emergencies	6. Real-Time Treatment Strategy Effectiveness Monitoring
G. AI-Enabled Decision Support for Emergencies	7. Wrong-Way Driver Alert System Development
G. AI-Enabled Decision Support for Emergencies	8. Emergency Route Coordination Using AI
G. AI-Enabled Decision Support for Emergencies	9. Incident Response Planning for Planned and Unplanned Corridor Events
H. AI-Driven Traffic Analysis Guides TxDOT's Infrastructure Investments	1. Predicting Traffic Demand for Informed Infrastructure Investments

Major Groupings	Use Case Titles
H. AI-Driven Traffic Analysis Guides TxDOT's Infrastructure Investments	2. Strategic Demand Forecasting for Proactive Planning and Budgeting
H. AI-Driven Traffic Analysis Guides TxDOT's Infrastructure Investments	3. Proactive Highway Capacity Planning with AI Insights
H. AI-Driven Traffic Analysis Guides TxDOT's Infrastructure Investments	4. Traffic Simulation for Infrastructure Planning
H. AI-Driven Traffic Analysis Guides TxDOT's Infrastructure Investments	5. Public Transit Demand Prediction
I. AI-Optimized Route Suggestions	1. AI-Integrated Traffic Management System
I. AI-Optimized Route Suggestions	2. AI-Assisted Traffic Management for Autonomous Vehicles
I. AI-Optimized Route Suggestions	3. Real-Time Traffic Alerts and Routing
I. AI-Optimized Route Suggestions	4. Personalized Carpool and Rideshare Suggestions
I. AI-Optimized Route Suggestions	5. Optimized Transit Routing and Scheduling
I. AI-Optimized Route Suggestions	6. Intermodal and Intramodal Trip Planning
J. Optimized Road Safety with AI-Powered Incident Analysis and Response	1. AI-Powered Crash Detection and Secondary Crash Prevention
J. Optimized Road Safety with AI-Powered Incident Analysis and Response	2. Proactive Work Zone Safety Monitoring
J. Optimized Road Safety with AI-Powered Incident Analysis and Response	3. Intelligent Incident Detection and Public Notification
J. Optimized Road Safety with AI-Powered Incident Analysis and Response	4. Real-Time Traffic Incident Impact Assessment
J. Optimized Road Safety with AI-Powered Incident Analysis and Response	5. AI-Assisted Incident Response Coordination
K. Data-Powered Optimization of TxDOT Utility Usage	1. AI-Powered Utility Data Analysis and Monitoring

Major Groupings	Use Case Titles
K. Data-Powered Optimization of TxDOT Utility Usage	2. Automated Utility Outage Compilation and Reporting
K. Data-Powered Optimization of TxDOT Utility Usage	3. Intelligent Utility Meter Tracking and Mapping
K. Data-Powered Optimization of TxDOT Utility Usage	4. Zero Use Account Detection and Optimization
K. Data-Powered Optimization of TxDOT Utility Usage	5. Predictive Utility Cost Forecasting and Budgeting
L. Leverage AI for Strategic Speed Limit Evaluation	1. AI-Powered Speed Limit Optimization
L. Leverage AI for Strategic Speed Limit Evaluation	2. Automated Speed Study Analysis
L. Leverage AI for Strategic Speed Limit Evaluation	3. Data-Driven Speed Limit Safety Analysis
L. Leverage AI for Strategic Speed Limit Evaluation	4. AI-Assisted Complaint Validation and Prioritization
M. Prioritize Roadway Health with AI-Enabled Maintenance	1. Predictive Road Health Monitoring
M. Prioritize Roadway Health with AI-Enabled Maintenance	2. AI-Assisted Inspection Scheduling and Prioritization
N. Streamlining Reimbursements: AI-Powered TxDOT Travel and Expenses	1. Personalized Expense Reporting Assistance
N. Streamlining Reimbursements: AI-Powered TxDOT Travel and Expenses	2. AI-Powered Expense Report Automation
N. Streamlining Reimbursements: AI-Powered TxDOT Travel and Expenses	3. Seamless Hotel Expense Integration for Travelers
N. Streamlining Reimbursements: AI-Powered TxDOT Travel and Expenses	4. Intelligent Expense Report Review and Approval
N. Streamlining Reimbursements: AI-Powered TxDOT Travel and Expenses	5. Streamlined Reimbursement Processing
N. Streamlining Reimbursements: AI-Powered TxDOT Travel and Expenses	6. Predictive Analytics for Travel Budget Management
N. Streamlining Reimbursements: AI-Powered TxDOT Travel and Expenses	7. Intelligent Tax Reconciliation and Reimbursement for Finance Managers
O. AI-Enabled Process Automation at TxDOT	1. AI-Driven Process Optimization and Automation

