Scope Process Quality Review

A review of the quality of collected scoping documents, identification of themes or patterns, lessons learned, and recommendations for improvements or enhancements in the scoping process.

June 25, 2013

Sign-off Sheet

Stantec

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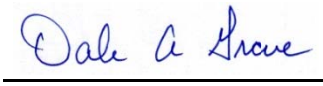
Prepared by 

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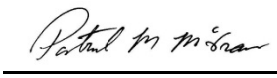
Reviewed by 

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Executive Summary

In 2008, MnDOT implemented a formal scoping process that requires every project to have an approved Scoping Report prior to entry into the Statewide Transportation Improvement Program (STIP) or the start of project development. The quality of the Scoping Report is important to ensure that a project can be delivered on time, on budget, and meet stakeholder expectations. This report summarizes the review of 21 Scoping Reports from across the state in a review of the quality of the documents. This includes finding themes or patterns in reports, providing lessons learned, and identifying recommendations for improvements or enhancements in the scoping process.

The 21 projects were selected from each of the MnDOT districts to get a comprehensive sample of geographic and organizational variety. The sample set also consisted of projects of varied sizes, with construction costs ranging from $3.1 million to over $66 million. Work types were split between five categories: BRPC – Bridge Replacement or Construction, GSBR – Grade, Surface and Bridge, PVTR – Pavement, Resurface and Rehabilitation, GRSU – Grade and Surface, and BRRH – Bridge Rehabilitation.

For each of the projects selected, files related to the Scoping Process and the Letting process were provided for review and comparison. Although the projects varied in the completeness of the data provided, all projects included Scoping Reports, project addenda, advertised plans, project abstracts, project contracts, proposals, and final cost detail summaries.

Each of the project files was analyzed to evaluate the quality of the Scoping Report. Items that were examined included report clarity, errors, costs differing from scope estimates, deviations in the Letting Date, and the degree to which anticipated scope was realized throughout the project. To help in the comparison of scope quality and the level of impacts experienced with the construction aspects of the project, three levels of quality were identified for the Scoping reports; Robust, Average, and Minimal.

The analysis found that there was a variation in the content of scoping reports throughout the districts. Although there were some similarities, approximately 60 different data fields were identified across the sample reports and only nine of the data fields were found on all scoping reports.

Three primary areas were analyzed: Cost, Quality, and Schedule. The findings were mixed as to the benefit of a robust scoping process.

Construction Document Costs
The average deviation from the estimated project costs listed in the Scoping Report was fairly uniform across all three categories of scope quality. The average amount of the difference between the scope estimate and the construction document (contract amount + supplemental agreements not related to the State shutdown) price ranged between $2.8 and $3.6 million.

Because of varying project size, the percent deviation from the estimated costs was also calculated. Without regard to whether the estimate was over or under the construction document totals, a review showed that Minimal quality Scoping Reports fared the worst, missing the scope estimates by an average of 46.6%.

Fifteen of the 21 projects (71%) had construction document totals that came in under Scoping Report estimates. This may be due to a conservative approach to estimating, as some project estimates included contingencies for unforeseen circumstances. However, it is important to keep in mind that two of the 21 projects were constructed in 2009, thirteen in 2010, and six in 2011. The fact that this was a time when the construction market was very aggressive and owners were getting very competitive bids on their projects may have factored into the estimate under construction trend.

Supplemental Agreements

We did not find a correlation between the quality of the Scoping Reports and the number of Supplemental Agreements that were required on a project. However, the amount of the SA did reflect the quality of the Scoping Reports. With the average project in the category being roughly the same size, projects with Robust reports averaged $287,582 in non-State shutdown related Supplemental Agreements while their counterparts in the Minimal category were almost triple that amount, at $846,433. It should be noted that because eight of these projects were in construction during the State shutdown, Supplemental Agreements that resulted from shutdown activities were not included in the analysis as these costs could not have been identified in the project scoping phase.

Supplemental Agreements were also studied for their contributing causes. Once State shutdown related impacts were removed from consideration, two categories (Plan Quality and Geotechnical/Materials) were identified as the contributing factors generating the majority of the Supplemental Agreements. These two categories were responsible for generating nearly one-third of the agreements and over 56% of the SA costs. Within these two categories, several projects appear to have been impacted by a lack of data during the scoping phase, or by the failure to carry Scoping Report recommendations through the project development process.

Letting Dates

When comparing the planned vs the actual letting dates for the projects, those in the Robust category performed better than the projects in the Average or Minimal categories.

"Robust" scoped projects: missed their letting dates by 16.0 days on average.

"Average" scoped projects: missed their letting dates by 142.0 days on average.

NOTE: two projects in the Average category had very late (308 and 644 days) letting dates. If these two projects were removed from the analysis, the average for this category would drop to 46.6 days.

"Minimal" scoped projects: missed their letting dates by an average of 57.4 days.

Themes were noted throughout the review and analysis of the Scoping reports, including:

- A lack of depth in Scoping Report analysis.
- Inconsistent risk identification.
- Varying interpretations of the “dotted line.”
- The apparent confusion on multiple “Performance Need and Purpose” fields.
- Incomplete documentation on “Work Items.”
- Confusion in identifying types of costs.
- Cost estimation process errors with Scope Amendments.
- Inconsistent analysis of “Local Interaction” requirements.
- The random placement of action items throughout the Report.
- A perceived confusion with the use of “Issues Related to Project Delivery.”
- A need to improve the quality of the instructions.
- The absence of Scoping Amendments when they were justified.
- A perceived disconnect between the costs developed in Scoping and the costs as reported in TPCE Summaries.
- The need for earlier development of data used in scoping.

1.0 Chapter 1: Scoping Process Overview

In 2008, MnDOT implemented a formal scoping process that requires every project to have an approved Scoping Report prior to entry into the Statewide Transportation Improvement Program (STIP) or the start of project development. The quality of the Scoping Report is important to ensure that a project can be delivered on time, on budget, and meet stakeholder expectations. The purpose of this report is to summarize the review of 21 Scope Reports from across the state and review the quality of the documents, identify themes or patterns in reports, provide lessons learned, and identify recommendations for improvements or enhancements in the scoping process.

1.1 Scope Process in 2008

MnDOT, in collaboration with the Center for Transportation Studies, created the Cost Estimation Process Improvement and Organizational Integration Project with a stated objective to "achieve accuracy, accountability, consistency, and cost management efforts during the planning, scoping, design, and letting phases of highway projects." The two year project identified project management best practices within the department and investigated new approaches to improve project management in the future.

The specific outcomes of this effort included the vision[1] of:

- Department-wide priority on estimating, managing and controlling costs
- Reliable and accurate estimates
- Statewide uniformity and consistency
- Improved communication and credibility with external stakeholders
- Clear accountability

A separate, but related, scoping initiative process was begun in order to develop an early project scope development process. This process was intended to lower project risk and uncertainty, provide a clearly defined scope decision making process, and create effective scoping tools. In 2008, MnDOT began using the new project scoping process and approved Scoping Reports (Appendix A) were used for the 2010 – 2013 STIP.[2]

[1] "MnDOT Cost Estimation Process Improvement and Organizational Integration Project: Project Overview", March, 25, 2008.
[2] "MnDOT Cost Estimating and Cost Management Launch Q&A", October, 2008.

1.2 Existing Scope Process

The current MnDOT Scoping process was developed under the direction of the Pre-Construction Managers Group (PCMG) with the intent of developing a standard for project scoping throughout the state.[3]

They identified the benefits of a good scoping process as:

- Alignment with performance goals
- Better cost estimates
- Less rework
- Predictable delivery schedule
- Greater public trust
- Improved coordination with partners
- Everybody on the team working toward the same goal
- Alignment with FHWA / AASHTO Context Sensitive Solutions (CSS) principles

Key aspects of the new process included:

- Early project scoping, before the project is programmed in the STIP
- Involvement of a full range of stakeholders and MnDOT functional groups
- Defined scoping timeline that provides enough time for adequate scoping by functional groups, but also provides a definite end to the scoping process
- Sufficiently in-depth investigations and decisions so that scope is complete and uncertainties are reduced
- Creating adequate documentation throughout the scoping and scope amendment process

1.2.1 Existing Scoping Tools

The analysis contained in this report is focused on projects constructed in FY 2010 and 2011 that went through the scoping process established in 2008. The Scoping Process was updated in 2010 and MnDOT has developed many tools to document the process and scope including:

- *Planning Needs List* – This list is used to track potential projects during planning.
- *Project Planning Report* – This report provides the Project Manager with background regarding what was determined during the planning phase. Now project managers use Project Charter for the project initiation as a tool.

[3] "MnDOT Scoping Process Executive Summary", 12/12/2006, "MnDOT Scoping Process", undated, and "MnDOT Scoping Process Narrative", 10/15/2008.

- *Early Notification Memo* – This tool is used to provide information to stakeholders and solicit early input for complex projects.
- *Scoping Worksheets* – These worksheets provide MnDOT functional groups with an outline of the items which require investigation during scoping and to document their scoping recommendations.
- *Draft Scoping Report* – The draft scoping report is used as the outline for scoping meetings with MnDOT functional groups and stakeholders.
- *Final Scoping Report* – The final scoping report is used to document the project scope. District management staff signatures are required for the Final Scoping Report.
- *Scope Amendment / Project Change Request* – This document is used to ensure that any changes to scope are properly considered, the impact of the scope change is understood and the change is properly documented. District management staff signatures are required for Scope Amendment approval.
- *Electronic Document Management System (EDMS) and ProjectWise* – These systems aid the scope process by providing a process for document tracking and retention.

1.3 Scoping Process Steps (2008)

In 2008 (the time when these projects went through the scoping process), MnDOT was only using the scoping process for non-preservation projects. MnDOT summarized the scoping process (simplified) with the graphic in Figure 1:

A more detailed diagram of the scoping process is included in Appendix B.

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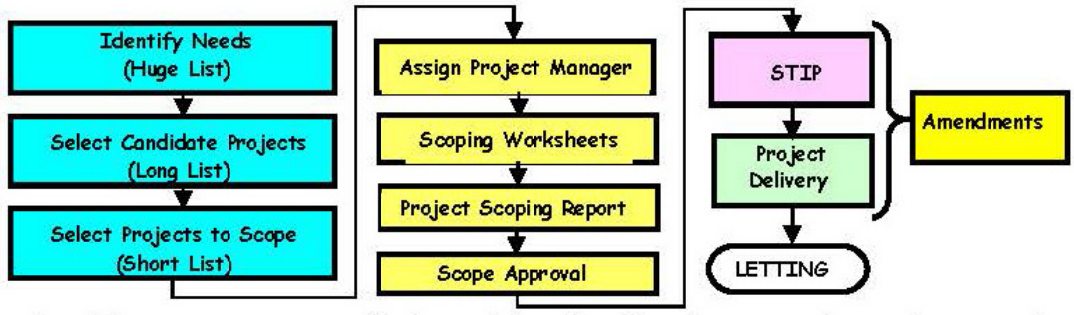


1.3.1 Project Planning Phase

Referring to the Simplified Scoping Process Diagram shown in Figure 1, the scoping process (identified in the yellow boxes above) is shown preceding the project planning phase (shown in the blue boxes). During the project planning phase, performance-based measures and targets

from the Statewide Transportation Plan or District plans are used to identify deficiencies in the transportation system and generate the Needs List (the "Huge List"). The Needs List development stage identifies a list of system needs. The identification of the future project's performance-based needs and purpose in this stage is utilized later in the scope development process.

Following the creation of the Needs List, the candidate projects are pared down into a list of projects (the "Long List") to address the earlier identified needs. This list is pared down through the definition of project concepts and screening through application of constraints. Common constraints include fiscal constraints, personnel constraints, and political constraints.

The "Long List" projects are further refined and narrowed down over several steps in order to develop the "Short List" of projects that will continue on into the scoping phase.

1.3.2 Project Scoping Phase

A Project Manager is assigned to the project and has the role of leading the scoping process for the project. Detailed scoping does not begin until after the selection of the preferred alternative. Large, complex projects will require more time and effort prior to project scoping, which may include the completion of more environmental documentation and construction limits work prior to the project scoping process.

The Project Manager distributes the scoping worksheets to MnDOT functional groups and other stakeholders. The MnDOT functional groups and other stakeholders identify any known issues with the proposed project based on their areas of expertise. The Project Manager gathers these issues lists and cost estimates to develop the Draft Scoping Report from them.

The Draft Scoping Report is then discussed at a meeting, (or multiple meetings for complex projects) to discuss what should or should not be included in the scope. Based on the results of the scoping meeting(s), a Final Scoping Report is prepared which summarizes both the work that will and will not be included in the scope. Any rejected issues should include a reason as to why they were rejected.

The Final Scoping Report is considered complete when appropriate District Management staff sign the report. A Total Project Cost Estimate (TPCE) should be signed and attached in the Scoping Report based on the scoping report template. Although the Scoping Report is considered to be complete at this point, it may be beneficial (but not required) for other items to be completed before inclusion in the STIP, including:

- Final geometric layout
- Design exception approval
- Preliminary construction limits
- Municipal consent
- Foundations

- Pavement type determination
- Materials design recommendation (MDR)
- Traffic Management Plan

1.3.3 Scope Amendment Phase

No scoping process can be flawless at all times and there will always be instances where situations change or something is discovered that was not known at the time of the preparation of the Scoping Report. The Project Change or Scope Amendment Process was created to address these circumstances. Scope Amendments can occur during the STIP phase or the Project Delivery phase.

The Scope Amendment Process should not be used for situations where the change would result in the change of the purpose or need of the project. Any changes affecting purpose and need become, in effect, new projects and need to be re-scoped and prioritized so that they re-compete for funding based on the new purpose and need. Only scope changes that remain within the original purpose and need can be considered as amendments to the original scope.[4]

Scope Amendments should be used for issues where a change will affect scope, cost or schedule, if that new issue exceeds the minimum criteria set by the district to require a formal scope amendment.

Prior to submitting a Scope Amendment for approval to appropriate District Management staff, the Project Manager will circulate the proposed change for review by key scoping worksheet reviewers. The Project Manager will also consider the effects of the proposed Scope Amendment on the following:

- Schedule
- Cost and TPCE
- Environmental Documentation
- Public Commitments
- Construction Limits and Subsequent R/W deliverability

In addition, if a project change would cause a modification to the district program, a Program Evaluation Form is also required for approval. If the project Baseline Cost Estimate is greater than $2 million and the new Total Project Cost Estimate exceeds the Baseline Cost Estimate, the project must be reviewed by the Transportation Program Committee (TPC). The Program Evaluation Form process is designed to determine whether funds are available to accommodate the cost increase and the impact that may have on other commitments for limited construction program funds. In addition, the change will need to be evaluated to determine if it has the potential to create a need to revise the STIP.

[4] "MnDOT Scoping Process Narrative, p. 14.

2.0 Chapter 2: Scoping Document Review

2.1 Projects Selected for Review

Twenty-one sample projects were reviewed in this analysis (Table 1). The projects selected were sampled from each of the districts in order to get a geographic and organizational distribution. The sample set and also consisted of projects of varied sizes, with construction costs ranging from $3.1 million to over $66 million. Work types were split between five categories as reflected in the "Primary Work Type" column.

Table 1: List of Sample Projects for Review

District	Route System	Route Number	Project S.P. Number	Primary Work Type
1	I	35	6982-290	BRPC – Bridge Replacement or Construction
1	MN	61	3806-60	GSBR – Grade, Surface and Bridge
1	MN	65	3112-34	PVTR – Pavement, Resurface and Rehabilitation
2	US	2	6002-69	GRSU – Grade and Surface
2	MN	11	3604-69	GSBR – Grade, Surface and Bridge
2	MN	34	2902-39	PVTR – Pavement Resurface and Rehabilitation
3	MN	95	4810-17	BRPC – Bridge Replacement or Construction
3	MN	371	1810-95	PVTR – Pavement Resurface and Rehabilitation
4	I	94	5680-126	PVTR – Pavement Resurface and Rehabilitation
4	MN	55	2107-09	PVTR – Pavement Resurface and Rehabilitation
4	MN	9	7501-30	PVTR – Pavement Resurface and Rehabilitation
6	US	14	7401-34	GSBR – Grade, Surface and Bridge
6	I	90	8580-156	PVTR – Pavement Resurface and Rehabilitation

District	Route System	Route Number	Project S.P. Number	Primary Work Type
7	I	90	5380-115	BRRH – Bridge Rehabilitation
7	MN	60	5305-56	GRSU – Grade and Surface
8	MN	23	4203-46	PVTR – Pavement Resurface and Rehabilitation
8	US	212	4309-31	PVTR – Pavement Resurface and Rehabilitation
Metro	US	61	6222-160	BRPC – Bridge Replacement or Construction
Metro	MN	999	7000-07	BRRH – Bridge Rehabilitation
Metro	I	35W	1981-120	GRSU – Grade and Surface
Metro	US	61	6222-161	PVTR – Pavement Resurface and Rehabilitation

2.2 Data Reviewed

For each of the projects selected, files related to the Scoping and Letting processes were provided for review and comparison. Although the projects varied in the completeness of the data provided, all projects included:

- Scoping Report
- Project Addenda
- Advertised plans
- Project abstracts
- Project contracts
- Proposals
- Final cost detail summaries

2.3 Review Process

Each of the project files was analyzed to evaluate the quality of the Scoping Report. Items that were examined included:

- Report clarity
- Errors
- Costs in excess of estimate

- Deviations in the Letting Date
- Degree to which anticipated scope is realized throughout the project
  - Number and nature of Scope Amendments
  - Consistency of plans with established project scope
  - Number and nature of Plan Amendments
  - Number and nature of Supplement Agreements

A Scoping Review Summary Form was created to summarize the review of each scoping report and related documents. Each of the 21 forms created for this study are located in Appendix C.

In addition, the variation in the content of scoping reports throughout the districts was examined to identify best practices. Although the scoping reports are similar across the districts, approximately 60 different data fields were identified across the sample reports and only nine of the data fields were found on all scoping reports. High frequency data fields were assumed to be generally valuable. Low frequency data fields were examined to determine if some data fields did not have widespread value or if they might be new innovations that could have widespread value if the concept was spread to other projects.

The MnDOT Scoping Report forms were then compared against similar tools utilized by some other Departments of Transportation around the country in order to identify additional strengths and weaknesses of the present report format.

3.0 Chapter 3: Scoping Report Analysis

While reviewing the Scoping Reports, a wide range of completeness and perceived level of effort was identified. Table 2 shows a summary of the variation of the Scoping Reports.

Table 2: Summary of Scoping Report Variation

Summary of Scoping Report Variation

21 Projects Reviewed

Item	#	Range		Average
		Minimum	Maximum	
Construction Costs				
Projects $ Over Scope Est.	6	$1,235,176	$7,589,112	$3,666,063
Project % Over Scope Est.	6	20%	151%	61.0%
Project $ Under Scope Est.	15	$267,674	$10,877,059	-$3,273,143
Project % Under Scope Est.	15	-4%	-38%	-19.7%
Supplemental Agreements				
Projects Needing an SA	19	- - -	- - -	- - -
Total Number of SA's [1]	101	0	15	5.3
Total SA Costs [1]	13,409,944	0	2,736,061	$705,787
Addendums				
Projects Needing an Addendum	3	- - -	- - -	- - -
Total Number of Addendums [2]	5	0	2	1.7
Total Addendum Costs [2]	0	0	0	$0
Schedule (days)				
Projects On-Time or Early	7	0	882	215
Projects Late	14	21	644	120
All Projects	21	-882	644	152

Notes: [1] Average calculated using # projects requiring an SA (19)
[2] Average calculated using # projects requiring an Addendum (3)
Construction Costs = Contract + Supplemental Agreements
Eight projects required 22 SAs related to State Shut-down

3.1 Schedule

Adjustments to the schedule can have a dramatic effect on the planning and programming operations of MnDOT. A summary of the projects and the schedule deviation is shown in Table 3.

Table 3: Schedule Deviations

MnDOT Scoping Reports

Schedule Deviation: Scoping Reports vs. Construction

Project S.P.	Highway Number	Project Type	Scope Letting Date	Actual Letting Date	Day(s) Early	Day(s) Late
1810-95	371	PVTR – Pavement Resurface and Rehabilitation	May 21, 2010	Mar 25, 2011		308
1981-120	I-35W	GRSU – Grade and Surface	Jun 10, 2011	Mar 25, 2011	77	
2107-09	55	PVTR – Pavement Resurface and Rehabilitation	Mar 23, 2012	Oct 23, 2009	882	
2902-39	34	PVTR – Pavement Resurface and Rehabilitation	Feb 25, 2011	May 06, 2011		70
3112-34	65	PVTR – Pavement, Resurface and Rehabilitation	Feb 12, 2010	May 07, 2010		84
3604-69	11	GSBR – Grade, Surface and Bridge	Jan 22, 2010	Feb 26, 2010		35
3806-60	61	GSBR – Grade, Surface and Bridge	Oct 23, 2009	Feb 12, 2010		112
4203-46	23	PVTR – Pavement Resurface and Rehabilitation	Oct 23, 2009	Oct 23, 2009	0	
4309-31	212	PVTR – Pavement Resurface and Rehabilitation	Feb 24, 2012	Aug 27, 2010	546	
4810-17	95	BRPC – Bridge Replacement or Construction	Mar 26, 2010	Apr 23, 2010		28
5305-56	60	GRSU – Grade and Surface	Jul 09, 2010	Jul 09, 2010	0	
5380-115	I-90	BRRH – Bridge Rehabilitation	Apr 24, 2009	May 15, 2009		21
5680-126	I-94	PVTR – Pavement Resurface and Rehabilitation	Feb 25, 2011	Feb 25, 2011	0	
6002-69	2	GRSU – Grade and Surface	Mar 26, 2010	May 11, 2010		46
6222-160	61	BRPC – Bridge Replacement or Construction	Jan 22, 2010	Mar 26, 2010		63
6222-161	61	PVTR – Pavement Resurface and Rehabilitation	Jan 22, 2010	Apr 23, 2010		91
6982-290	I-35	BRPC – Bridge Replacement or Construction	Feb 26, 2010	Apr 02, 2010		35
7000-07	999	BRRH – Bridge Rehabilitation	Aug 21, 2009	Dec 18, 2009		119
7401-34	14	GSBR – Grade, Surface and Bridge	Jan 23, 2009	Jan 23, 2009	0	
7501-30	9	PVTR – Pavement Resurface and Rehabilitation	Apr 24, 2009	Jan 28, 2011		644
8580-156	I-90	PVTR – Pavement Resurface and Rehabilitation [1]	Jan 22, 2010	Feb 12, 2010		21
				Total # Projects =	7	14

NOTE: When no day of the month was listed for the Letting Date in the Scoping Report, the date was assumed to be the first normal Letting Date of the month as identified in the MnDOT archives.

[1] Letting Date was simply noted as "2010" in the Scoping Report.

3.2 Construction Costs

Accurately estimating the construction costs of a project is challenging. Changes in material costs, the competitive environment among contractors, and the number of projects in the market all contribute to uncertainty in the ultimate project construction costs and are largely outside the control of the project manager. However, other factors weigh into the project costs as well and can be managed through a healthy and continuous Scoping process. Unexpected issues and conditions, scope creep, and decisions made outside the PM's influence can all influence the ultimate project costs.

Fifteen of the 21 projects (71%) had bids come in under Scoping Report estimates. This may be due to a conservative approach to estimating, as some project estimates included contingencies for unforeseen circumstances. However, it is important to keep in mind that two of the 21 projects were constructed in 2009, thirteen in 2010, and six in 2011. The fact that this was a time when the construction market was very aggressive and owners were getting very competitive bids on their projects may have factored into the estimate under bidding trend.

A review of the projects analyzed and their Scope vs. Constructions costs is included in Table 4.

Table 4: Construction Cost Deviations

MnDOT Scoping Reports

Construction Cost Deviations: Scoping Reports vs. Construction Documents

Project S.P.	Highway Number	Project Type	Scope Estimate	Construction Documents	$ Over Scope Est.	$ Under Scope Est.	% Deviation
1810-95	371	PVTR – Pavement Resurface and Rehabilitation	10,779,103	8,845,975		-1,933,128	-18%
1981-120	I-35W	GRSU – Grade and Surface	14,581,453	12,672,796		-1,908,657	-13%
2107-09	55	PVTR – Pavement Resurface and Rehabilitation	7,352,057	9,257,361	1,905,304		26%
2902-39	34	PVTR – Pavement Resurface and Rehabilitation	10,860,473	6,788,465		-4,072,008	-37%
3112-34	65	PVTR – Pavement, Resurface and Rehabilitation	13,500,000	11,061,386		-2,438,614	-18%
3604-69	11	GSBR – Grade, Surface and Bridge	12,660,000	15,234,145	2,574,145		20%
3806-60	61	GSBR – Grade, Surface and Bridge	14,360,035	11,016,783		-3,343,252	-23%
4203-46	23	PVTR – Pavement Resurface and Rehabilitation	12,700,000	17,375,655	4,675,655		37%
4309-31	212	PVTR – Pavement Resurface and Rehabilitation	6,970,000	14,559,112	7,589,112		109%
4810-17	95	BRPC – Bridge Replacement or Construction	2,660,000	6,676,987	4,016,987		151%
5305-56	60	GRSU – Grade and Surface	25,294,473	17,808,650		-7,485,823	-30%
5380-115	I-90	BRRH – Bridge Rehabilitation	4,112,777	3,695,577		-417,200	-10%
5680-126	I-94	PVTR – Pavement Resurface and Rehabilitation	5,485,333	4,431,895		-1,053,438	-19%
6002-69	2	GRSU – Grade and Surface	7,032,370	6,764,696		-267,674	-4%
6222-160	61	BRPC – Bridge Replacement or Construction	5,905,566	3,689,528		-2,216,038	-38%
6222-161	61	PVTR – Pavement Resurface and Rehabilitation	8,254,771	7,692,063		-562,708	-7%
6982-290	I-35	BRPC – Bridge Replacement or Construction	73,430,690	66,131,162		-7,299,528	-10%
7000-07	999	BRRH – Bridge Rehabilitation	5,420,000	6,655,176	1,235,176		23%
7401-34	14	GSBR – Grade, Surface and Bridge	65,000,000	54,122,941		-10,877,059	-17%
7501-30	9	PVTR – Pavement Resurface and Rehabilitation	4,564,767	3,130,019		-1,434,748	-31%
8580-156	I-90	PVTR – Pavement Resurface and Rehabilitation	18,114,855	14,327,582		-3,787,273	-21%
				Total # Projects =	6	15	

Projects with "Construction Document" Costs Over the Scope Estimate

21,996,379 = Total Dollar Amount over Scope Estimates
3,666,063 = Average Dollar Amount over Scope Estimates
61.0% = Average Deviation from Scope Estimate

ALL Projects

329,038,723 = Total Scope Dollar Amount
15,668,511 = Average Scope Dollar Amount

Projects with "Construction Document" Costs Under the Scope Estimate

-49,097,148 = Total Dollar Amount under Scope Estimates
-3,273,143 = Average Dollar Amount under Scope Estimates
-19.7% = Average Deviation from Scope Estimate

301,937,954 = Total Const. Doc Dollar Amount
14,377,998 = Average Const. Doc Dollar Amount

NOTE: "Construction Documents" = Contract + Supplemental Agreements

3.3 Supplemental Agreements and Addendums

Supplemental Agreements and Addendums can be the reflection of a number of issues related to a project. Some can be tied to poor scoping and anticipated issues in the field. Others, however, are beyond the control of even the most diligent project manager and are related to events like the state governmental shutdown or other problems that simply could not have been predicted. Some of the projects reviewed were under construction during the State shutdown, and eight projects realized cost impacts from this event. Because this issue could not have been foreseen during scoping, Supplemental Agreements related to the shutdown were not considered in overall project costs.

