



Office of the Comptroller

April 20, 2010

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Mr. Jeffrey J. Mantes
Commissioner of Public Works
841 N. Broadway, Room 501
Milwaukee, WI 53202

Subject: 2008 Residential Street Paving Audit

Commissioner Mantes:

This is in response to your February 16th letter stating that the Department of Public Works considers all primary recommendations in our Audit of the DPW Residential Street Paving Program as complete (letter enclosed). We agree that recommendation five on Paving Program oversight was implemented and cleared with the creation of the new Capital Improvements Committee. However, additional information is needed on the remaining four recommendations. The following three in-depth analyses and reports as emphasized in the audit are a prerequisite for determining the completeness of audit implementation. Please provide them or indicate what steps are being made toward providing this information.

Citywide Residential Street Network Condition Assessment Report: The audit found that DPW had not provided comprehensive reporting on the condition of residential streets and needed street work since the former Capital Improvements Committee was abolished in 1990. Since a street network assessment was not available, the audit used condition data in the existing DPW Pavement Management Application (PMA) to determine that residential streets overall were in fair condition but getting worse, with nearly 21 percent of streets in poor condition and in need of reconstruction. Without periodic condition reports there is no practical way of determining whether street conditions are improving.

Residential Street Preservation & Restoration Plan: The audit indicates that a long-term paving improvement plan to preserve good quality residential streets and eliminate the backlog of poor quality streets is essential for the Paving Program. Previous DPW six-year CIP plans (essentially, prioritized project lists) have not defined the levels of replacement nor the time or funding required to accomplish this goal. The audit recognized that previous program funding levels had not been sufficient, but funding implications may not have been apparent to

Mr. Jeffrey J. Mantes

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policy makers without this plan. The audit states that without such a plan, meaningful reporting on the extent of progress toward a sustainable and functionally efficient residential street network is not possible. Most of the audit report and its appendices relate to residential street preservation planning.

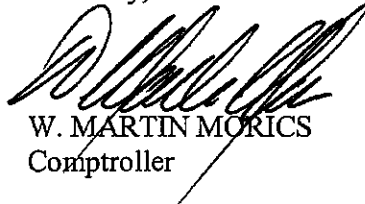
Residential Paving Performance Report: Actual paving program accomplishments should be reported against the residential street preservation and restoration plan. Network condition reports above could be combined with these performance reports.

A summary listing of all Paving Audit recommendations, the two DPW response letters and our comments was recently provided to your staff and is also enclosed here.

We are copying this letter to the members of the Capital Improvements Committee for their information.

Pending receipt of the above, our next Audit Activities report to the Common Council will indicate that one Paving Audit recommendation has been implemented and the remaining recommendations are in progress.

Sincerely,



W. MARTIN MORICS
Comptroller

c: CIC Members

WMM:jtm
Ref: DpwPavingAuditUpdateResponse(4-16-10)



COMPTROLLER



Department of Public Works
Infrastructure Services Division

Jeffrey J. Mantes
Commissioner of Public Works

Preston D. Cole
Director of Operations

Jeffrey S. Polenske
City Engineer

February 16, 2010
Mr. W. Martin Morics
Comptroller
Room 407, City Hall

Subject: 2008 Audit of the Department of Public Works
Residential Street Paving Program

Dear Mr. Morics:

This is in response to your letter to Department of Public Works (DPW) Commissioner, Jeffrey Mantes, dated December 23, 2009 relative to an audit of the Residential Street Paving Program.

The summary in your report dated December 8, 2008 recommends five programmatic recommendations. We will address these items below:

- Item 1 – Establish an accurate total for residential street miles.

We have gone through our streets data base with a fine tooth comb. Using the data available and eliminating duplication of distances for intersections, the total length of residential streets is 952.705 miles of residential streets. For your information, there are 88.195 miles of collectors, 276.870 miles of minor arterials, and 118.035 miles of principal arterials. We now consider this item complete.

- Item 2 – Expand use of the Pavement Management Application (PMA) to develop a cost-effective paving strategy.

Our street maintenance staff has incorporated the PMA data into their existing system that will help in the review of pavement maintenance strategies for all of our many types of pavements. We consider this item now complete.

