State-Aid Bridge News

January 15, 2010

- **Bridge Management Update**

Bridge Inspection Data

If you are using web-based Pontis data entry (Citrix): When all bridge inspections have been entered into Pontis, notify Lisa Hartfiel in the Mn/DOT Bridge Office, 651-366-4557 or lisa.hartfiel@state.mn.us.
If you are using a standalone Pontis dataset: Please send your updated data to Lisa.

Those agencies owning 10 or less structures should email, mail, or fax a copy of their completed inspections with markups to Lisa no later than February 15, 2010.

All inspection data must be entered or sent to Lisa no later than February 15, 2010. If you will not be able to meet the February 15, 2010 submittal deadline, please contact Lisa to make arrangements.

Certification of Inspection Form
All agency Bridge Inspection Program Administrators must submit a "Certification of Bridge Safety Inspection" form upon completion of all bridge inspections. The form is located at:
http://www.dot.state.mn.us/bridge/DocumentsFormsLinks/ByBridgeOffice/CertificateOfBridgeInspection.pdf
Submit the completed and signed form to Lisa no later than February 15, 2010.

48-month Culvert Inspections
All agencies can now run the updated inspection frequency report on the website, and submit inspection interval change request forms to the Bridge Management Unit.

Technology Corner
When submitting plans or other documentation to the Bridge Management Unit, we prefer them in electronic form (pdf, word, excel), however, we will still accept paper copies or faxes.

If you have questions or experience any difficulties using Citrix please contact Lisa Hartfiel. All user IDs will expire on February 28, 2010. Lisa will notify you when it's time to re-establish your account.

Welcome Back
Thomas Martin has returned to the Bridge Management Unit. He can be contacted at 651-366-4556 or thomas.martin@state.mn.us.

- **Gusset Plate Review of Existing Local Truss Bridges Update**

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Back in 2007 we identified 27 high truss and 60 low truss local bridges for gusset plate checks. Of the 87 total local truss bridges identified, 31 trusses have been removed from the list through a screening tool developed by the bridge office and implemented by the county engineers, 27 trusses have either been removed, replaced, or scheduled for replacement, 10 on-system truss evaluations were completed in 2009 through consultant contracts, 14 off- system trusses are currently being evaluated through a second round of consultant contracts with completion of this work in early 2010, and the remaining 5 trusses are planned for replacement when funding becomes available.

Of the truss bridges evaluated to date, we have not discovered any serious issues with the load capacity of the gusset plates. However, several of the truss bridges did receive a lower load rating and recommendations for posting based on the condition and load rating analysis of the truss floor beams and/or stringers.

Upon completion of the 14 off- system bridges, we're hopeful that our local bridge gusset plate evaluations can be considered complete. This important work was born in the after math of the 35W bridge collapse. It is imperative to make sure our state's truss bridges are safe and it is also important that public confidence in our state system of bridges is restored.

- **Bridge Inspection Update**

2010 Bridge Safety Inspection Seminars

Feb 10	Metro-Medina
Feb 18	Carlton
Feb 24	Mankato
March 4	Detroit Lakes
March 11	Metro-Medina

To maintain Mn/DOT certification as a Bridge Safety Inspection "Program Administrator" or "Team Leader", attendance is required at a minimum of two bridge inspection seminars during each 4-year re-certification period. However, those who are not required to attend are welcome and encouraged to do so.

Registration questions – Norm Plasch, Mn/DOT (651) 366-4661
Questions about the course – Jennifer Zink, Mn/DOT (651) 366-4573

Delinquent Local Agency Bridge Safety Inspections

NBIS and State Statutes and Rules require that Bridge Safety Inspection Data and a Certification of Bridge Safety Inspection be submitted to Mn/DOT Bridge Office no later than February 15 each year.

Beginning February 16, the Bridge Management Unit will contact the agency and request the information be submitted within 2 weeks. If the agency is a County, and does not respond or fails to send the information as requested, the District State Aid Engineer will contact and work with the County and request the information be submitted no later than March 15.

If the agency is a City, the District State Aid Engineer will contact and work with the City and request the information be submitted no later than March 15. They may suggest the City seek assistance from the County or a consultant with the necessary expertise and certifications.