Project Addendums were minimal and appeared to be largely unrelated to data included or omitted in the Scoping Reports. Supplemental Agreements were required much more frequently, as shown in Table 5.

Table 5: Number and Cost of Supplemental Agreements and Addendums

MnDOT Scoping Reports

Supplemental Agreements and Addendums

As required by State Shut-Down (SSD) and non-SSD related issues

Project S.P.	Highway Number	Project Type	State Shutdown Related SAs		Non-State Shutdown Related SAs		All Supplemental Agreements		Addenda		Supplementals Agreements + Addenda	
			#	Cost	#	Cost	#	Cost	#	Cost	#	Cost
1810-95	371	PVTR	2	161,713	2	402,741	4	564,454	0	0	4	564,454
1981-120	I-35W	GRSU	5	401,085	1	8,663	6	409,748	0	0	6	409,748
2107-09	55	PVTR	0	0	5	1,131,160	5	1,131,160	0	0	5	1,131,160
2902-39	34	PVTR	3	308,344	1	0	4	308,344	0	0	4	308,344
3112-34	65	PVTR	0	0	2	582,451	2	582,451	0	0	2	582,451
3604-69	11	GSBR	0	0	9	2,188,639	9	2,188,639	0	0	9	2,188,639
3806-60	61	GSBR	3	520,536	8	185,380	11	705,916	0	0	11	705,916
4203-46	23	PVTR	0	0	7	680,458	7	680,458	0	0	7	680,458
4309-31	212	PVTR	1	57,916	4	180,000	5	237,916	0	0	5	237,916
4810-17	95	BRPC	0	0	0	0	0	0	2	0	2	0
5305-56	60	GRSU	3	645,300	3	0	6	645,300	0	0	6	645,300
5380-115	I-90	BRRH	0	0	1	-20,000	1	-20,000	0	0	1	-20,000
5680-126	I-94	PVTR	0	0	1	114,178	1	114,178	0	0	1	114,178
6002-69	2	GRSU	0	0	1	289,582	1	289,582	0	0	1	289,582
6222-160	61	BRPC	0	0	2	54,698	2	54,698	0	0	2	54,698
6222-161	61	PVTR	0	0	2	32,791	2	32,791	0	0	2	32,791
6982-290	I-35	BRPC	1	180,000	13	1,104,175	14	1,284,175	0	0	14	1,284,175
7000-07	999	BRRH	0	0	4	1,461,073	4	1,461,073	0	0	4	1,461,073
7401-34	14	GSBR	4	436,688	11	2,299,373	15	2,736,061	0	0	15	2,736,061
7501-30	9	PVTR	0	0	2	3,000	2	3,000	2	0	4	3,000
8580-156	I-90	PVTR	0	0	0	0	0	0	1	0	1	0
			22	2,711,582	79	10,698,362		13,409,944			106	13,409,944

19 = Number of Projects Requiring a Supplemental Agreement
3 = Number of Projects Requiring an Addendum
101 = Number of Supplemental Agreements
5 = Number of Addendums

The primary issues that generated Supplemental Agreements were reviewed and classified and the results are shown in Table 6. A description of the Supplemental Agreement "Contributing Causes" categorized in Table 6 is included below.

Agency – SA was initiated by the actions of a governmental unit outside of MnDOT. Typical items included unexpected outside agency requirements or problems coordinating with projects being run by another governmental unit (i.e. county road project, city watermain, etc.)

Contractor Initiated - SA was initiated due to the actions of the contractor. Typical items included adjustments in the schedule or process to accommodate a perceived contractor efficiency or contractor delays.

Geotech/Materials - SA was initiated due to unexpected soils conditions. Typical items included encountering unsuitable soils.

MnDOT Initiated - SA was initiated due to a request from MnDOT. Typical items included changes in scope due to project engineer directing to replace infrastructure that was planned for rehabilitation or extension of the limits to pick up an adjacent area of concern.

Plan Quality - SA was initiated to account for an error discovered in the plan set. Typical items included missing plan elements or issues where the plans do not represent the situation in the field.

State Shutdown - SA was initiated to prepare for the State shutdown or to address the impacts of the State shutdown after the fact. Typical items included preparing the site for shutdown (paving temporary roads, etc.), making acceleration payments or paying the contractor for mobilization and idle equipment costs.

Traffic - SA was initiated to address an unexpected heavy traffic issue as construction was underway. Typical items could be installing a temporary turn lane, temporary signals or paving a temporary surface that was planned to be unpaved during construction.

Weather- SA was initiated due to unusual weather events. Typical items included alteration of project schedule, late lifting of load limits and paving areas that were difficult to maintain in a gravel state under the weather conditions.

Other/Misc. - SA was initiated due to a reason not accounted for above. Typical items included adjusting the angle of Superpave Gyratory Compactor, additional testing or monitoring, and finding unknown slag.

No Data/Undefined - SA was not available for review at the time of this study.

Table 6: Contributing Factors to Supplemental Agreements

Summary of Supplemental Agreements
Broken into Categories of Contributing Factors

Project		Supplemental Agreements	Contributing Factors: Agency	Contractor Initiated	Geotech/ Materials	MnDOT Initiated	Plan Quality	State Shutdown	Traffic	Weather	Other/ Misc.	No Data/ Undefined
All Projects	Number of	101	5	9	11	10	20	22	3	6	11	6
	Cost of	$13,409,944	$295,766	-$33,060	$2,014,351	$1,579,410	$5,550,956	$2,711,582	$158,509	$713,429	$419,001	$0
3112-34	Number of	2	0	0	2	0	0	0	0	0	0	0
	Cost of	$582,451	0	0	582,451	0	0	0	0	0	0	0
3806-60	Number of	11	0	3	0	1	1	3	0	0	1	2
	Cost of	$705,916	0	0	0	74,942	110,438	520,536	0	0	0	0
6982-290	Number of	14 [1]	1	1	1	2	3	1	1	1	4	0
	Cost of	$1,284,175	0	0	60,000	293,862	231,312	180,000	100,000	0	419,001	0
2902-39	Number of	4	0	0	0	0	0	3	0	0	0	1
	Cost of	$308,344	0	0	0	0	0	308,344	0	0	0	0
3604-69	Number of	9	2	0	3	2	1	0	0	0	1	0
	Cost of	$2,188,639	349,510	0	371,677	740,279	727,173	0	0	0	0	0
6002-69	Number of	1	0	0	1	0	0	0	0	0	0	0
	Cost of	$289,582	0	0	289,582	0	0	0	0	0	0	0
1810-95	Number of	4	1	0	1	0	0	2	0	0	0	0
	Cost of	$564,454	38,241	0	364,500	0	0	161,713	0	0	0	0
4810-17	Number of	0	0	0	0	0	0	0	0	0	0	0
	Cost of	$0	0	0	0	0	0	0	0	0	0	0
2107-09	Number of	5	0	0	2	2	1	0	0	0	0	0
	Cost of	$1,131,160	0	0	291,443	356,149	483,568	0	0	0	0	0
5680-126	Number of	1	0	0	0	1	0	0	0	0	0	0
	Cost of	$114,178	0	0	0	114,178	0	0	0	0	0	0
7501-30	Number of	2	0	0	0	0	1	0	0	1	0	0
	Cost of	$3,000	0	0	0	0	3,000	0	0	0	0	0
7401-34	Number of	15	1	1	0	0	6	4	0	1	1	1
	Cost of	$2,736,061	-91,985	0	0	0	2,188,154	436,688	0	203,204	0	0
8580-156	Number of	0	0	0	0	0	0	0	0	0	0	0
	Cost of	$0	0	0	0	0	0	0	0	0	0	0
5305-56	Number of	6	0	1	0	0	0	3	0	0	1	1
	Cost of	$645,300	0	0	0	0	0	645,300	0	0	0	0
5380-115	Number of	1	0	1	0	0	0	0	0	0	0	0
	Cost of	-$20,000	0	-20,000	0	0	0	0	0	0	0	0
4203-46	Number of	7	0	2	0	0	3	0	1	0	0	1
	Cost of	$680,458	0	-13,060	0	0	643,672	0	49,846	0	0	0
4309-31	Number of	5	0	0	0	2	1	1	0	0	1	0
	Cost of	$237,916	0	0	0	0	180,000	57,916	0	0	0	0
1981-120	Number of	6	0	0	0	0	0	5	1	0	0	0
	Cost of	$409,748	0	0	0	0	0	401,085	8,663	0	0	0
6222-160	Number of	2	0	0	1	0	0	0	0	1	0	0
	Cost of	$54,698	0	0	54,698	0	0	0	0	0	0	0
6222-161	Number of	2	0	0	0	0	1	0	0	0	1	0
	Cost of	$32,791	0	0	0	0	32,791	0	0	0	0	0
7000-07	Number of	4	0	0	0	0	2	0	0	2	1	0
	Cost of	$1,461,073	0	0	0	0	950,848	0	0	510,225	0	0

NOTES: [1] Total number of contributing factors may exceed the number of Supplemental Agreements since more than one factor may contribute to the need for the SA If two (or more) Contributing Factors were identifed for a single SA, the cost of the SA was split bewteen these factors.

3.4 Construction Impacts

The overall construction impacts of incomplete, weak, or neglected Scoping Reports can be manifested in a number of ways. The three areas that were focused on for this study were construction costs, schedule impacts, and supplemental agreements/addenda to the project. A summary of these qualities is included in Table 7.

Table 7: Scoping Report and Summary of Impacts

MnDOT Scoping Reports

Scoping Report Summary of Impacts

Project S.P.	Highway Number	Project Type	Construction Cost vs. Estimate	Construction Cost % Diff.	Letting Date Early	Letting Date Late	Non-State Shutdown Sup. Agreements Number	Non-State Shutdown Sup. Agreements Cost	Addenda Number	Addenda Cost
1810-95	371	PVTR	(1,933,128)	-18%		308	2	402,741	0	0
1981-120	I-35W	GRSU	(1,908,657)	-13%	77		2	8,663	0	0
2107-09	55	PVTR	1,905,304	26%	882		5	1,131,160	0	0
2902-39	34	PVTR	(4,072,008)	-37%		70	1	0	0	0
3112-34	65	PVTR	(2,438,614)	-18%		84	2	582,451	0	0
3604-69	11	GSBR	2,574,145	20%		35	9	2,188,639	0	0
3806-60	61	GSBR	(3,343,252)	-23%		112	7	253,177	0	0
4203-46	23	PVTR	4,675,655	37%	0		7	680,458	0	0
4309-31	212	PVTR	7,589,112	109%	546		4	180,000	0	0
4810-17	95	BRPC	4,016,987	151%		28	0	0	2	0
5305-56	60	GRSU	(7,485,823)	-30%	0		3	0	0	0
5380-115	I-90	BRRH	(417,200)	-10%		21	1	-20,000	0	0
5680-126	I-94	PVTR	(1,053,438)	-19%	0		1	114,178	0	0
6002-69	2	GRSU	(267,674)	-4%		46	1	289,582	0	0
6222-160	61	BRPC	(2,216,038)	-38%		63	2	54,698	0	0
6222-161	61	PVTR	(562,708)	-7%		91	2	32,791	0	0
6982-290	I-35	BRPC	(7,299,528)	-10%		35	13	1,104,175	0	0
7000-07	999	BRRH	1,235,176	23%		119	4	1,461,073	0	0
7401-34	14	GSBR	(10,877,059)	-17%	0		11	2,299,373	0	0
7501-30	9	PVTR	(1,434,748)	-31%		644	2	3,000	2	0
8580-156	I-90	PVTR	(3,787,273)	-21%		21	0	0	1	0

NOTES: PVTR = Pavement Resurface and
GRSU = Grade and Surface
GSBR = Grade, Surface and Bridge
BRPC = Bridge Replacement or
BRRH = Bridge Rehabilitation

3.5 Quality of Scoping Reports

To help in the comparison of scope quality and the level of impacts experienced with the construction aspects of the project, three levels of quality were identified for the Scoping reports.

Robust - all the areas of Scoping Report are completed. Additional data was added or a Scoping Change Request was completed. Sufficient attention and analysis was included to allow a reader unfamiliar with the project to thoroughly understand the scope of the project and the challenges and issues that may be faced.

Average - roughly half or more of the data fields in the Scoping Report were completed. No additional information was provided after the initial Scoping Report was completed. Enough data was provided so a reader unfamiliar with the project could understand what the intent of the project was and identify what some of the construction challenges may be.

Minimal – only a few of the data fields in the Scoping Report are filled out. Data that is provided is sparse and generally incomplete. A reader unfamiliar with the project may be able to understand the very basics of the project, but there is no data to identify all of the project aspects and there is no discussion or identification of risk areas or potential project concerns.

Using these levels of quality, seven of the reports reviewed qualified as Robust, nine were Average, and 5 fell into the Minimal category as shown in Table 8.

Table 8: Scoping Report Quality vs. Construction Impacts

MnDOT Scoping Reports

Scoping Report Quality with Construction Impacts

Project S.P.	Highway Number	Project Type	Scoping Report Quality: Robust	Avg.	Min.	Construction Cost: vs. Estimate	% Diff.	Letting Date: Early	Late	Non State-Shutdown Sup. Agreements: Number	Cost	Addenda: Number	Cost
5305-56	60	GRSU	X			(7,485,823)	-30%	0		3	0	0	0
5380-115	I-90	BRRH	X			(417,200)	-10%		21	1	-20,000	0	0
6222-161	61	PVTR	X			(562,708)	-7%		91	2	32,791	0	0
1981-120	I-35W	GRSU	X			(1,908,657)	-13%	77		1	8,663	0	0
2107-09	55	PVTR	X			1,905,304	26%	882		5	1,131,160	0	0
4203-46	23	PVTR	X			4,675,655	37%	0		7	680,458	0	0
4309-31	212	PVTR		X		7,589,112	109%	546		4	180,000	0	0
5680-126	I-94	PVTR		X		(1,053,438)	-19%	0		1	114,178	0	0
2902-39	34	PVTR		X		(4,072,008)	-37%		70	1	0	0	0
6002-69	2	GRSU		X		(267,674)	-4%		46	1	289,582	0	0
6222-160	61	BRPC		X		(2,216,038)	-38%		63	2	54,698	0	0
6982-290	I-35	BRPC		X		(7,299,528)	-10%		35	13	1,104,175	0	0
7401-34	14	GSBR		X		(10,877,059)	-17%	0		11	2,299,373	0	0
7501-30	9	PVTR		X		(1,434,748)	-31%		644	2	3,000	2	0
3806-60	61	GSBR		X		(3,343,252)	-23%		112	8	185,380	0	0
1810-95	371	PVTR		X		(1,933,128)	-18%		308	2	402,741	0	0
3112-34	65	PVTR			X	(2,438,614)	-18%		84	2	582,451	0	0
3604-69	11	GSBR			X	2,574,145	20%		35	9	2,188,639	0	0
4810-17	95	BRPC			X	4,016,987	151%		28	0	0	2	0
7000-07	999	BRRH			X	1,235,176	23%		119	4	1,461,073	0	0
8580-156	I-90	PVTR			X	(3,787,273)	-21%		21	0	0	1	0

NOTES: PVTR = Pavement Resurface and Rehabilitation
GRSU = Grade and Surface
GSBR = Grade, Surface and Bridge
BRPC = Bridge Replacement or Construction
BRRH = Bridge Rehabilitation

3.6 Impacts of Scoping Quality

Deviations in construction costs above or below the anticipated price tag both have negative impacts on a project, as well as changes in the project schedule. For this reason, fluctuations from the estimated Letting Dates and Construction Costs were treated the same whether negative or positive. Since Addendums were minimal and unrelated to the data provided in the Scoping Reports, they will be ignored in this analysis.

3.6.1 Scope Quality vs. Construction Document Costs

Scope-cost relationships are complex. Fewer items in a scoping report does not necessarily mean less cost for a project, so costs do not necessarily have direct relationship with scope quality. However, changes in the scope may relate to changes in project cost, creating a correlation between scoping report quality and project cost estimates.

Figure 2 shows the average difference between the construction cost estimate given in the Scoping Report and the construction costs identified in the construction documents. The average percent deviation from the project cost estimate is also shown. Since over- or under-estimating project costs can both harm the program, all deviations from the estimated costs as shown in the Scoping Reports were considered.

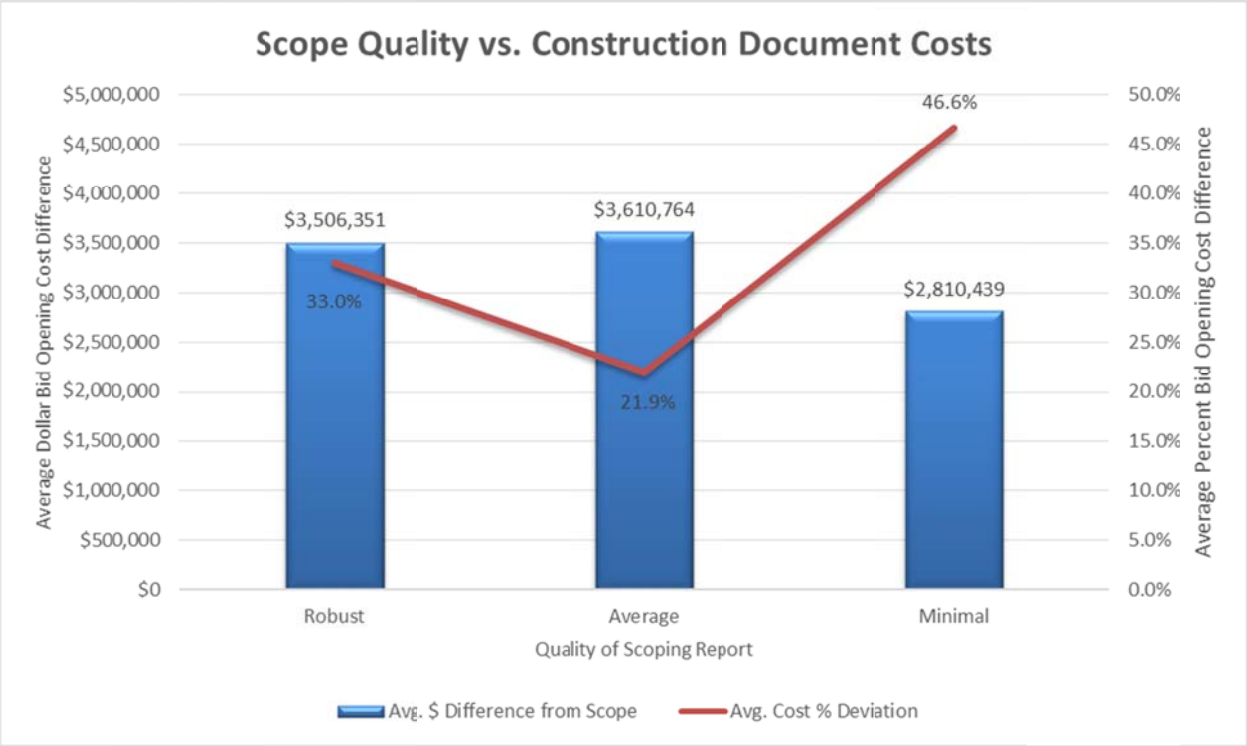


Figure 2: Scope Quality vs. Construction Document Costs

Section 3.2 of this report highlighted the project-by-project difference between the identified project construction costs in the Scoping reports with the construction document costs. The average project cost for the three categories listed for Scoping Quality were Robust = $11.32 million, Average = $21.94 million, and Minimum = $10.47 million. Two projects in the category of "Average" Scoping Report quality had very large construction cost estimates ($65 million and $73.4 million). The size of these projects contributed to a lower average bid cost % deviation for projects listed in the "Average" category, but only by 2.5% (24.4% without, 21.9% with).

3.6.2 Scope Quality vs. Supplemental Agreements

Figure 3 illustrates the average number and average cost of the supplemental agreements for each level of quality in the Scoping Reports.

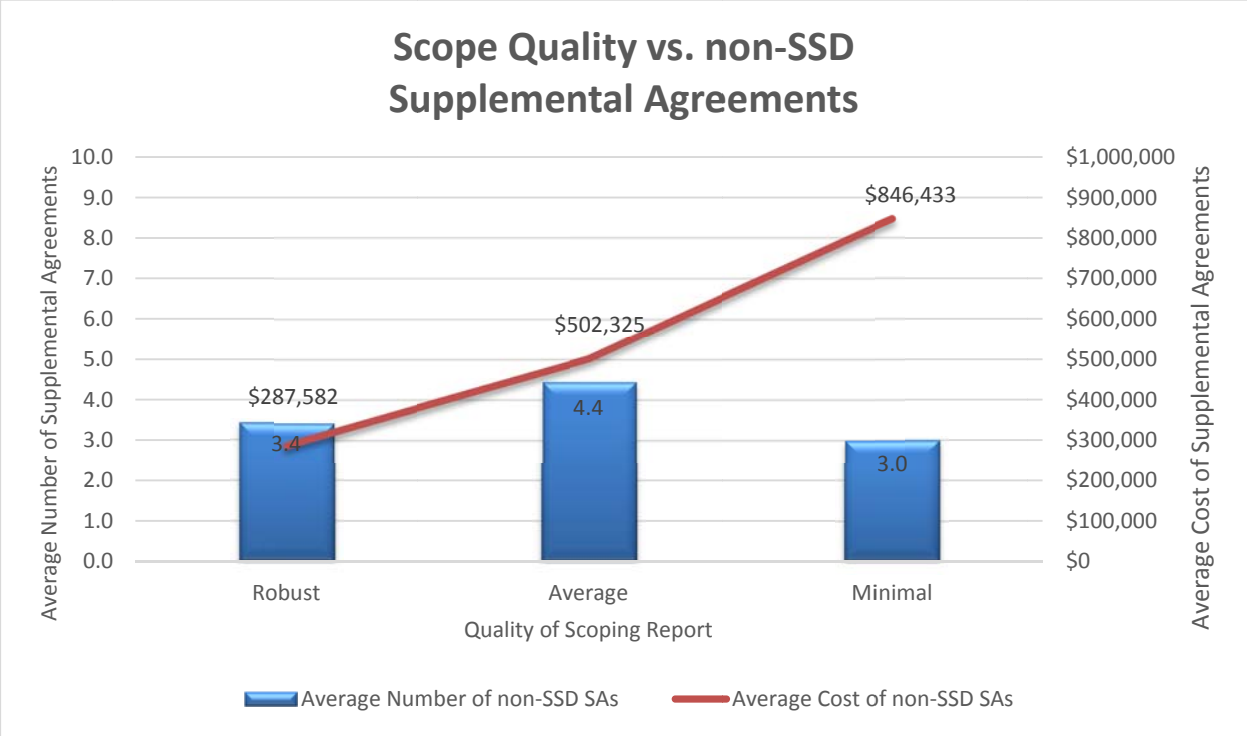


Figure 3: Scope Quality vs. Supplemental Agreements

Although the number of Supplemental Agreements does not appear to correlate directly to the quality of the Scoping Reports, it is important to remember that the average size of the projects in the "Average" category for Scope quality is roughly double the size (in $) of the projects in the Robust and Minimal categories. When looking at the costs, however, there does appear to be a link between the quality of the Scoping report and the total cost of Supplemental Agreements.

3.6.3 Scope Quality vs. Letting Date

The number of late letting dates and the average number of days the bid opening was late when compared to the Scoping Reports is illustrated in Figure 4. Early Letting Dates were not deemed to be harmful to a project and could actually be seen as a positive factor, given the fact that a project ready to be let before its scheduled Letting Date gives the District flexibility in scheduling and spending. For this reason, projects that had a letting date that occurred before the date that was identified in the Scoping Report are treated as having no deviation from the scheduled letting date.

Figure 4: Scope Quality vs. Letting Date

It should be noted that nine projects were included in the category labeled “Average” for Scoping Report quality. Of these nine projects, two were very late – 308 and 644 days. The next highest number of days for a late Letting Date in the Average quality Scoping Report category was 112. If the two projects that combined for 952 days added to the planned letting dates were removed from the analysis, the average for this category would drop to 46.6 days.

4.0 Chapter 4: Scoping Report Themes

Although the basic intent of the Scoping Reports is somewhat consistent across projects and districts, the analysis of the 21 projects identified some quality themes that appear to have significance. In some instances, these themes are found in areas where there appears to be inconsistency or other negative issues. However, there are also themes that represent unique or innovative approaches that a particular district has created that could potentially be beneficial to other districts.

4.1 Scoping Report Quality Themes

4.1.1 Depth of Scoping Report Analysis

The MnDOT Scoping Process Narrative states that the purpose of the Project Scoping Phase is "to extensively investigate all potential issues that could affect the cost and schedule of a project." This is accomplished with a number of processes, worksheets and other tools including the Scoping Report.

