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Indefinite Delivery/Indefinite Quantity Contracting

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Iowa State University

August 2014

Research Project
Final Report 2014-31

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16. Abstract (Limit: 250 words)

This study developed a generic IDIQ contractive framework upon which MnDOT can produce its IDIQ contracting procedures based on this agency's policies, preferences, and applicable regulations. This report covers several aspects of this alternative contracting method, including successful contracting techniques and procedures, terminology in use by public transportation agencies, contract advertising and award practices, pricing methods, risk management issues, and effective contract administration practices. Besides benchmarking the state-of-practice of IDIQ contracting in federal and state transportation agencies, the report addresses three key aspects identified by the authors: mobilization cost payment, escalation of construction pricing on multi-year IDIQ contracts, and impact of IDIQ contracting on surety bonds.

The study found that IDIQ contracting creates a capacity to expedite project delivery through an on-call contractor that can be mobilized and working in a much shorter period than traditional project delivery methods. It also found a number of distinct advantages for repetitive construction and maintenance projects including the ability to obligate unused fiscal year funding, incentivizing construction quality and economy of scale reductions in unit pricing. It also finds that once the IDIQ contract is awarded, the agency is able to utilize the contractor to furnish a number of preconstruction services in much the same manner as Construction Manager/General Contractor projects, which results in better pricing due to more constructable designs.

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Executive Summary

In an attempt to improve its contracting procedures and decrease project delivery periods, the Minnesota Department of Transportation (MnDOT) has been constantly implementing innovating delivery methods and contracting approaches since 2000, including the execution of Indefinite Delivery/Indefinite Quantity (IDIQ) contracts starting in 2013. IDIQ has been more commonly used by state Departments of Transportation (DOTs) for the procurement of preconstruction and consulting services. However, this study found and analyzed some IDIQ contracts executed by state DOTs for larger and more complex projects. Unlike federal agencies, which have been using construction and maintenance/repair IDIQ contracts for several decades, state transportation agencies are still in an early stage of implementation of this practice. Although there were found different terminologies and sets of IDIQ policies and procedures developed by different state DOTs, all these agencies use this procurement method as a contractual vehicle to deliver multiple projects under a single solicitation, creating the ability for delivering a quantity of services or products that is not known at the time the contract is executed. As will be shown in this report, an appropriate implementation of this alternative contracting approach would provide MnDOT with a great degree of flexibility to use IDIQ firms as much or as little as needed depending on the requirements of the agency and the availability of funds.

The principal objective of this study was to develop a generic IDIQ contractive framework upon which MnDOT can produce its IDIQ contracting procedures based on this agency's policies, preferences, and applicable regulations. To develop this framework, it was necessary to determine the state-of-practice of IDIQ contracting in federal and state agencies across the country, particularly in the procurement of construction and maintenance services by transportation agencies. Information presented and analyzed in this report was obtained through a comprehensive literature review and a complete case study analysis on five IDIQ construction/maintenance contracts awarded by different transportation agencies, including one executed by MnDOT. The other agencies are the Central Federal Land Highway Division (CFLHD) and state DOTs from New York, Florida, and Missouri. The analysis of these case studies allowed the identification of different IDIQ approaches and effective practices related to different contracting aspects. Aspects covered by this report include successful contracting techniques and procedures, terminology in use by public transportation agencies, contract advertising and award practices, pricing methods, risk management issues, and effective contract administration practices.

This report also presents and analyzes information gathered through three surveys conducted with three different types of IDIQ contract participants. Survey responses analyzed by the authors were submitted by 56 MnDOT general contractors and subcontractors, 54 MnDOT staff involved in the planning, execution, and closing of IDIQ contracts, and 39 surety companies doing business in Minnesota. It corresponds to response rates of 17%, 100%, and 20%, respectively. In addition to determining a general perception of these contract participants in regard to IDIQ contracting, these surveys were aimed to address three key topics identified by the authors: mobilization cost payment, escalation of construction pricing on multi-year IDIQ contracts, and impact of IDIQ contracting on surety bonds.