If any agency fails to provide Safety Inspection Data and a Certification of Bridge Safety Inspection by July 1, the State Aid Office will notify the agency by letter. The letter will state that the agency is out of compliance with the NBIS regulations and may be ineligible for State Bridge Bond Funds, and/or Federal Bridge Funds and at a minimum may result in withholding payment of State Aid Funds for maintenance.

- **Inspector Certification for Precast Concrete Box Culvert Construction**

During federal audits of local bridge construction projects using ARRA funds, a question was brought up whether or not a Level 2 Bridge Construction Inspector was necessary for the inspection of precast concrete box culverts.

In September of 2009, the Bridge Office addressed this question by concluding that precast concrete box culverts are inspected during fabrication and a lesser level of inspection is required at the construction site. They recommended the Technical Certification Handbook be revised on page 23 to indicate that a Level 2 certification is not required for precast concrete box culvert construction.

A level 2 certification is required for construction of significant structures such as a pile supported bridges. You can reference Mn/DOT's Technical Certification Handbook from the Office of Construction and Innovative Contracting for certification eligibility and requirements of certification, at
http://www.dot.state.mn.us/const/tcp/docs/tcp_hdbk_2009.pdf

- **Local Bridge Load Rating Update**

New State Aid Bridge Load Rating Engineer

With the growing emphasis on bridge safety, the Load Ratings Unit of the Bridge Office has become more important than ever before. Our rating engineers have become increasingly involved in reviewing bridge inspections to identify when new load ratings are required, rerating bridges for special hauling vehicles, implementing Load Resistance Factor Rating (A statistical based method to provide a uniform level of safety for all bridge types.), improving the permitting process, providing related training and etc….

While they have been trying to manage these changes for the trunk highway system, we recognized the need to begin to address these changes for the local highway system as well. To address this growing need, the Bridge and State Aid Offices with support of the MCEA Bridge Committee created a new local bridge load rating engineer position.

The position was developed and in July of 2009 we retained Moises Dimaculangan to perform the duties of this important position. Moises started with Mn/DOT back in 2002 and has served as a bridge designer for the Bridge Office since 2004.

Since inception into his new role, he has fielded a multitude of related load rating questions from our county engineers and their consultants, assisted in the preparation of the state wide SHV's load rating consultant contracts, assisted in gearing up our local bridge consultants on the use of Virtis (AASHTO load rating and posting software), and many other assigned related duties.

Update on Load Rating for the Special Hauling Vehicles (SHV's)

The SHV (Special Hauling Vehicle) load rating initiative for local bridges is well on the way. Under efforts from State Aid Bridge, Bridge Inspection Unit and Moises Dimaculangan we have identified approximately 1,000 local bridges that should be reevaluated for the SHV. Note the SHV is a legal 5-7 axle unit with up to 78,000 lbs gross vehicle weight. The SHV when fully loaded and with all axles down can produce significantly more stress in bridges than our legal semi trucks.

To date, we have prioritized the list of 1,000 bridges based on ADT and developed the first consultant contracts to include evaluation of 550 bridges. The contract calls to hire 4 consulting engineering firms to conduct this work. The work is very similar in nature to the state wide contracts developed to evaluate the new timber haulers truck back in 2004.

The contracts will be advertised this January and selection of the consultants will happen shortly thereafter. The work will be completed by the spring of 2011. Moises Dimaculangan will manage the contracts, assist the consultants, and assure that the new load ratings get updated into Virtis. This evaluation covers 5- D1 counties, 6-D2 counties, 8-D3 counties, 5-D4 counties, 9-D6 counties, 7-D7 counties, 13-D8 counties, and 3 metro counties.

The contract is funded using Federal and State Aid monies. Additional federal and state monies will need to be acquired to complete the SHV work and other efforts to update load ratings of our system of local bridges. This work is necessary to bring our inventory of local bridges back into federal and state compliance in the area of load rating and posting.

Load Resistance Factor Rating Method (LRFR)

As you recall all of our new local bridge designs are now designed using the Load Resistance Factor Design Method. This is an innovative philosophy that is consistent with major bridge design codes of Asia, Canada and Europe. Based on factors calibrated from structural load and resistance statistics, the specification ensures a more uniform level of public safety and reliability.