- Item 3 – Implement a paving and performance monitoring and reporting process.

The survivor curves used in the PMA are based upon actual performance of our pavements in the past for various cross sections. What was noted in the audit had to do with utility cuts and the impact on the pavements life cycle. What was not mentioned, but is important to this issue, is that we require different levels of patch work from utilities based upon the existing age of the pavement. As mentioned in

Mr. W. Martin Morics
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Item 2, maintenance forces now use the PMA data that results in the monitoring suggested. We consider this item now complete.

- Item 4 – Develop and fund a revised “Preserve-First” pavement management strategy.

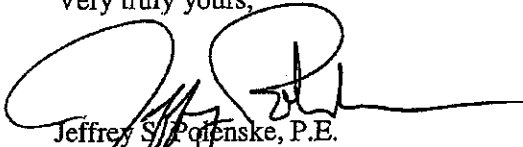
We have been doing this all along. The auditor took our statement “we do the worst streets first” to mean we only reconstruct roadways. Attempts were made to correct his misunderstanding. By worst case first, this meant from a preserve first strategy. All along we have provided crack filling, sealing, maintenance overlays and resurfacing of projects, along with reconstructions. We did identify, however, that these areas had been decreased in past years and we are now devoting more resources to these items. We consider this item now complete.

- Item 5 –Establish ongoing program oversight.


Our staff has been working with your staff and the state to address issues contained in past audits. The development of our Oracle Database System (ODB), the integration of the city’s financial information management system (FMIS) data and the introduction of Primavera-6 (P6), a project management software tool. Although this has been developed for state/federal grant paving projects, we will use this same system to address the needs for the subject capital program. We consider this item is now complete.

With these changes that have been implemented, the DPW believes all of the items contained in the subject audit have been addressed and are now complete. Should you have any questions, please contact Mr. Clark Wantoch of our staff at 286-2401.

Very truly yours,



Jeffrey S. Potenske, P.E.



Jeffrey J. Mantes
Commissioner of Public Works

CAW:sdp

Michalski, James

From: Wantoch, Clark
Sent: Friday, April 16, 2010 5:13 PM
To: Michalski, James
Cc: Kammholz, Craig; Mejaki, Dale; Sobczak, Daryl; Polenske, Jeffrey
Subject: RE: Paving Audit Status

Jim

Item A)

These reports will be generated by the software we are getting from Stantec. We are still working with Stantec to match their data with our data to get the output needed.

As such, this is not complete and we will have to report on this again in the future.

However, I would like to note the following addresses what our maintenance supervisors do on an annual basis for review of our street system:

Every year street maintenance staff does a "windshield survey" of ALL city of Milwaukee streets using survey books, which utilize road life type information. This consists of driving every street, completing a subjective evaluation of the road for both preventative maintenance (crack filling, sealing, etc) and needed repairs including patching, pavement repairs, plow damage etc. These locations are compared to the subject year paving programs as well as sewer and water programs. Then city maintenance programs are developed, and contract locations are derived. Currently city street maintenance crews do some crack filling, and asphalt and concrete repairs. Contract locations for crack filling, seal coating ,asphalt resurfacing and concrete joint repair are derived from this survey.

Item B)

We are working with the Capital Improvements committee to present this data such that a plan can be developed. At the same time, we are looking for grant funding to help offset this backlog. Several charts have been presented to the committee on the overall condition of the system and by age distribution. I will forward the charts and graphs in another e-mail on Monday.

Item c)

These reports will be available with the Primavera management software we are installing called P6. These reports would then be furnished to the capital Improvements committee to aid in their review of our system.

Clark Wantoch
w 414 286 2401
c 414 327-5272

-----Original Message-----

From: Michalski, James
Sent: Wednesday, March 31, 2010 3:38 PM
To: Wantoch, Clark
Cc: Kammholz, Craig
Subject: Paving Audit Status

Clark,

This is in response to DPW's 2/16 update letter on the Paving Audit, which states that you now consider all of the recommendations complete. As we discussed earlier by phone, the Comptroller's Office needs further information and clarification on how the audit recs have been addressed before we can agree to close the audit. We do agree that rec 5 on

establishing ongoing program oversight was implemented and cleared with the creation of the new Capital Improvements Committee. Implementation status of the other recs would be reflected by the following DPW documents, if available.