A complete analysis of IDIQ practices adopted by different public owners from different industries allows the identification of three different IDIQ contracting models: single task order, single award, and multiple award IDIQ contracts. Although it seems that more benefits are perceived by agencies using a multiple award approach, it was concluded that it should not be always considered the most appropriate model since it does not fit with the procurement practices of all agencies. For instance, unlike federal agencies, it was found a preference of state DOTs for single award IDIQ contracts, which seems to better fit the contracting procedures and limited resources of these transportation agencies. Thus, as shown in this report, fewer benefits do not prevent state DOTs from taking advantage of shorter project delivery periods, lower preconstruction costs, and greater flexibility in quantity and delivery scheduling provided by this innovative contracting method.

The inapplicability at the state level of effective IDIQ contracting practices contained in the Federal Acquisition Regulations (FAR) for federally funded projects, and the wide range of approaches implemented by different state DOTs to address different issues related to this contracting approach, led the authors to conduct complementary studies to either identify existing practices or develop innovative methods suitable for MnDOT IDIQ contracts. This complementary research was mainly focus on the three key aspects mentioned above: mobilization, price escalation, and surety bonds in IDIQ contracts.

As a result of this complementary research, it was concluded that a suitable mobilization compensation approach consistent with contractors and MnDOT needs and expectations, would be one in which interested contractors are required to bid on multiple mobilization pay items. Once awarded the contract, an appropriate set of mobilization pay items (one or more than one) should be determined on a task order basis in accordance with the scope, location, and other project characteristics. This approach is expected to increase MnDOT contracting capabilities, allowing the execution of larger and more complex IDIQ contracts covering more locations under a single solicitation. Thus, broad-scope statewide IDIQ contracts would require a larger amount of mobilization pay items, guaranteeing a fair compensation to contractors under each task order. Consequently, it is also expected to reduce construction costs for MnDOT given the lower uncertainty perceived by contractors, which is usually reflected in lower bid unit prices.

Regarding price escalation techniques, it was found that periodical bid unit price adjustments (usually on an annual basis) are mainly required in multi-year single award IDIQ contracts. These adjustments are expected to represent observed changes in the construction market over time. The possibility of conducting competitive procedures in multiple award contracts to select a contractor for each task order allows preawarded contractors to submit up to date prices for each projects, eliminating the need for price escalation clauses. It was also concluded that the use of unreliable or no escalation clauses may result in higher than normal bid pricing given the higher risk perceived by contractors.

In order to determine the suitability of traditional price escalation techniques for MnDOT IDIQ contracts, the authors analyzed the accuracy of twelve different construction cost indexes, including one published and maintained by MnDOT, on four case study projects, which represent different types of work commonly contained in MnDOT IDIQ contracts. A comparison between adjusted unit prices obtained from the application of these indexes and actual prices

observed during a five year period showed a poor correlation between these indexes and actual construction costs for transportation projects in Minnesota. Once discarded the use of traditional methods, the authors proceeded to develop and propose the following price escalation methods:

- An annual District Construction Cost Index built up using the Chained Fisher Ideal Index Method and few significant pay items;
- A State Construction Cost Index by Pay Item calculated on a quarterly, semi-annual, and annual basis, using as many bid items as possible; and
- An innovative method called AxE bidding (Cost Times Escalation), in which contractors are required to bid unit prices along with a fixed annual adjustment rate. This rate is to be used to modify bid unit prices on an annual basis and is also factored into the selection of the low-bid.

A closer look at these three alternatives allows the authors to recommend the use of AxE bidding for MnDOT IDIQ contracts. This recommendation is based on the fact AxE bidding was design to increase contractors' confidence in fair price adjustments over time, which is expected to reduce MnDOT construction costs as the need for the inclusion of large contingencies in price proposals decreases. Likewise, this approach provides enough flexibility for contractors to establish adjustment rates in accordance with the types of work contained in the scope of each IDIQ contract. Contractors are also motivated to submit low adjustment rates as a consequence of their use in the selection of the low-bid.

In case that MnDOT prefers a more traditional price escalation method using construction cost indexes, the authors found that the quarterly and semi-annual State Construction Cost Indexes by Pay Item showed a better performance than all existing indexes analyzed in this study. This performance was particularly good for asphalt paving projects, which corresponds to the most common type of work procured by MnDOT. On the other hand, the limited amount of historical bid data at the district level and the low accuracy of the District Construction Cost Index led the team to rule out this price escalation approach.

