| **#** | **Grading and Base / General Topics** | **Tech Transfer Topic****(now)** | **Short Term****“Analysis Idea”****(less than a year – crunch data from state projects or MnROAD)** | **Long Term****MnROAD****Research****Sections****(longer)** | **TBD - Feedback****on MnROAD** **Long Term Test Sections** | **Totals** |
| --- | --- | --- | --- | --- | --- | --- |
| **1** | **Subgrade, Aggregate base, and subbase stabilization (Non-FDR and FDR) effects on pavement performance****[options include both chemical (cement, flyash, lime, etc.) and non-chemical stabilization (geofabrics and geogrids, etc.)]** (Available options, project selection, mix designs, effect on pavement performance).(Ties to Flexible and Rigid Groups) | #1 – MidS0/5/5 | MN-1#1 – MidS5/5/10 | **#2 – MO****#5 – WI**9/0/9 |  | 14/10/24 |
| **2** | **Use of recycled materials in aggregate base**(Current approaches, innovations and improvements to current specifications, effect on pavement performance). Additionally evaluate performance specifications and the QC/QA link to designWI / MN – Design strength criteriaWI does allow 100% of RAP or RCPIL 100% PCC not RAP allowed – research being done on RAP use)MO – not sure | #1 – IL5/0/5 | 0 | MN-1#2 - WI**#5 – MO**10/0/10(top 3 item) |  | 15/0/15 |
| **3** | **Drainable Bases**Share specifications on website(MnROAD 20-year performance/forensics support this effort) | 0 | #1 - WI**#1 – MO**10/0/10 | MN-24/0/4 |  | 14/0/14 |
| **5** | **Lightly surfaced roadway alternatives**(Options for local agencies to build and repair cost effective roads that meet the unique requirements of low volume roadways). | 0 | MN-2#2 – IL#4 – WI10/0/10 | 0 |  | 10/0/10 |
| **6** | **Cost effective shoulder alternatives**(Design and performance of economical alternatives available for shoulders other than the traditional HMA and PCC shoulders; higher recycled contents, local agency perspectives, additionally evaluate both chemical and non-chemical stabilization).Surface treatments of stabilized materials below for the baseMN – use of 100% RAPCold Central Plant then surface treatment (starting in Minnesota) | #2 – MidS0/4/4 | #2 – MidS0/4/4 | **#4 – MO**MN-3#4 – WI#2 – MidS7/4/11(top 3 item) |  | 7/12/19 |
| **8** | **Effective pavement restoration over utility trenches**(Demonstrate and test both PCC and HMA pavement restoration and patching over utilities under consistent loading, update manuals, training, videos). | **#1 – MO**5/0/5 | 0 | 0 |  | 5/0/5 |
| **9** | **Intelligent compaction/construction of unbound materials**(MnROAD will use this tool for any 2016 construction but is an additional pooled fund or study of interest?) | **#2 – MO**#5 – MidS4/1/5 | #3 – WI#5 – MidS3/1/4 | #2 – IL#5 – MidS4/1/5 |  | 11/3/14 |
| **10** | **Use of light weight fill materials**(What options are available, impact on pavement structural design section and performance). | 0 | 0 | #1 – IL5/5 |  | 5/0/5 |
| **14** | **Roadway section widening**(Evaluate current and alternative approaches to widening roadway sections. Consider soil texture, moisture, compaction, and heave potential). | **MN-3**#4 – MidS3/2/5 | #4 – MidS0/2/2 | #4 – MidS0/2/2 |  | 3/6/9 |
| **15** | **Subgrade design for new and reconstruction**(Evaluate factors related to design, construction, and performance related to depth of subcuts, quality of backfill material, for both pavement types. Consider existing MnDOT "frost-free" practices and alternate approaches. Review MnDOT Materials Engineers recommendations from recent past.)Life cycle of the gravel over time – forensicDifferent type of granular subbase layers under the top base materials (interest from group) | **MN-2**#3 – MidS4/3/7(top 2 item) | **#1 – IL****#2 – WI**#3 – MidS9/3/12 | **#3 - WI****#3 - MO**#3 – MidS6/3/9 |  | 19/9/28 |
| **16** | **Larger Subbase materials (3-6 inch) that is done under the top “finer” base under the surface bound paving layer**MO shot rock base as larger and more permeable aggregate subbase materialWI and IL are using specs with the larger base types – fabrics use is the future research effort | **MN-1****#2 – IL**9/0/9(top 2 item) | 0 | **#1 – WI****#1 – MO**10/0/10(top 3 item) |  | 19/0/19 |