

# AASHTO Innovation Initiative

[Proposed] Nomination of Innovation Ready for Implementation

## Sponsor

Nominations must be submitted by an AASHTO member DOT willing to help promote the innovation

1. Sponsoring DOT (State): Vermont Agency of Transportation

2. Name and Title: Molly Perrigo, e-Construction Manager

Organization: Vermont Agency of Transportation

Street Address: 2178 Airport Road, Unit B

City: Berlin

State: Vermont

Zip Code: 05641

Email: molly.perrigo@vermont.gov

Phone: (802)249-8035

Fax: [Click or tap here to enter text.](#)

3. Is the sponsoring State DOT willing to promote this innovation to other states by participating on a Lead States Team supported by the AASHTO Innovation Initiative?  Yes  No

## Innovation Description (10 points)

The term “innovation” may include processes, products, techniques, procedures, and practices.

4. Name of the innovation:

E-Ticketing: Digitizing paper delivery tickets.

5. Please describe the innovation. Describe how this innovation transforms your existing “state of play.”

E-ticketing promotes increased safety for on site construction inspectors by eliminating the need for them to weave in and out of traffic and equipment to receive slips from operators. Additionally, data is shared more quickly, essentially real-time, and more data can be made available. Lastly, e-ticketing eliminates lost or mangled slips.

6. If appropriate, please attach photographs, diagrams, or other images illustrating the appearance or functionality of the innovation (if electronic, please provide a separate file). Please list your attachments here. Attach photographs, diagrams, or other images here.



	A	B	D	E	F	K	L	M
1	Date Created	Ticket	Product	Qty	UoM	WBS Element	Accepted	Product Invoice
2	8/11/12	1078515	Flowfill	9	CY	4501.94	YES	458795236
3	8/11/12	1078513	Flowfill	9	CY	4501.94	YES	458795236
4	8/11/12	1078508	Flowfill	9	CY		YES	458795236
5	8/11/12	1078503	Flowfill	9	CY		YES	458795236
6	8/11/12	1078499	Flowfill	9	CY	4501.94	YES	458795236
7	8/10/12	1078352	Class F - 4000 PSI	2	CY	4503.82	YES	458795236
8	8/10/12	1078111	Class SS - 3600 PS	5	CY		NO	
9	8/10/12	1078100	Class SS - 3600 PS	7.5	CY	5005.81	YES	458245871
10	8/10/12	1078039	Class C - 3600 PS	10	CY	5005.81	YES	458245871
11	8/10/12	1077787	Class F - 4000 PSI	7.5	CY	5005.81	YES	458245871
12	8/10/12	1077758	Class F - 4000 PSI	5.5	CY	5006.81	YES	458245871
13	8/10/12	1077748	Class F - 4000 PSI	5.5	CY	5006.81	YES	458245871
14	8/10/12	1077743	Class F - 4000 PSI	10	CY	5006.81	YES	
15	8/10/12	1077648	Class F - 4000 PSI	2	CY	4503.82	YES	
16	8/9/12	1077418	Class F - 4000 PSI	2	CY		NO	

7. Briefly describe the history of its development.

A desire to eliminate maintaining mountains of slips in sometimes unreadable condition and increase inspector safety is the motivation for this technology.

## State of Development (40 points)

Innovations must be successfully deployed in at least one State DOT. The All selection process will favor innovations that have advanced beyond the research stage, at least to the pilot deployment stage, and preferably into routine use.

8. How ready is this innovation for implementation in an operational environment? Please check of the following options. Please describe.

- Prototype is fully functional and yet to be piloted
- Prototype demonstrated successfully in a pilot environment
- Technology has been deployed multiple times in an operational environment
- Technology is ready for full-scale adoption

Click or tap here to enter text.

9. What additional development is necessary to enable routine deployment of the innovation? What resources—such as technical specifications, training materials, and user guides—are already available to assist with the deployment effort?

VTrans needs to develop new contract specifications for inclusion of tracking devices to be installed on delivery vehicles and job site equipment. Additionally, VTrans needs to determine ways to address geographical areas without cell service.

10. Has any other organization used this innovation?  Yes  No

If so, please list organization names and contacts. Please identify the source of this information.