Latest relevant conclusions drawn from this study are related to effective bonding practices suggested by surety companies. These practices are mainly intended to improve contractors' ability to receive bonds, making it easier the participation of small firms in IDIQ contracts. Surety companies' recommendations are summarized as follows:

- Limit contract period to one or two years or allow surety companies to furnish annual bonds.
- Establish a maximum dollar amount to be assigned to contractors each year.
- Establish a maximum value of task orders (in dollars) that each contractor may be performing at any one time.

Chapter 1
Introduction

Although the use of single solicitations for the acquisition of multiple supplies or services through the issuance of individual work orders began in the in the mid-20th century, it was not until the mid-90s that the use of Indefinite Delivery/Indefinite Quantity (IDIQ) contracts was formally regulated by the U.S. Congress for use in federally funded projects. In view of the federal success with this innovative contracting method, some state Departments of Transportation (DOTs) have incorporated IDIQ techniques into their contracting practices. However, some of the procedures established for federal IDIQ contracts are not directly implementable and at times not applicable at the state level. Thus, these DOTs need to develop their own IDIQ contracting procedures to fulfill their specific needs and applicable regulations. The research project detailed in this report is intended to assist the Minnesota Department of Transportation (MnDOT) to develop its IDIQ contracting procedures by identifying best practices and formulating recommendations for the implementation of the IDIQ approach for construction projects. Procedures and recommendations have been synthesized and are presented in the MnDOT IDIQ Implementation Guide in Appendix A.

A large number of public transportation agencies use IDIQ contracting methods; however, only a small portion of state DOTs use IDIQs to procure construction services. Most agencies use the IDIQ method to procure supplies or consulting services, mainly, information technology or design engineering services (1, 2). The literature review for this study identified the use of IDIQ construction practices in fourteen different transportation agencies including the Federal Highway Administration (FHWA), the New York City DOT and twelve state DOTs. The military departments of U.S. Department of Defense have used IDIQs for construction since 1981 (3) and the U.S. Army Corps of Engineers (USACE), the Naval Facilities Engineering Command (NAVFAC) and the U.S. Air Force (USAF) are all quasi-transportation agencies in that many of their projects are indeed military and civil infrastructure projects such as USACE's locks and dams, NAVFAC's seaports, and the aviation infrastructure assets of the USAF. While there may indeed be more DOTs and municipal agencies, difficulty with the lack of standardization in contract terminology across the nation made it impossible for the research team to definitively classify any more than those fourteen.

Unlike the federal sector, IDIQ practices are still in an early stage of development for DOTs and no standard procedures exist that are transferable between different transportation agencies. Therefore, it is possible to find different approaches adopted by different DOTs to address similar issues. This report and the IDIQ implementation Guide are the result of a comprehensive literature review and a detailed case study analysis completed on five IDIQ construction contracts awarded by different DOTs, including one executed by MnDOT. The other four case studies are from the Central Federal Lands Highway Division (CFLHD), New York State DOT (NYSDOT), Florida DOT (FDOT), and Missouri DOT (MoDOT). The analysis of these contracts allowed the identification of several IDIQ contracting models and benchmarked current IDIQ practices.

Additionally, the study was complemented by three surveys which capture the perceptions of Minnesota general contractors, MnDOT staff, and the surety companies that bond contractors in

Minnesota. The surveys focused on three key issues found during the case study analysis and which need to be appropriately addressed in MnDOT IDIQ contracts:

1. Mobilization cost payment
2. Escalation of construction pricing on multi-year IDIQ contracts
3. Impact of IDIQ contracting on surety bonds

This report is the compilation of the entire research project performed to develop a MnDOT IDIQ Implementation Guide. However, the implementation guide, as presented in Appendix A, only includes the current model being used by MnDOT.

1.1 Background

In its simplest form, an IDIQ contract is merely a single contract for multiple small projects of a similar technical scope where the actual scope, timing, and cost as well as the number of work orders is not quantified at the time of award (4). They are typically termed delivery, job or task orders. In other words, a construction contractor is literally "put on stand-by to perform construction services to be determined in the future" (5). An IDIQ contract can be awarded to a single contractor whom then performs all subsequent task orders, or a pool of prequalified contractors who then compete for each task order. FDOT awards hurricane debris removal IDIQ contracts on an area of responsibility basis in advance of every hurricane season (6) and only activates those contractors whose area of responsibility is actually hit by a hurricane. Thus, the contracts are structured in a manner where no compensation is due if the IDIQ contract is not activated. NYSDOT has a similar arrangement for state-wide emergency bridge repair/replacement (6). Hence, it can be concluded that IDIQ project delivery is extremely flexible and can be tailored to match the requirements of a given situation.

