



Department of  
Transportation

# EAMP - AGILE ASSETS PROJECT OVERVIEW

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# ENTERPRISE ASSET MANAGEMENT PLANNING

## AGILE ASSETS

- ➔ Bridge Data Information System (BDIS)
- ➔ Pavement Management System (PMS)
- ➔ Structures Management System (SMS)
- ➔ Portfolio Analyst
- ➔ Roadway Inventory System (RIS)
- ➔ Maintenance Management System (MMS)
- ➔ Summit

# AGILE ASSETS PRODUCT SUITE AT NYSDOT

Executive Series

Portfolio  
Analyst™

AgileAssets  
Summit™

Analyst Series

Bridge  
Analyst™

Pavement  
Analyst™

Manager Series

Bridge  
Inspector™

Facilities  
Manager™

Maintenance  
Manager™

Sign  
Manager™

Signal and ITS  
Manager™

Foundation

AgileAssets  
API

LRS  
Gateway

GIS

Configuration

System  
Administration

Security

Asset  
Database

Dashboards

Third-Party System Integration

Data  
Warehousing

LRS/GIS  
Systems

LATS

Legacy  
Systems



## BRIDGE DATA INFORMATION SYSTEM (BDIS) LIVE 2014

- ➔ Bridge and Large Culvert Inventory and Inspection  
(Conversion to National Bridge Elements 2015)
- ➔ Inspection Scheduling
- ➔ Flagging
- ➔ Vulnerability Analysis
- ➔ Load Rating
- ➔ Field Data Collection (FDC)
- ➔ Federal Reporting
- ➔ Daily Extract

# STRUCTURES MANAGEMENT SYSTEM LIVE 2017

- ➔ Inventory and Inspection of Secondary Structural Assets
  - ❑ Overhead Sign Structures (OSS)
  - ❑ Retaining Walls
  - ❑ Noise Walls
- ➔ Field Data Collection (FDC)
- ➔ Bridge Needs Modeling
- ➔ Ranking Analysis

# PAVEMENT MANAGEMENT LIVE 2017

- ➔ Pavement Needs Modeling
  - ❑ Repository for Pavement Condition Data
  - ❑ 45 Empirically Based Deterioration Curves
  - ❑ Treatment Recommendations based on Time at a Condition State
  - ❑ Utilizes Optimization Analysis
- ➔ Integration with ESRI Roads and Highways for Linear Referencing and Geometry
- ➔ Roads and Highways Now the Underlying Linear Referencing System for All Assets

# PORTFOLIO ANALYST EXPECTED 2018

- ➔ Cross Asset Trade Off Analysis
- ➔ Determines Funding Levels for Various Asset Classes to Achieve Optimal Outcomes
- ➔ Utility Function Based – Facilitated by Decision Lens
- ➔ Utility Functions Driven by Condition State Triggers + Backlog
- ➔ Single Objective Multi-Variant Optimization Analysis (Frontier Performance) for a Given Funding Level
- ➔ Currently only Pavement vs Bridge
- ➔ Program Level Trade Off (Not Project Level)

# ROADWAY INVENTORY SYSTEM EXPECTED 2018

- ➔ RIS Data Warehouse
- ➔ Smart Entry Engine (Tabular and Spatial Integrated)
- ➔ Repository for Roadway Inventory (Condition in PMS)
- ➔ Straight Line Analyzer



# SUMMIT

- ➔ High End Analytic Tool
- ➔ On the Fly Ad Hoc Queries
- ➔ On the Fly Graphing Capability

## MAINTENANCE MANAGEMENT SYSTEM EXPECTED LATE 2018

- ➔ Daily Work Reporting – Labor, Equipment, Materials and Work Accomplishment by Asset
- ➔ Time and Attendance
- ➔ Stockpile Management
- ➔ Work Management – Work Orders, Work Requests, Service Requests, Projects, Annual Work Planning and Budgeting, Work Scheduling
- ➔ Maintenance and Signals Crews and Signals Lab Management