Major Groupings	Use Case Titles
O. AI-Enabled Process Automation at TxDOT	10. AI-Enhanced IT Ticketing and Support
O. AI-Enabled Process Automation at TxDOT	11. Automated Specification Program Management
O. AI-Enabled Process Automation at TxDOT	2. Intelligent Systems Integration and Data Synchronization
O. AI-Enabled Process Automation at TxDOT	3. Automated Policy and Procedure Updates
O. AI-Enabled Process Automation at TxDOT	4. AI-Driven Workflow Optimization
O. AI-Enabled Process Automation at TxDOT	5. Automated Advanced Funding Agreement (AFA) Management
O. AI-Enabled Process Automation at TxDOT	6. Intelligent Maintenance Operations and Inspection Integration
O. AI-Enabled Process Automation at TxDOT	7. Automated Open Records Request Processing
O. AI-Enabled Process Automation at TxDOT	8. AI-Assisted Materials Testing and Analysis
O. AI-Enabled Process Automation at TxDOT	9. AI-Powered Survey Contract Linking
P. GenAI Enabled Document Generation	1. AI-Assisted Damage Claim Reimbursement
P. GenAI Enabled Document Generation	10. AI-Enhanced Illustration and Graphic Creation
P. GenAI Enabled Document Generation	11. Intelligent Customer Service and Question Answering
P. GenAI Enabled Document Generation	12. AI-Powered Safety Campaign Idea Generation
P. GenAI Enabled Document Generation	2. Intelligent Project Application Development
P. GenAI Enabled Document Generation	3. Automated Right-of-Entry Letter Generation
P. GenAI Enabled Document Generation	4. AI-Powered Survey Parcel Description Review
P. GenAI Enabled Document Generation	5. Intelligent Content and Brand Compliance

Major Groupings	Use Case Titles
P. GenAI Enabled Document Generation	6. AI-Assisted Storyboard and Script Generation
P. GenAI Enabled Document Generation	7. Automated Federal Reporting Package Preparation
P. GenAI Enabled Document Generation	8. AI-Powered Environmental Report Generation
P. GenAI Enabled Document Generation	9. Intelligent Manual and Process Document Updates
Q. AI-Powered Contract Management	1. AI-Enhanced Spend Tracking
Q. AI-Powered Contract Management	2. Automated Invoice Processing and Compliance Checking
Q. AI-Powered Contract Management	3. AI-Assisted Contract Development and Issue Resolution
Q. AI-Powered Contract Management	4. Intelligent Procurement Optimization
Q. AI-Powered Contract Management	5. Continuous Contract Compliance Monitoring
Q. AI-Powered Contract Management	6. AI-Driven Vendor Performance Management
Q. AI-Powered Contract Management	7. Proactive Change Management
Q. AI-Powered Contract Management	8. Predictive Project Monitoring
R. TxDOT's AI Upskilling and Knowledge-Sharing Initiative	1. AI Literacy Training Program
R. TxDOT's AI Upskilling and Knowledge-Sharing Initiative	2. AI-Powered Knowledge Sharing Platform
R. TxDOT's AI Upskilling and Knowledge-Sharing Initiative	3. AI-Assisted Training and Support
R. TxDOT's AI Upskilling and Knowledge-Sharing Initiative	4. Tailored AI Training for Key Roles
R. TxDOT's AI Upskilling and Knowledge-Sharing Initiative	5. AI Champion Network
R. TxDOT's AI Upskilling and Knowledge-Sharing Initiative	6. AI Innovation and Idea Management
R. TxDOT's AI Upskilling and Knowledge-Sharing Initiative	7. Interstate DOT Collaboration for AI Training and Best Practices
R. TxDOT's AI Upskilling and Knowledge-Sharing Initiative	8. AI Impact Communication

Major Groupings	Use Case Titles
S. GenAI for Efficient Document Summarization	1. AI-Assisted Job Application and Resume Screening
S. GenAI for Efficient Document Summarization	10. AI-Powered Design Standards Research
S. GenAI for Efficient Document Summarization	11. Automated Regulation Comparison
S. GenAI for Efficient Document Summarization	12. AI-Assisted Industry Monitoring and HR Recommendations
S. GenAI for Efficient Document Summarization	2. Intelligent Policy and Procedure Analysis
S. GenAI for Efficient Document Summarization	3. Automated Video Captioning and Translation
S. GenAI for Efficient Document Summarization	4. Intelligent Photo Metadata Generation
S. GenAI for Efficient Document Summarization	5. AI-Powered Video Content Segmentation
S. GenAI for Efficient Document Summarization	6. Intelligent Meeting Idea Capture
S. GenAI for Efficient Document Summarization	7. Automated Legislative Bill Analysis
S. GenAI for Efficient Document Summarization	8. AI-Assisted Interview Analysis
S. GenAI for Efficient Document Summarization	9. Intelligent Email and Chat Summarization
T. TxDOT's AI-Powered Virtual Assistant	1. TxDOT Secure AI Assistant
T. TxDOT's AI-Powered Virtual Assistant	2. AI-Powered Standards Interpretation
T. TxDOT's AI-Powered Virtual Assistant	3. Intelligent Project Reporting
T. TxDOT's AI-Powered Virtual Assistant	4. AI-Enhanced Crossroads Platform
T. TxDOT's AI-Powered Virtual Assistant	5. Automated Complaint Intake and Triage
T. TxDOT's AI-Powered Virtual Assistant	6. AI-Powered Website Personalization