As this design code was adopted across the country, bridge professionals recognized the need for a methodology for rating the load carrying capacity of bridges that is consistent with the load and resistance factor philosophy. In response, AASHTO released the (first edition, 2008) Manual for Bridge Evaluation which specifically emphasizes the LRFR method and procedures. This new Manual was published into the NBIS on December 2009 and replaces the AASHTO Manual for the Condition Evaluation of Bridges with 2003 interims.

Ultimately, bridge engineers expect that the LRFR approach will provide a lower risk of over or under designed/rated members leading to a decrease in costly traffic restrictions, help reduce maintenance and repair, and avoid costly over conservative designs and ratings.

In recognition of this fact, the FHWA policy of rating methods requires us to implement the LRFR method on all new LRFD and replacement bridges after October 2010. This date is fast approaching us, and our ratings unit will be developing guidance for our local bridge consultants to assist them in this implementation effort. Over the next several months they will be engaged in several pilot projects and other works to assist them in setting this guidance.

Note, supposedly the LRFR method is actually as easy, if not easier, to use than the current Load Factor Rating Method. Over the past year the Bridge Office has helped a majority of our local bridge consultants acquire the AASHTO Virtis load rating software and in some cases assisted them with specific training needs. Virtis is used by Mn/DOT and serves as our primary data base to develop and update load ratings, check permit loads, and to quickly change load rating procedures, i.e. from LFR to LRFR.

We're hopeful that future load ratings performed by our local bridge consultants will be processed using Virtis. This will allow us to build our data base of new and existing local bridges to better assist our local bridge owners with permitting decisions, update load ratings/postings, reporting load ratings/postings, and to change any load rating procedures as required. The use of Virtis will help ease the concern among our bridge owners about the time and effort in converting from LFR to LRFR for new bridges and existing bridges in the future.

At this time we highly encourage our local agencies and local bridge consultants to include load rating using Virtis when developing the scope of services for all future local bridge replacement and rehabilitation projects. In fact, Virtis should be employed in rerating existing local bridges whenever possible. Again, Moises of State Aid Bridge and the Mn/DOT Ratings Unit are on board to help our local agencies and local bridge consultants with this important work to fulfill the obligations of the NBIS.

FHWA Load Rating and Posting Focus Review of Mn/DOT and Local Agency Bridges

In late April of 2009, the FHWA conducted a focus review of Mn/DOT and selected local agencies to identify commendable practices and opportunities for improvement in the area of load rating and posting of bridges. This review was a result of the Office of Inspector General's audit of FHWA's oversight of structurally deficient bridges on the National Highway System back in 2003. In 2007 and in response to this audit, the FHWA stated that their division offices would perform in depth reviews in this area of bridges within 1-3 years.

The primary focus of this review was on policies, procedures, and managing of highway bridge load ratings and postings. The overall conclusion of this review was that the policies and practices for load ratings and postings in Minnesota appear sufficiently appropriate to provide safety of the traveling public. On the other hand, due to the large number of bridges in Minnesota, it was not readily determined whether individual bridge load ratings and needed postings or closings were up to date to reflect the current condition of the bridges. They noted that further review and acknowledgement and verification by individual bridge owners should be pursued to assure that all bridges are load rated and posted properly.

The noted commendable practices: 1) Mn/DOT's guidance on load rating and posting found in the Mn/DOT Bridge Inspection Manual and LRFD Bridge Design Manual, 2) 2008 Bridge Load Rating Class 101 for local agencies, 3) hosted workshop on Load and Resistance Factor Rating, 4) QC/QA compliance reviews of Districts and local agencies to address load rating and posting concerns, 5) load rating and posting reports to all bridge owners via the internet, 6) adding a new load rating engineer to assist both state and local agencies with load rating, posting, and permitting issues and concerns.

The noted opportunities for improvement: 1) Mn/DOT to expand guidance on load rating of bridge decks and substructures, 2) bridge owner's files to be updated with load rating summary sheets, 3) all load rating calculations need to be check by a separate engineer, 4) greater emphasis needs to placed by Mn/DOT on load rating and posting during annual NBIS compliance reviews of local agencies including specific review of bridge files, 5) local agencies should verify that ratings performed by consultants were prepared by a professional engineer and checked by a separate engineer, 6) Mn/DOT should continue dialogue on advance warning signs for load posting signs with local agencies during NBIS reviews, 7) local agencies need to complete the re-rating of all bridges to take into account the specialized hauling vehicles (SHV's).