The other unique feature of an IDIQ contract is the ability to expand the total contract volume without the need to reprocure or negotiate a contract modification. The typical IDIQ contract is awarded with a guaranteed minimum contract amount (usually the size the first anticipated work order) and capped by a "not to exceed" value (6). Thus, it provides a mechanism to rapidly obligate/expend funding that comes available from other sources that were not contemplated during the original procurement. USACE routinely uses IDIQs as a means to utilize fiscal year-end funding and has found that IDIQs give it the ability "to maximize the efficient use of available capital" (6). When this is combined with IDIQ's ability to be terminated without protest once the guaranteed minimum is satisfied, it becomes a powerful tool to deliver a wide variety of design and/or construction services.

In order to develop an effective IDIQ implementation manual, it was necessary to benchmark the state-of-practice for IDIQ contracting in different federal and state agencies across the country. This section of the report provides the background to better understand the report and the MnDOT Implementation Guide located in Appendix A. It includes definitions, descriptions of different procedures, and the analysis of operational aspects related to the planning and execution of IDIQ contracts.

1.1.1 MnDOT Project Delivery Methods

Before 2000, most roadway construction projects in Minnesota were delivered through traditional low-bid, design-bid-build (DBB) contracting (7). In this method, the design must be

fully completed, using either in-house or consultant designers, in order to begin the bidding phase to select the construction contractor based on a low bid award. In other words, design and construction are contracted separately, so that, there is no contractual relationship between the designer and the contractor (8).

1.1.2 Known Issues with Traditional Project Delivery (DBB)

The increasing use of innovative contracting methods by different federal and state agencies across the country is driven by the need to enhance traditional contracting procedures (DBB). Most of these innovative methods are focused on tackling deficiencies or disadvantages observed for several years in the use of DBB contracting. A compilation of these observed issues is listed below:

- Minimal designer-constructor interaction: This lack of collaboration between designers and constructors is commonly identified as the cause of a series of issues such as increased number of change orders, and non-constructable designs. Hence, DBB contracts are more likely to present unexpected longer contract periods, higher projects costs, and lower quality (7, 8, 9).
- Lack of ability to overlap contract phases: Unlike some innovative contracting methods, DBB contract phases are performed in sequence. It means that design, procurement, and construction phases cannot be overlapped at any level. Therefore, DBB contracting implies longer contract periods in comparison with other alternative methods (7, 8, 9).
- High sensitivity to disputes over authority, quality and responsibility: As a consequence of this issue, DBB contracts are more likely to generate adversarial relationships among owners, designer, and contractors, negatively impacting the project (8).
- Increase owner's financial risk: Given that the owners are usually in charge of transferring final designs from designers to constructors, they basically own these designs, making them financially responsible for all omissions or inconsistencies found during construction (10).
- Lack of contractual incentives for constructors to minimize costs: Some innovative contracting methods include Value Engineering provisions aimed to incentivize constructors by offering compensation for ideas that result in lower costs for owners. These clauses typically operate during the entire contract, including the design phase, but do not apply for DBB contracts since contractors do not participate in the design. Although Value Engineering provisions may be used only during the construction phase of a DBB contract, builders who have submitted low bids to win the project, may see post-award changes as a better possibility to collect additional revenue (10).

1.1.3 MnDOT Innovative Contract Methods

Since 2000, MnDOT has been implementing innovative delivery methods and contracting approaches in order to improve its acquisition procedures by decreasing project delivery times, construction periods, and costs (11). The following alternative methods and approaches (other than IDIQ contracting) are listed on MnDOT Innovative Contracting Methods Website (12).

- A+B (cost plus time) Bidding
- Best-Value Contracting
- Construction Manager/General Contractor
- Design-Build
- Incentives – Early Completion
- Incentives – No Excuse Bonus
- Lane Rental
- Pay for Performance
- Warranties

1.1.4 IDIQ Contracting – Definition

At the federal level, an IDIQ contract "is one that provides for an indefinite quantity of supplies or services, within limits that are stated in the contract, to be provided during a time period that is fixed in the contract" (13). Supplies or services are procured by placing task orders with the IDIQ contractor during the contract period (4). This definition has been slightly modified by state DOTs, for which the implementation of limits in number of units or dollars became more a complementary policy rather than part of the definition. Limits are mainly stated on IDIQ contracts based on agency preferences or state regulations.

