



LRRB Research Need Statement 624

LRRB 1-3

Date: April 3, 2020

	Name	Agency	E-mail	Phone
Need Statement Champion:	Naomi Eckerd	MnDOT State Aid	naomi.eckerd@state.mn.us	651-366-3816
	Rod Rue	City of Eden Prairie	rrue@edenprairie.org	952-949-8314
Submitted by:	LRRB via Priority Process (3/25/20 Meeting)			
Originated from:	LRRB Idea Solicitation Process (Pre-Screen Board Mtgs)			

Select Type:

Research OR Implementation

Need Statement Title:

**BMP for Issues with Asphalt Centerline Joint
Intelligent Compaction for Local Agencies**

Need Statement: Describe the problem or the opportunity. Include background and objective.

This Need Statement will focus on addressing two separate but related issues: issues with centerline joints and issues with achieving compaction/density during construction.

Asphalt Centerline Joint
Local agencies are reporting problems with deterioration/raveling along the centerline paving joint of asphalt roadways. Specific questions that have been raised include:

- Is this a **materials** issue?
- Is this a **specification** issue (some agencies question Superpave mixes vs. 2331)?
- Are there construction quality issue (**compaction/density**)?
- Are there **better construction practices/techniques**:
 - “overlapping” technique (aka the Missouri Method or Michigan Wedge)
 - infrared heating system to soften the seam
 - in addition to the centerline, what is **best practice to compact the outside edge** (with or without curb and gutter)?
- Or, a combination of these factors?
- What is the **best approach to fix the centerline joint that has failed?**

Compaction/Density
As stated above, poor joint density is a contributing factor to deteriorating centerline paving joints. Intelligent compaction is a practice that is going to be implemented on all state jobs in the very near future using the [Density Profiling System \(DPS\)](#) which provides continuous assessment of asphalt pavement compaction quality through measuring the pavement dielectric constant. This process has been used effectively on longer (i.e. rural) section but still needs to be evaluated for shorter (urban, city block length) sections because of the unique shorter distances being paved.

Part of this study would include a pilot studies with local agencies (cities and counties) to demonstrate how this technology is used and to identify what specific needs counties and cities have on how to best implement this technology in the future.



Suggested Deliverables:

- Report that discusses the issues (materials, specification, compaction/density, construction practices) with centerline construction joint and provides a BMP that addresses each. Include synthesizing a recent NRRRA report on [Longitudinal Joint Construction](#)
- Recommendations of how to repair existing failed centerline construction joint
- Video showing best C/L construction practices (including MO and MI methods)
- Brief summary of intelligent compaction, MnDOT new standard/specification including a pilot study to evaluate how well it works within a low-speed urban setting (with utilities, infrastructure, curb-and-gutter, etc.)
- Summary information (fact sheet and video) of Density Profile System
 - What it is
 - Benefits
 - When/how to use/specification

How does this project build upon previous research (include title or reference to a completed research effort)?

[Longitudinal Joint Construction](#), NRRRA
[Longitudinal Joint in Asphalt Pavement](#), Purdue University

Provide names to consider for a Technical Advisory Panel:

Cory Slagle, Washington County
Jon Pratt, City of Detroit Lakes
Tom Ravn, MnDOT
Eddie Johnson, MnDOT
John Garrity, MnDOT
Brandon Brever, MAPA
Rebecca Embacher, MnDOT
Curt Turgeon, MnDOT
MCEA OSOW Committee (includes a representative from each District)

Advisors to TAP
[Veta](#) (MnDOT intelligent compaction software vendor)
Representatives from experienced intelligent compaction contractors