- **Iowa DOT Pooled Fund Study for Implements of Husbandry**

In November of 2009 the Mn/DOT Bridge Office was contacted by the Iowa DOT soliciting for our interest in a pooled fund study to help our Minnesota load rating engineers determine how to rate and post bridges to encompass heavy agricultural loads. The study would specifically determine how the implements of husbandry distribute their load within a bridge structural system and to provide recommendations to accurately analyze bridges for their load effects.

Iowa is currently funded for a phase I study of typical local Iowa bridges, phase II would be a pooled fund study to examine typical bridges in Minnesota. Both the Bridge Office and the LRRB are very interested in the phase II study. The Bridge Office will assist with specific details of the study and could have some input into the types of vehicles and bridges to evaluate. It was also suggested by members of the County Engineer's Bridge Committee that the study evaluates and provide guidance to consider effects of lugged tires, and inferior suspension systems that may increase impact loading to our bridges.

Also some of the Ag vehicles now have tractors and trailers with tracks. Possibly phase II could address the effects of this configuration. Look for more information and updates on this potential research project with Iowa.

Note, Mn/DOT & AMC with assistance from the Implements of Husbandry Task Force (Chaired by John Welle, Aitkin Co.) provided the language to address the concerns with implements of husbandry on public highways. The language became part of the transportation bill and was passed in 2008. Below is a brief recap of this new legislation.

- First, the old exemption of implements of husbandry from all weight laws was removed. They must comply with posted bridge weights effective August 2008, reference M.S. 169.801 Subd 4

- Second, beginning in January 2010, implements of husbandry will have to comply with formula B, M.S. 169.801 Subd 2(b), see M.S. 169.824.

- **Innovative Local Bridge Construction Update**

Blue Earth County completed the construction of a New York style adjacent prestressed concrete box beam bridge in 2009 to demonstrate innovative and accelerated bridge construction. Many lessons were learned during the construction of this bridge.

Some of the more notable lessons learned to reduce costs include, fabricating the box beams using self consolidating concrete to reduce labor, consider thinner gauge sheet wall abutments, explore the need for painting the sheet wall abutments, explore the use of a non composite overlay system, and revisit the metal traffic railing connection details to eliminate time delays and additional costs in deck formwork.

One of the more notable conclusions was how crucial it is to have good coordination between the contractor, fabricator and the engineer to assure you get timely shop drawing reviews, and timely delivery of materials to achieve accelerated bridge construction.

Currently, Blue Earth County is preparing to further implement the adjacent box beam technology and the lessons learned as stated above. Through coordination with their bridge consultant and the Bridge Office they have completed bridge plans for two box beam bridges in Medo Township, and one box beam bridge in Mapleton Township.

We anticipate that the proposed modifications in the abutment sheet wall design, metal traffic railing connection details, non composite overlay system, and others, will help reduce overall costs and construction time.

- **Bridge Hydraulic News**

Scour Code Updates

We are now 100% done with our efforts to screen all the bridges in the state for scour. These were codes "F- no screening done" and "J-bridge screened-determined to be scour susceptible". With about 10,785 bridges of 20' length and greater over water in this state, we think this is a very impressive accomplishment. Please remember that a scour code must appear on all new bridge plans.

We require POA's for bridges rated as follows:

G NO EVAL-FOUND UNKNOWN
Scour calculation, evaluation and/or screening has not been made. Bridge on unknown foundations.

K SCREEN- LIMITED RISK
Bridge screened, determined to be of limited risk to public, monitor in lieu of evaluation and close if necessary.

O STABLE-ACTION REQUIRED
Bridge foundations determined to be stable for scour conditions; Plan Of Action required to describe action required.

P STABLE DUE TO PROTECTION
Countermeasures have been installed to correct a previously existing problem with scour. Bridge is no longer scour critical. Scour countermeasures should be inspected at least once every 4 years and after major flows, or as recommended in the Plan of Action. Report any changes that have occurred to countermeasures.

R CRITICAL- MONITOR
Bridge has been evaluated to be scour critical. Scour action plan recommends monitoring the bridge during high flows and closing if necessary.

U CRITICAL-PROT REQ
Bridge has been evaluated to be scour critical. Scour action plan recommends this bridge as a priority for installation of countermeasures. Until countermeasures are installed, monitor bridge during high flows and close if necessary.