It is our understanding that this innovation was developed in Iowa, and has also been used in other states such as Kentucky, Pennsylvania, and Florida, and perhaps others.

Organization	Name	Phone	Email
Alabama Department of Transportation	Hunter Golson	Click or tap here to enter text.	golsonwi@dot.state.al.us
Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.
Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.	Click or tap here to enter text.

## Potential Payoff (30 points)

Payoff is defined as the combination of broad applicability and significant benefit or advantage over other current practice (baseline).

11. How does the innovation meet customer or stakeholder needs in your State DOT or other organizations that have used it?

Both the contractor and state inspectors are provided with real-time data of material location and travel times. This also allows everyone to receive the same information which limits confusion, disagreements. Most importantly, this innovation increases on the job safety for all parties.

12. What type and scale of benefits have your DOT realized from using this innovation? Include cost savings, safety improvements, transportation efficiency or effectiveness, environmental benefits, or any other advantages over other existing baseline practice. Please identify the following benefit types:

Check boxes that apply	Benefit Types	Select a rating from the drop-down menu
<input checked="" type="checkbox"/>	Cost Savings	3-Moderate
<input type="checkbox"/>	Shortened Project/Service Delivery Schedule	Choose an item.
<input checked="" type="checkbox"/>	Improved Customer Service	4-Moderate to High
<input checked="" type="checkbox"/>	Improved Quality	3-Moderate
<input checked="" type="checkbox"/>	Environmental Benefits	4-Moderate to High
<input checked="" type="checkbox"/>	Organizational Efficiency	5-High
<input checked="" type="checkbox"/>	Improved Safety	7-Exceptional
<input type="checkbox"/>	Improved Operation Performance	Choose an item.
<input type="checkbox"/>	Improved Asset Performance	Choose an item.
<input type="checkbox"/>	Other (please describe)	Choose an item.

Provide an additional description, if necessary:

VTrans is still in the early stages of implementation and to date has limited the use to HMA delivery.

13. Please describe the potential extent of implementation in terms of geography, organization type (including other branches of government and private industry) and size, or other relevant factors. How broadly might the technology be deployed?

In the future, VTrans hopes to extend use of this innovation to concrete delivery.

## Market Readiness (20 points)

The All selection process will favor innovations that can be adopted with a reasonable amount of effort and cost, commensurate with the payoff potential.

14. What specific actions would another organization need to take along each of the following dimensions to adopt this innovation?

Check boxes that apply	Dimensions	Please describe:
<input checked="" type="checkbox"/>	Gaining executive leadership support	Click or tap here to enter text.
<input checked="" type="checkbox"/>	Measuring performance (e.g. benefits documentation)	Develop rubrics to track increased safety such as the decreased number of in-road occurrences for employees. Track bid prices for e-ticketing items to evaluate cost.
<input checked="" type="checkbox"/>	Improving technology understanding	Establish a champion to take the lead on implementation
<input checked="" type="checkbox"/>	Overcoming financial constraints	Develop specifications that provide contractors with accurate information to bid on
<input checked="" type="checkbox"/>	Addressing legal issues (if applicable) (e.g., liability and intellectual property)	Include agency legal to ensure legal issues are addressed within the specifications as applicable
<input checked="" type="checkbox"/>	Acquiring in-house expertise	Training is critical for Agency staff, and all stakeholders
<input type="checkbox"/>	Resolving conflicts with existing regulations and standards	Click or tap here to enter text.
<input type="checkbox"/>	Other Challenges	Click or tap here to enter text.

15. What is the estimated cost, effort, and length of time required to deploy the innovation in another organization?

Please describe:

**Cost:** GPS rental units are approximately \$55 per month, per vehicle. This rental fee includes a website handled by the vendor, which provides reports regarding daily total quantities. Mobile devices are provided for field inspectors. Contractors include the rental unit costs as part of their project bid and it is built into the overall contract amount.

**Level of Effort:** Minimal after contract specifications are developed.

**Time:** Minimal.

16. To what extent should the implementation of this innovation require the involvement of third parties, including vendors, contractors, and consultants? If so, please describe. List the type of expertise required for implementation.

A vendor provides the GPS receivers and reports via their website. Per contract specification, the Contractors acquire the hardware required for a construction project.