# Final Report STIC Incentive Project
# Utilizing 3D digital design data in construction field applications

**Submitted By:**
Scott Douglas
Design Division
Michigan Department of Transportation
425 West Ottawa Street
PO Box 30050
Lansing, MI 48909

**Date Submitted: July 11, 2019**

The Michigan Department of Transportation (MDOT) is providing a Final status report on the State Transportation Innovation Council (STIC) Incentive for MDOT's development of a training program to utilize 3D digital design data in construction field applications. The following activities were key deliverables in the Project:

- Survey of current deliverables and cost effectiveness has taken place and finalized
- Training has been developed and delivered based on survey findings. The training was disseminated to the Contracting community.

## Project Description:

This project was a combination to main goals. One was conducting and industry-wide survey and review with the purpose of discerning trends and anticipating training needs related to future implementation options. The Second was Developing a training program based on the survey, review and trend analysis. This portion includes training industry personnel to utilize Project DPF and 3D digital Design data in construction field applications.

## Overall Budget Summary:

STIC Incentive Projects - Advance Michigan's Civil Integrated Management (CIM)

| Project Name | State Champion | Federal Fiscal Year | Federal Funds - Amount Allocated | Federal Funds - Amount Obligated | Federal Funds - Amount Expended |
|---|---|---|---|---|---|
| Utilizing 3D digital design data in construction field applications | Matt Bellgowan | 18 | $70,000 | $70,000 | $ 70,000 |

MDOT's select a prime contractor has finalized and deliver the final pieces of training in the contract. MDOT has finalized payment on the $87,500 in the budget for this project. The project was Milestone

based in its payment method and payments made are reflective of the completion of tasks in project description. all deliverables are completed and closed on this contract.

## Results of Project:

The Project PDF responded to the deliverables requirements as follows:

- **Significantly accelerates the adoption of 3D modeling technology**

  Our investigation into the different methods of delivering 3D information led to an understanding of the efficiencies and roadblocks. By comparing 3D line strings and Project PDF deliverables we have started the internal conversation about the best approach to transition utilizing model deliverables.

- **Develop and deploy new tools, techniques and practices to accelerate the adoption of innovation**

  With this project we were able to get design information into the hands of the field staff in simplified format. This is the first step in developing a bridge between design information and field use of that information. By piloting multiple methods of delivery and reviewing them with this contract we were able to streamline future processes and began to develop training on possible applications in the future of new technology.

- **Develop and deliver training to facilitate innovation**

  The key training deliverable was developed to not only give in person instruction but produce a process that can easily be followed for new employee onboarding. This training has been set up to bring users into a new way of looking at project information. The training is not just a "how to use" technology conversation but it starts users down the path of thinking in terms of three-dimensional space and will accelerate the use of model delivery.

- **Prepare standard operating procedures and technical guidance for 3D implementation of project PDF**

  By investigating two different styles of delivering model data we were able to balance between useful and excessive information. Our investigation found common concepts between the two pilots that helped us develop a training approach as well as our future processes.

## Challenges:

The initially challenges came in gaining participation from industry on our initial survey and experience gathering endeavor. In the state only two pilots were conducted in during the relevant time in which data could be gathered and expertise was limited and highly specialized on the deliverables. With the Help of MDOT facilitating meetings these issues were mitigated. MDOT also initially had issues in the setup and contractor selection in the early stages of this effort. The initial form of the contract seemed to be to big

for some and too small for others, so our initial proposal received Zero Bids. After re-evaluating our process, we ended up breaking up the contract into manageable pieces and were able to proceed and gain a positive outcome.

## Lessons Learned:

In our initial experience we have learned about right sizing our efforts in setting out contracts to gain productive bids early in the process. We did however learn from the contract an effective method of laying down a foundation to build upon later. The project got the conversation around moving to more digital methods of delivery started in the department and gave a foundation for future efforts. These efforts will become easier and feedback more beneficial as the process refines over time. Like with any new disruptive advancement the best thing to do is lay a foundation for future implementation. If the project had hiccups it achieved the goal of advancing our states digital implementation timetable