The next hurdle will be completion of all Plans of Action (POA) for any bridge with the above scour codes. The deadline is April 30th, 2010. Templates can be found in the new Scour Evaluation Procedure Manual and on the Bridge Office Web Site.

We also need to be recoding bridges with "G- Unknown Foundations". We have updated our Bridge Scour Evaluation Procedure Manual to include all of the guidance for "G" rated bridges. A POA should be written for your G rated bridges until they can be recoded. Petra DeWall (phone 651-366-4473 or email petra.dewall@state.mn.us) of State Aid will be talking about the manual at the upcoming Bridge Inspectors Recertification Classes this winter. The new Procedure Manual can be found at:

http://www.dot.state.mn.us/bridge/docsdown.html#hyd

Please note, a November 2010 deadline has been set by FHWA for the elimination of all unknown foundation rated bridge codes from National Bridge Inventory (NBI).

FHWA performed an NBIS Annual Program Review here at the Bridge Office and one of the findings was about the quality of the POAs. FHWA had done a POA Implementation Review during the Red River flooding and observed that some Counties POAs were incomplete and that documentation for monitoring scour was also incomplete. They recommended that reviewing Scour POAs be made a point of emphasis during the MnDOT's QC/QA reviews. POAs should be updated on a regular basis or after high water events. Please review your POA's for completeness and use the templates available on the bridge web site.

Riprap on Steep Slopes – New Developments

Over the years our local agencies, bridge consultants, and bridge contractors have expressed a growing interest in the use of geotextile filter in lieu of granular filter material. Placing granular filter bedding material under stream flow conditions can be problematic for the contractor which can lead to installations of questionable integrity and value.

The Bridge Office has now developed and encourages the use of a new riprap detail and special provision to allow usage of geotextile filter under riprap on abutment slopes that are steeper than 3 horizontal to 1 vertical, but flatter than 2 horizontal to 1 vertical. Currently for these types of slopes, the Mn/DOT Spec book requires use of either a granular filter or "stepping/terracing" of the slope if you use the geotextile filter.

The new detail will require a few key items along the slope: (1) Anchoring/Burying of the geotextile on the top edge, (2) Maximum length along slope of 15 ft before benching or retrenching the filter, (3) Re-anchoring the geotextile at each bench/trench section, (4) Improved toe detail.

The special provision will be for the pay item: 2511.515 Geotextile Type IV (Modified). The standard Type IV filter strength is primarily to prevent tearing during riprap placement. The modified filter is stronger to prevent tearing/braking at the top anchor.

The riprap detail is in the process of becoming a B-detail, but it still hasn't totally gone through the review process. If you want to use the Geotextile on bridge abutments on steeper slopes, contact State Aid and we will forward you the detail and the special provision.

- **Mn/DOT Bridge Standards Unit Update**

New Load Resistance and Factor Design (LRFD) precast concrete box culvert standards up to 16 foot spans will be available by November 2010. Special designs up to 20 foot spans will be available upon request. The date of November 2010 is an imposed deadline set by the FHWA to convert the design of these structures to LRFD. Also work is being done to convert our cast-in-place concrete retaining wall standards to the LRFD format.

- **Local Historic Bridge Preservation**

It was an extremely challenging year in the area of historic bridge preservation. Simply put, a lot of time, money and energy were put forward by our local bridge owners, consultants, Mn/DOT, FHWA, SALT, and MNSHPO this past year. We had approximately eight local historic bridge projects under study (seeking federal-aid highway program funds) come to a stop in project development. In all cases the local bridge owner concluded the preferred alternative is replacement, and in all cases the MN/DOT CRU and FHWA conversely concluded that the preferred alternative is rehabilitation.

In general the owner could not clearly define and support the purpose and need of the project to the satisfaction of the FHWA, MNSHPO & Mn/DOT CRU. In many cases the accuracy of engineering, construction and maintenance cost estimates were challenged by these agencies and ruled as being too conservative to allow the bridge a fair chance to survive. There was an overlying concern that the bridge owners made a decision to replace the bridge far in advance of letting the environmental process work and arrive at the desired decision. Also there was a concern in the applications of these projects to the ATP's. The applications indicated bridge replacement, suggesting that the historic bridge owner seeking federal aid did not understand the requirements of the historic process, or did not realize the bridge was historic, or simply believed the replacement option was preferred.