## MAINTENANCE MANAGEMENT SYSTEM (CONT.)

- ➔ Facilities Management
- ➔ AVL and Telemetry
- ➔ Mobile Work Manager / ESRI Collector
- ➔ Secondary Asset Inventory and Condition
- ➔ Fugro Data Collection
- ➔ Maintenance Quality Assurance

# WORK ORDER, TIME IN & OUT FLOW

Automatic Vehicle Location (AVL)  
Snow & Ice operations

Create Work Order

Maintenance Management System (MMS)

1. Create/update Work Order
2. Time In/Time Out

Mobile Work Manager (MWM)

## Trip Summary Payload

StartDate: MM/DD/YYYY

StartTime: HH:mm

EndDate: MM/DD/YYYY

EndTime: HH:MM

Truck\_ID

Employee\_ID

Dry Material Type

Dry Material Used(T)

Wet Material Type

Wet Material Used(G)

Miles Traveled(Mi)

Hours (HH:MM)

The screenshot shows the 'Maintenance Manager' interface with the 'Time and Attendance' section active. It displays a table of employee schedules and a 'Work Time Entry' table. The 'Work Time Entry' table has a circled area around the 'Date Time In' and 'Date Time Out' columns for two entries.

Employee Name	Admin Unit	Leave Balance	Scheduled Time-In	Scheduled Lunch	Scheduled Time-Out	Scheduled OT Hours	OT Meal	OTVR	Stand-by Hours	Recalls	Present	Absent	Overtime	Camp
Employee 1	114001	1000000	8:00	11:00	11:00	07:00								
Employee 2	114001	1000000	8:00	11:00	11:00	07:00								
Employee 3	114001	1000000												

  

Work Order No. + Activity	Date Time In	Date Time Out	Recall	Regular Hours	Regular Hours	Overtime Hours	Comp Hours	Date Time In	Date Time Out	Stand-by Hours	Leave Code	Unscheduled Leave	Absent Hours
P06657 - Fetch Potholes	9/25/2017 8:00	9/25/2017 12:00		1A75	1A75	1A75	1A75	9/25/2017 20:00	9/25/2017 21:00	1	Sick	1	0
P06653 - Fetch Sign Support	9/25/2017 13:00	9/25/2017 17:00		1A75	1A75	1A75	1A75	9/25/2017 01:00	9/25/2017 03:00	2			

\*\* Time entry by Work Orders

1. Get Employee Schedule

LATS

1. Process Time In / Time Out
2. Delete Time In / Time Out
3. Process Employee Time Summary
4. Process Time Approval
5. Process Schedule Exception
6. Delete Schedule Exception
7. Process Leave
8. Delete Leave

# MMS: WORK ORDERS INTEGRATION WITH TIME AND ATTENDANCE

Maintenance Manager > Operations > Work Orders > Create New / In Progress ☆

Save Data Retrieves Data

Work Orders Actions

Insert Insert Like Make Daycards Assign Crew Members Show Schedule Edit Group Schedule

WR#	WO/CO#	Activity	Responsible Crew	Calendar	* Plan Amount	Start Date	Finish Date	Start Hour	End Hour	Duration
	706663	<a href="#">M113 - ASPHALT OVERLAYS (Ton )</a>		Regular	1	1/31/2017	1/31/2017	0	8	
	<a href="#">276</a>	<a href="#">706657 M415 - MISCELLANEOUS TRANSPORTING (Man Hour)</a>		Regular	1	1/31/2017	2/6/2017	0	8	
	706698	<a href="#">M338 - production of liquid winter products (Gallon)</a>		Regular	2	7/7/2017	7/7/2017	0	8	
	706648	<a href="#">M113 - ASPHALT OVERLAYS (Ton )</a>		Regular	5	1/16/2017	1/19/2017	0	8	
	706662	<a href="#">M113 - ASPHALT OVERLAYS (Ton )</a>		Regular	5	1/16/2017	1/22/2017	0	8	
	706658	<a href="#">M111 - HAND PATCH POTHOLES (Man Hour)</a>		Regular	888	1/27/2017	1/31/2017	0	4	
	706661	<a href="#">M415 - MISCELLANEOUS TRANSPORTING (Man Hour)</a>		Regular	20	1/30/2017	6/16/2017	0	8	8