The Scoping Report format and the ways in which it has been completed in the sample reports imply that there may be some confusion about the purpose of the report. Is it an umbrella decision making document that should pull from all of the other decision tools, or is it is a standalone tool with only the limited purpose of concisely describing the project components and limits?

For the projects where the Scoping Reports appeared to take the minimalist approach, as seen in Figure 5, it was not always apparent if the project contained significant unknowns or important issues with the project. This appeared to leave the reader with only a very thin layer of project understanding.

In contrast, for the projects where the Scoping Reports were being used to record the decision making process and integrate the information from other project management decision tools, the reader was provided with a fairly robust understanding of the project. This included a review of where the challenges may lie and how the project had developed into its present form (Figure 6).

Of course, in theory, if the same information found on the more robust reports is contained elsewhere in the project files in some manner, there should not be a significant difference between the minimalist and robust approaches to project scoping. However, in exercises such as project scoping, there can be a decision making benefit from simply going through the actions of consolidating data into a single descriptive document such as the Scoping Report. Based on the sample reports, there appears to be support for this concept in the data. In general, the projects that had the most impacts addressed through Supplemental Agreements appeared to follow a more minimalist approach to writing the Scoping Report.

NEED STATEMENT FOR PROJECT: Low sufficiency rating, longitudinal cracking, erosion issues.

PURPOSE STATEMENT OF PROJECT: To preserve the structural integrity of the infrastructure.

PAVEMENT ALTERNATIVES CONSIDERED: (Bold the selected alternative)

Alternative Description		Cost Estimate	Expected Life	Present Worth
1				
2				
3				

PROPOSED PROJECT ELEMENTS:
Describe the work that will be included in this project under the appropriate heading...

Standards to follow in design: (X) Preservation ( ) New Construction/Reconstruction

Driving Lanes

Shoulders, Turn Lanes, Ramps

Roadside (including pedestrian accessibility)

Changes in Layout

Bridge

Hydraulics

Materials

R/W

Local Interaction

Cooperative agreements/Cost sharing

Figure 5: Minimalist Approach to Project Scoping

NEED STATEMENT FOR PROJECT: TH 60 is a 4-lane expressway through all of Iowa and north of Worthington to Mankato (except for short gaps between Windom and St. James). The short gap between Bigelow and Worthington is inconsistent with the rest of the highway. Futhermore, the pavement and roadbed are deteriorated. Also, numerous intersections with local roads come in at a skew.

PURPOSE STATEMENT OF PROJECT: The purpose of this project is to construct a four-lane expressway with improved intersections.

PROPOSED PROJECT ELEMENTS:
Standards to follow in design: ( ) Preservation (X) New Construction/Reconstruction
Risk Elements are marked with ⚑.

Driving Lanes
- 12' lanes, 4-lane divided

⚑ Materials to be determined by alternate bid.

Shoulders, Turn Lanes, Ramps
- Full shoulders as per new construction standards, material as determined in Materials Design Recommendation.
  - 10' paved outside shoulder
  - 4' paved inside shoulder
  - Ditch sections will have additional 3.6' beyond paved shoulder
- Turn Lanes
    - LT to public roads and farms – 600' + 180' taper, same material as mainline
    - LT for U turns at selected locations – 300' + taper, bituminous
    - RT to public roads – 600', same material as mainline
    - RT to farms and fields – 10' paved shoulder

Roadside (including pedestrian accessibility)
- 90' standard rural median separation, 125' at TH 59, and 14' through hybrid median section between CSAH 10 and Paul Ave, protected by guardrail, box beam & w beam.
- Inslopes will generally be 1:5, breaking to 1:3 at clear zone, except past former Worthington Dump, where a retaining wall will be protected by w beam guardrail.
- Backslopes will be 1:3.
- Medians will have 1:5 slopes.
- Clear zone will be provided for: 70 mph design speed
- Lighting will be provided at CSAH 6, CSAH 10, and the retaining wall area.
- Box beam will be used at the dump area in the median and by the retaining wall.

Intersections, Access, & Work on Sideroads
- All farm & field entrances will be closed – except a field entrance at Petersen's
- 4-lane to 2-lane transition at start of project will be removed
- Field access at Petersen's will be right in right out
- CSAH 6 (STA 423+64) – 3 legs, 600' NB LTL, follows State Aid standards for 150-749 ADT
- 300th Street – closed, obliterate back to driveway between Highway 59 and Highway 60
- TH 59 (STA 436+28) – 4 legs (one is a farm driveway) and a NB free right, 600' SB LTL, follows standards for rural, 2-lane, minor arterial with 150-1499 ADT.
- Llama Farm (Loren Stevens) – access to be realigned to TH 59 intersection
- Travel Information Center – 3 legs, match existing section, 600' SB LTL.
- 290th Street – 4 legs, 600' NB & SB LTLs, to follow State Aid standards for 50-149 ADT.
- Justin Wass field access to be built off of 290th Street. Follow standard field access dimensions.
- Oliver Avenue (two connections at south end of Org) will no longer access TH 60.

Figure 6: Robust Approach to Project Scoping

4.1.2 Risk Identification

Although the Scoping Report has a descriptive purpose, one of its other values as a decision making tool is through the identification and discussion of risks. The identification of risks is appropriate for the Scoping Report because it has a direct impact on the determination of appropriate contingency levels for the STIP budget request and also for the determination of project readiness.

The standard Scoping Report templates generally do not have a specific location for the listing of risks or instructions to make sure those risks are recorded in the Scoping Report. It should be noted that not having specific locations for recording risks in the Scoping Report does not mean that the scoping process is without risk analysis. In fact, MnDOT has several risk tools that are used in the scoping and estimating process. However, based on the review of the sample reports, the results of the risk analysis tools may not always be finding their way into every report on a consistent basis.

Some Scoping Reports include discussion of risk in various data fields. It appears that in some cases, the project manager may have had a concern that their discussion of a particular risk may get lost in that process. This was evidenced in efforts to make their risk stand out with a technique such as bolding the text.

One way to address this concern and reduce the chances for risk areas to be "lost" would be to create a separate data field for the identification of risks. The downside to this approach is that it can separate the risk from the other text that provides the context for the risk. One district has identified an innovative and effective solution as seen in Figure 7. This district completes their reports with a robust discussion of the project and in every place where there is a perceived risk, they insert a "red flag" symbol that effectively highlights the risk, while allowing it to remain in a location where it has context.

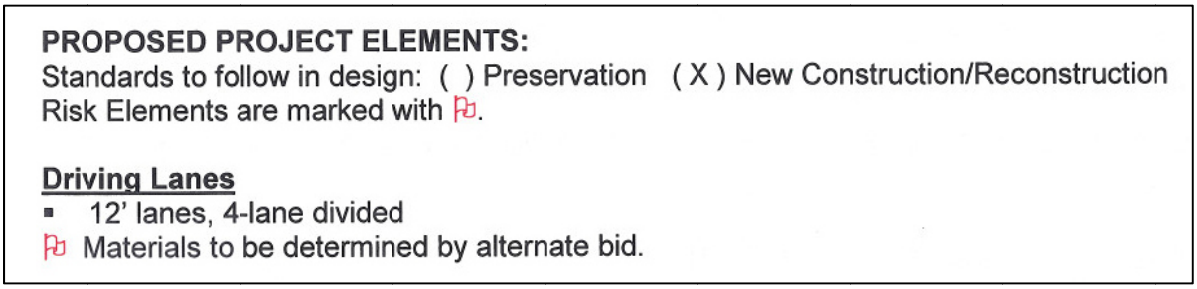


Figure 7: Use of the "Red Flag" Risk Symbol

This colored graphic solution has a further benefit of allowing a risk to be highlighted that might not be readily apparent to be a risk in the text. For instance, a written comment such as "Project will require approval from the DNR" could simply be outlining a procedural step that is fairly routine in nature and therefore carries very little risk. On the other hand, the nature of the project location or the type of DNR approval required could be an extremely large risk, but it is

impossible to identify purely with the text. However, if non-routine approvals were red flagged, the reader would be alerted to investigate further about that issue.

4.1.3 Confusion about the dotted line with Scope Changes

On the first page of most Scoping Reports is a dotted line located between the signature block and the box where scope changes are supposed to be recorded and tracked. Underneath the dotted line is an instruction "ONLY TO BE COMPLETED IF SCOPE CHANGES AFTER ORIGINAL SCOPE HAS BEEN APPROVED".

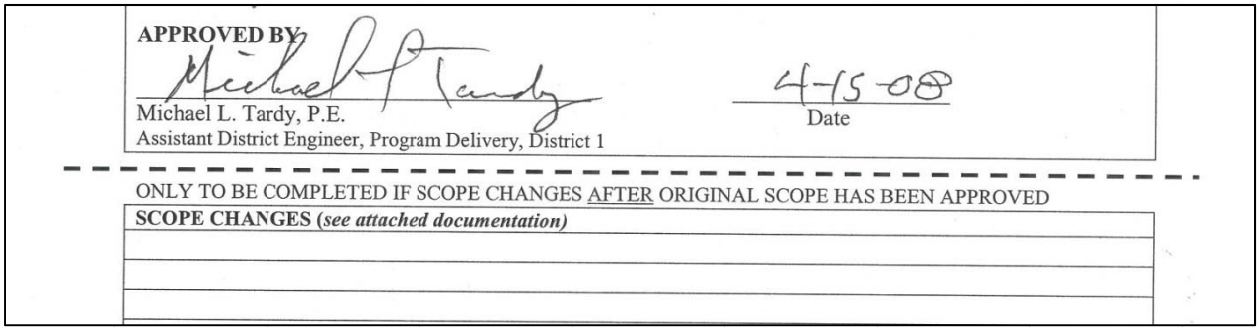


Figure 8: Scoping Report "Dotted Line" Example

The proximity of the instruction to the dotted line may be causing confusion since it makes it unclear whether the instruction is indicating that the Scope Changes box should only be completed after the original scope has been approved or whether all of the input areas below the dotted line should only be completed if there is a Scope Change.

The vast majority of Scoping Reports filled out the fields below the dotted line even if there was not a scope change. However, although this approach was common, it was not the case with all projects. One of the projects that largely stopped completing the form below the dotted line was also one of the projects with a large number of Supplemental Agreements, both in terms of number and cost.

4.1.4 Performance Need or Purpose

The typical Scoping Report templates include data fields for the "Performance Need for Project" and the "Purpose of the Project" at the top of the first page of the Scoping Report. These same data fields are then repeated at the top of the second page, immediately below the Scope Changes box.

There appears to be some confusion as to the purpose of the repetition of the data fields. Many of the Scoping Reports just copy the same information from the first page or include a notation "see page 1".

The proximity of these repeated data fields to the Scope Changes box also seems to imply that the repetition may be related to Scope Changes in some manner which could send the wrong

message that these fields are for recording changes to the performance need or purpose of the project as a scope change with no further action. Per MnDOT Scoping guidelines, attempting to change the performance need or purpose of a project through a scoping change is not appropriate because any changes to these two fields, in effect, creates a new project which should be re-scoped and re-compete for funding based on the new purpose and need.

4.1.5 Work Items Considered but Rejected

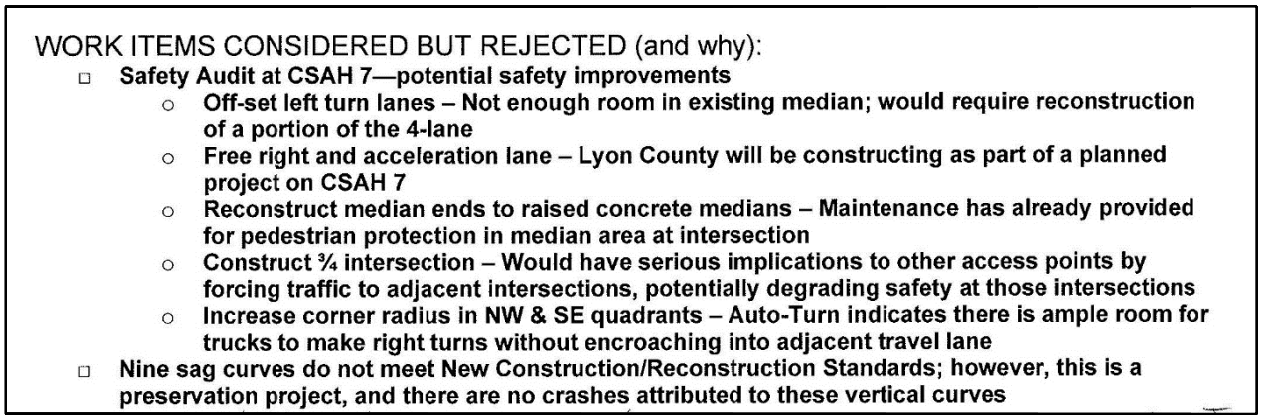
The quality of responses in this data field varied widely. Although it is identified as specifically required in the Scoping Process Narrative, this data field was missing or not completed on several Scoping Reports.

When properly completed, this field could provide an increased understanding of the issues and risks of the project and how the project team has been making decisions to address those conditions. Generally, responses fell into three categories:

1. Missing – The data field was left blank or removed from the report altogether. Even in less complex projects where the solution may appear to be obvious, the field should contain a short discussion as to why there was no consideration of any other work items, so that the reader understands why nothing else was considered and to verify that there wasn't an important work item that should have been considered.

2. Completed with no discussion of the decision – In this example, the project manager completed the data field but there was no explanation of the decision. Responses of this type might be "Replace ramps with concrete" or "Adding turn lanes".

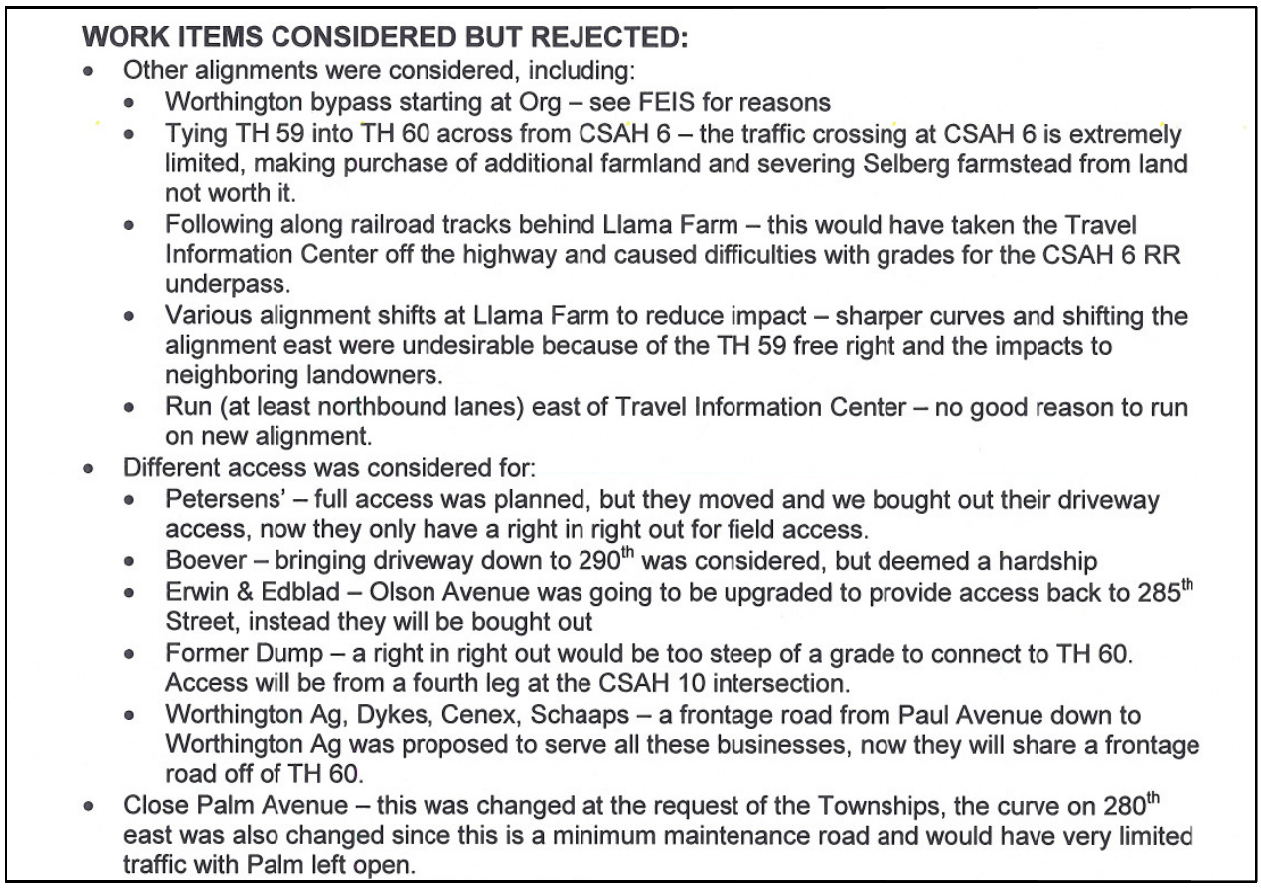
3. Completed with a discussion of the decision – In Scoping Reports that fully completed the section (as shown in Figures 9 and 10), there is a discussion of the work items that were considered and an explanation of why they were rejected. The explanations for why they were rejected often contain information that could be useful if there is a sudden change of condition or for future projects. For instance, a work item that is eliminated due to it being infeasible is a different case than a work item that was eliminated because it will be constructed later as part of a future improvement.



WORK ITEMS CONSIDERED BUT REJECTED (and why):

- **Safety Audit at CSAH 7—potential safety improvements**
  - **Off-set left turn lanes – Not enough room in existing median; would require reconstruction of a portion of the 4-lane**
  - **Free right and acceleration lane – Lyon County will be constructing as part of a planned project on CSAH 7**
  - **Reconstruct median ends to raised concrete medians – Maintenance has already provided for pedestrian protection in median area at intersection**
  - **Construct ¾ intersection – Would have serious implications to other access points by forcing traffic to adjacent intersections, potentially degrading safety at those intersections**
  - **Increase corner radius in NW & SE quadrants – Auto-Turn indicates there is ample room for trucks to make right turns without encroaching into adjacent travel lane**
- **Nine sag curves do not meet New Construction/Reconstruction Standards; however, this is a preservation project, and there are no crashes attributed to these vertical curves**

Figure 9: Rejected Work Items - Example 1



WORK ITEMS CONSIDERED BUT REJECTED:

- Other alignments were considered, including:
  - Worthington bypass starting at Org – see FEIS for reasons
  - Tying TH 59 into TH 60 across from CSAH 6 – the traffic crossing at CSAH 6 is extremely limited, making purchase of additional farmland and severing Selberg farmstead from land not worth it.
  - Following along railroad tracks behind Llama Farm – this would have taken the Travel Information Center off the highway and caused difficulties with grades for the CSAH 6 RR underpass.
  - Various alignment shifts at Llama Farm to reduce impact – sharper curves and shifting the alignment east were undesirable because of the TH 59 free right and the impacts to neighboring landowners.
  - Run (at least northbound lanes) east of Travel Information Center – no good reason to run on new alignment.
- Different access was considered for:
  - Petersens' – full access was planned, but they moved and we bought out their driveway access, now they only have a right in right out for field access.
  - Boever – bringing driveway down to 290th was considered, but deemed a hardship
  - Erwin & Edblad – Olson Avenue was going to be upgraded to provide access back to 285th Street, instead they will be bought out
  - Former Dump – a right in right out would be too steep of a grade to connect to TH 60. Access will be from a fourth leg at the CSAH 10 intersection.
  - Worthington Ag, Dykes, Cenex, Schaaps – a frontage road from Paul Avenue down to Worthington Ag was proposed to serve all these businesses, now they will share a frontage road off of TH 60.
- Close Palm Avenue – this was changed at the request of the Townships, the curve on 280th east was also changed since this is a minimum maintenance road and would have very limited traffic with Palm left open.

Figure 10: Rejected Work Items - Example 2

4.1.6 Cost Estimate Line Items

There appears to be some variability in the cost estimation section that could lead to confusion or error.

Even though the TPCE does contain mid-point of Construction year information and in the 2008 scoping report template PMs could insert TPCE data as itemized costs at the end of the report, variability seems to fall into two areas: 1) whether the year of the dollars is identified, and 2) the categories of cost estimates.

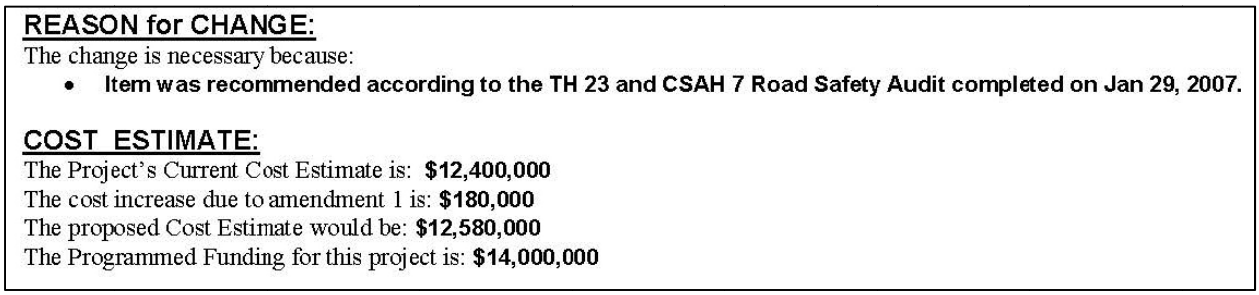
The cost estimate categories vary from the basic (a single Construction Cost Estimate line), to the complex including the following:

1) Construction Cost Estimate
2) Engineering Cost Estimate
3) Right of way Cost Estimate
4) Other Construction Cost Estimate
    a. Incentive Cost Estimate
    b. SA/Overrun Cost Estimate

It should be noted that a review of the construction contract and supplemental agreements showed that recorded projects costs, in both the Scoping and construction phases, generally differ from the numbers recorded in the Total Project Cost Estimates (TPCE) spreadsheets (see Appendix D).

4.1.7 Cost Estimates with Scope Amendments

When a Scope Amendment is processed, there is variability about whether the amended cost estimates are displayed alone or whether there is reference to the previously estimated amount. For projects with multiple amendments, it can be important to have the clear step by step understanding of how the project has changed over time. A good example of the evolved cost estimate is shown in Figure 11. In one of the sample projects, this step by step process was not followed and it appears that a calculation error was carried through as a result when a future amendment was based on an earlier, but not the immediately previous cost estimate.


REASON for CHANGE:
The change is necessary because:
- Item was recommended according to the TH 23 and CSAH 7 Road Safety Audit completed on Jan 29, 2007.

COST ESTIMATE:
The Project's Current Cost Estimate is: $12,400,000
The cost increase due to amendment 1 is: $180,000
The proposed Cost Estimate would be: $12,580,000
The Programmed Funding for this project is: $14,000,000

Figure 11: New Cost Estimate with Reference to Previous Estimate

4.1.8 Local Interaction

The inter-governmental data fields have been completed in an inconsistent fashion with some information placed in this data field and some discussion placed in the location fields. The focus of most of the entries in this field is naturally related to agreements and permits required between governmental entities. However, one area of potential risk that appears to escape mention at times in the Scoping Reports is whether the City or County needs to be, or already is, involved in a related infrastructure project that has the potential to impact the project. This could rise from a variety of situations such as a City or County joining the process late and no details from the city or county (or risk assessment) has been completed at the time of Scoping, or no discussions with locals on detour plans and coordination have been initiated. The analysis of Supplemental Agreements identifies coordination between MnDOT and County projects as one area that seems to generate Supplemental Agreements due to tying projects together, modifications to traffic control, or delays created by one party affecting the other.

4.1.9 Recommendations for Further Risk Reduction Actions

At times it appears that the risk analysis will produce a recommendation for an action that is generally targeted toward risk reduction such as recommending the use of GPR or some other unique testing method/process. The Scoping Report writers appear to have had some confusion about where to place these sorts of warnings or recommendations. This inconsistency could increase the chance that they will be missed or overlooked. It may be appropriate to consider an Action Steps table that includes an area that would allow future actions to be recorded as they occur.

4.1.10 Issues Related to Project Delivery

The instructions related to this section imply that it should be a bit of a "catch all" data field for recording whether there will be consultant involvement, aerial photography, alternate project delivery methods, etc. Immediately underneath this heading is a checkbox line item for "Project is considered significant under FHWA Final Rule on Work Zone Safety and Mobility". Based on the entries on several Scoping Reports, it appears that some may believe that the only issue of

concern for project delivery is whether or not it is considered significant under the FHWA Final Rule.

4.1.11 Supplemental Data and Scoping Change Requests

As indicated in the Statewide Scoping Process Narrative (MnDOT Doc #517384), Scoping Reports are to be supplemented with a Scoping Change Request when certain thresholds or criteria are met. The text from this document is included below:

> "Below are a few minimum criteria to be used to evaluate whether a change in the project will require the completion of a Project Change Request form:
>
> - Any element that causes the Baseline Estimate to deviate by $_ (or _%) from what is shown in the approved Project Scoping Report *(these values should be determined by the district)*
> - Causes a change in letting date or FY
> - A change in major project elements (e.g., typical section, length)
> - A change in project termini
>
> Districts need to review and determine what other instances may require approval through the Project Change Process. In addition, districts must determine who within the district has review and approval authority for both project changes and program changes."

Additionally, the 2008 MnDOT CE/CM TRM listed criteria for a project change, as seen in Figure 12.

