

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. If selected, the sponsoring DOT will be asked to promote the innovation to other states by participating on a Lead States Team supported by the AASHTO Innovation Initiative.

1. Sponsoring DOT (State): Utah

2. Name and Title: Brandon Burrows, Stormwater Program Specialist

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Innovation Description (10 points)

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

3. Name of the innovation:

Managing Stormwater Infrastructure Waste

4. Please describe the innovation.

A regional decant facility to aid in the proper disposal of waste material that is removed as part of routine stormwater infrastructure maintenance (e.g., catch basin vactoring, street sweeping, culvert cleaning).

5. What is the existing baseline practice that the innovation intends to replace/improve?

UDOT is required to proactively inspect and maintain its stormwater infrastructure to protect water quality and prevent roadways from flooding. Proactive maintenance prevents roadway debris from clogging the storm drain system but liquid waste removed during maintenance activities creates a unique problem because it cannot be hauled directly to the landfill and must be disposed of properly and in a way that will not introduce pollutants to the storm drain system. The combined solid and liquid waste must first be dried out or solidified before transport to an approved waste facility.

Prior to the implementation of the regional decant facility, waste removed from catch basins, stormwater pipes, culverts, etc., was stored at UDOT maintenance sheds until ready to be taken to a landfill. Often the method of storage and resulting decant did not prevent contaminants from infiltrating into the ground or discharging off site. UDOT was not granted approval to dispose of this waste at local wastewater treatment plant drying beds which provided the opportunity to develop a regional decant facility for UDOT and local municipal partners. Some maintenance sheds have lined or asphalt ponds in which to decant vactor waste or sweepings, but this can also pose a risk to the environment if the pond overflows.

6. What problems associated with the baseline practice does the innovation propose to solve?

UDOT's regional decant facility, which was completed as part of a maintenance shed retrofit project in order to better meet the pollution prevention and good housekeeping requirements of our stormwater MS4 permit, facilitates the separation of liquids and solids. The combined solid and liquid waste is decanted as it flows through a series of weep holes and vault-like areas where the solid waste continues to settle out, leaving only the remaining liquid to be released into the sanitary sewer system. The dried solid waste that remains after this process can then be transported to the landfill. The decant facility is covered to redirect stormwater to the storm drain system and to keep it from resaturating the solid waste. Not only does this facility allow multiple UDOT maintenance stations to bring their waste to be decanted, but this facility can be used by other non-UDOT agencies in the area.

The facility is able to accommodate 2 vactor trucks simultaneously and has a capacity to store 8-10 loads of waste. In fact, this is the largest UDOT decant facility in the state. Since its inception, the facility has processed well over 100 tons of debris for delivery to the landfill. The facility allows for better handling of solid and liquid waste that is removed as part of regular stormwater infrastructure cleaning and maintenance. It also provides regional decant services for UDOT maintenance stations without a decant area previously available to them.

7. Briefly describe the history of its development.

UDOT has identified pollution prevention opportunities at all maintenance sheds across the state and is in the process of constructing these retrofits. This regional decant facility was designed and constructed to allow UDOT to properly handle and dispose of waste to prevent illicit discharges from maintenance sheds.

8. What resources—such as technical specifications, training materials, and user guides—have you developed to assist with the deployment effort? If appropriate, please attach or provide web links to reports, videos, photographs, diagrams, or other images illustrating the appearance or functionality of the innovation (if electronic, please provide a separate file). Please list your attachments or web links here.

UDOT has prepared SOPs on proper waste storage and technical specification and designs of the decant facility were completed by consultant and in-house engineers.

Attach photographs, diagrams, or other images here. If images are of larger resolution size, please provide them as separate files.

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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.

9. How ready is this innovation for implementation in an operational environment? Please select from the following options. Please describe.

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

10. What additional development is necessary to enable implementation of the innovation for routine use?

Our current facility has been constructed and is operational. Other UDOT regional decant facilities are designed and awaiting construction.

11. Are other organizations using, currently developing, or have they shown interest in this innovation or of similar technology?? Yes No

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

Organization	Name	Phone	Email
Local municipalities as well as other organizations have expressed an interest and are using this regional decant facility.	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 baseline practice .

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

The facility allows UDOT and other agencies to decant waste in a dedicated facility where it is properly prepared to be transported to the appropriate off-site waste facility.

13. Identify the top three benefit types your DOT has realized from using this innovation. Describe the type and scale of benefits of using this innovation over baseline practice. Provide additional information, if available, using quantitative metrics, to describe the benefits.

Benefit Types	Please describe:
Permit Compliance	UDOT has a Utah Pollutant Discharge Elimination System (UPDES) Municipal Separate Storm Sewer System (MS4) permit that states “Permittee must ensure and document proper disposal methods of all waste and wastewater removed during cleaning and maintenance of the stormwater conveyance system... materials removed from the MS4 should be dewatered in a contained area.” The decant facility allows UDOT to comply with this permit requirement by dewatering the waste removed during cleaning and maintenance of the stormwater conveyance system.
Efficiency	This regional facility allows multiple UDOT maintenance stations to decant waste and free up space at their own stations.
Protection of Environment and Local Waterways	Those attempting to store waste in retention ponds no longer have to do so and eliminates the possibility of the pond overflowing and the waste being discharged to the environment. The waste is decanted and taken to the appropriate landfill where it doesn’t pose a risk to local waterways.

14 How broadly might this innovation be deployed for other applications in the transportation industry (including other disciplines of a DOT, other transportation modes, and private industry)?

This decant facility model can be used by any DOT or entity that requires the separation of liquids from solids before proper disposal.

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.

15. 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:
X	Gaining executive leadership support	Gaining executive leadership support by educating them on our MS4 permit requirements facilitates the funding needs of the project.
X	Communicating benefits	Benefits of the decant facility and the reason why it is needed should be understood by all staff involved so that they will support the project and buy-in to the purpose.
X	Overcoming funding constraints	Achieving funding is crucial to project success as there will be construction and ongoing operational expenses.
X	Acquiring in-house capabilities	Additional staff at the facility are needed in order to operate the additional requirements of the decant facility beyond normal maintenance tasks. Staff at the decant facility will need to be properly trained on the process required for processing waste.

16. Please provide details of cost, effort, and length of time expended to deploy the innovation in your organization.

Cost: This decant facility was constructed as part of a maintenance shed retrofit project that was approximately \$1.3 million in total.

Level of Effort: The facility construction project involved staff at all levels and in many divisions of UDOT. The decant facility required engineers to design the site plans and for staff to pursue and manage a

full-scale construction process. Ongoing efforts require maintenance staff to process the waste properly which requires continual training.

Time: The construction project took about 6 months to complete.

17. To what extent might 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.

Engineers assisted the project with:

- Designing the decant building
- Providing construction management and installation oversight

Contractors:

- Constructed the decant building to consultant and in-house engineering specifications

UDOT Staff:

- Were involved throughout the project to ensure the final product met their needs

Pretreatment Program:

- The regional decant facility is connected to the local sanitary sewer, which requires that we obtain and follow the requirements of a wastewater discharge permit and perform semi-annual sampling of monitoring points to ensure the discharged water is within allowable permit limits for certain analytics.











**UDOT
Decant Facility
Instructions**

1. Truck must back up to the stop line and slowly decant their load
2. Drain water out of load before dumping to prevent the surge of heavy contaminants that will clog the drain
3. Use the provided hose to wash out truck

Contact:
- Jason Petesson (801) 782-8822
- Mark Prows (801) 755-9157

**Authorized Users
ONLY**

Approved Vendors and Municipalities must sign driver log and contact UDOT 227 before use of this facility

