

# 2016 UDOT RESEARCH PROBLEM STATEMENT

\*\*\* Problem statement deadline is March 14, 2016. Submit statements to Tom Hales at [tahales@utah.gov](mailto:tahales@utah.gov). \*\*\*

**Title:** Recommended Snow Plow Blade Use due to Various Factors

**No. (office use):** 16.02.03

**Submitted By:** Eric Chaston

**Organization:** Region 2 Maintenance

**Email:** echaston@utah.gov

**Phone:** (801) 910-2531

**UDOT Champion (suggested):** Todd Richins, Jack Mason, Roger Frantz

**Select One Subject Area**

Materials/Pavements

Maintenance

Traffic Mgmt/Safety

Preconstruction

Planning

Public Transportation

## 1. Describe the problem to be addressed.

Various maintenance stations are reporting different performance results for the various snow plow blades throughout the state (Steel/Carbide, Joma, Polar Flex, Other?). There is little known evidence as to why stations are reporting inconsistent performance results with regards to the following performance measures:

1. Durability/Wear Life
2. Roadway Cleaning Performance

Factors that may have a role in the above performance measures may be:

1. Pavement Type (Concrete, HMA, Chip Seal, etc.)
2. Roadway Conditions (light powder, slush, ice pack, etc.)
3. Plow Type (weight, float valve, etc.)
4. Interstate VS secondary route and the speed of vehicle
5. Treatment type (granular salt VS mainly brine application)
6. Typical snow accumulations being removed (Plowing frequency on specific route is factor in this area as well)

## 2. Explain why this research is important.

1. Determining a cost benefit to the department with the cost of the differing blade types and labor time factored into blade change frequency.
2. Possibility in providing a higher level of service to the public with better maintained and safer roadways during winter storms.

## 3. List the research objective(s):

1. Identify snow blade recommendations based on differing factors of the maintenance station, route conditions, etc.
2. Produce a plow blade recommendation matrix for stations to use in selecting plow blades for each route.

## 4. List the major tasks:

1. Identify plow blade types to be tested (either currently used or new blades types)
2. Identify key maintenance stations throughout the state to obtain a broad unbiased data pool that accounts for various factors to evaluate performance of blades.
3. Develop evaluation and documentation criteria and process.
4. Test different plow blade types in echelon plowing for consistent conditions and side by side comparisons.

## 5. List the expected results:

## Page 2

1. Produce a plow blade guide based on a matrix of factors that impact performance.
2. Develop the correct number of options in the toolbox (plow blade types) for snow removal operations that we may not currently have.

### 6. Describe how this research will be implemented.

1. Identify plow blade types to be tested (either currently used or new blades types)
2. Identify key maintenance stations throughout the state to obtain a broad unbiased data pool that accounts for various factors to evaluate performance of blades.
3. Develop evaluation and documentation criteria and process.
4. Test different plow blade types in echelon plowing for consistent conditions and side by side comparisons.

7. Requested from UDOT: \$  
(or UTA for Public Transportation)

Other/Matching Funds: \$

Total Cost: \$

### 8. Outline the proposed schedule, including start and major event dates

1. Produce evaluation criteria, differing factors to be evaluated, key maintenance stations, etc. prior to October 2016.
2. Evaluate blade types throughout the 2016/2017 winter season (October 2016 through April 2017)
3. Evaluate data received and produce a report with recommendation matrix prior to the next winter season (Oct 2017).