A) Periodic DPW condition reports on the residential street network. These reports would be similar to, but more comprehensive than, the audit section on Profile of Street Conditions and Pavement Types, beginning on page 10 of the audit. This relates to rec 3. Also, rec 2 and Appendix C concern enhancements to the PMA database which contains the condition data needed for this reporting.

B) A long-term DPW plan to preserve the good quality streets and eliminate the backlog of fair and poor quality streets (Residential Street Preservation Plan). This relates to audit recs 2, 4 and the example policy options in audit appendix D. Previous DPW six-year plans (project lists) did not accomplish this, given that the audit found "Milwaukee residential streets are in fair condition but getting worse...Nearly 21 percent or 214 residential street miles are in poor condition and in need of reconstruction", page 7. The audit recognized that previous funding levels had not been sufficient. However, funding implications may not have been apparent to policy makers because there was no overall street network preservation plan. The audit found that "Without such a plan, meaningful reporting on the extent of progress toward a sustainable and functionally efficient residential street network is not possible", page 7.

C) Periodic DPW paving program performance reports. Actual paving program results should be reported against the long-term preservation plan. The network condition reports above could be combined with these performance reports. This also relates rec 3 and the audit appendices.

The attached Excel file summarizes all of the audit recommendation, the two DPW response letters, and my comments about the further information needed. Please call me at 2225 if there are any questions.

We intend to send a letter to the DPW on this in about two weeks. If you can provide information to help us clear other recs we will note that in our letter.

Office of the Comptroller					
2008 Audit of DPW Residential Street Paving					
Recommendation Status Information					
Rec	Page	Audit Excerpt	DPW Audit Response Letter 10/23/08	DPW Update Letter 2/16/10	Jim Michalski Comments 3/24/10
1	10	"Establish an accurate total for residential street miles. DPW should reconcile the differences between the Road Life and Pavement Management Application (PMA) databases...A more detailed discussion and recommendation...in Appendix A."	"Accurate number of miles...We agree that the total from the PMA should be used...for the audit. We also agree that the more accurate figure would be the road life summary at roughly 970 miles..."	"We have gone through our streets data base...and eliminating duplication of distances for intersections, the total length of residential streets is 952.705 miles...there are 88.195 miles of collectors, 276.870 miles of minor arterials, and 118.035 miles of principal arterials. We now consider this item complete."	
A1	40	"Select one length measurement as the official length for each segment...could be the PMA or Road Life database...Then, when queries are run , the official segment length can be used to report conditions..."			DPW should reconcile and adjust the PMA total to 952.7 miles, so that the PMA can be used for accurate reporting on the condition of the residential street network.
2	18	"Expand use of the PMA to develop a cost-effective paving strategy....A fully utilized PMA should provide a long-term optimized strategy for the street network...producing a greater improvement in pavement condition than is now possible..."	"Expand use of PMA: The program is currently used as a budget tool and identifies potential paving projects. We are developing way to use this data within our maintenance area...to help identify potential maintenance strategies...Recommendations B1, B2 and B3 are already being done."	"Our street maintenance staff has incorporated the PMA data into their existing system that will help in the review of pavement maintenance strategies...We consider this item now complete."	DPW was not using the PMA's full functionality, including not using its maintenance module. The audit found an insufficient link between pavement condition in the PMA and DPW's project priority lists. The audit found that the PMA is an adequate tool for managing the paving program at a system-wide level...provides reporting and analysis capabilities...can be used to develop first-cut project lists. Recommendation 2 and Appendices A, B and C are aimed at making the PMA the primary paving program tool.
	43	"Appendix C provides recommendations for PMA integration into the paving program..."			DPW has not responded to the specific recs in the Appendices.
C1	43	"Strengthen the data collection quality assurance program, with a focus on Rigid (Concrete) pavements."			Recommended to enhance condition data accuracy and reliability. DPW should respond.
C2	43	"Increase the frequency of data collection to help avoid 'data drift'...PMA data should be updated no later than every four years..."			Recommended to enhance condition data accuracy and reliability. DPW should respond.