Regardless it became evident that we needed to address the many concerns for the local bridge owner and at the same time better understand the obligations of the historic bridge process when seeking federal funds. After extensive on-going dialogue and meetings with the FHWA, MN/DOT CRU & MNSHPO to resolve this turmoil with historic local bridges, the following focus areas were identified to help the local historic bridge owner. Note the historic bridges on the state highway system are currently being met with many of the same challenges and conclusions as stated above for local highway bridges.

Mn/DOT's Historic Bridge Management Plan & Section 106 Programmatic Agreement Pre 1956 Bridges

This document was developed in 2006 by Mn/DOT Office of Environmental Services, Bridge Office, District Offices, MNSHPO & FHWA to address the management of the list of pre 1956 historic bridges established back in 1997. This list was developed through comprehensive field studies and only identified 5 percent of the bridges from this era to be historic. Effectively 95 percent of the bridges were cleared of historic review, equating into significant cost savings to state and local agencies. The list identifies approximately 170 local historic bridges as either eligible or listed for the National Register of Historic Places (NRHP).

The overall objective of this document is to provide guidance on prioritization, funding, resources, education/outreach, relevant standards and regulations, Secretary of the Interior's Standards for bridge rehabilitation, alternate design standards, and development of the Section 106 Programmatic Agreement (PA) among FHWA, MNSHPO, Advisory Council on Historic Preservation, Army Corps of Engineers, Mn/DOT. The PA is a document where the FHWA has determined that the federal-aid highway program may be used to rehabilitate or replace pre-1956 bridges listed in or determined eligible for the listing in the NRHP. This agreement comes with approximately 14 stipulations. The PA was officially fully executed in 2008.

All of the stipulations are important, but a few notable ones include: 1) requirements to use the Secretary of the Interior's Standards for treatment of historic bridge properties, 2) attain historic bridge expertise within the Mn/DOT Bridge Office, 3) Mn/DOT CRU and the Bridge Office will provide training opportunities for local agencies for historic bridges and work with local groups to provide technical assistance in completing a local historic bridge management plan.

2006 Historic Bridge Management Plan, http://www.dot.state.mn.us/environment/pdf_files/mgmt-plan-historic-bridges.pdf

Programmatic Agreement Pre 1956 Bridges,
http://www.dot.state.mn.us/environment/pdf_files/crunit/bridgepa.pdf

Local Historic Bridge Preservation Team

The team was developed to address the challenges in developing successful local historic bridge projects for the bridge owner. The team consists of the FHWA, Mn/DOT CRU, SALT, State Aid Bridge, Local Historic Bridge Consultant, (Olson & Nesvold Engineers), Alan Forsberg, (Blue Earth County Engineer), and another local bridge owner to be determined. The group has met a few times to discuss several issues which includes plans to further prioritize the 170 pre 1956 local historic bridges, funding options for engineering, construction, and maintenance.

The team will communicate and update their findings with the County Engineer's Bridge Committee. An outcome of this effort has resulted in a proposal to conduct a "Local Bridge Study". The primary goal of the study would be to determine which historic local bridges pre 1971 are most suitable for preservation. The study would include numerous partners to ensure a successful outcome, such as the Bridge Office, State Aid, representatives from local agencies and ATPs and MNSHPO.

Other products of this proposal include: 1) guidance on appropriate purpose and need statements for historic bridge projects, 2) guidelines for rehabilitation and design variances, 3) programmatic mitigation of select non-preservation candidate bridges, mitigation most likely to be documentation submitted to the Minnesota Historic Property Record (MHPR), 4) updating the historic bridge webpage, 5) development of training sessions and materials for state and local maintenance workers, 6) training of Bridge Office Staff per stipulation of the PA.

Development of Guidelines for Rehabilitation and Replacement of Local Historic Bridges

We envision such a document developed by the Bridge Office with input and agreement of the FHWA, Mn/DOT CRU, County Engineer's Bridge Committee, etc… to set policies on the cost of rehabilitation of a local historic bridge versus bridge replacement. Other items in the document may include guidance on structural design capacity, bridge railing, approach guard railing, economic criteria, fracture critical bridges, and other engineering challenges.

The guideline would be developed to give fair consideration to preservation, and to allow the environmental process to continue to serve for the purpose of arriving at a decision, i.e. avoid a decision ahead of the completion of the environmental process.