1.1.5 IDIQ Terminology

As mentioned before, the team identified several types of contracts that meet the definition stated above. It is important to understand the differences between the different concepts since they may require different contracting procedures be governed by different sets of federal or state regulations. A listing of formal and informal concepts commonly used to refer to IDIQ contracts are listed below.

- *Task Order Contracts* are IDIQ for services whose performance and delivery scheduling is determined by placing task orders with the contractor or contractors during a fixed period of time (4).
- *Delivery Order Contracts* are IDIQ for supplies whose performance and delivery scheduling is determined by placing delivery orders with the contractor or contractors during a fixed period of time (4).
- *Job Order Contracts* are IDIQ contracts for construction services (3) whose performance and delivery scheduling is determined by placing work orders (task, delivery and job orders) with the contractor or contractors during a fixed period of time.
- *Master Contracts*, also known as Master Agreements, are optional-use contracts whose purpose is to facilitate obtaining supplies and services from multiple contractors by placing competitive work orders (14).
- *On-Call Contracts* involve a group of undetermined or predetermined small projects usually related to professional/engineering services, which are requested by issuing task orders (15).
- *Push-Button Contracts* have a predetermined scope of work to be performed by the contractor pursuant to the agency's issuance of work orders, which specify location, project description and amount of work required (16).

- *Stand-by Contracts* are usually put in place to react to contingency situations. Once the emergency occurs, delivery orders are awarded to obtain critical equipment and supplies with in specified time frames and usually based on prices in effect the date before the emergency occurred (17)
- *Framework Contracts* is a common term used in Europe to describe an agreement between one or more contracting agencies and one or more contractors. The agreement is intended to govern a group of contracts awarded during a given period of time (18). This term is also widely used by the U.S. military for IDIQ Multi-Agency Contracts (19).
- *Retainer Contracts*, also known as Retainer Agreements, are characterized by an advance payment (retainer fee) made by an agency to a firm for the total or partial cost of future services. This kind of contracts is commonly used to hire legal services (20).
- *Bundled Contract* is a term used when two or more small or medium-size tasks are combined into a single contract, allowing the participation of small companies in large projects (21).

Figure 1.1 presents the original IDIQ terminology proposed by the research team. After defining a work order as any requisition for supplies and/or services, this classification was built out by considering two main aspects: the distinction as outlined by the Federal Acquisition Regulation (FAR) for supplies (delivery orders) and services (task orders) (4), and the wide use of the term Job Order for construction services (which may include supplies and services). Based on this classification, the FAR, some government entities, and some previous studies, the research team has also proposed different terms for IDIQ contracts in accordance with the type of work order used (see Figure 1.1).

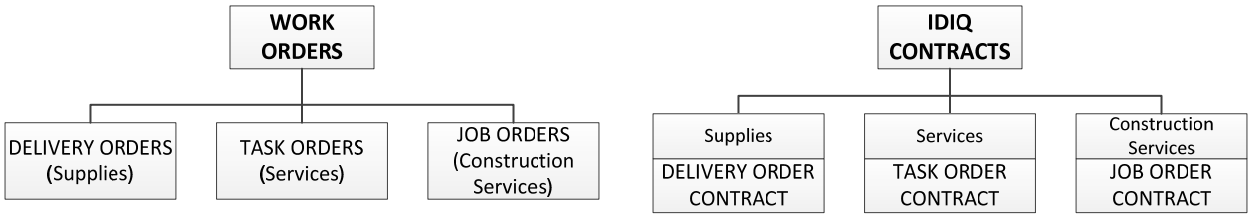


Figure 1.1. Work order and IDIQ contract classification scheme.

Given some technical issues in regard to current terminology stated in Minnesota contracting regulations, MnDOT decided to use different terms than those provided in Figure 1.1. Terminology adopted by MnDOT to refer to this contracting approach consists of IDIQ contract to refer to the actual contract and task order to refer to each project executed under an IDIQ contract. This is the terminology used in this document unless the authors are referring to a particular agency, in which case corresponding terminology is used. The term work order will be used when considered appropriate.