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C3	43	"Reduce time between data collection measurements. With long intervals between data collection measurements...the intervening time interval to modify distress conditions..."			Recommended to enhance condition data accuracy and reliability. DPW should respond.
C4	43	"Adjust pavement performance curves, especially after a third data collection cycle. There is sufficient data to refine both the basis of the curve family...as well as...local pavement performance..."		"The survivor curves used in the PMA are based upon actual performance of our pavements in the past..." Excerpt from update on recommendation 3.	DPW cites its survivor curves but has not indicated how they are used in paving program planning and whether they are periodically compared to actual pavement conditions. Audit found considerable differences in miles of pavement types, in useful life of each type and in age distribution within type. There did not appear to be a link between these factors and annual program funding requests or approvals.
C5	43	"Incorporate maintenance treatments and analysis of those treatments into the PMA. This should include the calculation of remaining service life..."			DPW should respond whether the PMA incorporates maintenance treatments for use in calculating remaining service life and forecasting needs.
C6	43	"Integrate project history, condition history, and pavement related data into a single database..."			DPW should explain the extent to which Road Life and PMA data are integrated in its ODB or in another database.
C7	44	"Provide sufficient resources to accomplish all of the above tasks...The scope of work required is substantially more than can be accomplished by a single individual."			DPW should indicate whether the recommended enhancements to the paving program have staffing consequences.
C8	44	"...rapid and accurate feedback of price changes and trends is essential to maintaining credibility of the program needs assessment..."			DPW should respond.

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3	18	"Implement a paving performance monitoring and reporting process...with a set of pavement condition goals and objectives based on need...Standards should be established...Reporting of performance should be addressed to DPW management, the Mayor and Common Council regarding street maintenance accomplishments and the resulting condition assessment...Appendix B includes 12 additional recommendations..."	"Implement a paving performance monitoring and reporting process: We will look into what can be done in this regard. Note our permit process does include a provision based on the age of the adjacent pavement. This had not been conveyed to the consultant until recently."	"The survivor curves used in the PMA are based upon actual performance of our pavements in the past...we require different levels of patch work from utilities based upon the existing age of the pavement...maintenance forces now use the PMA data that results in the monitoring suggested. We consider this item now complete."	The audit found that DPW has not provided comprehensive reporting on the condition of streets and needed street work since the old Capital Improvements Committee was abolished in 1990. The recommended paving performance and reporting process would facilitate this comprehensive reporting. DPW should indicate whether it will now provide comprehensive paving program reporting.
	41	"Appendix B provides a list of recommendations to produce a systematic improvement to the decision-support mechanism necessary to underpin a comprehensive pavement management program..."			
B1	41	"Initiate the formation of any project list with PMA output, selecting an appropriate threshold level for rehabilitation (PQI 5.5 or less is suggested as a starting point)..."	"...Recommendations B1, B2 and B3 are already being done." Excerpt from DPW response to recommendation 2.		DPW should explain how the PMA is used to develop a project list, including the PQI threshold values used for rehab and reconstruction.
B2	41	"Implement a procedure to 'calibrate' pavement condition data projected by the PMA between collection cycles, to reduce 'data drift'..."	"...Recommendations B1, B2 and B3 are already being done." Excerpt from DPW response to recommendation 2.		DPW should explain how the PMA is recalibrated between data collection cycles.
B3	41	"Develop a methodology for combining PMA segments into meaningful project segments, and compute the PQI for these units of analysis..."	"...Recommendations B1, B2 and B3 are already being done." Excerpt from DPW response to recommendation 2.		DPW should explain how this is being done.
B4	41	"Examine PQI values of individual PMA segments to identify opportunities for localized maintenance intervention..."			DPW should respond.
B5	41	"Use the individual indices that compose the PQI to extract useful information about distress drivers that can be useful in prioritizing projects..."			DPW should respond.