Other Historic Bridge Resources

We encourage our local bridge owners and their consultants to tap into other resources such as the new Historic Bridge Preservation website from the Center for Environmental Excellence by AASHTO, http://environment.transportation.org/environmental_issues/historic_cultural/ Also information from other DOT's across the country can prove very valuable. The Texas and Indiana DOT's, to mention a few, have excellent resources that have helped served Mn/DOT in developing their historic bridge program and related information.

Also there may be an opportunity to help our local historic bridge owners with the development of an owner's tool box. The tool box would include historic and engineering information for each bridge in electronic files. The owner would use the tool box to maintain the bridge, rehabilitate the bridge, and secure funding. Minnesota Cultural Heritage Grants are being considered to pursue the development of the tool boxes, and other educational opportunities

On Thursday, January 28, 2010, the National Highway Institute (NHI) will be hosting a Web Seminar on Best Practices of Bridge Preservation. I believe this web conference event is already full, but we will make certain to share this information in future local historic bridge updates.

- **Bridge Costs Update**

Calendar year 2009 saw an across the board decrease in unit costs for PCB, C-SLAB, STEEL, and TRUSS type bridges. Some of the decreases were slight (PCB & C-SLAB) and others were more pronounced (STEEL & TRUSS). The percentage decreases are shown below.

The American Recovery and Reinvestment Act of 2009 (ARRA) made for a dramatic up-tick in both the number of bridges and the total dollar amount of bridges let in CY 2009. The Lowry Avenue Bridge (Bridge No. 27B60) in Hennepin County was the most notable bridge having a bid price of about $43.7M. The ARRA bridges were generally bid at a lower cost, which helped keep the average unit costs of all bridges down for CY 2009.

In CY 2009 we processed approximately 67 local bridges totaling $86.4M. We let $67.9M in ARRA bridges, which accounted for approximately 80% of the total dollar amount of bridges let in CY 2009. ARRA bridges accounted for 24 of the 67 bridges let in CY 2009.

- PCB structures were down 11% ($115.16/sf in CY 2008 vs. $102.52/sf in CY 2009)
- C-SLAB (Concrete Slab Span) structures were down 3% ($101.18/sf in CY 2008 vs. $97.82/sf in CY 2009)
- STEEL structures were down 21% ($156.14/sf in CY 2008 vs. $122.76/sf in CY 2009)

- **Local Bridge Replacement Program Update**

The Local Bridge Replacement Program funded 154 bridges in 2009. Priority was given to shovel ready projects eligible for ARRA funds, STIP projects, waiting list projects, and fracture critical bridges. Because of the ARRA funding and the additional $10 million in bridge bond funds appropriated in 2009, the local bridge replacement program had another stellar year for replacing bridges on the local system. Hennepin County awarded the Lowery Avenue Bridge in 2009, which was a major accomplishment of both creative design and funding.

The waiting list for bridge bonds or town bridge funds currently has 100 projects requesting approximately $16 million in state bridge bonds and town bridge funding. These are projects with approved plans. Currently on the master priority bridge replacement list, there are approximately 700 unfunded projects identified for 2010/2011 with a total replacement cost of $196 million. The Mn/DOT supported legislative bond request for the local bridge replacement program for the next biennium is $75 million.

Counties and cities should update their 5-year bridge program and send it in to Patti Loken with the updated resolutions if they are adding new bridges to their program. You can send in updated cost estimates for projects currently on the master list at anytime.

- **Lowry Bridge**

It is not often a truly signature bridge structure is constructed in our State. The Lowry Avenue Bridge appears to be one of them. The bridge type called for a non-fracture critical innovative basket handle tied arch, you may find this web site of interest: http://www.lowryavenuebridge.com/ . The Bridge was let in November of 2009 with a price tag of approximately $50 million. The designers were TY-Lin and SRF Consulting Group Inc; it received $10 million in ARRA funding. The State Aid Bridge Unit has been involved in the development of this bridge project since 2006.

Hennepin County and the project team did a fantastic job meeting a very aggressive project schedule. The bridge received a design peer review from Parsons, and the overall QA/QC process was managed by SRF Consulting Group Inc. Bridge construction is anticipated to take two years.

- **State Aid Bridge Contacts:**

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▪ Duties full time
▫ Duties part time
◦ Duties temporary