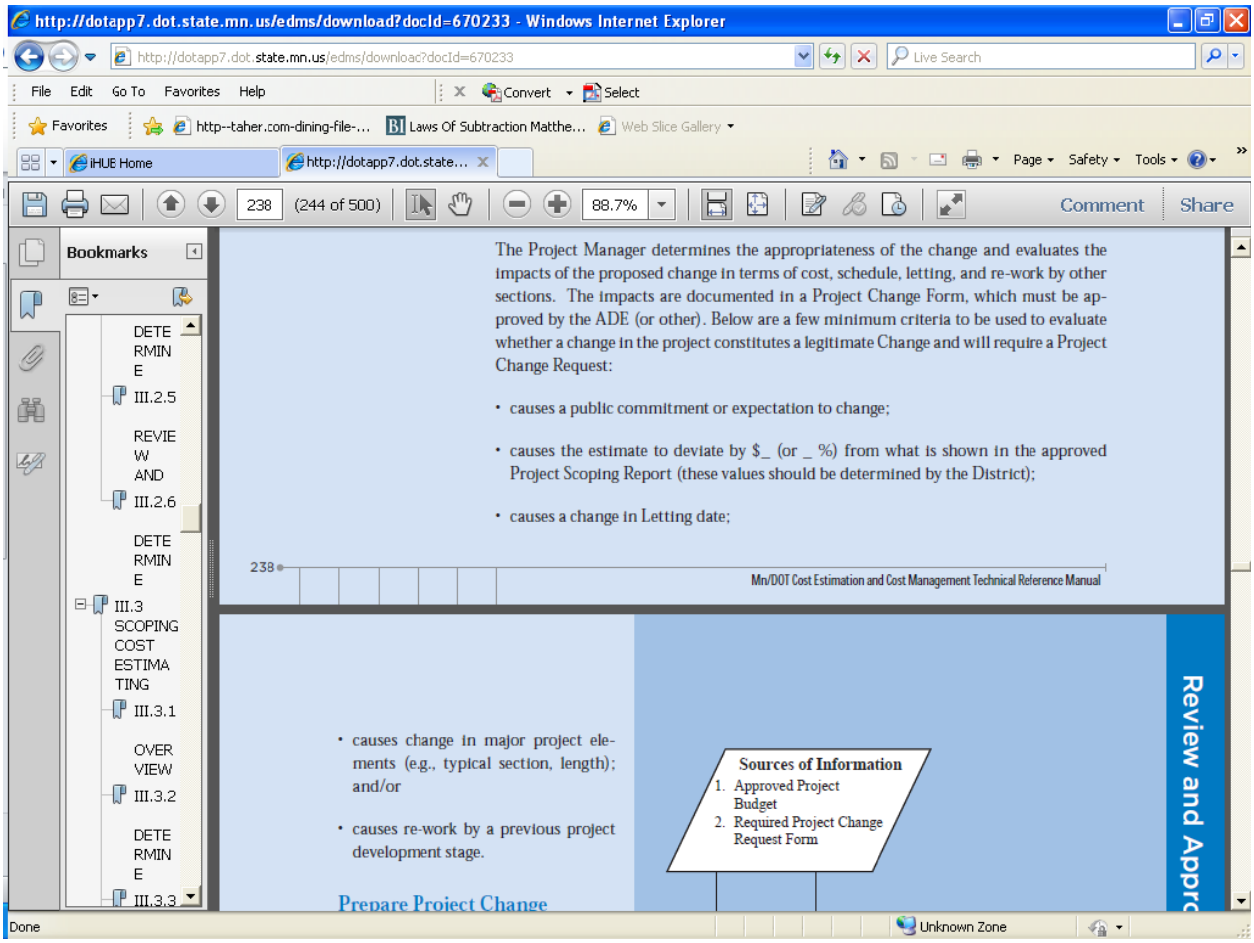


Figure 12: MnDOT CE/CM TRM Change Criteria

During the comparison of Scoping Reports against construction plans, Scoping Change Requests were frequently missing when deviations from the initial scope should have required the preparation of a Scoping Change Requests document. This potentially indicates that the value of up-to-date Scoping Reports is not understood, the requirements for completing and processing the changes are too unwieldy, or that Scoping Reports are largely forgotten once the design process begins. Modifications to the narrative document may help address these issues.

4.1.12 Quality of Instructions

As previously mentioned, the sample displayed a large variability in the types and amount of information provided between projects as well as some instances where it appeared there might be a level of confusion with the form.

One way to improve the consistency and completeness of the data entry is to ensure that there are clear instructions to assist the project manager. MnDOT has an extensive series of tools and documents related to the scoping process, cost estimation, risk analysis and similar project initiation activities. However, it does not appear that there is a formal, step-by-step set of instructions at the state level regarding the preparation of the Scoping Report itself. Given the quality and consistency of Scoping Reports from some districts, it is assumed there may be more detailed instructions that have been prepared at the district level.

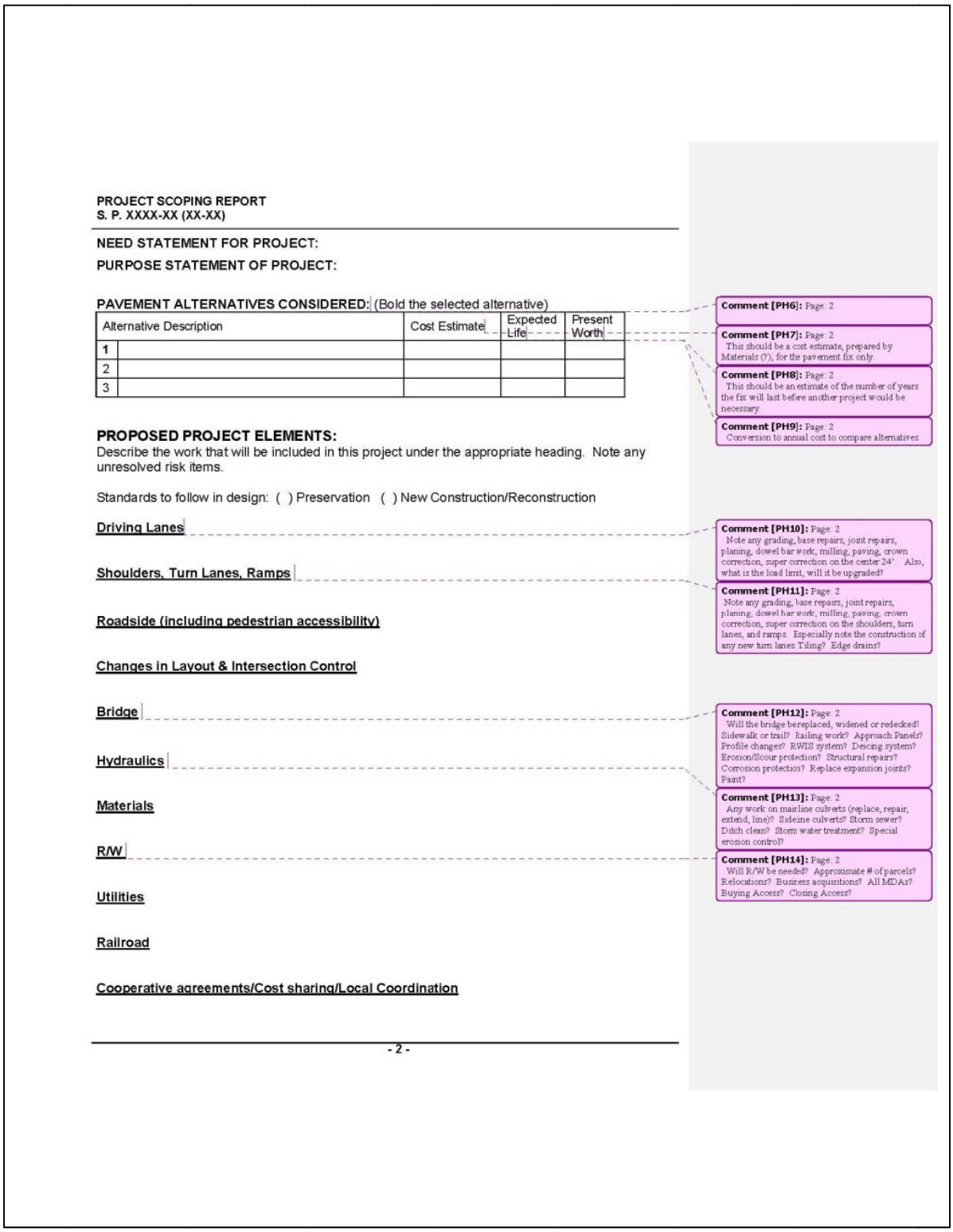
The instructions that have been provided for completion of a Scoping Report consist of a Word template form with a series of review comment boxes. These boxes provide direction for some, but not all the cells in the report, as seen in Figure 13.

Although procedures, forms and terminology differ among state departments of transportation, many go through some sort of project scoping exercise. A review of some other state DOT forms indicate a preference for providing instructions via a series of questions or checklists rather than a formal instruction manual (although there may be a manual for additional support as well). This approach would seem to be well-suited for the MnDOT Scoping Report process, as it may be easier to complete forms of this type in a group meeting setting, rather than having to reference a manual. In addition, it encourages higher report quality because it is much more difficult to ignore or skip a key project scoping item if the instructions are on the form. Question type forms generally encourage more robust answers than checklist forms, as checklist preparers may see the process as a “simply check the box” type exercise and include little supporting text to provide a good understanding of the issue. A hybrid form may the best solution, with simple data fields as check boxes and more complex data fields as questions.

Examples of these styles of instruction can be seen in Figures 14 and 15 from the Ohio and New Jersey departments of transportation.

It should also be noted that MnDOT has developed a more detailed scoping worksheet similar to the Ohio and New Jersey processes. That worksheet can be found at:

http://www.dot.state.mn.us/pm/documents/scoping-worksheets.doc



PROJECT SCOPING REPORT
S. P. XXXX-XX (XX-XX)

NEED STATEMENT FOR PROJECT:

PURPOSE STATEMENT OF PROJECT:

PAVEMENT ALTERNATIVES CONSIDERED: (Bold the selected alternative)

Alternative Description		Cost Estimate	Expected Life	Present Worth
1				
2				
3				

PROPOSED PROJECT ELEMENTS:
Describe the work that will be included in this project under the appropriate heading. Note any unresolved risk items.

Standards to follow in design: ( ) Preservation ( ) New Construction/Reconstruction

Driving Lanes

Shoulders, Turn Lanes, Ramps

Roadside (including pedestrian accessibility)

Changes in Layout & Intersection Control

Bridge

Hydraulics

Materials

R/W

Utilities

Railroad

Cooperative agreements/Cost sharing/Local Coordination

- 2 -

Comment [PH6]: Page: 2

Comment [PH7]: Page: 2
This should be a cost estimate, prepared by Materials (?), for the pavement fix only.

Comment [PH8]: Page: 2
This should be an estimate of the number of years the fix will last before another project would be necessary.

Comment [PH9]: Page: 2
Conversion to annual cost to compare alternatives

Comment [PH10]: Page: 2
Note any grading, base repairs, joint repairs, planing, dowel bar work, milling, paving, crown correction, super correction on the center 24'. Also, what is the load limit, will it be upgraded?

Comment [PH11]: Page: 2
Note any grading, base repairs, joint repairs, planing, dowel bar work, milling, paving, crown correction, super correction on the shoulders, turn lanes, and ramps. Especially note the construction of any new turn lanes. Tiling? Edge drains?

Comment [PH12]: Page: 2
Will the bridge be replaced, widened or redecked? Sidewalk or trail? Railing work? Approach Panels? Profile changes? RWIS system? Deicing system? Erosion/Scour protection? Structural repairs? Corrosion protection? Replace expansion joints? Paint?

Comment [PH13]: Page: 2
Any work on mainline culverts (replace, repair, extend, line)? Sideine culverts? Storm sewer? Ditch clean? Storm water treatment? Special erosion control?

Comment [PH14]: Page: 2
Will R/W be needed? Approximate # of parcels? Relocations? Business acquisitions? All MDAs? Buying Access? Closing Access?

Figure 13: MnDOT Scoping Report Instructions

Project Initiation Package

MAINTENANCE OF TRAFFIC ISSUES:
Briefly describe the maintenance of traffic and any constraints. A list of considerations has been provided below.
Maintenance of Traffic Considerations: Limits on traffic detour (including local alternate detours) due to load limits, bridge width restrictions, shoulder condition, emergency vehicle impact, temporary pavement requirements, speed limit during construction, pedestrian traffic, additional width at culverts, drive access, stopping sight distance, construction access, right of way acquisition, permitted lane closures, cross-overs, short duration road closures, temporary structure requirements, additional signal heads (drives and/or side roads), construction timeframe issues, innovative contracting, maintaining railroad traffic, turn movement restrictions
MAINTENANCE OF TRAFFIC DESCRIPTION:

RIGHT OF WAY/SURVEY ISSUES:	
Indicate if right of way or survey issues are present or should be considered during project development. Provide additional comments as needed.	
Design Issue	**Location/Comments**
Will there be any work beyond the existing right of way limits?	
Will relocation of residences be involved?	
Will relocation of businesses be involved?	
Will the project require modifying the access control to any properties?	
Identify significant right of way encroachments (i.e. large commercial business signs, etc.)?	
Will temporary parcels be needed (e.g., for drive work)?	
Will additional right of way be needed for utility relocations?	
Are there any specific property owner concerns? If so, list property owners and concerns.	
Are work agreements prohibited for any reason?	
Are there any other right of way or survey issues? *Specify.*	

UTILITY ISSUES:	
Indicate if the following utility issues are present or should be considered during project development. Provide additional comments as needed.	
Design Issue	**Location/Comments**
Do existing utilities need to be relocated? *If so, please identify.*	
Would the project benefit from Subsurface Utility Engineering (SUE) Level A?	
Are there existing utilities on an existing structure that need to be relocated?	
Are there any specific utility requirements or concerns? *Specify.*	
Are there water or sanitary lines that will be relocated as part of the ODOT contract?	

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Figure 14: Question Format Form (Ohio DOT)

Concept Development Checklist
Bridge Deck/Superstructure Replacement Project

Project Name:	
Structure Number(s):	
Milepost	
UPC Number:	
Municipality(ies):	
County:	
Project Manager:	
CD Designer:	

Notes:

- ***All item checked "Y" or "N"*** *shall be briefly discussed in the* ***'Comments'*** *section below the checklist items.*
- *NFI:* ***N****eeds* ***F****urther* ***I****nvestigation in Preliminary Engineering/Design (explain below).*

Concept Development Checklist

A. Structural Scope Of Work

Y	N	N/A	NFI	
				1. Is a Deck Replacement needed and warranted by the Deck Rating contained in the SI&A Sheet of the most recent Structural Evaluation and/or Bridge Inspection report? *(provide the rating in the* ***'Comments'*** *section below)*
				2. Is a Superstructure Replacement needed and warranted by the Superstructure Rating contained in the SI&A Sheet of the most recent Structural Evaluation? *(provide the rating in the* ***'Comments'*** *section below)*
				3. Are additional Structural Repairs required? *(list required repairs in the* ***'Comments '*** *section below)*

[Revised 7/26/12]

Figure 15: Checklist Style Form (NJ DOT)

4.1.13 Early Development of Data Needed in Scoping

Projects can be impacted by a lack of available data during the scoping process. As shown in Table 6, these impacts are tied to a wide variety of contributing factors. Although some issues are unpredictable and are unavoidable, others appear to be tied to incomplete or missing data.

In this analysis, if the State shutdown related impacts are removed from consideration, Plan Quality and Geotech/Materials are the contributing factors responsible for the majority of the Supplemental Agreements. These two categories were responsible for generating nearly one-third of the agreements and over 56% of the SA costs.

Tying Plan Quality directly to the quality of the Scoping Reports would be a difficult, if not impossible, task. Without the ability to identify the data available at scoping, or track the development of a project with all the associated decisions, any estimate of the reasons for all the Supplemental Agreements would be a guess, at best. However, there are situations that tend to point to a scoping process that lacked/missed data, or failed to follow scoped recommendation through the project development process as the culprit for changes in the field.

For example, in the “Plan Quality” category, a bridge rehabilitation project was apparently scoped without an understanding of the load limits allowed on the bridge. After construction was started, it was determined that the contractor’s equipment could not be supported by the bridge and that a barge and crane was needed to perform the rehabilitation. The required Supplemental Agreement cost the state $700,000.

An example of a Supplemental Agreements in the “Geotech/Materials” category appears to tie the failure to follow-through on a scoping recommendation to the need for a Supplemental Agreement. In this situation, the Scoping Report stated (with added emphasis) that GPR would “need to be done before the final recommendations.” It is not clear from the data provided if the Ground Penetrating Radar or any other geotechnical investigations were completed, but more than $582,000 was required through the Supplemental Agreement process to correct the subgrade and address “soft spots.”

5.0 Chapter 5: Recommendations

Throughout the development of this report, trends, issues, and other items related to the development and use of Scoping Reports were identified. A list of recommendations has been included here that provides suggestions to improve Scoping documents and improve the quality of the overall process.

R1. Reinforce the value in identifying, reviewing, discussing, and placing project data into Scoping Report, even if it exists elsewhere in project files.

R2. Develop a clearer process for identifying and managing risk.
   a. Consider the inclusion of a separate data field for the identification of risks in the Scoping Report templates. Include instructions to make sure those risks are recorded in the Scoping Report.
   b. The use of a symbol (i.e. the "Red Flag") can be used in every place where there is a perceived risk to highlight the risk, while allowing the issue it to remain in a location in the report where it has context.

R3. Provide clarification about the intent and purpose of the "dotted line" between the signature block and the box where scope changes are supposed to be recorded and tracked (Section 4.1.3).

R4. Clarify the purpose of the data fields labeled "Performance Need for Project" and "Purpose of the Project."

R5. Reinforce the need to complete the "Work Items Considered but Rejected" section of the Scoping Reports.

R6. Establish uniformity in the development and classification of cost estimates.

R7. Clarify whether amended cost estimates are displayed alone or simply referenced to the previously estimated amounts.

R8. Stress the need to involve project partners early in the Scoping process and record the issues surrounding permits, approvals, detours, and other non-MnDOT infrastructure projects.

R9. Clearly identify a location for actions and recommendations aimed at reducing risk, including a possible Action Steps table that could include a location to record future actions as they occur.

R10. Modify the instructions for the "Issues Related to Project Delivery" section of the reports to clearly separate it from the "Project is considered significant under FHWA Final Rule on Work Zone Safety and Mobility" section and identify its purpose.

R11. Review the process and need for preparing a Scoping Change Request, and consider revising the narrative document to reinforce the value of up-to-date Scoping Reports.

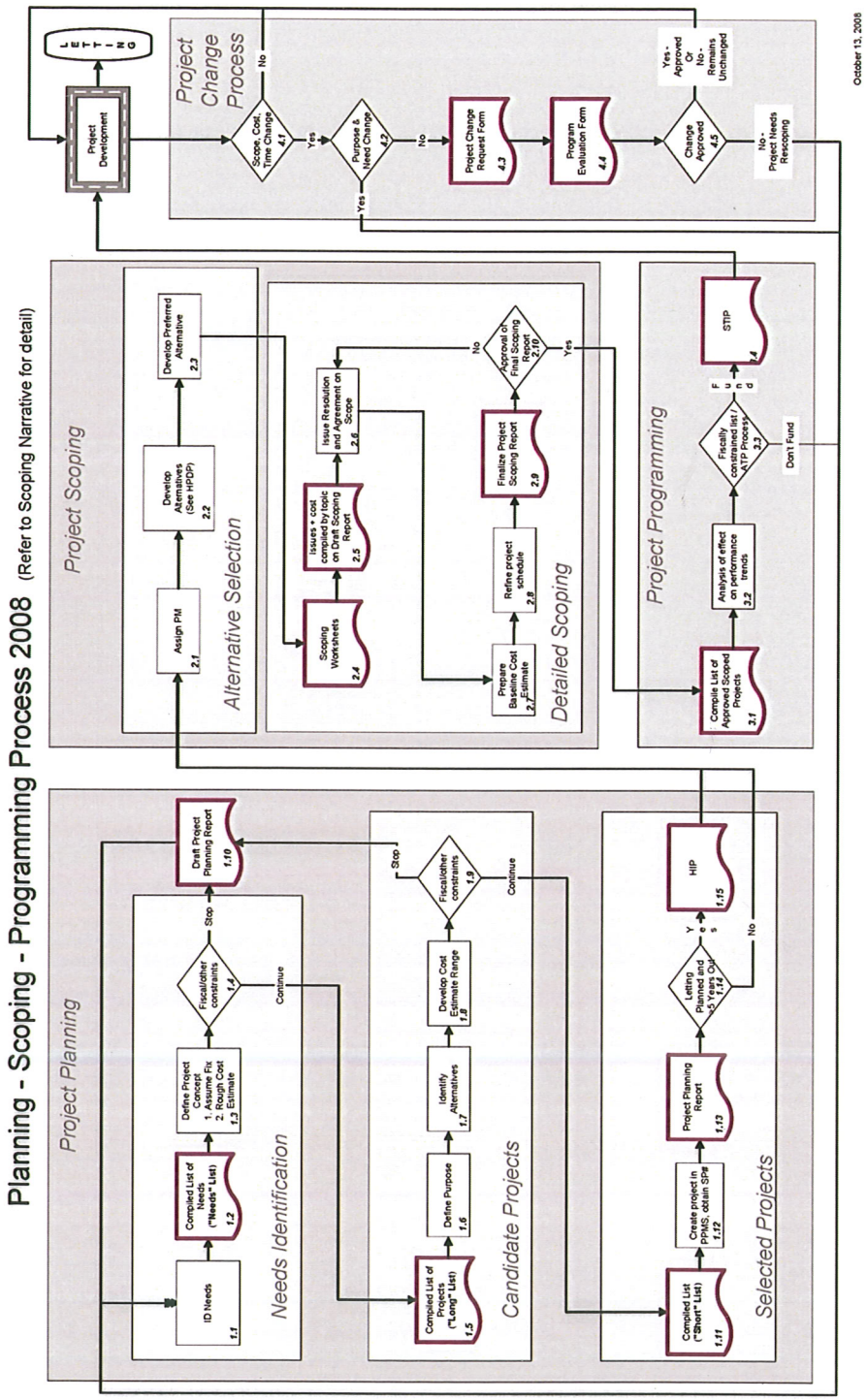
R12. Confirm that each district has a formal, step-by-step set of instructions regarding the preparation of the Scoping Report. Consider preparing a single set of instructions for statewide use.

R13. Review and modify, as necessary, the process used to transfer cost data between Scoping Reports, the TPCE Summaries, and the Construction documents (contract and Supplemental Agreements).

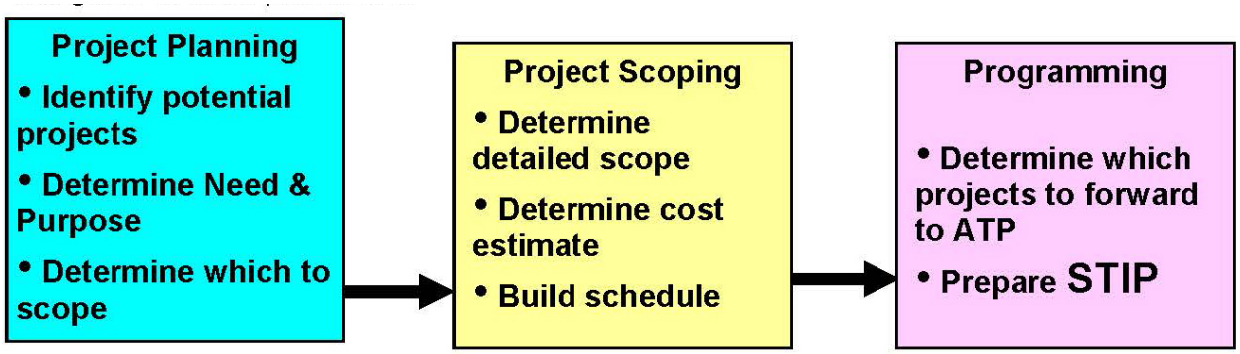
R14. Clarify the guidance related to the Engineering (people) costs as identified in the Scoping Phase. Stress that the intent is to identify costs from the end of the Planning phase to the end of the Construction phase and includes scoping, preliminary design, final design, right of way, and construction.

R15. Encourage the early development of information (Hydraulics, Bridge, Materials, etc…) that the Scoping Report relies on so critical data can be incorporated into the Scoping activities.

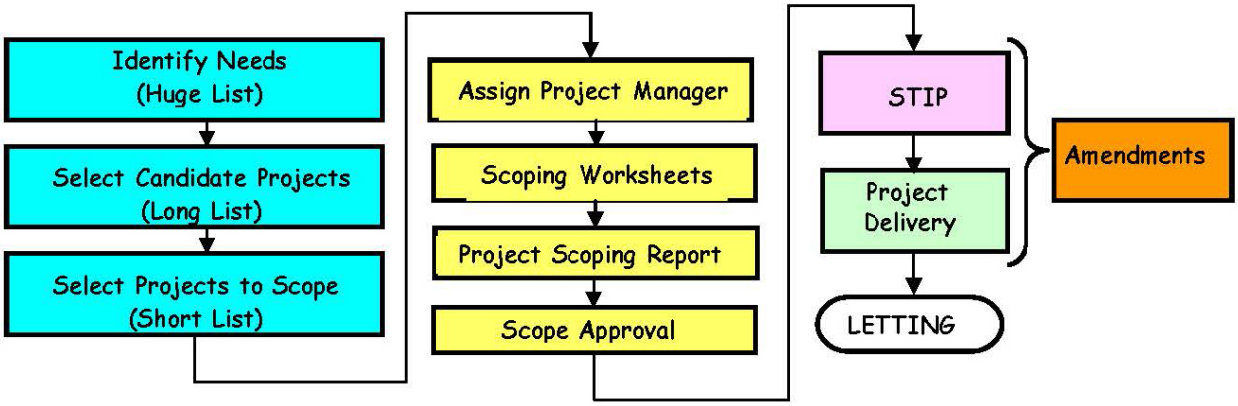
6.0 Appendix A: Planning, Scoping, and Programming Process



7.0 Appendix B: Detailed Scoping Process Diagram



This simplified drawing depicts the major activities in each phase. A more detailed flowchart is available to show the full process.