Major Groupings	Use Case Titles
T. TxDOT's AI-Powered Virtual Assistant	7. Virtual HR Assistant
T. TxDOT's AI-Powered Virtual Assistant	8. AI-Assisted Legal and Policy Guidance
U. Leverage AI for Strategic Talent Management	1. AI-Assisted Hiring and Candidate Screening
U. Leverage AI for Strategic Talent Management	2. Intelligent EIT Placement and Career Development
U. Leverage AI for Strategic Talent Management	3. AI-Driven Workforce Planning and Succession Management
U. Leverage AI for Strategic Talent Management	4. Automated Onboarding and Offboarding Processes
U. Leverage AI for Strategic Talent Management	5. AI-Enhanced Talent Allocation and Project Staffing
U. Leverage AI for Strategic Talent Management	6. Predictive Talent Retention and Turnover Analysis
U. Leverage AI for Strategic Talent Management	7. AI-Powered Employee Development and Career Pathing
V. Leverage AI for Personal Productivity	1. AI-Powered Personal Task Management
V. Leverage AI for Personal Productivity	2. Intelligent Timesheet Automation
V. Leverage AI for Personal Productivity	3. AI-Assisted Email and Deadline Management
V. Leverage AI for Personal Productivity	4. Smart Meeting Scheduling and Optimization
V. Leverage AI for Personal Productivity	5. AI-Driven Task Prioritization and Workflow Optimization
V. Leverage AI for Personal Productivity	6. Automated Administrative Task Assistance
W. Optimizing Resource Allocation for Equipment and People	1. Intelligent Asset and Resource Allocation
W. Optimizing Resource Allocation for Equipment and People	2. Predictive Maintenance Work Scheduling
W. Optimizing Resource Allocation for Equipment and People	3. Intelligent Funding Source Identification

Major Groupings	Use Case Titles
W. Optimizing Resource Allocation for Equipment and People	4. AI-Assisted PEPS Contract Assignment
W. Optimizing Resource Allocation for Equipment and People	5. AI-Powered Consultant Needs Forecasting
W. Optimizing Resource Allocation for Equipment and People	6. Predictive Dredge Material Placement Area Analysis
W. Optimizing Resource Allocation for Equipment and People	7. AI-Optimized Ferry Operations
W. Optimizing Resource Allocation for Equipment and People	8. Predictive Quantity Estimation for Planning
W. Optimizing Resource Allocation for Equipment and People	9. Litter Management Prediction
X. Streamlining TxDOT's Tool Selection Process with AI	1. AI-Assisted Tool Evaluation and Auditing
X. Streamlining TxDOT's Tool Selection Process with AI	2. Intelligent Cost-Benefit Analysis for Emerging Tech
X. Streamlining TxDOT's Tool Selection Process with AI	3. AI-Driven Vendor Comparison and Selection
X. Streamlining TxDOT's Tool Selection Process with AI	4. Intelligent System Redundancy and Consolidation Analysis
X. Streamlining TxDOT's Tool Selection Process with AI	5. Performance Optimization for Large Data Volumes
X. Streamlining TxDOT's Tool Selection Process with AI	6. Low-Code/No-Code AI Development Platform
X. Streamlining TxDOT's Tool Selection Process with AI	7. AI-Powered Design Suggestions for Engineers
X. Streamlining TxDOT's Tool Selection Process with AI	8. User-Friendly AI Interface and Navigation
Y. AI-Driven Fraud and Threat Detection	1. AI-Powered Fraud Detection for Financial Transactions
Y. AI-Driven Fraud and Threat Detection	2. Intelligent Collusion and Anti-Trust Detection
Y. AI-Driven Fraud and Threat Detection	3. Automated P-Card Audit and Compliance Monitoring
Y. AI-Driven Fraud and Threat Detection	4. AI-Enhanced Infrastructure and Software Security Analysis

Major Groupings	Use Case Titles
Y. AI-Driven Fraud and Threat Detection	5. Intelligent ROI Auditing for Financial Efficiency
Y. AI-Driven Fraud and Threat Detection	6. Predictive Behavioral Analysis for Risk Detection
Z. AI-Enabled Project Risk Identification	1. AI-Powered Risk Prioritization for Project Reviews
Z. AI-Enabled Project Risk Identification	2. Intelligent Safety Risk Assessment for Employees and Equipment
Z. AI-Enabled Project Risk Identification	3. AI-Enabled Continuous Risk Monitoring and Key Risk Indicators
Z. AI-Enabled Project Risk Identification	4. Adaptive Risk Frameworks and Gap Analysis
Z. AI-Enabled Project Risk Identification	5. AI-Assisted Project Portfolio Risk Management
Z. AI-Enabled Project Risk Identification	6. Automated ADA Compliance Assessment