1.1.6 Task Order Definition

Every project to be executed within an IDIQ contract is developed under the issuance of a task order. A task order becomes the contract document that determines location, contract time, and scope of work. Moreover, a task order outlines all required pay items, quantities, and unit prices (22).

1.2 Research Objectives

The principal objective of this study was to develop a generic IDIQ framework upon which MnDOT-specific implementation guidelines can be produced to add IDIQ to the MnDOT procurement toolbox. However, it implies a number of sub-objectives, some of them previously identified and others that arose during the research given the need to take a closer look into some key aspects. Below is presented a complete list of these objectives.

- *Principal Objective*
  - Develop a IDIQ Implementation Guide for MnDOT
- *Original Sub-objectives*
  - Determine a complete state-of-practice of IDIQ contracting in federal and state agencies across the country
  - Determine a complete state-of-practice of IDIQ contracting in the transportation industry
  - Identify best practices applicable to MnDOT contracting procedures and regulations
  - Identify potential sources of risk in IDIQ contracting and formulate recommendations to handle and mitigate this risk.
- *Emerged Objectives*
  - Determine an appropriate method to compensate contractors for mobilization expenses
  - Determine an appropriate method to escalate unit prices over time in multi-year IDIQ contracts
  - Determine a performance bond scheme that better fits the specific requirements of IDIQ contracting
  - Propose a generic framework to use IDIQ contracts under contingency situations

1.3 Research Framework and Methodology

This research process followed to develop the MnDOT IDIQ Implementation Guide consisted of a series of tasks whish were divided into three different phases. A brief description of this phases is presented below.

- *Phase 1:* Consisted of a comprehensive literature review and a formal content analysis (23) of several IDIQ solicitation and contract documents from a broad range of public agencies with IDIQ experience. During this phase, the research team also identified some potential case studies to be analyzed on Phase 2.
- *Phase 2:* A final selection of case studies was made and data was collected using the rigorous methodology proposed by Yin (24). The primary instrument for data collection was structured interviews with project participants. The structured interview form used is in Appendix H. The interviews were developed using the Government Accountability Office (25) methodology, an approach the research team has successfully used on over a dozen TRB projects. Phase 2 also includes a complete analysis of these interviews and the development of a generic framework that contains the essential contractual, technical, and financial requirements of an IDIQ project delivery system.

- *Phase 3:* During this phase, the generic framework previously developed was fleshed out in a manner that is consistent to the constraints imposed on MnDOT procurements and performs in a manner that satisfies MnDOT staff. A strawman guide was developed and outreach surveys were sent to both internal and industry potential MnDOT customers to collect their concerns and perceived issues. Questionnaires used for this surveys and their responses are in Appendices J and K, respectively. These surveys were sent to potential general contractors, MnDOT staff, and surety companies doing business in Minnesota. Subsequently, possible solutions to these issues were identified to make the implementation of IDIQ in MnDOT construction projects as smooth as possible. A final draft guide was produced as a result of the analysis of these surveys and it is submitted along with this report (Appendix A).

1.3.1 Task Description

- *Phase 1:*

  - *Task 1. Benchmark the state-of-practice in IDIQ contracting:* A literature review was conducted and from its results, and a content analysis of the IDIQ solicitation and contract documents was performed to categorize different approaches to IDIQ contracting and to seek trends between agencies that identify successful practices.
    - *Deliverable:* IDIQ Case Study Project List (Appendix B).
    - *Submission Date:* Presented during a meeting on August 13th 2012, and digital copy submitted on October 3rd 2012.

    Note: The original Case Study Project List presented in Appendix B was modified given the lack of information about those projects. Actual case studies were already mentioned in this chapter and will be discussed later in this report.

- *Phase 2:*

  - *Task 2. Case study collection and analysis:* Case study project data collection was conducted through structured interviews of the stakeholders in each case study project. Particular attention was paid to capturing lessons learned and successful practices that can be adopted for use in Minnesota. In addition to the deliverable submitted on April 3rd 2013, on July 12th 2007 the research team submitted an additional document to complement this deliverable. This document contains a deeper analysis which will be discussed in Chapter 3. This analysis does not include the IDIQ contract executed by MnDOT since it was not used to determine the state-of-practice of IDIQ contracting. Instead, this case study was intended to compare current practices adopted by other transportation agencies with the approach used by MnDOT on its first IDIQ contracts.
    - *Deliverable:* Case Study Analysis Report (Appendix C).
    - *Submission Date:* Submitted on April 3rd and complemented on July 12th 2007.