8.0 Appendix C: Scoping Review Project Summary Forms

For each of the 21 projects submitted for analysis, an independent review of the Scoping Report process was completed along with data gleaned from:

- Scoping Reports
- Project Addenda
- Advertised plans
- Project abstracts
- Project contracts
- Proposals
- Final cost detail summaries

The data was summarized for each project in a Project Summary Form containing:

1. General Data
    a. Project S.P.
    b. District #
    c. Project Type
    d. Purpose of the Project
    e. Project Description
2. Project Schedule
    a. Scoping Report Letting date
    b. Actual Letting Date
3. Project Costs from Scoping Reports, construction documents, and TPCE Summaries (where available)
    a. Construction costs
    b. Right-of-Way costs
    c. Engineering costs
    d. Addenda, # and costs
    e. Supplemental Agreements, # and costs
4. Major Plan Items (from Scoping Reports and construction documents)
    a. Driving lanes
    b. Turn lanes/shoulders/ramps
    c. Bridge
    d. Hydraulics
    e. Materials
    f. Right-of-Way
    g. Miscellaneous
5. Plan Addendum Summary
6. Supplemental Agreement Summary
7. Comments

Project Summary Forms

Notes

1. Final R/W data was not provided. If the plans showed no apparent changes in scope, the Scoped value was assumed to be the valid project cost.

2. Any costs that were related to the State shutdown are noted with an "SSD." These costs are not related to Scoping Quality and have therefore been omitted from the calculations on construction cost totals shown in the Project Summary Forms.

3. Under the "Project Costs" section, Construction Costs have been collected from the final departmental copy of the Contract between the State and the Contractor selected for the project.

4. If right-of-way costs were shown in the Scoping Report and the construction documents do not indicate any variance from or unplanned additions to the right-of-way needs, the costs included in the Scoping Report were included as the Right-of Way Costs for this analysis.

5. If engineering costs were shown in the Scoping Report and no data was provided to suggest the engineering costs varied from that estimate, the costs included in the Scoping Report were included as the Engineering Costs for this analysis.

KEY

ECA.....Engineering Costs Assumed.

NDP .....No Data Provided. Data related to this item was not provided for analysis in this study.

RWCA.....Right-of-Way Cost Assumed.

SSD.....State shutdown. Indicates the Supplemental Agreement was required to fund activities related to the state shutdown.

Each of the 21 Project Summary Forms follows this page.

General Data

Project... 3112-34

District... 1

Project Type... PVTR – Pavement, Resurface and Rehabilitation

Purpose of the Project... Extend the useful life of the roadway and improve ride quality

Project Description... Length 32 mi; pavement reclamation; NEPA Doc = Project Memo; preservation standards apply; 2-12' drive lanes; construct 1' paved shoulders with rumble strips and 1' aggregate shoulder; review bridge numbers 97487. 97479, 95135, 95136, and 96222 for washouts during design; Bridge #95136 does not have headwalls; 53 culverts will require replacement (possible some may be lined); some ditch cleaning required; tentative: Mill average 4"; reclaim 10-12"; pave 4" bit: and subgrade correction at known frost heave locations; need GPR for final pavement determination; no R/W between R.P. 189 and 208; will need permit to clean 1,000' of ditch at Sherry Lake; coordination with City of Nashwa and Itasca County required; Complete Design Memo if needed in design.

Project Schedule

Scoping Report	Item	Actual
February, 2010	Letting Date	May 7, 2010

Project Costs

Scoping Report	Item	Construction Documents
$13,500,000	Construction Cost	$10,478,935
$250,000	Right-of-Way Cost	(RWCA) $250,000
	Addenda	$0
	Supplemental Agreements	
	SA-1A	$68,945
	SA-1B	$334,652
	SA-2A	$119,087
	SA-2B	$59,767
$13,500,000	**CONSTRUCTION COST TOTAL**	$11,061,386 (18% below Scope)
$13,750,000	**PROJECT COST TOTAL**	$11,311,386

Major Plan Items

Scoping Report	Item	Construction Plans
Paving (reclamation, and mill & overlay)	Driving Lanes	Paving (reclamation, and mill & overlay); subgrade corrections
Paved shoulders (with rumble strips)	Shoulders, Turn Lanes, and Ramps	Paved shoulders (with rumble strips)
Washout repairs at bridges	Bridge	Erosion control; unclear if existing washout issues were identified and resolved or if erosion control was due to new or modified culvert placements
Culvert replacements	Hydraulics	Culvert replacements
Reclamation and mill & overlay with isolated subgrade corrections	Materials	Reclamation and mill & overlay with numerous subgrade corrections
18 miles of road R/W and temporary for ditch cleaning	Right-of-Way	New R/W or easements not shown in plans.

Plan Addendum Summary

1.	Interim pavement markings quantities adjusted

Supplemental Agreement Summary

1A	Correct soft areas (10/18/2010)
1B	Correct soft areas (6/4/2012)
2A	Correct larger soft areas. Subgrade correction at 3 locations. (9/27/2010)
2B	Full roadway width soft areas (12/1/2010)

Comments

1.	Scoping Report indicates a need to review 5 bridges for washouts during design phase. Not clear that issues were identified or resolved.
2.	Scoping Report indicates that Bridge 95136 does not have head walls. Headwalls not added.
3.	Scoping Report indicates that Bridge 95136 will require a public waters permit
4.	Scoping Report (with added emphasis) indicates that GPR will need to be done before the final recommendations. Not clear that a less expensive solution would have been the result of early geotechnical investigation but reasonable to assume a higher quality product may have been attained by avoiding spot fixes during construction.
5.	RWCA = No related data was provided for this analysis, so the Right-of-Way Costs were assumed to be the same as estimated in the Scoping Report.

General Data

Project... 3806-60

District... 1

Project Type... GSBR – Grade, Surface and Bridge

Purpose of the Project... Improve safety by correcting geometrics, upgrading pedestrian/bike, construct turn lanes and improve deteriorating hydraulic infrastructure

Project Description... Length 3.38 mi.; widen shoulders to ten feet (note: after "scope changes line" 6' shoulders in the reclaimed area and 8' shoulders in the reconstructed area are called for); add turn lanes; improve ditches; construct pedestrian underpass at Split Rock River (note: after "scope changes line" native standard roadside plantings and 4:1 in slopes are called for); improve access to Split Rock overlook; complete necessary repairs to hydraulic structures (note: after "scope changes line" 17 culvers, 2 flumes, and entrance culverts are called for); reclaim first 1.7 miles (note: after "scope changes line" 2" overlay is specified); beginning 1.1 miles north of Split Rock River, reconstruct on new alignment (note: after "scope changes line" 6" bit, 6" aggregate base, 24" min select granular in rock cut areas, and 48" in non-rock cut areas is specified); end construction near Chapin's Curve; after "scope changes line" repairs to bridges 8285, 9405, and 38015; and a new bridge 38X05 are called for; after "scope changes line" 6 total R/W takings and 2 relocations are called for; future conveyance to the DNR is also noted; after "scope changes line" public involvement is noted as a requirement; after "scope changes line" requirement to establish existing roadbed with native grasses is noted; after "scope changes line" risk of encountering asbestos-like taconite tailings in former road core is noted; after "scope changes" line need to coordinate with Slit Rock Lighthouse anniversary events is noted.

Project Schedule

Scoping Report	Item	Actual
10/23/2009	Letting Date	02/12/2010

Project Costs

Scoping Report	Item	Construction Documents
$14,360,035	Construction Cost	10,763,606
$1,643,670	Right-of-Way Cost	(RWCA) $1,643,670
$2,872,007	Engineering Cost	(ECA) $2,872,007
	Addenda	

	Supplemental Agreements	
	1A	$0
	1B	$0
	2	$0
	3	$110,438
	4	$0
	5	$0
	6	$74,942
	7A	(SSD) $123,000
	7B	$67,797
	8	Unavailable
	9A	(SSD) $97,916
	9B	(SSD) $31,823
	10	Unavailable
	11A	(SSD) $200,000
$14,360,035	**CONSTRUCTION COST TOTAL (SSD costs not included)**	$11,016,783 (23% under scope)
$18,875,712	**PROJECT COST TOTAL**	$15,985,199

Major Plan Items

Scoping Report	Item	Construction Plans
Reclaim first 1.7 miles; 2" overlay; beginning 1.1 miles north of Split Rock River reconstruct on new alignment (6" bit, 6" aggregate base, 24" min select granular in rock cut areas, and 48" in non-rock cut areas)	Driving Lanes	10' shoulders used throughout; 14" Bit reclamation; placed pavement structure as expected; 1,200' added to project length to repair poor condition pavement
Widen shoulders to ten feet (6' shoulders in the reclaimed area and 8' shoulders in the reconstructed area are called for); add turn lanes	Shoulders, Turn Lanes, and Ramps	In general shoulders and turn lanes were handled as scoped.
Repairs to bridges 8285, 9405, and 38015; and a new bridge 38X05	Bridge	Repairs to bridges 8285, 9405, and 38015; and a new bridge 38X05 as scoped. Added new bridge 38015

Native standard roadside plantings and 4:1 in slopes; complete necessary repairs to hydraulic structures (17 culvers, 2 flumes, and entrance culverts)	Hydraulics	In general culvers, flumes, and entrance culverts were repaired, replaced or installed as scoped. Seed mix 250 used.
	Materials	
	Right-of-Way	Rest area not mentioned before.
	Misc.	Kiosk; stone monument; building removal; environmentally sensitive areas;

Plan Addendum Summary

1.	Lower Joint Adhesive Quantity; zero Abandon & Seal Well Quantity; Contractor made aware of nature of geotechnical data and conditions; aggregate source offered by Lake County; SP's modified to require temp barrier for certain shoring situations; well Survey section of SP modified with protection provisions; OJT form submittal requirements are modified; modification of Shot Rock SP; modification of Optional Rock Fill SP.
2.	Modification of Shot Rock SP.

Supplemental Agreement Summary

1A.	Allows Contractor to install culverts at the same time as the reclaim. (7/7/2010)
1B.	Schedule change because Contractor requested to install culverts at same time as pavement reclamation with a 24 hours/day, 7 days/week schedule (3/4/2011)
2.	Compaction testing method change. Contractor is using 100% crushed aggregates which requires a change from Light Weight Deflectometer to Quality Compaction. (12/8/2010)
3.	Modify winter suspension conditions to allow keeping traffic on the original pavement for winter suspension. (11/4/2010)
4.	Adjust Superpave Gyratory Compactor angle (5/29/2011)
5.	Compaction testing method change because Contractor decided against using 100% crushed aggregates and therefore LWD is reinstated. (6/20/2011)
6.	Extension of project south 1200 ft. because MnDOT Maintenance requested extension due to amount of time patching. (6/8/2011)
7A.	*$123,000* - Preparing for government shutdown by creating an improved surface for traffic during potential shutdown. (6/30/2011)
7B.	Modify bypass surface specs due to heavy rain and heavy traffic (2/20/2012)
8.	Not available for review
9A.	*$97,916* - State shutdown damages for unabsorbed home office overhead damages (3/23/2012)

9B.	*$31,823* - State shutdown damages for unabsorbed home office overhead damages (9/21/2012)
10.	Not available for review
11A	*$200,000* - State shutdown damages for acceleration, remobilization, rentals, maintenance and re-tolerance of Class 6 (11-16-2012)
Comments	
1.	Scoping Report identified a risk of encountering asbestos-like taconite tailings in former road core.
2.	Project extended 1,200' during construction in response to request from maintenance.
3.	Mix 250 may not have satisfied native planting desire.
4.	SSD = Supplemental Agreement costs related to the State shutdown. These costs are not related to Scoping Quality and have therefore been omitted form the calculations on total project costs as shown. For this project, SSD related costs = $452,739.
5.	ECA = No related data was provided for this analysis, so the Engineering Costs were assumed to be the same as estimated in the Scoping Report for the calculation of the "Project Total Cost."
6.	RWCA = No related data was provided for this analysis, so the Right-of-Way Costs were assumed to be the same as estimated in the Scoping Report for the calculation of the "Project Total Cost."

General Data

Project... 6982-290

District... 1

Project Type... BRPC – Bridge replacement or construction

Purpose of the Project... Replace fracture critical bridges and replace deteriorated concrete

Project Description... Length: 3.924 mi; Bridges 69831 & 69832 span the CN Railroad Bridge and contain fracture critical pier caps; Bridge 69880 contains fracture critical elements and is structurally deficient; Bridges 69828 (under Soo Line RR) and Bridge 69835 (I-35 over Soo Line RR) are not in use and will be removed; Improve vertical alignment after bridges are removed; design to LRFD; remove and replace continuously reinforced pavement (CRCP) and box beam barrier in the corridor; Recycle Way and Oneota Street under Bridge 69880 will be combined into one new access; replace ramp pavements and make repairs to bridges in the I35, TH 53 & I-535 (Can of Worms) interchange; NEPA Doc = Project Memo; Following Scope Change Line: New construction/Reconstruction standards apply; 2-12' lanes on bridges; 12'outside and 6' inside shoulders on bridges; 10' outside and 5.5' inside shoulder with 4' paved on roadways; replace pavement on ramps at 40th Ave West and approaches to Bridge 69100; remove excess pavement from old Oneota Street; repair damaged fencing; install box culvert in place of Bridge 69835 for future trail spur for City of Duluth; add short ramp to Bridge 69811 to replace step on either end; no layout required; lower profile at Bridges 69880, 69831/69832, and 69835 to improve site distance; design speed of 55mph; new bridge/box required for "No Name" Creek under new Recycle Way; painting of Bridges 69100, 69101. 69102, and 69109; deck and railing repairs to 69801 bridges; estimate 50 replaced storm sewer structures; no centerline pipes anticipated; no subcuts on mainline; R/W for temp easements for staging at 69831 & 69832, and new R/W to relocate Recycle Way under 69880; coordinate with City of Duluth and St. Louis County on closures and local road work; RR agreement required for flagging and Contractor crossings; replace all signing along corridor; Install tower lighting; Considered but rejected: Any changes to CN rail line to the Ore Docks; replacement and modification of ramps at 26th Ave East and I-35 with concrete.

Project Schedule

Scoping Report	Item	Actual
2/26/2010	Letting Date	4/2/2010

Project Costs		
Scoping Report	**Item**	**Construction Documents**
$73,430,690	Construction Cost	$65,026,987
$1,411,200	Right-of-Way Cost	(RWCA) $1,411,200
$14,652,003	Engineering Cost	(ECA) $14,652,003
	Addenda	
	Supplemental Agreements	
	SA-1	$70,388
	SA-2	$256,950
	SA-3	$0
	SA-4	$75,741
	SA-5	$183,507
	SA-6	$16,350
	SA-7	$100,000
	SA-8	$60,000
	SA-9	$74,990
	SA-10	$75,313
	SA-11	$0
	SA-12	$80,581
	SA-13	$110,355
	SA-14	(SSD) $180,000
$73,430,690	**CONSTRUCTION COST TOTAL (SSD costs not included)**	$66,131,162 (10% under Scope)
$89,493,893	**PROJECT COST TOTAL**	$82,374,365

Major Plan Items		
Scoping Report	**Item**	**Construction Plans**
Length: 3.924 mi; New construction/Reconstruction standards apply; 2-12' lanes on bridges; replace pavement on ramps at 40th Ave West and approaches to Bridge 69100; remove excess pavement from old Oneota Street;	Driving Lanes	Length 0.538 mi + 10.2mi;
12'outside and 6' inside shoulders on bridges; 10' outside and 5.5' inside shoulder with 4' paved on roadways	Shoulders, Turn Lanes, and Ramps	As Scoped
Bridges 69831 & 69832 contain fracture critical pier caps; Bridge 69880 contains fracture critical elements and is structurally deficient; Bridges 69828 and Bridge 69835 are not in use and will be removed; replace ramp pavements and make repairs to bridges in the I35, TH 53 & I-535 (Can of Worms) interchange; install box culvert inplace of Bridge 69835; add short ramp to Bridge 69811 to replace step on either end; lower profile at Bridges 69880, 69831/69832, and 69835	Bridge	Planned bridge work appears to have been accomplished. The following items were not mentioned in the scoping document: Remove bridge 69828; new 69865; new 69866; new 69824 & 69825; more bridges painted than planned; and Bridge 69844.
Install box culvert in place of Bridge 69835 for future trail spur for City of Duluth; new bridge/box required for "No Name" Creek under new Recycle Way; estimate 50 replaced storm sewer structures; no centerline pipes anticipated	Hydraulics	As Scoped
	Materials	

R/W for temp easements for staging at 69831 & 69832, and new R/W to relocate Recycle Way under 69880	Right-of-Way	As Scoped
	Misc.	Work on London Rd; work on 26th Ave E.; walls; traffic management system; temp cameras during construction; TMS and staging issues

Plan Addendum Summary

1.	Minor quantity and administrative changes; updated Temp Erosion Control sheets
2.	Minor quantity and administrative changes; addition of Automatic Traffic Recorder System
3.	Minor quantity change

Supplemental Agreement Summary

1.	Discovered buried concrete. Required removal to install sheet piling and exploratory soil borings. Slag included many storm sewer pipes and structures used to stabilize grade in original highway construction. (7/28/2010)
2.	Unanticipated concrete replacement. Exception area from Sta. 111+45 to 115+01 was to involve no construction or removals. Bridge approach panels, pavement, curb and median were found in very poor condition. (8/3/2010)
3.	Delays from City of Duluth water main breaks and weather events totaling 5 days for both. Time modification only. (9/14/2010)
4.	Add two UPS systems. Lack of detail in the plan or special provisions to bid. (See Addendum 3). Provides emergency lighting to the Leif Erickson tunnels and the existing system has reached the end of its useful life. (11/19/2010)
5.	Extend fiber optic cable to District Office. Allows for a more complete TMS System (6/28/2011)
6.	Additional vibration monitoring. Contract provided for 40 hours of VM. 125% overrun will allow 50 hours. Additional VM needed to be provided with a $10,000 lump sum payment. (10/13/2011)
7.	Pay monetary incentives. Critical traffic stage omission resulted in a need to modify Area 1 provisions and extend the Area 2 completion date, resulting in completion incentives. (6/6/2011)
8.	Reconstruct wall that became out of plumb. Sheet pile walls were designed based on soil borings from adjacent areas. When constructed, the wall became out of plumb and new longer sheeting will need to be installed. (5/26/2011)
9.	Raise pedestrian Bridge 69811. Plan error resulted in insufficient vertical clearance between T.H. 35 and bottom of pedestrian bridge. (8/10/2011)
10.	Concrete grinding to repair driver discomfort. Innovative grinding pattern met specifications

	but did not adequately match MN Road Test Section. (6/28/2011)
11.	Allow contractor to complete Traffic Stage 3 during Contract Stage 2. Reduces overall construction timing and was explained during public meetings. (8/17/2011)
12.	Increased sandblasting scope. Contractor had difficulty maintaining gap between new and old primers. Amount is just materials. Contractor originally wanted almost $200,000. (5/26/2011)
13.	Pier caps on two bridges retrofitted to increase their rating capacity (11/26/2012)
14.	*$180,000* - State shutdown impacts. Contractor will accelerate work to make up for shutdown. (11/18/2011)

Comments	
1.	More local road work than scoped
2.	More bridge work than scoped
3.	TMS work not scoped
4.	Challenging staging required
5.	Early geotechnical investigation may have been beneficial
6.	SSD = Supplemental Agreement costs related to the State shutdown. These costs are not related to Scoping Quality and have therefore been omitted form the calculations on total project costs as shown. For this project, SSD related costs = $180,000.
7.	ECA = No related data was provided for this analysis, so the Engineering Costs were assumed to be the same as estimated in the Scoping Report for the calculation of the “Project Total Cost.”
8.	RWCA = No related data was provided for this analysis, so the Right-of-Way Costs were assumed to be the same as estimated in the Scoping Report for the calculation of the “Project Total Cost.”

General Data

Project... 2902-39

District... 2

Project Type... PVTR – Pavement resurface and rehabilitation

Purpose of the Project... Improve ride quality, safety and improve the structural integrity of TH

Project Description... Length: TH 34 = 16.02 mi & TH 226 = 1.5 mi; Reclaim full width (10"); Pave shoulders; Add turn and by-pass lanes; Except town of Akeley 3" mill and fill (width range = 48' – 72'); Clean some culverts and replace and tie some end sections; Remove cattle passes (up to three); Replace manhole and catch basin castings in Akeley; Remove and replace guardrail within project limits; Sign replacement as-needed; 1.5" mill and fill on TH 226 (mill 26' place 28'); Only center 24' in town of Dorset; NEPA = Project Memo; $100,000 R/W Est. ; Turn lanes: 4.5" Bit on 6" class 5; 8' shoulders with 3" bit, except on TH 226; Existing turn lanes: Reclaim and pave same as mainline; 15 RTL's; Three LTL's; One CCLTL; Install truncated domes in Akeley; Remove skew at CR 107; No bridges; Public hearing required; Municipal agreement required; Detour; No realignment of CR's 20, 80, 2 & 13

Project Schedule

Scoping Report	Item	Actual
2/25/2011	Letting Date	5/6/2011

Project Costs

Scoping Report	Item	Construction Documents
$10,860,473	Construction Cost	$6,788,465
$100,000	Right-of-Way Cost	(RWCA) $100,000
	Addenda	
	Supplemental Agreements	
	1	NDP
	2	(SSD) $60,000
	3	(SSD) $23,564
	4A	(SSD) $224,780
$10,860,473	**CONSTRUCTION COST TOTAL (SSD costs not included)**	$6,788,465 (37% under Scope)
$10,960,473	**PROJECT COST TOTAL**	$7,196,809

Major Plan Items		
Scoping Report	**Item**	**Construction Plans**
TH 34 = 16.02 mi & TH 226 = 1.5 mi; Reclaim full width (10”); Except town of Akeley 3” mill and fill (width range = 48’ – 72’); 1.5” mill and fill on TH 226 (mill 26’ place 28’); Only center 24’ in town of Dorset;	Driving Lanes	Project length as expected;
Pave shoulders; Add turn and by-pass lanes; Turn lanes: 4.5” Bit on 6” class 5; 8’ shoulders with 3” bit, except on TH 226; Existing turn lanes: Reclaim and pave same as mainline; 15 RTL’s; Three LTL’s; One CCLTL;	Shoulders, Turn Lanes, and Ramps	As expected with the following exceptions: 10’ shoulders on TH 34 regrade and regrade of TH 34
No bridges	Bridge	No bridges
Clean some culverts and replace and tie some end sections; Remove cattle passes (up to three); Replace manhole and catch basin castings in Akeley	Hydraulics	As expected with the following exceptions: Infiltration pond, impaired waters, special waters, trout stream, environmentally sensitive areas, and one culvert replacement
	Materials	
	Right-of-Way	
Remove skew at CR 107; No realignment of CR’s 20, 80, 2 & 13	Misc.	As expected with the following exceptions: Field entrances, and rumble strips

Plan Addendum Summary	
1.	Modify traffic control notes in SP: Tighter timelines. More full traffic than just local.
2.	Letting date pushed back approximately 2 weeks; new truck rental rates provided; aggregate Shouldering Class I pay item set to zero and replaced with “CV” based line item; broadened use of reclaimed material from project allowed on project; use of excess reclaimed material in lieu of Class 6 Aggregate base or Class I Aggregate Shouldering added

Supplemental Agreement Summary	
1	Unavailable
2	*$60,000* - Acceleration incentive due to State shutdown. However, it only applies if the Contractor meets certain performance standards. (10/6/2011)
3	*$23,564* - State shutdown damages for sub-contractor idle equipment and remobilization (8/28/2012)
4A	*$224,780* - State shutdown damages for bituminous plant setup, mobilization costs, idle equipment costs and additional material trucking costs. This is an interim payment and additional funds are anticipated to be expended in SA-4B. (10/9/2012)

Comments	
1.	Scoping Report does not include contingency. Contingency is estimated to be $1,346,443.
2.	NDP = No data related to this item was provided for inclusion in this analysis.
3.	RWCA = No related data was provided for this analysis, so the Right-of-Way Costs were assumed to be the same as estimated in the Scoping Report for the calculation of the "Project Total Cost."
4.	SSD = Supplemental Agreement costs related to the State shutdown. These costs are not related to Scoping Quality and have therefore been omitted form the calculations on total project costs as shown. For this project, SSD related costs = $308,344.

General Data

Project... 3604-69

District... 2

Project Type... GSBR – Grade, surface and bridge

Purpose of the Project... Preserve the structural integrity of the infrastructure

Project Description... Length 18.51 mi; reclaim existing BIT roadway; install Geogrid; shoulder widening to stabilize in-slopes; culvert replacement (including 3 numbered box culverts); one by-pass lane; one turn lane; re-align county road intersection (Skew); shift less than one mile of centerline due to proximity to Rainy River; minor grade adjustment with rock excavation; NEPA Doc = Project Memo; design standard = preservation; "Fish passage may be an issue"; 'More than minor R/W may not be deliverable due to other commitments.'; permits: NPDES, MNDNR, and COE; coordinate with emergency services, schools and transit

Project Schedule

Scoping Report	Item	Actual
1/22/2010	Letting Date	2/26/2010

Project Costs

Scoping Report	Item	Construction Documents
$12,660,000	Construction Cost	$13,045,506
$320,000	Right-of-Way Cost	(RWCA) $320,000
	Addenda	
	Supplemental Agreements	
	1	$533,829
	2	$24,026
	3	$140,000
	4	$206,450
	5	$727,173
	6	$0
	7	$0
	8	$347,651
	9	$209,510

$12,660,000	**CONSTRUCTION COST TOTAL**	$15,234,145 (20% over Scope)
$12,980,000	**PROJECT COST TOTAL**	$15,554,145

Major Plan Items

Scoping Report	Item	Construction Plans
18.51mi; install geogrid; re-align county road intersection (Skew); shift less than one mile of centerline due to proximity to Rainy River; minor grade adjustment with rock excavation; design standard = preservation;	Driving Lanes	Length and re-alignments as expected
shoulder widening to stabilize in-slopes; one by-pass lane; one turn lane	Shoulders, Turn Lanes, and Ramps	As Scoped
culvert replacement (including 3 numbered box culverts)	Bridge	Box culverts 36X06, 36X07, & 36X08
culvert replacement (including 3 numbered box culverts)	Hydraulics	Box culverts 36X06, 36X07, & 36X08
	Materials	
	Right-of-Way	
"Fish passage may be an issue"; 'More than minor R/W may not be deliverable due to other commitments.'; permits: NPDES, MNDNR, and COE; coordinate with emergency services, schools and transit	Misc.	Two ponds; Pavement sensor

Plan Addendum Summary

1.	Some circular pipes replaced with arch.

Supplemental Agreement Summary

1.	Acceleration and material cost increases. $490,000 of the cost is due to delay. (7/6/2010)
2.	Add geogrid to culvert treatment areas. (8/11/2010)
3.	Costs due to dept. delay, SHPO concurrence delayed causing difficulty in hiring wash material subcontractor (8/24/2010)

4.	Replace rather than line centerline culverts. (9/16/2010)
5.	Oversized aggregate stones in the reclaimed base; plans conflict with field conditions; acceleration costs. (9/21/2010)
6.	Add additional detour day due to unexpected soil conditions with the road core. (4/20/2011)
7.	Change in the calibration of the Superpave Gyratory Compactor. (12/13/2012)
8.	Slope failure stabilization including slope nailing, excavation, light weight embankment materials, shaping, turf establishment, weekly monitoring. (6/20/2011)
9.	In-stream changes for MPCA compliance (2/20/2012)

Comments	
1.	Scoping Report indicates no contingency in cost estimates.
2.	RWCA = No related data was provided for this analysis, so the Right-of-Way Costs were assumed to be the same as estimated in the Scoping Report for the calculation of the "Project Total Cost."
3.	Scoping Report included no typical sections or pavement recommendations. This data may have helped anticipate poor soil conditions, slope failure, and delay.
4.	Potential fish passage issues were noted in the Scoping Report, yet in-stream changes for MPCA resulted in a $209,510 Supplemental Agreement.
5.	Scoping Report called out the replacement of three box culverts, so hydraulics must have been considered. However, Supplemental Agreement #4 required $206,450 to replace, rather than line, centerline culverts.

