| **#** | **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 – MidS  0/5/5 | MN-1  #1 – MidS  5/5/10 | **#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 design  WI / MN – Design strength criteria  WI does allow 100% of RAP or RCP  IL 100% PCC not RAP allowed – research being done on RAP use)  MO – not sure | #1 – IL  5/0/5 | 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-2  4/0/4 |  | 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 – WI  10/0/10 | 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 base  MN – use of 100% RAP  Cold Central Plant then surface treatment (starting in Minnesota) | #2 – MidS  0/4/4 | #2 – MidS  0/4/4 | **#4 – MO**  MN-3  #4 – WI  #2 – MidS  7/4/11  (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 – MidS  4/1/5 | #3 – WI  #5 – MidS  3/1/4 | #2 – IL  #5 – MidS  4/1/5 |  | 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 – IL  5/5 |  | 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 – MidS  3/2/5 | #4 – MidS  0/2/2 | #4 – MidS  0/2/2 |  | 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 – forensic  Different type of granular subbase layers under the top base materials (interest from group) | **MN-2**  #3 – MidS  4/3/7  (top 2 item) | **#1 – IL**  **#2 – WI**  #3 – MidS  9/3/12 | **#3 - WI**  **#3 - MO**  #3 – MidS  6/3/9 |  | 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 material  WI 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 |