  - *Task 3a. Develop pilot IDIQ contracting framework:* Concurrently with work on Task 2, a pilot IDIQ contracting framework was created from information immediately available in the literature. The delivery for this task consisted of two parts. First, a

generic Request for Proposals (RFP) (Appendix D) created by modifying an existing MnDOT template (for traditionally procured construction contracts) in accordance with the information collected from the literature review. The second part was a proposed IDIQ contract template (Appendix E) which was developed from the collected information and a template for Master Contracts published by the Minnesota Department of Administration. This template was used given the similar characteristics between Master and IDIQ contracts. Additionally, a Job Order template was included into the proposed RFP as an appendix. The term job order was initially suggested by the research team, but it was then change by MnDOT to task order. This deliverable was intended to furnish MnDOT sufficient information to structure its first IDIQ contracts which started to be awarded on April 2013.

- *Deliverable:* Pilot IDIQ Contracting Framework and IDIQ examples (Appendices D and E).
- *Submission Date:* Submitted on September 1st 2012, and discussed during a Technical Advisory Panel (TAP) meeting on September 19th 2012 (meeting notes in Appendix K).

- *Task 3b. Develop IDIQ contracting framework:* Based on the result of Task 2, a generic IDIQ contracting framework was created including all the essential elements of a successful IDIQ program. In addition to this framework, delivery for this task also includes an initial outline for the MnDOT IDIQ guide.
  - *Deliverable:* Generic IDIQ Contracting Framework and draft detailed outline for the IDIQ guide (Appendix F).
  - *Submission Date:* December 24th 2012.

- *Phase 3:*

  - *Task 4. IDIQ Implementation Guide Strawman:* A strawman guide was developed and used in Task 5 as a foundation from which to solicit input from both MnDOT and industry sources.
    - *Deliverable:* MnDOT IDIQ Implementation Guide Strawman.
    - *Submission Date:* Submitted on July 31st 2013 and discussed during a TAP meeting on September 26th 2013 (meeting notes in Appendix L)

  - *Task 5. Outreach and Guide Revision:* Outreach surveys were sent to potential general contractors, MnDOT staff, and surety companies doing business in Minnesota. Questions in these surveys were strategically created from the strawman guide to collect opinions and concerns from these stakeholders, that would be used to optimize the guide, making it more effective and smoothing the implementation of IDIQ practices by MnDOT.
    - *Deliverable:* Final Draft MnDOT IDIQ Implementation Guide (Appendix A).
    - *Submission Date:* February 15th 2014.

    Note: As stated in the Research Proposal, the anticipated deadline for this deliverable was November 30th 2013, it had to be postponed to February 15 2014 since this task included industry outreach and the original deadline was during a traditionally busy periods for construction firms. It was considered that better results could be obtained

by postponing this task. MnDOT Contract Amendment/Change Request is presented in Appendix M.

- *Task 6. Draft Final Report:* A draft final report was prepared, following MnDOT publication guidelines, documenting project activities, findings, and recommendations. This report was submitted through the publication process for technical and editorial review.
  - *Deliverable:* Draft Final Report
  - *Submission Date:* February 28th 2014

- *Task 7. Final Report Completion:* Deliverable for this task consists of this report. During this task, technical and editorial comments from the review process were incorporated into the document as appropriate. Reviewers were consulted for clarification or discussion of comments. Once all adjustments were made, this report was submitted for publication.
  - *Deliverable:* Final Report
  - *Submission Date:* June 30th 2014

1.4 Project Schedule

Table 1.1 contains the project schedule, representing the duration of each task in months with a bar chart and indicating start and en dates for each activity. The beginning and end of the bars represent the first and last day of the month, respectively.

Table 1.1. Project Schedule

Month / Task	Jul 12	Aug 12	Sep 12	Oct 12	Nov 12	Dec 12	Jan 13	Feb 13	Mar 13	Apr 13	May 13	Jun 13	Jul 13	Aug 13	Sep 13	Oct 13	Nov 13	Dec 13	Jan 14	Feb 14	Mar 14	Apr 14
Task 1																						
Task 2																						
Task 3a																						
Task 3b																						
Task 4																						
Task 5																						
Task 6																						
Task 7																						

1.5 Content Organization

This report was divided into nine chapters. Basically, this report presents all data, documents, findings and recommendations, used to or resulted from the development of the MnDOT IDIQ Implementation Guide. Since the objective of this report is to support and complement the guide presented in Appendix A, content duplication between this two documents would be prevented to the maximum extent possible.