General Data

Project... 6002-69

District... 2

Project Type... GRSU – Grade and surface

Purpose of the Project... Pavement preservation and relocation of TH 2

Project Description... Length: 10.176 mi; realign TH 2 approximately 440' south of existing alignment; 1.5" mill; 1.5" fill; replace 36" culvert; alternative bids for pavement (Concrete vs. Bit); NEPA Doc: CATEX; design standard: new construction/reconstruction; NHS; Rural; 4-lane divided; 4-12' lanes; 4' inside and 10' outside shoulders; turn lanes at all access points; no pedestrian accommodations; no bridges; public involvement/notices; note: attached estimate not checked.

Project Schedule

Scoping Report	Item	Actual
3/26/2010	Letting Date	5/11/2010

Project Costs

Scoping Report	Item	Construction Documents
$7,032,370	Construction Cost	$6,475,114
$450,000	Right-of-Way Cost	(RWCA) $450,000
	Addenda	
	Supplemental Agreements	
	1A	$143,689
	1B	$145,893
$7,032,370	**CONSTRUCTION COST TOTAL**	$6,764,696 (4% under Scope)
$7,482,370	**PROJECT COST TOTAL**	$7,214,696

Major Plan Items

Scoping Report	Item	Construction Plans
Length: 10.176 mi; realign TH 2 approximately 440' south of existing alignment; 1.5" mill; 1.5" fill; design standard: new construction/reconstruction; NHS; Rural; 4-lane divided; 4-	Driving Lanes	As Scoped

12’ lanes;		
4’ inside and 10’ outside shoulders; turn lanes at all access points;	Shoulders, Turn Lanes, and Ramps	As Scoped
No bridges	Bridge	As Scoped
Estimated the replacement of a 36” culvert at RP 28.96. Noted that “hydraulics design not complete.”	Hydraulics	684’ of 36” or larger pipe installed for sediment pond. Additional 48” and 51” arch were required.
Alternative bids for pavement (Concrete vs. Bit)	Materials	Bituminous
	Right-of-Way	
No pedestrian accommodations; public involvement/notices; note: attached estimate not checked.	Misc.	Lighting not noted in scoping; Building removals (2); Salvage flasher system; Subsurface drains; Cross-overs and turnarounds; Free rights; Pond; Work on Old Hwy 2; Staging

Plan Addendum Summary

1.	Changes to electrical service and life cycle cost analysis (5/7/2010)
2.	Change to date of letting (5/7/2010)

Supplemental Agreement Summary

1A	Soil corrections due to encountering silty soils (7/19/2010)
1B	Soil corrections due to encountering silty soils (1/12/2011)

Comments

1.	Construction cost estimate was for the bituminous pavement alternate. The concrete pavement alternate was estimated at $7,896,380 (2010 $) as identified in the TPCE.
2.	Scoping Report indicates that the soils letter was not complete and therefore alternate bids will be required.
3.	Scoping Report indicates that hydraulics design was not completed at the time the Scoping Report was created.
4.	RWCA = No related data was provided for this analysis, so the Right-of-Way Costs were assumed to be the same as estimated in the Scoping Report for the calculation of the “Project Total Cost.”

General Data

Project... 1810-95

District... 3

Project Type... PVTR – Pavement resurface and rehabilitation

Purpose of the Project... Pavement preservation, auxiliary lane treatments and access management measures to improve safety.

Project Description... 13.2mi; 3" mil & overlay all 12' driving lanes; mill & overlay existing shoulders; new right and left turn lanes; install new auxiliary lanes where appropriate; extensions of existing turn lanes and auxiliary lanes where possible; access management; NEPA doc = CATEX; design standards = preservation & new construction/reconstruction; upgrade guardrail; upgrade/install pedestrian ramps; install intersection lighting; reconstruct offset left turn lanes at Design Dr. and Clearwater Dr. to improve sightlines; clean and rehabilitate existing centerline culverts; soil borings needed at each auxiliary lane; frost heave correction at RP 35.343; no R/W expected; extensive public involvement and municipal consent expected; no detours; NPDES permit required

Project Schedule

Scoping Report	Item	Actual
5/21/2010	Letting Date	3/25/2011

Project Costs

Scoping Report	Item	Construction Documents
$10,779,103	Construction Cost	$8,443,234
	Right-of-Way Cost	NDP
	Addenda	
	Supplemental Agreements	
	1A	$364,500
	1B	$0
	2A	$38,241
	2B	$0
	3	(SSD) $0
	4A	(SSD) $143,988
	4B	(SSD) $17,725

$10,779,103	**CONSTRUCTION COST TOTAL (SSD costs not included)**	$8,845,975 (18% under Scope)
$10,779,103	**PROJECT COST TOTAL**	$9,007,688

Major Plan Items

Scoping Report	Item	Construction Plans
13.2mi; 3" mil & overlay all 12' driving lanes; design standards = preservation & new construction/reconstruction	Driving Lanes	17.6 mi; appears three additional intersections were added to the north
Mill & overlay existing shoulders; new right and left turn lanes; install new auxiliary lanes where appropriate; extensions of existing turn lanes and auxiliary lanes where possible; access management; reconstruct offset left turn lanes at Design Dr. and Clearwater Dr. to improve sightlines	Shoulders, Turn Lanes, and Ramps	As Scoped
	Bridge	
Clean and rehabilitate existing centerline culverts; NPDES permit required	Hydraulics	Existing and proposed closed storm sewer
Bituminous	Materials	Bituminous
No R/W expected	Right-of-Way	As Scoped
Upgrade guardrail; upgrade/install pedestrian ramps; install intersection lighting; frost heave correction at RP 35.343;	Misc.	Signal revisions

Plan Addendum Summary

1	Minor modifications to special provisions. Addition of Maintenance & Restoration of Haul Roads pay item.

Supplemental Agreement Summary	
1A	Adjust wearing course mixture due to concerns about low asphalt cement content. (6/2/2011)
1B	Change of specification per SA-1A (8/24/2011)
2A	Adjustment due to eagle's nest (7/25/2011)
2B	Extra work determination for SA-2A (9/1/2011)
3	Completion date adjustment due to State shutdown. (12/27/2011)
4A	*$143,988* – SSD - Unabsorbed home office overhead and idle equipment charges (5/7/2012)
4B	*$17,725* – SSD - State Eng. determination for SA-4A item (7/27/2012)

Comments	
1.	Scoping Report indicates the construction cost estimate + contingency is programmed at $8,780,528. TPCE is $10,779,103.
2.	3 intersections added.
3.	NDP = No data related to this item was provided for inclusion in this analysis.
4.	SSD = Supplemental Agreement costs related to the State shutdown. These costs are not related to Scoping Quality and have therefore been omitted form the calculations on total project costs as shown. For this project, SSD related costs = $161,713.

General Data

Project... 4810-17

District... 3

Project Type... BRPC – Bridge replacement or construction

Purpose of the Project... Replace Bridge 5822 and improve adjacent intersection

Project Description... Replace Bridge and build a roundabout at the intersection. (Referenced improvements to "safety and capacity." Noted sub-standard shoulders and guardrail. Original termini from 23+00.700 to 24+00.700, running "1000' W. of CSAH 29 to 500' E of Bridge #5822.")

Project Schedule

Scoping Report	Item	Actual
3/26/2010	Letting Date	04/23/2010

Project Costs

Scoping Report	Item	Construction Documents
$2,660,000	Construction Cost	$6,676,987
	Right-of-Way Cost	
	Addenda	
	1 and 2	$0
	Supplemental Agreements	
$2,660,000	**CONSTRUCTION COST TOTAL**	$6,676,987 (151% over Scope)
$2,660,000	**PROJECT COST TOTAL**	$6,676,987

Major Plan Items

Scoping Report	Item	Construction Plans
	Driving Lanes	Grading, bituminous paving, construction of a roundabout
Noted "Substandard shoulder widths" in the Need for the Project	Shoulders, Turn Lanes, and Ramps	
Replace Bridge #5822	Bridge	Bridges # 48001, 48028, and 48533
	Hydraulics	Storm Sewer

	Materials	
	Right-of-Way	
	Lighting	Included

Plan Addendum Summary

1.	Electrical service clarification
2.	Adjust lighting unit quantity

Supplemental Agreement Summary

	None

Comments

1.	Termini were changed from the original Project Scoping Report with no Project Change Request.
2.	Three bridges were constructed, rather than the single bridge replacement.
3.	A Construction Engineering cost of $467,389 was noted in page 3 of the Project Agreement Cost Summary document, labeled as “4810-17 Final Cost Detail.”

General Data

Project... 2107-09

District... 4

Project Type... PVTR – Pavement resurface and rehabilitation

Purpose of the Project... To restore the driving surface to an acceptable level.

Project Description... 12.89mi; mill 4" then 8" reclaim with 5" bit; NEPA doc=Project Memo; 5 R/W parcels; rural; 2-lanes; 2' in place shoulder; minor arterial; rolling; no unique considerations; design standard=preservation, non-NHS; update super elevation; 2' shoulder mill 4" then 8" reclaim with 5" bit; evaluate some ditch areas for native prairie, none expected; flatten entrance slopes to 1:6 where pipe work being done; place rumble strips; pave gravel entrance; close one field entrance and possibly a second; move field entrance; replace bridge #5481; possible combination of roadway and RR culverts to facilitate lessening the depth of ditches; replace culvert; culvert placements by open cut; occasional subgrade corrections for frost heave or weak areas; R/W and/or TE for culvert work; detour using TH 27 and TH 114; 11 stream crossings (min 6 months for permits); removal of box culvert; repair and cleaning of culverts and aprons.

Project Schedule

Scoping Report	Item	Construction Documents
3/23/2012	Letting Date	10/23/2009

Project Costs

Scoping Report	Item	Construction Documents
$6,982,057	Construction Cost	$8,126,201
$10,000	Right-of-Way Cost	(RWCA) $10,000
$210,000	Incentive Cost	NDP
$370,000	SA/Overrun Cost	$1,131,160
	Addenda	
	Supplemental Agreements	
	1	$483,568
	2	$0
	3	$97,730
	4A	$258,419

	4B	$0
	5	$291,443
$7,352,057	**CONSTRUCTION COST TOTAL**	$9,257,361 (26% over Scope)
$7,572,057	**PROJECT COST TOTAL**	$9,267,361

Major Plan Items

Scoping Report	Item	Construction Plans
12.89mi; mill 4" then 8" reclaim with 5" bit; rural; 2-lanes; minor arterial; rolling; no unique considerations; design standard=preservation, non-NHS; update super elevation; place rumble strips; occasional subgrade corrections for frost heave or weak areas; detour using TH 27 and TH 114	Driving Lanes	~23 miles; pavement sections as expected
2' in place shoulder; 2' shoulder mill 4" then 8" reclaim with 5" bit; flatten entrance slopes to 1:6 where pipe work being done; pave gravel entrance; close one field entrance and possibly a second; move field entrance;	Shoulders, Turn Lanes, and Ramps	As Scoped
Replace bridge #5481	Bridge	Bridge # 26002 was constructed as a replacement to Bridge # 5481.
Evaluate some ditch areas for native prairie, none expected; flatten entrance slopes to 1:6 where pipe work being done; possible combination of roadway and RR culverts to facilitate lessening the depth of ditches; replace culvert; culvert placements by open cut; 11 stream crossings (min 6 months for permits); removal of box culvert; repair and cleaning of	Hydraulics	As Scoped

culverts and aprons.		
Bituminous	Materials	Bituminous
R/W and/or TE for culvert work	Right-of-Way	As Scoped

Plan Addendum Summary

1.	Minor modifications to quantities; Full Depth Reclamation added to special provisions; addendum for test sections
2.	Bituminous Material for Mixture items added to bid items

Supplemental Agreement Summary

1	Contractor requested a change to the detour route to accommodate revised schedule as the result of a design plan error. 20 working days were added to the Contract Completion Date. (6/17/2010)
2	Changed the method of measure of compaction to Modified Penetration Index Compaction method. (6/17/2010)
3	MnDOT determined that additional asphalt material was required. (8/13/2010)
4A	Foamed asphalt test section passed density tests but failed. The Engineer determined that it needed to be removed and the underlying stabilized full depth reclamation needs to be reconstructed. (7/27/2011)
4B	Determined that the funds encumbered in 4A were adequate for SA and no additional funds were needed. (11/28/2011)
5	Due to poor soils and underlying roadmix bituminous layer, it was determined that the 8" reclamation layer was not stable and broke up in weak areas. The contractor had to add additional trucks to maintain an efficient production rate. Claim settlement. (2/28/2012)

Comments

1.	Scoping Report values are from the amended Scoping Report.
2.	Scope Amendment #1 was approved on 4/11/2008 which increased the cost estimate to $6,982,057 (2010$).
3.	Scope Amendment #2 was approved on 12/11/2008 and did not increase the cost estimate since the hydraulics work was covered by contingency.
4.	Page 2 of the original Scoping Report indicates there are not any unique location considerations, yet poor soils were encountered in the project. It is not clear that any geotechnical investigation was done.
5.	Included a "work items considered but rejected" section.
6.	RWCA = No related data was provided for this analysis, so the Right-of-Way Costs were assumed to be the same as estimated in the Scoping Report for the calculation of the "Project Total Cost."
7.	NDP = No data related to this item was provided for inclusion in this analysis.

General Data

Project... 5680-126

District... 4

Project Type... PVTR – Pavement resurface and rehabilitation

Purpose of the Project... Preserve the roadway structure, improve ride, address drainage, and enhance safety for the travelling public.

Project Description... Scope for SP 5602-22 TH 210 was added to this project.5680-126 (I-94 EB): 13.4 miles; 3.5" mill & inlay, minimum SPWEB540E with crown correction 0.02'/ft and super correction; NEPA Doc=CATEX; no R/W; rural; freeway; principal arterial; rolling; 70mph design speed; shoulders: 3' Lt & 10' RT RP 38.257 – 50.514, and 4' Lt & 10' RT RP 37.23 - 38.257 & 50.514 – 50.638, 1' usable outside of paved; 3.5" Mill and overlay left shoulder SPWEB540E; 1.5" Mill and overlay right shoulder 9.5' wide SPWEB230B; shoulder slope to be used 0.04'/ft; Mill and overlay ramps (CSAH 11 on & off, CSAH 52 exit). CSAH 11 has considerable potholes in the radius area mill to edge of CSAH shoulder. Estimate should be based on 2" mill and 2" overlay with a contingency amount for an additional 2.5" mill and 2.5" overlay; Construct emergency crossover at approximately Sta. 579 for snowplow operations. This will double as a ditch check. There is an existing ditch check at Sta. 579+40; RP 38.25 BR# 56816 Replace median bullnose with BEAT-BP system; Replace plate beam, right attached to outside bridge piers; RP 39.39 BR# 56804 Replace median bullnose with BEAT-BP system; replace plate beam, right attached to outside bridge piers; RP 41.81 BR# 56805; Replace median bullnose with BEAT-BP system; Replace plate beam, right attached to outside bridge Piers; RP 42.036 - 42.167 3-cable guardrail; RP 49.173 – 49.286 3-cable guardrail; RP 49.410 – 49.504; 3-cable guardrail; RP 50.454 – 50.491 3-cable guardrail; RP 50.491 – 50.511 plate beam leading up to bridge; Grind in wet reflective edge lines; use tape for the center skip; Place rumble strips. There is a large hole in the right lane in the approach panel to BR# 56814, provide for concrete repair; See Hydraulics Recommendation EDMS Document #869954; Note: Some of the in-place pipes that are recommended for pipe and or apron replacements are RCF-P. This is an old pipe design. The concrete industry has confirmed that the joints on these pipes are the same the current joints on standard pipe; Materials will review frost heaves at RP 44.2 and 49.9; include treatment in contingency; no detour.5602-22 (TH 210): Preserve the roadway structure, improve ride, and enhance safety for traveling public; 1.809 miles; Mill 3" and pave 3" bituminous; NEPA Doc=CATEX; no R/W; rural 2-lane minor arterial; existing 10' paved shoulder; 70mph design speed; design standard = preservation nom-NHS; Remove existing shoulders and pave 3"; Mill 3" on turn lanes and bypass lanes and pave 3"; Intermittent Rumble strips and grooved in wet reflective striping ; Upgrade guardrail at Bridge 56806; no bridge work; no hydraulic work; no R/W; no detour; Signal system and associated grading at TH 210 and CSAH 82 is proposed for a 2012 construction season due to R/W needs and agreement requirements. The pavement needs to be fixed prior to 2012 so the two projects are separate at this time.

Project Schedule

Scoping Report	Item	Actual
2/25/2011 TH 210 4/22/2011 I-94	Letting Date	2/25/2011

Project Costs

Scoping Report	Item	Actual
$652,086	Construction Cost TH 210	$4,317,717 (Combined)
$4,474,393	Construction Cost I-94	- - -
$0	Right-of-Way Cost TH 210	$0
$0	Right-of-Way Cost I-94	$0
$13,868	Incentive Cost TH 210	NDP
$15,039	Incentive Cost I-94	NDP
$45,646	SA/Overrun Cost TH 210	
$313,208	SA/Overrun Cost I-94	
	Addenda	
	Supplemental Agreements	
	1	$114,178
$5,485,333	**CONSTRUCTION COST TOTAL**	$4,431,895 (19% under Scope)
$5,514,240	**PROJECT COST TOTAL**	

Major Plan Items

Scoping Report	Item	Construction Plans
I-94 EB: 13.4 miles; 3.5” mill & inlay, minimum SPWEB540E with crown correction 0.02’/ft and super correction; rural; freeway; principal arterial; rolling; 70mph design speed; TH 210: 1.809 miles; Mill 3” and pave 3” bituminous; rural 2-lane minor arterial; 70mph design speed; design standard = preservation nom-NHS;	Driving Lanes	Length on I-94 and TH 210 as expected;

I-94 EB: 3' Lt & 10' RT RP 38.257 – 50.514, and 4' Lt & 10' RT RP 37.23 - 38.257 & 50.514 – 50.638, 1' usable outside of paved; 3.5" Mill and overlay left shoulder SPWEB540E; 1.5" Mill and overlay right shoulder 9.5' wide SPWEB230B; shoulder slope to be used 0.04'/feet; Mill and overlay ramps (CSAH 11 on & off, CSAH 52 exit). CSAH 11 has considerable potholes in the radius area mill to edge of CSAH shoulder; Construct emergency crossover at approximately Sta. 579 for snowplow operations. This will double as a ditch check. There is an existing ditch check at Sta. 579+40; RP 38.25; TH 210: existing 10' paved shoulder; Remove existing shoulders and pave 3"; Mill 3" on turn lanes and bypass lanes and pave 3"	Shoulders, Turn Lanes, and Ramps	9.5' right shoulder on I-94; 3' left shoulder throughout; 10' shoulders both sides of TH 210; slopes variable per engineer; CSAH 11 ramp done; emergency crossover done; shoulder repair
I-94 EB: There is a large hole in the right lane in the approach panel to BR# 56814, provide for concrete repair TH 210: Upgrade guardrail at Bridge 56806; no bridge work	Bridge	Concrete repair of approach panel at BR# 56814 not included; guardrail at BR# 56806 included.
I-94 EB: See Hydraulics Recommendation EDMS Document #869954; Note: Some of the in-place pipes that are recommended for pipe and or apron replacements are RCF-P. This is an old pipe design. The concrete industry has confirmed that the joints on these pipes are the same the current joints on standard pipe	Hydraulics	Culvert and pipe drain removals; culvert and apron placements; clean inlet structures; assembly

TH 210: no hydraulic work		
I-94 EB: Materials will review frost heaves at RP 44.2 and 49.9; include treatment in contingency; bituminous	Materials	No apparent frost heave corrections
I-94 EB: no R/W TH 210: no R/W	Right-of-Way	As Scoped
I-94 EB: Replace median bullnose with BEAT-BP system; Replace plate beam, right attached to outside bridge piers; RP 39.39 BR# 56804 Replace median bullnose with BEAT-BP system; replace plate beam, right attached to outside bridge piers; RP 41.81 BR# 56805; Replace median bullnose with BEAT-BP system; Replace plate beam, right attached to outside bridge Piers; RP 42.036 - 42.167 3-cable guardrail; RP 49.173 – 49.286 3-cable guardrail; RP 49.410 – 49.504; 3-cable guardrail; RP 50.454 – 50.491 3-cable guardrail; RP 50.491 – 50.511 plate beam leading up to bridge; Grind in wet reflective edge lines; use tape for the center skip; Place rumble strips; no detour TH 210: Intermittent Rumble strips and grooved in wet reflective striping; no detour; Signal system and associated grading at TH 210 and CSAH 82 is proposed for a 2012 construction season due to R/W needs and agreement requirements. The pavement needs to be fixed prior to 2012 so the two projects are separate at this time	Misc.	Barrier work at BR#'s 56816, 56804, 56805, 56806, and 9692; rumble strips

Plan Addendum Summary	
1.	Proposal document supplemented with updated General Decision MN 100010 document .
Supplemental Agreement Summary	
1.	A section of TH 210, not within the project limits, was added to the project. (2/20/2012)
Comments	
1.	Scope for 5602-22 was added to this project and therefore there are two Scoping Reports.
2.	NDP = No data related to this item was provided for inclusion in this analysis.

General Data

Project... 7501-30

District... 4

Project Type... PVTR – Pavement resurface and rehabilitation

Purpose of the Project... Pavement preservation

Project Description... None provided. The project description from the advertised plan states: "In Stevens County on T.H. 9 from 0.1 mi. S. of C.R. 22 in Morris to 0.8 mi. NW of Pope-Stevens Co. Line AND on T.H. 329 from T.H. 59 to 1.1. mi. E. of T.H. 59." (*The project evolved into a comprehensive plan including hydraulic repairs and improvements, access modifications, guardrail replacement, mill & overlay, right turn and bypass lane construction, and the inclusion of work on TH 329).*

Project Schedule

Scoping Report	Item	Construction Documents
04/24/2009	Letting Date	01/28/2011

Project Costs

Scoping Report	Item	Actual
$4,564,767	Construction Cost	$3,127,019
$100,000	Right-of-Way Cost	(RWCA) $100,000
	Addenda	
	1 and 2	$0
	Supplemental Agreements	
	1	$3,000
	2	$0
$4,564,767	**CONSTRUCTION COST TOTAL**	$3,130,019 (31% below Scope)
$4,664,767	**PROJECT COST TOTAL**	$3,230,019

Major Plan Items

Scoping Report	Item	Construction Plans
Mill to underlying concrete, then place 4.5" of new bituminous.	Driving Lanes	As Scoped
<u>Shoulders</u> From RP 48.81 to 58.39:	Shoulders, Turn Lanes, and Ramps	As Scoped

Construct 8’ shoulder – 2’ paved and 6’ aggregate. From RP 58.396 to 59.970: Construct 8’ (heavy duty) paved shoulder. <u>Turn Lanes</u> RP 58.5 (Implement Dealer): NB - RTL, SB - bypass lane <u>Bypass Lanes</u> RP 59.362 (Columbia Ave.): SB Bypass lane RP 59.784 (Elm St.): SB Bypass lane		
2 – 11’ through lanes and 8’ (2’ paved, 6’ aggregate) shoulders, except: <u>In Morris</u> 2 – 11’ lanes with continuous SB bypass lane and continuous NB RTL	Typical Section	As Scoped
<u>Centerline Culvert</u> Replacements: Sta. 803+95, 15” x 76’ RCP, Sta. 807+95, 18” x 66’ RCP Lining: Line the Centerline pipes at Sta. 842+75, 891+20, 1008+13, 2+30, and 132+53. Other: Replace entrance pipe at 110+80 right and left. Miscellaneous ditch cleaning.	Hydraulics	As Scoped
Mill to concrete, then pave 4.5 inches. Mill and taper at the Pomme de Terre River bridge, the TH 59 ramp, and other bituminous side roads.	Materials	As Scoped
Noted that R/W may be needed on the RR side for construction of the continuous bypass lane, and that a TE may be needed on the NB side.	Right-of-Way	As Scoped

Access closures at RP 59.39 (BP), 59.70 (West Central), 59.94 (Ag Country), and 60.00 (funeral home).		
Upgrade 5 mailbox supports. Replace guardrail at RP 57.44 (Bridge #5964 at the Pomme de Terre River). Pave side roads to R/W line. Possible light pole relocations in Morris.	Roadside	As Scoped
Noted that a rail agreement may be necessary depending on the extent of the work completed in Morris.	Rail	Assume acquired

Plan Addendum Summary

1.	Addenda #1 was used to update the Prevailing Wage data (no cost impacts).
2.	Addenda #2 deleted section S-10.7 (B) of the Special Provisions related to milling (no cost impacts).