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Labor Equipment Material Accomplishments Location/Asset

Employees Short List Actions

Select	Employee Name	Labor Class Code	Adm
<input checked="" type="checkbox"/>	HOBECK, KYLE, ANTHONY	TRANS TECH	3100
<input type="checkbox"/>	PRICKETT, EDWARD, E	TRANS TECH	3400
<input type="checkbox"/>	ROUKEMA, EDWARD, J	TRANS TECH	3100
<input type="checkbox"/>	STANDLEY, PAUL, RUSSELL	TRANS TECH SR	3500
<input type="checkbox"/>	JERMAN, ZEB, R	TRANS TECH SR	3500
<input type="checkbox"/>	PERYER, RICHARD, J JR	TRANS TECH PRN, MAI	3100
<input type="checkbox"/>	AHLERS, MICHAEL, G	EEO, SAFETY & TRNG	2000
<input type="checkbox"/>	CARPENTER, JAMES, F	ENGINEER MANAGER 3	2000

Assigned Employees Actions

\* Employee

HOBECK, KYLE, ANTHONY

Employee Day Cards Actions

Approved	* Employee	* Work Date	* TRC
<input checked="" type="checkbox"/>	HOBECK, KYLE, ANTHONY	1/16/2017	01. REG - Base Pa
<input type="checkbox"/>	HOBECK, KYLE, ANTHONY	1/17/2017	01. REG - Base Pay
<input type="checkbox"/>	HOBECK, KYLE, ANTHONY	1/18/2017	01. REG - Base Pay
<input type="checkbox"/>	HOBECK, KYLE, ANTHONY	1/19/2017	01. REG - Base Pay

# MMS: WORK ORDERS INTEGRATION EQUIPMENT REPORTING

Equipment Short List					Assigned Equipment	Equipment Day Cards					
Select	Equipment Category	Equipment #	Assigned Admin Unit	Meter 1	Equipment #	Approved	Equipment #	Work Date	Total Hrs	Mileage	Total Cost
<input type="checkbox"/>	202 - PICKUP - 0200 GVW LARGE	T09888	125A - SHOP D1 COEUR D'ALE		T02165	<input checked="" type="checkbox"/>	T02165	5/8/2017	1	1	50.44
<input type="checkbox"/>	209 - TRUCK 4X4 UTILITY	T30156	125A - SHOP D1 COEUR D'ALE								
<input checked="" type="checkbox"/>	210 - VANS 4X2 SMALL	T02165	125A - SHOP D1 COEUR D'ALE								
<input type="checkbox"/>	210 - VANS 4X2 SMALL	T02166	125A - SHOP D1 COEUR D'ALE								
<input type="checkbox"/>	303 - WATER TRUCK > 2500 GALLONS	T31733	125A - SHOP D1 COEUR D'ALE								
<input type="checkbox"/>	922 - TRAILER WARNING SIGN	T09325	125A - SHOP D1 COEUR D'ALE								
<input type="checkbox"/>	930 - GENERATORS PORTABLE	T10181	125A - SHOP D1 COEUR D'ALE								

