Research Project Quarterly Progress Report

Date: 1/31/2018 **Project Number:** TPF-5(193) Suppl #117_OHIOSS-1

Project Title: MASH TL-3 Evaluation of the Ohio Single-Slope Concrete Barrier

Principal Investigator: Dr. Ronald K. Faller and Mr. Robert W. Bielenberg

Principal Contact Information Email: rbielenberg2@unl.edu **Phone:** (402) 472-9064

Project Start Date: 7/1/2017 **Project Completion Date:** 6/31/2018

Report Period: **Due Date:**

- ☐ Quarter 1 (July 1 – September 30) ---------- October 31
- ☒ Quarter 2 (October 1 – December 31)---------- January 31
- ☐ Quarter 3 (January 1 – March 31) ---------- April 30
- ☐ Quarter 4 (April 1 – June 30)---------- July 31

Project Schedule Status:

- ☒ **On Schedule**
- ☐ **On Approved Revised Schedule**
- ☐ **Ahead of Schedule**
- ☐ **Behind Schedule**

Progress:

Task	Total Budget	% work Completed This Quarter	Expenses This Quarter	Total % of Task Completed	Remaining Budget
1. Project Planning and Correspondence	$5,000.00	25%	$1,500.00	25%	$3,500.00
2. Full-Scale Crash Testing	$116,259.00	0%	$40,603.00	90%	$75,656.00
3. Reporting and Project Deliverables	$14,155.00	0%	$0.00	0%	$14,155.00
4.					
5.					
6.					
7.					
8.					
9.					

Progress and Accomplishments this Quarter:

(Provide an informative summary of tasks/activities that occurred this quarter includes meetings, work plan status, significant progress, etc.)

Test, no. OSSB-1 was conducted on 12/13/17. In test OSSB-1, a 5,001 lbs. Ram 1500 Quad Cab pickup truck impacted the barrier at a speed of 101.0 mph and an angle of 24.8 degrees. During the test, the vehicle was captured and smoothly redirected by the single slope barrier. Some wheel snag was observed at the vertical separation in the barriers that was included to represent through cracking of the unreinforced barrier, but the vehicle stability and occupant risk evaluation were well within the MASH TL-3 criteria.

Occupant risk criteria are shown below. Note that OIV must be less than 40 ft/s and ORA must be ≤ 20.49 g's. All of the values were acceptable.

PRIMARY UNIT: SLICE2

Longitudinal	MASH			
ORA	-9.3566148	g's	@	0.0841 sec
OIV	-19.179486	ft/s		
Time	0.0791 sec			

Lateral	MASH			
ORA	10.4034925	g's	@	0.2125 sec
OIV	26.9061463	ft/s		
Time	0.0791 sec			

Vehicle stability was also acceptable vehicle remained upright and stable during the impact and the maximum roll angle of the vehicle was 20.0 degrees and the maximum pitch angle was 6.6 degrees. Barrier damage was minimal and was limited to minor spalling and cracking of the barrier. Dynamic barrier deflections were less than 1" at the top of the first impacted barrier segment, and permanent set deflections were negligible.

Vehicle damage was moderate. Detailed occupant compartment deformations have not been measured, but visual inspection of the vehicle floorboard and interior suggested that they were well below the MASH limits as well. There was a small tear at the floor seam, about an inch long. We don't believe this is an issue based on MASH recommendations. MwRSF believes that the minimal floorboard seam in this test falls under the safe limits noted in MASH. Thus, test OSSB-1 was successful under MASH TL-3 impact conditions.

Circumstances Affecting Project, Scope, or Budget:

(Please describe any challenges encountered or anticipated that might affect the completion of the project within the time, scope and fiscal constraints, along with recommended solution to those problems.)

None

Anticipated Work Next Quarter: Development of the summary report.
Total Percentage of Project Completion: 65%