Supplemental Agreement Summary

1.	It was discovered after the Contract that the Railroad provisions had been omitted. SA amends to include the provisions and allow $3,000 for purchase of Railroad insurance. (5/3/2011)
2.	Adjust contract start and completion dates due to spring load restrictions. (5/24/2011)

Comments

1.	Scoping Report does not include anything under “Purpose and Need for Project”.
2.	The Scoping Construction Cost Estimate is from the second amendment to the Scoping Report.
3.	Original Scoping Report identified a Programmed Cost of $3,100,000. Completed 04/05/2006.
4.	Scope Amendment 1 changed the life of the fix used to determine hydraulic needs from 15 years to 20 years. The City was not receptive to access closures. Work on TH 329 was added. The revised cost estimate for the project was $5,397,279 (2011 $’s). Dated 4/2/2009.
5.	Scope Amendment 2 removed several turn lanes from the project and changed the SB RTL at RP 58.5to a bypass lane. The revised cost estimate for the project was $4,564,767 (2011 $’s). Dated 6/10/2010.
6.	RWCA = No related data was provided for this analysis, so the Right-of-Way Costs were assumed to be the same as estimated in the Scoping Report for the calculation of the “Project Total Cost.”
7.	A Construction Engineering cost of $218,891 was noted in the Final Cost Details.

General Data

Project... 7401-34

District... 6

Project Type... GSBR – Grade, surface and bridge

Purpose of the Project... Provides a new four lane roadway on new alignment and includes the replacement of Bridge 74820.

Project Description... 14.21 mi; new 4-lane roadway on new alignment; replace bridge 74820 (renumber 74831); "multiple new bridges"; NEPA document=EIS; 50 R/W parcels with 5 relocations; municipal consent obtained; detours expected – coordinate with local communities; 0.5 mi work on control section 7408; design standards = new construction/reconstruction; DNR permits obtained; no commitments made; in-place typical: 8'right & 3' left shoulders, 12' lanes

Project Schedule

Scoping Report	Item	Actual
1/23/2009	Letting Date	1/23/2009

Project Costs

Scoping Report	Item	Construction Documents
$65,000,000	Construction Cost	$51,823,568
$12,128,799	Right-of-Way Cost	(RWCA) $12,128,799
	Addenda	
	Supplemental Agreements	
	1	$0
	2	$1,547,559
	3	$140,602
	4	($91,985)
	5A	---
	5B	$270,863
	6A	---
	6B	$54,442
	7A	---
	7B	$95,895
	8A	$78,793

	8B	$0
	9	$0
	10	(SSD) $0
	11	(SSD) $32,086
	12A	$203,204
	13A	(SSD) $209,918
	14	NDP
	15A	(SSD) $194,684
$65,000,000	**CONSTRUCTION COST TOTAL (SSD costs not included)**	$54,122,941 (17% under Scope)
$77,128,799	**PROJECT COST TOTAL**	$66,688,428

Major Plan Items

Scoping Report	Item	Construction Plans
14.21 mi; new 4-lane roadway on new alignment; 0.5 mi work on control section 7408; design standards = new construction/reconstruction; 12’ lanes in existing typical (no proposed provided)	Driving Lanes	8.29 mi on TH 14; 1.39 mi on TH 35; several muck areas;
In-place typical: 8’right & 3’ left shoulders; no proposed information	Shoulders, Turn Lanes, and Ramps	As Scoped
Replace bridge 74820 (renumber 74831); “multiple new bridges”;	Bridge	BR#’s 74X01, 74831, 74832; approach panels at BR#’s 74001 & 74002;
N/A	Hydraulics	8 new or modified ponds
N/A	Materials	Concrete mainline, bituminous shoulders
50 R/W parcels with 5 relocations	Right-of-Way	As Scoped
Municipal consent obtained; detours expected – coordinate with local communities; DNR permits obtained; no commitments made	Misc.	Stream re-alignment near and through BR#’s 74811 & 74812

Plan Addendum Summary	
1.	Updated Fuel Escalation clause provided; relatively minor quantity adjustments; erosion control supervisor added as a lump sum item; Required Waiting Period provision modified; modification of table on plan sheet 95; updated plan sheets provided; Elastomeric Bearing Pad provisions replaced;
2.	Clarification regarding calculation of incentives for concrete pavement
Supplemental Agreement Summary	
1	Adjusts Contractor timeframes. (8/25/2009)
2	Contract omitted the common excavation quantities for several ponds. (12/8/2009)
3	Contract omitted temporary mulch and hydro mulch necessary to comply with NPDES permit. (5/7/2010)
4	Steele County requested changes to C.S.A.H. 7 to tie into the County's project. (9/21/2010)
5A	Conflicts were identified with construction traffic staging. (1/8/2011)
5B	Adjusts encumbrance for 5A. (3/30/2011)
6A	Plan did not include quantities for a temporary connection. (1/26/2011)
6B	Adjusts encumbrance for 6A. (4/18/2011)
7A	Plan did not specify contraction joint sealing. (10/1/2010)
7B	Adjust encumbrance for 7A. (5/13/2011)
8A	Plan contained a discrepancy between the bridge and the grading vertical profiles. (12/20/2011)
8B	No encumbrance adjustment necessary. (5/17/2011)
9	Adjust Superpave Gyratory Compacter calibration. (5/24/2011)
10	*$0* - Adjust project timeline due to State shutdown. (9/6/2012)
11	*$32,086* - Compensate for home office overhead costs due to State shutdown. (6/26/2012)
12A	Engineer approved owner-directed acceleration due to wet weather. (8/21/2012)
13A	*$209,918* - Address State shutdown costs for idle equipment, remobilization and returning work to pre-shutdown condition. (7/16/2012)
15A	*$194,684* - Compensate for home office overhead costs due to State shutdown. (9/28/2012)

Comments	
1.	SAs related to plan omissions not considered issues in the project Scoping process
2.	The Scoping Report identifies a project cost estimate, a bridge cost and a ROW cost. It was assumed that roadway and bridge costs are included as part of the project cost estimate.
3.	NDP = No data related to this item was provided for inclusion in this analysis.
4.	RWCA = No related data was provided for this analysis, so the Right-of-Way Costs were assumed to be the same as estimated in the Scoping Report for the calculation of the "Project Total Cost."
5.	SSD = Supplemental Agreement costs related to the State shutdown. These costs are not related to Scoping Quality and have therefore been omitted form the calculations on Construction Cost Total, but included in the Project Cost Total. For this project, SSD related costs = $436,688.

General Data

Project... 8580-156

District... 6

Project Type... PVTR – Pavement resurface and rehabilitation

Purpose of the Project... To add an unbounded concrete overlay to improve ride quality and reduce maintenance costs. Additional improvements include culvert replacement/repair and guardrail replacement.

Project Description... Unbonded concrete overlay, culvert replacement, guard rail replacement.
Termini: EB I-90, 2.2 mi. E. of TH 74 to 0.5 mi. W. of W. Jct. TH 43 EB lanes. Ref. Pt. 235+00 to Ref. Pt. 249+00.444 (14.25 miles).

Project Schedule

Scoping Report	Item	Actual
2010	Letting Date	02/12/10

Project Costs

Scoping Report	Item	Construction Documents
$17,857,458	Construction Cost	$14,327,582
$0	Right-of-Way Cost	$0
$1,341,330	Engineering Cost	(ECA) $1,341,330
$257,397	SA/Overruns	$0
$473,697	Incentives	NDP
	Addenda	
	1	$0
	Supplemental Agreements	
$18,114,855	**CONSTRUCTION COST TOTAL**	$14,327,582 (21% below Scope)
$19,929,882	**PROJECT COST TOTAL**	$14,327,582

Major Plan Items

Scoping Report	Item	Construction Plans
12 ft. lanes, 10” concrete overlay, 1.5” PASSRC, install subsurface drains.	Driving Lanes	As Scoped
10’ shoulders.	Shoulders, Turn Lanes, and Ramps	As Scoped

N/A	Bridge	
Repair and replace culverts.	Hydraulics	As Scoped
Unbonded concrete overlay, bituminous shoulders.	Materials	As Scoped
None anticipated.	Right-of-Way	As Scoped
Replace guardrail where necessary.	Roadside	As Scoped
Detour not needed – traffic will be moved to WB lanes while EB lanes are constructed. Replace guardrail.	Other	As Scoped
Layout not changed.	Layout	As Scoped

Plan Addendum Summary

1.	Addendum #1 made modifications to the "Veteran-Owned Business Special Provisions for State Funded Construction Projects."

Supplemental Agreement Summary

1.	None

Comments

1.	Original Scoping Report estimated costs project costs at $25,087,650 with construction costs of $21,650,000 on 04/17/08 but was revised on 3/16/2009 when more detailed construction costs were created (Project Change Request 1).
2.	NDP = No data related to this item was provided for inclusion in this analysis.
3.	ECA = No related data was provided for this analysis, so the Engineering Costs were assumed to be the same as estimated in the Scoping Report for the calculation of the "Project Total Cost."
4.	Project length adjusted to 15.52 miles (1.27 miles longer than identified in the Scoping Document). The terminus related to the TH 43 intersection was changed from "0.5 mi. W. of W. Jct. TH 43" to "0.583 MILES EAST OF THE WEST JCT. T.H. 43." No Project Change Requests were identified in relation to this change.

General Data

Project... 5305-56

District... 7

Project Type... GRSU – Grade and surface

Purpose of the Project... Construct 4-lane expressway between end of 4-lane and Worthington

Project Description... 5.653mi; 4-lane divided expressway; 12' lanes; NEPA Document=EIS (completed 2004); Design standard = new construction/reconstruction; materials to be determined by alternative bid; 10' paved outside and 4' paved inside shoulders; ditch sections will have additional 3.6' beyond paved shoulder; 600'+180' taper left turn lanes; left turn for u-turns 300'+taper; 600' right turn lanes at public roads; 10' paved shoulder for right turns to farms and fields; 90' standard rural median separation, 125' at TH 59, and 14' through hybrid section protected by guardrail, box beam and w beam; 1:5 in-slopes breaking to 1:3 at clear zone except at wall at dump where w beam guardrail will be used; 1:3 backslopes; medians 1:5 slopes; clear zone for 70mph design speed; lighting at CSAH 6, CSAH 10 and retaining wall area; extensive access closures or modifications; no work at CSAH 10 RR crossing; relocate 5 residences; impact to 5 businesses; detour using CSAH's 4, 5, and 35; City water plans to be inserted; prairie remnants between Hwy and RR; protected waters present; water quality treatment with dry ponds, and wide ditches between Hwy and RR; water treatment structure near dump may be required; municipal consent has been obtained; Contamination: avoid dump site, lead at former dump site, Arsenic at Schaaps site;

Project Schedule

Scoping Report	Item	Actual
7/9/2010	Letting Date	7/9/2010

Project Costs

Scoping Report	Item	Construction Documents
$22,242,202	Construction Cost	$17,808,650
$5,121,160	Right-of-Way Cost	(RWCA) $5,121,160
$6,588,257	Engineering Cost	(ECA) $6,588,257
$3,052,271	Other Construction Cost (Assumed to be a contingency for SA and Overruns)	
	Addenda	

	Supplemental Agreements	
	1	$0
	2	$0
	3A	(SSD) $81,121
	4A	(SSD) $87,268
	5	NDP
	6A	(SSD) $476,911
$25,294,473	**CONSTRUCTION COST TOTAL (SSD costs not included)**	$17,808,650 (30% below Scope)
$37,003,890	**PROJECT COST TOTAL**	$30,163,367

Major Plan Items

Scoping Report	Item	Construction Plans
5.653mi; 4-lane divided expressway; 12’ lanes; Design standard = new construction/reconstruction;	Driving Lanes	Length as anticipated; 13’ lanes;
10’ paved outside and 4’ paved inside shoulders; ditch sections will have additional 3.6’ beyond paved shoulder; 600’+180’ taper left turn lanes; left turn for u-turns 300’+taper; 600’ right turn lanes at public roads; 10’ paved shoulder for right turns to farms and fields; 90’ standard rural median separation, 125’ at TH 59, and 14’ through hybrid section protected by guardrail, box beam and w beam; 1:5 inslopes breaking to 1:3 at clearzone except at wall at dump where w beam guardrail will be used; 1:3 backslopes; medians 1:5 slopes; clear zone for 70mph design speed;	Shoulders, Turn Lanes, and Ramps	9’ right and 3’ left shoulders; 3.6’ beyond paved shoulder; separations as expected; 1:5/1:3 inslopes as expected; 1:3 backslopes

Protected waters present; water quality treatment with dry ponds, and wide ditches between Hwy and RR; water treatment structure near dump may be required	Hydraulics	As Scoped
Materials to be determined by alternative bid;	Materials	Appears Concrete was selected
Relocate 5 residences; impact to 5 businesses;	Right-of-Way	As Scoped
NEPA Document=EIS (completed 2004); lighting at CSAH 6, CSAH 10 and retaining wall area; extensive access closures or modifications; no work at CSAH 10 RR crossing; detour using CSAH's 4, 5, and 35; City water plans to be inserted; prairie remnants between Hwy and RR; municipal consent has been obtained; Contamination: avoid dump site, lead at former dump site, Arsenic at Schaaps site;	Misc.	As Scoped

Plan Addendum Summary

1.	Random Riprap pay items modified; change in roadbed compaction method from Quality to Specified Density; supplemental/updated plan sheets; note regarding error in Life Cycle Cost Analysis calculations; other minor corrections to SP's

Supplemental Agreement Summary

1	Accepts Contractor plan for alternate methods for construction of sheet pile wall. (12/10/2010)
2	Calibration of Superpave Gyratory Compactor. (5/13/2011)
3A	*$81,121* - Interim payment for home office overhead losses due to State shutdown. (6/19/2012)
4A	*$87,268* - Payment for idle equipment and subcontractor claims due to State shutdown. (5/29/2012)
5	Unavailable.
6A	*$476,911* - Adjustment for recalculated Unabsorbed Office Overhead payment. (11/30/2012)

Comments	
1.	Scoping Report identifies risk elements with red flag symbol.
2.	Detailed summaries of project elements, risks and items considered but rejected.
3.	NDP = No data related to this item was provided for inclusion in this analysis.
4.	No description of the source of the "Other Construction Costs" was included in Project Scoping documents, so the total was assumed to be a contingency for Supplemental Agreements and Overruns.

General Data

Project... 5380-115

District... 7

Project Type... BRRH – Bridge rehabilitation

Purpose of the Project... Perform structural repairs, safety and enhance bridge life.

Project Description... I-90 bridges 53819 & 53820 at junction with TH 60; bridge repair, painting and rail replacement; NEPA document = CATEX; rural, principal arterial, level; 70mph design speed; design standard = preservation; update all guardrail to district guidelines; mill curb to 4" height in front of guardrail; need RR agreement to work over RR; remove rail and posts to top of curb and place a Type F shape rail and add 3' end posts; placement of PVC sleeves through railing to facilitate replacement of rail mounted deicing system with in-deck system under a separate contract; some bridge panel work; E8 joint replacement and bridge joint work included; MnDOT forces will provide Shotcrete repairs of some caps and columns; clean and paint alignment pins; spall repair/Shotcrete work to be done by MnDOT staff; paint movable bearings; no hydraulics work noted; no R/W needed; control of dust and debris important;

Scope Amendment:

2.5" low slump overlays on bridge decks; fix damaged swivel joint on bridge #53819; remove existing, in-railing, de-icing system; sandblast, clean and paint exposed structural steel; install traffic crossovers; apply inflation to original scope

Project Schedule

Scoping Report	Item	Actual
4/24/2009	Letting Date	5/15/2009

Project Costs

Scoping Report	Item	Construction Documents
$3,489,372	Construction Cost	$3,715,577
$0	Right-of-Way Cost	$0
$726,642	Engineering Cost	(ECA) $726,642
$623,405	Other Construction Cost (Assumed to be a contingency for SA and Overruns)	
	Addenda	
	Supplemental Agreements	
	1	($20,000)

$4,112,777	**CONSTRUCTION COST TOTAL**	$ 3,695,577 (10% under Scope)
$4,839,419	**PROJECT COST TOTAL**	$4,422,219

Major Plan Items

Scoping Report	Item	Construction Plans
N/A	Driving Lanes	As Scoped
N/A	Shoulders, Turn Lanes, and Ramps	As Scoped
Repair, painting and rail replacement; remove rail and posts to top of curb and place a Type F shape rail and add 3' end posts; placement of PVC sleeves through railing to facilitate replacement of rail mounted deicing system with in-deck system under a separate contract; some bridge panel work; E8 joint replacement and bridge joint work included; MnDOT forces will provide Shotcrete repairs of some caps and columns; clean and paint alignment pins; spall repair/Shotcrete work to be done by MnDOT staff; paint movable bearings; 2.5" low slump overlays on bridge decks; fix damaged swivel joint on bridge #53819; remove existing, in-railing, de-icing system; sandblast, clean and paint exposed structural steel;	Bridge	Bridge #'s 53814 & 53815 approach panels were added to the project. Low slump overlay not provided on any bridges.
No hydraulics work noted	Hydraulics	Replacement of 3 drainage structures and associated pipe at bridges 53814 and 53815
2.5" low slump overlays on bridge decks	Materials	Advertised plan set indicated that "concrete overlays are not required."
No R/W needed	Right-of-Way	As Scoped

Update all guardrail to district guidelines; mill curb to 4" height in front of guardrail; need RR agreement to work over RR; control of dust and debris important; install traffic crossovers; apply inflation to original scope	Misc.	A detour was utilized on adjacent county roads.

Plan Addendum Summary

1.	Minor updates of proposal attachments, pay item quantities, and SP language.

Supplemental Agreement Summary

1.	Schedule adjustment that included $20,000 in liquidated damages for Contractor delays. (1/11/2010)

Comments

1.	There is a detailed record of comments and decisions during the scoping process.
2.	A Scoping Amendment was prepared and processed.
3.	No description of the source of the "Other Construction Costs" was included in Project Scoping documents, so the total was assumed to be a contingency for Supplemental Agreements and Overruns.

General Data

Project... 4203-46

District... 8

Project Type... PVTR – Pavement resurface and rehabilitation

Purpose of the Project... Regain the pavement strength, improve the ride, reduce maintenance costs and provide a long-term fix (20+ years) in the life-cycle of the pavement.

Project Description... 5.453mi of 2-lane and 8.848mi of 4-lane; mill and concrete overlay; NEPA document=CATEX; design standard = preservation; on 2-lane 3" mill and 8.5" concrete overlay (27' wide concrete); from beginning of 4-lane to TH 19 3" mill and 8.5" concrete overlay (30' wide concrete, including inside shoulder); TH 19 to north 8.5" Non-Reinforced Concrete, 15 ft. Joint Spacing, 1.25" Epoxy Coated Dowels, 4" Open Graded Aggregate Base (OGAB), 3" Aggregate Base, Class 5; at junctions of TH 23/TH 59 and TH 23/TH 19, including 500' each direction, remove and replace surface; near CSAH 7 approximately 1.9 miles of remove and replace surface due to floodplain issues [8.5" Mill Bituminous Surface 8.5," Non-Reinforced Concrete, 15 ft. Joint Spacing, 1.25" Epoxy Coated Dowels]; install edge drains; correct crown; 4-lane shoulder outside reclaim and overlay with 4" bit (8' wide), inside included with mainline mill and concrete overlay; 2-lane shoulder reclaim and overlay with 4" bit (8' wide); turn lanes 3" mill and 8.5" concrete overlay; rumble strips; continue existence of bike path along TH 23; close 5 median openings along 4-lane section; remove two left turn lanes associated with one median closure; minor signal modifications to meet ADA requirements at TH 59; One culvert may need a liner; curb and gutter needed at TH 23/TH 19 intersection to address drainage issues in intersection; 2-lane section will require detour (coordinate with local agency); early coordination with electrical utility to avoid conflicts with planned high voltage line; CSAH 7 and TH 23 to provide a free right turn lane for southbound CSAH 7 with an acceleration lane on TH 23; Extend all turn lanes 200 ft.; Reconstruct the median ends on the TH 23 at CSAH 7 to provide raised concrete median island ends to provide a defined pathway across the median area for the bike crossing; add an acceleration on at the Jct. of TH 23 and TH 19. This would add approximately 1600 ft. to the existing free right.

Project Schedule

Scoping Report	Item	Actual
October 2009	Letting Date	10/23/2009

Project Costs

Scoping Report	Item	Construction Documents
$12,100,000	Construction Cost	$16,695,197
$0	Right-of-Way Cost	$0
$180,000	Scope Amendment 1	
$300,000	Scope Amendment 2	
$0	Scope Amendment 3	
$20,000	Scope Amendment 4	
$100,000	Scope Amendment 5	
	Addenda	
	Supplemental Agreements	
	1	($19,644)
	2A	$50,000
	2B	($154)
	3A	$205,405
	3B	$6,679
	4A	$69,780
	4B	$2,292
	5A	$302,012
	5B	$57,504
	6	unavailable
	7	$6,584
$12,700,000	**CONSTRUCTION COST TOTAL**	$ 17,375,655 (37% over Scope)
$12,700,000	**PROJECT COST TOTAL**	$17,375,655

Major Plan Items

Scoping Report	Item	Construction Plans
2-lane: 3" Mill & 8.5" Concrete Overlay (27' wide concrete Beginning of 4-lane to TH 19: 3" Mill & 8.5" Concrete Overlay (30' wide concrete (includes inside shoulder))	Driving Lanes	As called for in final scoping document with exception of superelevation issue noted below.

TH 19 to 0.5 miles North: Remove bit, place 4" OGAB, 8.5" Concrete At the Jct of TH 23/TH 59 & TH 23/TH19 (including 500' on each side)- Remove and replace surface Near CSAH 7, approx. 1.9 miles. of remove and replace surface due to floodplain issues Install Edge Drains, 15' joint spacing, Correct crown		
Shoulder: 4-lane shoulder, *Inside*- see above under Driving Lanes; *Outside*: Reclaim existing and overlay with 4" bit (8' wide). 2-lane shoulder: Reclaim existing and overlay with 4" bit (8.5' wide) Turn Lanes: 3" Mill & 8.5" Concrete Overlay. Rumble Strips.	Shoulders, Turn Lanes, and Ramps	As called for in final scoping document.
No bridges in highway segment	Bridge	No bridges.
Continue existence of bike path along TH 23. Close 5 unnecessary median openings in 4-lane section and remove 2 left turn lanes associated with median closure at 70.64. Minor signal modifications to meet ADA requirements at TH 59.	Roadside (including pedestrian accessibility)	Turn lanes and other improvements are in line with the final scoping report. However, it is not apparent that access closers were accomplished.

Hydinfra indicates that most culverts are in good condition and that one might need a liner. Drainage issues at the TH 23/TH 19 intersection - curb & gutter needed to control and direct drainage.	Hydraulics	As called for in final scoping document.
No data.	Materials	
None needed.	Right-of-Way	

Plan Addendum Summary

1.	Minor changes to ornamental fence quantities; addition of Trainee hours; adjustments to Special Provisions section S-93; adding section S-129 (CPM scheduling) to Special Provisions; adding section S-130 (Failure to Maintain Satisfactory Progress) to Special Provisions; modifying section S-31 (Determination of Contract Time) in the Special Provisions; replacing or modifying 3 plans sheets; and adding section S-131 (On-the-Job Training Program) to the Special Provisions.
2.	Minor changes to aggregate and bituminous quantities with corresponding adjustments to typical sections; adding section S-132 (Concrete Pavement Resurfacing – "Whitetopping") to the Special Provisions.

Supplemental Agreement Summary

1	Contractor proposed using shorter dowel bar assemblies. (4/20/2010)
2A	Install temporary traffic signals in response to excessive traffic backups. (5/13/2010)
2B	Adjustment for actual cost of temporary traffic signals. (8/10/2010)
3A	Plans called for in place Class 5 and there was none existing. (6/14/2010)
3B	Updated cost estimate for work in 3A. (11/9/2010)
4A	Plan error – in place road did not have enough bituminous to form correct super elevation surface. (6/15/2010)
4B	Updated cost estimates for work in 4A. (8/26/2010)
5A	Plan error – plans called for in-place shoulders where there were none existing. Reclaiming machine could not reclaim 9" shoulders. (6/22/2010)
5B	Updated cost estimates for work in 5A. (4/26/2011)
6	Unavailable.
7	Revised unit prices for dowel bar assemblies. Reverted to original lengths (1/26/2012)

Comments	
1.	Scope Amendment 1 reconfigured an intersection in response to a Road Safety Audit. Without the audit, it should be checked to see if this data was available and should have been included at the time of Scoping.
2.	Scope Amendment 2 extended all turn lanes 200 ft. in response to new standards.
3.	Scope Amendment 3 required redesign due to Corps of Engineer request.
4.	Scope Amendment 4 reconstructed the median ends on TH 23 at CSAH 7 in response to a Road Safety Audit.
5.	Scope Amendment 4 appears to have excluded the costs added in Scope Amendments 2 and 3.
6.	Scope Amendment 5 adds 1600 ft. to an existing free right for additional safety.
7.	Scope amendment 5 appears to have excluded the costs added in Scope Amendments 2, 3, and 4.
8.	Surprises with in place road section.
9.	The project purpose and need according to the final scope was to “Regain the pavement strength, improve the ride, reduce maintenance costs and provide a long-term fix (20+ years) in the life-cycle of the pavement.” The project ultimately included safety/geometric improvements. This changed the purpose and scope of risk associated with the project. The project purpose and need should have been modified in the scope document and through STIP amendment to better reflect the project with the added components “safety improvements through turn lane, acceleration lane, and intersection modifications.”