# MMS: WORK ORDERS INTEGRATION WITH MATERIALS REPORTING

Labor				Equipment				Material				Accomplishments				Location/Asset			
Material Short List												Assigned Stockpiles				Material Day Cards			
S...	Material Master Code	Administrative ...	Measuremen	A...	Material Stock	A...	Material Stock	Wor...	A...	Measurement ...									
<input checked="" type="checkbox"/>	540034006EA - CONE, TRAFFIC 28"	1000 - DISTRICT 1	Each			<input checked="" type="checkbox"/>	88460000TON - ANTI-SKID	5/8/201	0.25	TON - Ton									
<input type="checkbox"/>	540052031EA - DELINEATOR, CRYSTAL 3" X 3"	1000 - DISTRICT 1	Each																
<input type="checkbox"/>	540193976EA - MARKER, ROAD TEMPORARY TYPE Y REFLECTIVE BOTH SIDES	1000 - DISTRICT 1	Each																
<input type="checkbox"/>	540269545EA - POST SIGN 4" X 6" X 16" WOOD	1000 - DISTRICT 1	Each																
<input type="checkbox"/>	881600000TON - AGGREGATE, FOR COVER COAT MATERIAL	1000 - DISTRICT 1	Ton																
<input type="checkbox"/>	884700000TON - ANTI-SKID MATERIAL	1000 - DISTRICT 1	Ton																
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## MMS: MOBILE WORK REPORTING AND TIME AND ATTENDANCE

### ➔ Mobile Work Manager

- ❑ Integrated Work Order and Time and Attendance Reporting
- ❑ Mobile Solution Benefit \$8.4 M/Year In Increased Productivity – Crews Don't Have to Return Early for Supervisor to Do Desktop Reporting (OITS B/C Analysis 11/27/2017)
- ❑ LATS Would Require More Computers in Residencies to Report or Lost Productivity by Sharing Computers

### ➔ AVL

- ❑ Automatically Creates Work Order for Each Trip including Labor Hours, Equipment Time and Materials Summary



## CRITICAL MMS FUNCTIONS DEPENDENT ON INTEGRATED WORK/TIME REPORTING

- ➔ Payroll
- ➔ Federal Emergency Reimbursement: FEMA and FHWA
- ➔ Salt and Materials Management
- ➔ Salt Management and Funding
- ➔ Tort Liability
- ➔ Budget Justification
- ➔ Operational Guidelines and Performance Improvements
- ➔ Business Decision Making

# KEY CONSIDERATIONS

## ➔ Impact to current business process

- ❑ Maintenance division business process calls out for time entry at the supervisor level for the crew assigned to the Work Order
- ❑ Moving time entry over to LATS may impact this business process as with LATS, individual users may have to enter their own time
- ❑ Potential Maintenance division users impacted by this change - ~3000

## ➔ Streamlining business process

- ❑ Current setup with MAMIS as well as one planned for MMS allows for time to be entered in the same application where the work is performed
- ❑ This limits the # of applications user need to hop to complete his/her assignment

## ➔ Data Integrity

- ❑ In MMS, time is recorded at Work Order/Activity level
- ❑ Moving Time IN/Out to LATS will require additional data reconciliation between LATS and MMS impacting overall data quality
- ❑ Past experience with few of AgileAsset's clients who chose moving Time entry to separate application, resulted in additional software and business processes to support ongoing data reconciliation and correction

## PROBLEMS WITH SEPARATING WORK REPORTING FROM TIME AND ATTENDANCE

- ➔ Creation of Duplicate Data Entry
- ➔ Inability to Do Crew Level Reporting
- ➔ Need to Recreate Full Work Order Functionality in LATS
- ➔ Data Integrity
- ➔ Training and Support
- ➔ Loss of Cost Savings from Mobile and AVL
- ➔ CMA (LATS) Would Need to Develop Specialized Knowledge in Maintenance Management
- ➔ Impact on Materials Management and Federal Reimbursement
- ➔ Schedule
- ➔ Redesign of Web Services

# SCHEDULE

- ➔ December 2017 Completed Design Phase
- ➔ January 2018 Begin Construction
- ➔ October 2018 User Acceptance Testing
- ➔ January 2019 User Training
- ➔ February 2019 Phase 1 Go Live: Online Version
- ➔ May 2019 Phase 2 Go Live: Mobile Version

# Questions?

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