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B6	41	"Incorporate preservation treatments into the PMA. The current PMA has a maintenance module that should be utilized."			Use of the maintenance module may enhance the PMAs analysis and reporting capabilities and relates to making the PMA the primary paving program tool. DPW should respond.
B7	42	"Use high PQI values...to trigger preventive maintenance treatment candidate projects...A range in the bottom of the 'good or better' rage (7.2-8.2) is suggested as a starting point..."		"...maintenance forces now use the PMA data that results in the monitoring suggested..." Excerpt from update on recommendation 3.	DPW should respond and explain how the maintenance forces are now using the PMA.
B8	42	"Complement PMA data with a time based schedule for programming certain maintenance treatments."			DPW should respond.
B9	42	"Increase the robustness of the PMA quality assurance program, especially with regard to acceptance of data. Formalize the program, documenting components, roles and responsibilities..."			Similar to rec C1. DPW should respond.
B10	42	"Adopt a rating system for use by maintenance personnel in evaluating the condition of the segments they are considering. The PASER system provided by DPW...could be useful...Provide the PASER rating...to DPW's Local Streets section."			DPW should respond.
B11	42	"Adopt a plan to integrate data collection that is captured and/or repeated in several DPW units...Use the DPW's GIS to develop a spatial profile of soil conditions..."			Similar to rec C6. DPW should indicate to what extent paving data is integrated in the ODB.
B12	42	"Implement a formalized process for evaluating emerging pavement technology, products and processes..."			The auditors were informed that DPW has done these evaluations in the past. DPW should indicate whether there is an ongoing process for evaluating new paving techniques.

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	63	"Appendix E is a summary of observations and recommendations regarding pavement design practices..."			
E1	63	"Review flexible design standards for new construction or reconstruction...Early, progressive edge failures were observed consistently...alligator cracking has often developed..."			The reported observations by the audit consultant merit further investigation and a review of design standards. DPW should respond.
E2	64	"Review design procedures for placement of concrete curb. One possible cause of this early edge distress is difficulty in compacting the mix..."			DPW should respond.
E3	64	"Current DPW standards for utility-cuts...should include requirements for compaction of replacement material...consider 'controlled low-strength material'..."			The audit consultant found that utility cut patching was a major cause of pavement failure. CC resolution 081339 directed DPW to revise and update its utility cut policy consistent with the audit. DPW should provide the updated policy and explain how it addresses the observed deficiencies.
E4	64	"Review pavement design standards...every time a new design practice is incorporated or at least every five years..."			DPW should respond.
E5	64	"Incorporate innovative reconstruction technology. This includes concrete rubblization...full-depth reclamation for flexible pavements..."			DPW should respond.
E6	64	"Establish a formalized process for new product and technique evaluation..."			Same as rec B12.
E7	65	"A general review of existing distress forms and design features ...should be conducted to ensure that existing standards and practices are adequate..."			Given the audit observations, this is an important rec. DPW should respond.

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4	36	"Develop and fund a revised 'Preserve-First' pavement management strategy. DPW should develop a robust paving strategy to maintain the higher quality streets and eliminate the backlog of 'poor' rated streets...Paving program funding should be increased at least \$6 million per year...See Appendix D...pavement strategy options."	"Develop a 'preserve-first' strategy. Our maintenance personnel do implement this strategy...Projects that can be maintained are not recommended for paving...With the implementation of the Motor Vehicle Registration Fee, more projects would be approved through the public hearing process as resurface projects."	"We have been doing this all along...By worst case first, this meant from a preserve first strategy. All along we have provided crack filling, sealing, maintenance overlays and resurfacing of projects, along with reconstructions. We did identify, however, that these areas had been decreased in past years and we are now devoting more resources to these items. We consider this item now complete."	DPW should provide its paving strategy and long-term plan to maintain the higher quality streets and eliminate the backlog of poor rated streets. DPW should provide a comprehensive pavement condition report and report accomplishments against the plan. DPW should report the consequences for any funding deficiencies. These are essential paving program prerequisites for clearing this audit.
	45	"Appendix D...This analysis conveys a range of strategies that can be implemented at various funding levels..."			
5	36	Establish ongoing paving program oversight...Entities which could provide such oversight include...a reconstituted Capital Improvements Committee (CIC)..."	"Establish a paving program oversight committee: If the Capital Improvements Committee were recreated, we would support any reporting necessary and would welcome the opportunity to be represented on the committee."	"...The development of our Oracle Database System (ODB)...a project management software tool...we will use this same system to address the needs for the subject capital program. We consider this item is now complete."	The new Capital Improvements Committee is now holding regular meetings. This recommendation appears implemented and is cleared.