General Data

Project...	4309-31
District...	8
Project Type...	PVTR – Pavement resurface and rehabilitation
Purpose of the Project...	To improve the ride, reduce maintenance costs, improve load carrying capacity and create safe passing distances.
Project Description...	12.305 miles; 12' through lanes; 8' wide shoulders; design standard = preservation; 7.05mi of 9" mill & 6" overlay on mainline, and 4.5" mill & 3" overlay on shoulders; 4.6 mi of 9" mill & 6" overlay on mainline, and 4.5" mill & 3" overlay on shoulders; 0.23mi of 10.5" mill & 10.5" + 4" CL5 on mainline, and 3" mill & 3" + variable depth aggregate shoulder; 16 additional right turn lanes; 1 bypass lane; Re-surface existing 5 right turn lanes; 11 culverts to be repaired (11 @ $20,000 each); Misc. tile repair $10,000; Misc. rip rap $25,000; Misc. drainage issues in Stewart; **Scope Amendment 1**: *It is proposed to change the driving lane fix on approximately the east half of this project (approx. E. limits Stewart to TH 15) from a 6" mill & 6" overlay to a 6" mill, reclaim and 8" overlay and to decrease the number of new turn lanes.* **Scope Amendment 2**: *It is proposed to change the driving lane fix by eliminating the top 1.5" bituminous wearing course and replacing it with an ultrathin bonded wear course. This will be applied to both the bituminous over concrete section and the reclamation section.*

Project Schedule

Scoping Report	Item	Actual
2/24/2012	Letting Date	8/27/2010

Project Costs

Scoping Report	Item	Construction Documents
$6,800,000	Construction Cost	$14,379,112
$0	Right-of-Way Cost	$0
$0	Scope Amendment 1	
$170,000	Scope Amendment 2	
	Addenda	
	Supplemental Agreements	
	1	$0
	2	$0
	3	$0

	4A	$180,000
	4B	$0
	5	(SSD) $57,916
$6,970,000	**CONSTRUCTION COST TOTAL (SSD costs not included)**	$14,559,112 (109% over Scope)
$6,970,000	**PROJECT COST TOTAL**	$14,617,028

Major Plan Items

Scoping Report	Item	Construction Plans
12.305 miles; 12' through lanes; design standard = preservation; 9" mill & 6" overlay on mainline; *Scope Amendment 1: It is proposed to change the driving lane fix on approximately the east half of this project (approx. E. limits Stewart to TH 15) from a 6" mill & 6" overlay to a 6" mill, reclaim and 8" overlay; Scope Amendment 2: It is proposed to change the driving lane fix by eliminating the top 1.5" bituminous wearing course and replacing it with an ultrathin bonded wear course. This will be applied to both the bituminous over concrete section and the reclamation section.*	Driving Lanes	As Scoped
8' wide shoulders; 4.5" mill & 3" overlay on shoulders; 0.23mi 3" mill & 3" + variable depth aggregate shoulder; 16 additional right turn lanes; 1 bypass lane; Re-surface existing 5 right turn lanes; *Scope Amendment 1: change the driving lane fix on approximately the east half of this project (approx. E. limits Stewart to TH 15) from a 6" mill & 6" overlay to a 6" mill,*	Shoulders, Turn Lanes, and Ramps	As Scoped

reclaim and 8" overlay and to decrease the number of new turn lanes.		
11 culverts to be repaired (11 @ $20,000 each); Misc. tile repair $10,000; Misc. rip rap $25,000; Misc. drainage issues in Stewart.	Hydraulics	Installed cattle pass; 19 culverts were lined, 4 received other miscellaneous repairs, 16 were left "as is", and 1 was replaced.
Bituminous	Materials	As Scoped
None expected	Right-of-Way	As Scoped

Plan Addendum Summary

1.	Added: 2500 hours of Trainees to pay items; permanent pavement marking data to Section S-90 of the Special Provisions; On-the-Job-Training Program to Section S of the Special Provisions.
2.	Modification to the plan quantities for bituminous.

Supplemental Agreement Summary

1	Calibrate Superpave Gyratory Compactor angle. (5/13/2011)
2	Adjusts verification sampling and testing procedures. (5/13/2011)
3	Provides for new pavement density requirements. (5/17/2011)
4A	Plan note error resulted in Contractor preserving existing aggregate that needed to be removed and hauled away. (6/29/2011)
4B	Updated cost estimate for 4A activity. (2/14/2012)
5	*$57,916* - Labor escalation and owner directed acceleration claims due to State shutdown. (9/21/2011)

Comments

1.	Scope Amendment 1 recognized that cores discovered a problem with bituminous requiring a different fix. The number of new turn lanes dropped from 17 to 3 due to guidelines for a reconditioning fix rather than the previous reconstruction fix. Costs of scope change are balanced by a decrease in bituminous price, making the change cost neutral.
2.	Scope Amendment 2 was related to funding. Project was funded from a source intended to fund innovative technology. Original scope was determined not innovative enough, therefore the scope was changed to use more innovative techniques (ultrathin bonded wearing course).
3.	Not clear why scoped and ultimate costs varied.
4.	SSD = Supplemental Agreement costs related to the State shutdown. These costs are not related to Scoping Quality and have therefore been omitted form the calculations on Construction Cost Total, but included in the Project Cost Total. For this project, SSD related costs = $57,916.

General Data

Project... 1981-120

District... Metro

Project Type... GRSU – Grade and surface

Purpose of the Project... Provide HOT lane to provide transit advantages and congestion management solutions.

Project Description... This project is an extension of the existing northbound MnPASS lane south of Burnsville Parkway. Construct a HOT lane in the median. Convert grassy median to urban section with median barrier and storm sewer. Updating certain items includes; noise barrier, drainage structures and median barrier. Noise barrier on west side that was added to project due to the noise analysis completed for the project. Due to additional costs associated with this it has been removed and added to a separate project (SP 1981-123) due to be let in 2010. Ponding needed. Weekend detours likely; nighttime construction likely; Narrow inside shoulders may require design exception; protection of bridge piers will leave shoulder widths less than standard; guardrail; OH signs; possible impacts to city owned force main and MnDOT fiber optics; Phase I ESA may be required; Blanding's Turtles in area; 2" mill & overlay of outside shoulders prior to use as construction bypass; remove first 350' north of 146th St. Bridge with 7" pavement if needed for traffic during construction; replace edge drains under existing inside shoulders; Mill and overlay of area mainline suggested; 10' shoulder outside MnPASS lane; coordinate with bus shoulder project; municipal consent needed; power connections needed; TMC infrastructure impacts; coordinate with RMTC for loop detectors;

Project Schedule

Scoping Report	Item	Actual
6/10/2011	Letting Date	3/25/2011

Project Costs

Scoping Report	Item	Construction Documents
$14,581,453	Construction Cost	$12,664,133
$260,000	Right-of-Way Cost	(RWCA) $260,000
$2,916,290	Engineering Cost	(ECA) $2,916,290
	Addenda	

	Supplemental Agreements	
	1	$8,663
	2A	(SSD) $21,120
	3	$0
	4A	(SSD) $49,555
	5A	(SSD) $168,964
	6A	(SSD) $161,446
$14,581,453	**CONSTRUCTION COST TOTAL (SSD costs not included)**	$12,672,796 (13% under Scope)
$17,757,743	**PROJECT COST TOTAL**	$16,250,171

Major Plan Items

Scoping Report	Item	Construction Plans
Extension of the existing northbound MnPASS lane south of Burnsville Parkway. Construct a HOT lane in the median. Convert grassy median to urban section with median barrier and storm sewer; Mill and overlay of area mainline suggested;	Driving Lanes	Length as expected; 4" mill and overlay of mainline
Narrow inside shoulders may require design exception; protection of bridge piers will leave shoulder widths less than standard; 2" mill & overlay of outside shoulders prior to use as construction bypass; remove first 350' north of 146th St. Bridge with 7" pavement if needed for traffic during construction; replace edge drains under existing inside shoulders; 10' shoulder outside MnPASS lane; coordinate with bus shoulder project;	Shoulders, Turn Lanes, and Ramps	No design exception noted on plan title sheet; 2" mill & overlay of outside shoulder; typical sections mostly as expected
Storm sewer and ponding needed;	Hydraulics	As Scoped
Bituminous	Materials	Bituminous

	Right-of-Way	Right-of-Way appears to have been necessary for the Center storm water Pond and Basin.
Updating certain items includes; noise barrier, drainage structures and median barrier. Noise barrier on west side that was added to project due to the noise analysis completed for the project. Due to additional costs associated with this it has been removed and added to a separate project (SP 1981-123) due to be let in 2010; Weekend detours likely; nighttime construction likely; guardrail; OH signs; possible impacts to city owned force main and MnDOT fiber optics; Phase I ESA may be required; Blanding's Turtles in area; municipal consent needed; power connections needed; TMC infrastructure impacts; coordinate with RMTC for loop detectors;	Misc.	As Scoped

Plan Addendum Summary

1.	Modified the Special Provisions by: clarified Sign Frame pay item; added Cooperation by Contractors to Section S-12; added data to Section S-12; modified Unavoidable Delays; update notes on sheet 208 of the plan set; modified sheet 53.
2.	Modified the Special Provisions Section S-34, Prosecution of Work.

Supplemental Agreement Summary

1	Utilize new Dynamic Merging System due to high volumes of traffic. (9/7/2011)
2A	*$21,120* - Acceleration due to State shutdown. (8/24/2011)
3	Adjusts project timeline. (5/29/2012)
4A	*$49,555* - Alternate barrier construction schedule due to State shutdown. (9/26/2011)
5A	*$168,964* - Payment for unabsorbed home office overhead damages due to State shutdown. (5/14/2012)
6A	*$161,446* - Payment for additional State shutdown costs (idle equipment, traffic control, remobilization, subcontractor claims, etc.). (8/2/2012)

Comments	
1.	RWCA = No related data was provided for this analysis, so the Right-of-Way Costs were assumed to be the same as estimated in the Scoping Report for the calculation of the “Project Total Cost.”
2.	ECA = No related data was provided for this analysis, so the Engineering Costs were assumed to be the same as estimated in the Scoping Report for the calculation of the “Project Total Cost.”
3.	SSD = Supplemental Agreement costs related to the State shutdown. These costs are not related to Scoping Quality and have therefore been omitted form the calculations on Construction Cost Total, but included in the Project Cost Total. For this project, SSD related costs = $401,085.

General Data

Project... 6222-160

District... Metro

Project Type... BRPC – Bridge replacement or construction

Purpose of the Project... Replace a bridge with structural deficiencies and improve safety and

Project Description... Over the BNSF Railroad in Gem Lake; Bridge reconstruction and realign approach roadways for approximately 600’ on both ends of bridge; Replace a deteriorating bridge that was constructed in 1952; Replace narrow, substandard shoulders with standard width shoulders; Assumption that a tied project, SP 6222-161 will provide any lighting that is needed; Proposed bridge is 3 spans - 92'-8" wide by 123' long – pre-stressed concrete beams; Proposed bridge accommodates RR, pedestrian trail, and future busway; tall abutment at west end; semi-tall abutment at east end; high skew angle; crashwalls for RR pier protection; multiple traffic barriers on deck section; ornamental railing and aesthetic treatments; 32' lateral wingwalls on west abutment; temporary bridge or more elaborate staging scheme may be required; Railroad flagging;

Project Schedule

Scoping Report	Item	Actual
1/22/2010	Letting Date	3/26/2010

Project Costs

Scoping Report	Item	Construction Documents
$5,905,566	Construction Cost	$3,634,830
$0	Right-of-Way Cost	$0
$1,236,669	Engineering Cost	(ECA) $1,236,669
	Addenda	
	Supplemental Agreements	
	1	$54,698
	2	$0
$5,905,566	**CONSTRUCTION COST TOTAL**	$ 3,689,528 (38% below Scope)
$7,142,235	**PROJECT COST TOTAL**	$4,871,499

Major Plan Items

Scoping Report	Item	Construction Plans
Realign approach roadways for approximately 600’ on both ends of bridge	Driving Lanes	Length as expected
Replace narrow, substandard shoulders with standard width shoulders;	Shoulders, Turn Lanes, and Ramps	As Scoped
Proposed bridge is 3 spans - 92'-8" wide by 123' long - prestressed concrete beams; Proposed bridge accommodates RR, pedestrian trail, and future busway; tall abutment at west end; semi-tall abutment at east end; high skew angle; crashwalls for RR pier protection; multiple traffic barriers on deck section; ornamental railing and aesthetic treatments; 32' lateral wingwalls on west abutment;	Bridge	As Scoped
	Hydraulics	Closed drainage from bridge and at intersection north of bridge; pond
Bituminous	Materials	Bituminous
Assumption that a tied project, SP 6222-161 will provide any lighting that is needed; temporary bridge or more elaborate staging scheme may be required; Railroad flagging	Misc.	Cannot confirm lighting was provided by a separate project

Plan Addendum Summary

1.	Special Provisions were modified: General Decision MN20100005 was cited to replace General Decision MN 20080005 regarding wages; Section S-42.3 of the Special Provisions that deals with disposal and use of treated wood provisions was edited.

Supplemental Agreement Summary	
1.	On-site granular material was inadequate requiring haul-off of material that does not meet specifications and import of off-site granular material. (11/4/2010)
2.	Schedule modified due to weather conditions (temperature and precipitation). (4/1/2011)
Comments	
1.	Original Project Planning Report estimated total construction costs at $8,376,399 ($6,913,666 plus a $1,462,733 contingency) on 04/15/08. An updated Project Planning Report (12/04/08) modified the construction costs and identified other construction elements and Engineering Costs.
2.	ECA = No related data was provided for this analysis, so the Engineering Costs were assumed to be the same as estimated in the Scoping Report for the calculation of the "Project Total Cost."

General Data

Project... 6222-161

District... Metro

Project Type... PVTR – Pavement resurface and rehabilitation

Purpose of the Project... Improve the ride and service life of the pavement and replace traffic signals before maintenance costs become prohibitive.

Project Description... Bituminous overlay in both directions on TH61 from south of Roselawn Ave. to south of White Bear Ave; Concrete rehab and mill & overlay at interchanges with TH 36 and TH 694; Signal rebuild at CR F/Ash St.;,Cedar Ave., and WB Ave./Hoffman Rd; Culvert installation, add/extend left turn lanes, access/median closures; Replace deteriorated culverts and catch basins, and add curb and gutter to rectify erosion problem; The east frontage road access is just north of Kohlman Avenue - Close off the access to US 61 and cul-de-sac; Extend the left turn lane by approximately 200 feet for Northbound US61 at County Road C and Cedar Avenue; Modify access from the east to a northbound movement by constructing a modified pork chop island which will restrict exiting vehicles to a right out only movement; Extend northbound right turn lanes 200 feet at County Road C and at Cedar Avenue; Replace existing signal with new at White Bear Ave/Hoffman Road; Construct right turn lane at Scheuneman Road; replace loop detectors damaged by milling (40 assumed, 46 if 3” mill or deeper); overlay thickness of 4" of Type SP 12.5 Wearing Course Mixture (4,E), same for inside shoulder; Overlay the turn lanes with the same mix; patch the concrete before overlaying it. Provide for 1,500 feet of milling to remove poor concrete sections and bituminous patches. Provide 5 tons/lane mile of patching mix for the mainline. Overlay the outside shoulders with Type SP 12.5 Wearing Course Mixture (3,B). For the outside shoulder match the 4" height at the fog line but taper it to 3" at the outside; regrade (assume 1,000’) some areas of outside shoulders and do extensive patching; 3” or 4” of aggregate shouldering class 2, 4’ wide along entire project; 14 possible centerline culvert replacements;

Project Schedule

Scoping Report	Item	Actual
1/22/2010	Letting Date	4/23/2010

Project Costs

Scoping Report	Item	Construction Documents

$8,044,771	Construction Cost	$7,659,272
$0	Right-of-Way Cost	$0
$1,596,352	Engineering Cost	(ECA) $1,596,352
$210,000	Other Construction Cost (Assumed to be a contingency for SA and Overruns)	
	Supplemental Agreements	
	1	$0
	2	$32,791
$8,254,771	**CONSTRUCTION COST TOTAL**	$7,692,063 (7% below Scope)
$9,851,123	**PROJECT COST TOTAL**	$9,288,415

Major Plan Items

Scoping Report	Item	Construction Plans
Bituminous overlay in both directions on TH61 from south of Roselawn Ave. to south of White Bear Ave; Concrete rehab and mill & overlay at interchanges with TH 36 and TH 694; overlay thickness of 4" of Type SP 12.5 Wearing Course Mixture (4,E); patch the concrete before overlaying.	Driving Lanes	Length as expected; 4” mill & overlay.
Add/extend left turn lanes, access/median closures; The east frontage road access is just north of Kohlman Avenue - Close off the access to US 61 and cul-de-sac; Extend the left turn lane by approximately 200 feet for Northbound US 61 at County Road C and Cedar Avenue; Modify access from the east to a northbound movement by constructing a modified pork chop island which will restrict exiting vehicles to a right out only movement; Extend northbound right turn lanes 200 feet at	Shoulders, Turn Lanes, and Ramps	Turn lanes at Roselawn; turn lanes at County Road B; TH 36/TH 694 ramps; turn lanes at Connor Ave; turn lanes at County Road C; turn lane at Kohlman Ave; turn lanes and signal at Beam Ave; turn lanes and signal at County Road D; turn lanes and signal to TH 694 ramp; turn lanes and signal to Buerkle Road; turn lanes and signal at Willow Lake Blvd; turn lanes and signal at County Road E; turn lanes and signal at Cedar Ave; turn lanes and signal at County Road F; Signal at White Bear Ave.

County Road C and at Cedar Avenue; Construct right turn lane at Scheuneman Road; overlay thickness of 4" of Type SP 12.5 Wearing Course Mixture (4,E); Overlay the turn lanes with the same mix.		
	Bridge	Bridges 6692, 6693, & 6688 (proposed # 62902) are in exception areas. Bridge # 6688 noted as "Work Done by Others" in SP 6222-160.
Replace deteriorated culverts and catch basins, and add curb and gutter to rectify erosion problem.	Hydraulics	As Scoped
Bituminous	Materials	Bituminous
Signal rebuild at CR F/Ash St.; Cedar Ave., and WB Ave./Hoffman Rd; Replace existing signal with new at White Bear Ave/Hoffman Road; replace loop detectors damaged by milling (40 assumed, 46 if 3" mill or deeper).	Misc.	Signal at Roselawn; Environmentally sensitive area; Indian burial ground;

Plan Addendum Summary

1.	Increase in erosion control blanket quantities and removal of Geotextile Fabric Type I item

Supplemental Agreement Summary

1.	Adjust timeline due to a delay by fabricator of the traffic signals. (5/3/2011)
2.	Plan error gave incorrect quantity of concrete repairs. Quantities were 25% less than expected. (7/17/2012)

Comments

1.	ECA = No related data was provided for this analysis, so the Engineering Costs were assumed to be the same as estimated in the Scoping Report for the calculation of the "Project Total Cost."

General Data

Project... 7000-07

District... Metro

Project Type... BRRH – Bridge rehabilitation

Purpose of the Project... Preserve a historically significant bridge and convert to a pedestrian

Project Description... The preservation of historic Bridge #4175 for future use as a pedestrian/bicycle facility requires rehabilitation on the existing piers, cast-in-place approach spans, truss components, and railings. This rehabilitation should preserve the original design, color, texture and materials to the extent possible. Risks: Disposal of lead based paints on railings; Preservation of existing materials to extent possible; Condition of truss elements to be determined after further inspection.

Project Schedule

Scoping Report	Item	Actual
8/21/2009	Letting Date	12/18/2009

Project Costs

Scoping Report	Item	Construction Documents
$5,179,000	Construction Cost	$5,194,103
$0	Right-of-Way Cost	$0
$241,000	Other Construction Cost (Assumed to be a contingency for SA and Overruns)	
	Addenda	
	Supplemental Agreements	
	1A	$700,000
	1B	($20,000)
	2	$270,848
	3A	$300,000
	3B	($51,200)
	4-revised	$261,425
$5,420,000	**CONSTRUCTION COST TOTAL**	$6,655,176 (23% over Scope)
$5,420,000	**PROJECT COST TOTAL**	$6,655,176

Major Plan Items

Scoping Report	Item	Construction Plans
Not Applicable	Driving Lanes	15’ bicycle lanes
Pedestrian ramp	Shoulders, Turn Lanes, and Ramps	As Scoped
Bridge to be rehabilitated for use as a bicycle/pedestrian facility.	Bridge	As Scoped
Not Applicable	Hydraulics	As Scoped
Not Applicable	Materials	As Scoped
None	Right-of-Way	As Scoped
Bridge to be rehabilitated for use as a bicycle/pedestrian facility.	Misc.	Included a pedestrian ramp; trail; lighting relocation; concrete stairs.

Plan Addendum Summary

1.	Minor adjustments to seeding and erosion control quantities; adjustments to temporary fence quantities; inclusion of prevailing wage rate information.
2.	Minor changes to pay items, and plan sheet details and notes.

Supplemental Agreement Summary

1A	Bridge unable to support vehicles as planned during construction, requiring a barge and crane system. (4/14/2010)
1B	Adjustment of cost estimate in 1A. (5/19/2010)
2	Due to different conditions in the field, planned repairs to existing steel gusset plates and truss members were determined to be inadequate by the Designer and MnDOT Bridge Office. (10/13/2010)
3A	Contractor needed to heat and house work space due to cold. (11/1/2010)
3B	Adjustment of cost estimate in 3A. (3/15/2011)
4	Settlement of Contractor claims due to Plans E & O as well as flood delays. (8/10/2011)

Comments

1.	In 1990 a new 4-lane bridge was constructed near this structure to accommodate traffic, but the new bridge did not include any pedestrian facilities.

9.0 Appendix D: Scoping Reports / TPCE / Construction Document Cost Comparison

As mentioned in Section 5 of this document, there seems to be a disconnect between the costs that are developed in the Scoping and Construction phases of the project and those that are reported in the TPCE. As a check on the data that was studied in this report, a TPCE Summary Measure was reviewed for eleven of the projects included in this study.

It was not within the scope of this study to analyze the fiscal reporting procedures and processes that are currently in-place, but a recommendation was developed that suggests these processes be reviewed to provide consistent data across reporting sources.

A summary of the data from the eleven projects is included on the following two pages.

Scoping Reports vs TPCE vs Construction Documents

Comparison of Estimated and Actual Costs

Project	Item	Scoping Report	TCPE Summary		Construction Documents
			Baseline	Actuals	
S.P. 2107-09	Construction Letting	6,288,628	12,007,506	6,134,713	8,126,201
	Construction, Misc.		1,084,635	487	
	Engineering		2,588,479	872,115	
	Right-of-Way		41,200	500	
	Supplemental Agreements	- - -	- - -	- - -	1,131,160
	Total	$6,288,628	$15,721,820	$7,007,815	$9,257,361
S.P. 3112-34	Construction Letting	13,500,000	13,200,000	11,408,682	10,478,935
	Construction, Misc.		700,000	3,836	
	Engineering		2,000,000	2,102,096	
	Right-of-Way	250,000	300,000	580,262	
	Supplemental Agreements	- - -	- - -	- - -	582,451
	Total	$13,750,000	$16,200,000	$14,094,875	$11,061,386
S.P. 3604-69	Construction Letting	12,660,000	14,498,378	14,192,221	13,045,506
	Construction, Misc.		0	0	
	Engineering		2,025,974	1,693,623	
	Right-of-Way	320,000	50,000	13,400	
	Supplemental Agreements	- - -	- - -	- - -	2,188,639
	Total	$12,980,000	$16,574,352	$15,899,244	$15,234,145
S.P. 3806-60	Construction Letting	14,360,035	13,781,476	11,690,880	10,763,606
	Construction, Misc.		578,559	282,354	
	Engineering	2,872,007	2,872,007	2,126,029	
	Right-of-Way	1,643,670	1,643,670	677,112	
	Supplemental Agreements				705,916
	Total	$18,875,712	$18,875,712	$14,776,375	$11,469,522
S.P. 4203-46	Construction Letting	12,700,000	13,400,000	17,495,130	16,695,197
	Construction, Misc.		800,000	1,003	
	Engineering		2,900,000	730,448	
	Right-of-Way	0	0	0	
	Supplemental Agreements	- - -	- - -	- - -	680,458
	Total	$12,700,000	$17,100,000	$18,226,580	$17,375,655
S.P. 4810-17	Construction Letting	2,660,000	2,822,200	6,955,880	6,676,987
	Construction, Misc.		0	33,360	
	Engineering		564,440	948,994	
	Right-of-Way		0	0	
	Supplemental Agreements	- - -	- - -	- - -	0
	Total	$2,660,000	$3,386,640	$7,938,234	$6,676,987

Scoping Reports vs TPCE vs Construction Documents

Comparison of Estimated and Actual Costs

Project	Item	Scoping Report	TCPE Summary Baseline	TCPE Summary Actuals	Construction Documents
S.P. 6002-69	Construction Letting	7,032,370	5,428,500	7,041,455	6,475,114
	Construction, Misc.		527,100	29	
	Engineering		977,600	741,669	
	Right-of-Way	450,000	178,500	510,612	
	Supplemental Agreements	- - -	- - -	- - -	289,582
	Total	$7,482,370	$7,111,700	$8,293,765	$6,764,696
S.P. 6222-160	Construction Letting	4,306,625	5,472,273	3,829,196	3,634,830
	Construction, Misc.	861,325 (Risk)	433,293	82	
	Engineering		1,236,669	757,480	
	Right-of-Way		0	594	
	Supplemental Agreements	- - -	- - -	- - -	54,698
	Total	$5,167,950	$7,142,235	$4,587,353	$3,689,528
S.P. 6222-161	Construction Letting	8,044,771	8,044,771	7,685,105	7,659,272
	Construction, Misc.	210,000	210,000	1,006	
	Engineering	1,596,352	1,596,352	765,263	
	Right-of-Way		0	0	
	Supplemental Agreements	- - -	- - -	- - -	32,791
	Total	$9,851,123	$9,851,123	$8,451,374	$7,692,063
S.P. 7000-07	Construction Letting	5,179,000	5,420,000	6,658,145	5,194,103
	Construction, Misc.	241,000 (Risk)	0	0	
	Engineering		0	1,035,429	
	Right-of-Way		0	0	
	Supplemental Agreements	- - -	- - -	- - -	1,461,073
	Total	$5,420,000	$5,420,000	$7,693,575	$6,655,176
S.P. 8580-156	Construction Letting	19,929,882	18,588,552	15,531,232	14,327,582
	Construction, Misc.		0	0	
	Engineering		1,341,330	538,339	
	Right-of-Way		0	0	
	Supplemental Agreements	- - -	- - -	- - -	0
	Total	$19,929,882	$19,929,882	$16,069,571	$14,327,582