As can be seen in section 1.2.3 Task Description, Tasks 1, 2, and 5 comprise all data collection and analysis activities, while Task 3a, 3b, 4, 6, 7, and 8 mainly consist of the elaboration of documents from results obtained from the other three tasks. Thus, the following chapters are principally focused on activities conducted during Tasks 1, 2, and 5, which essentially contain the literature review, case study collection and analysis, and outreach survey analysis, respectively. Despite the fact that some key topics; mobilization expenses, price escalation, and surety bonds for IDIQ contracting, were somehow addressed during these three tasks, they will be discussed by separate in Chapters 5, 6, and 7, respectively, given their relevance in this study. Below is a brief description of the content of this report by chapter.

- *Chapter 1. Introduction:* This chapter provides an introduction and brief background required to get a better understanding of this report and works as a guide for the rest of the document. Additionally, this chapter present and overview of the research process and the principal research instruments used in this study.
- *Chapter 2. Literature Review:* This chapter contains some relevant information and findings resulted from the comprehensive literature review and a complete content analysis process of several solicitations and contract documents conducted during Task 1. This information was used to determine the fundamentals of IDIQ contracting and worked as the foundation of this study.
- *Chapter 3. Case Study Analysis:* This chapter describes the data collection methods for the selected case studies and presents the complete analysis of this data conducted in Task 2.
- *Chapter 4. Outreach Surveys:* This chapter presents a description of the outreach surveys including objectives, description of participants, and some general findings not specifically related to mobilization expenses, price escalation, or surety bonds for IDIQ contracting since these topics will be contained in separate chapters.
- *Chapter 5. Mobilization Expenses:* This chapter comprises principal findings and recommendations in regard with the compensation of contractors for mobilization expenses in IDIQ contracts.
- *Chapter 6. Price Escalation:* This chapter comprises principal findings and recommendations in regard with the adjustment of unit prices over time in IDIQ multi-year contracts.
- *Chapter 7. IDIQ Surety Bonds:* This chapter comprises principal findings and recommendations in regard with appropriate bonding schemes for IDIQ contracting.
- *Chapter 8. Consolidated Conclusions and Recommendations:* This chapter consolidates the principal conclusions and recommendations resulted from this research project.
- *Chapter 9. Recommendations for Future Research:* This chapter presents some topics that the research team considers should be considered for future research to complement the research described in this report and improve MnDOT contracting practices.

Chapter 2
Literature Review

This chapter contains some relevant information and findings resulted from the comprehensive literature review and a complete content analysis process of several solicitations and contract documents conducted during Task 1. This information was used to determine the fundamentals of IDIQ contracting and worked as the foundation of this study. In addition to the information and knowledge collected during this task, complementary literature review processes were conducted for each task as required.

2.1 Federal IDIQ Contracting

From 1949 to early 1980's, the General Services Administration (GSA) was in charge of the Federal Supply Service (FSS) which procured common-used items for federal agencies. FSS consisted of "three basic buying programs" (26, 27).

- *Stores:* FSS purchased common-use items, stocked them in regional distribution facilities, and distributed them to federal agencies from Federal Supply Catalog and GSA self-service stores (26).
- *Non-Stores:* Definite quantity contracts to be delivered directly from suppliers to users. GSA was directed to provide items not available through the stores program (26).
- *Federal Supply Schedules:* Indefinite quantity contracts with commercial firms to provide supplies and services at stated prices for a given period of time. User agencies placed orders with contractors for direct shipment and are billed by the vendor (26).

As described above, Federal Supply Schedules are IDIQ contracts aimed to provide recurrent supplies and services to federal agencies. GSA was allowed to execute two kinds of these contracts; single and multiple award contracts (26). Federal supply schedule contracts became the main tool for the GSA to acquire supplies and services, For instance, 53% of GSA purchases in 1978 were via multiple award contracts, totaling $1.8 billion, while single award contracts only accounted for $200 million during the same year (26).

Despite the fact that IDIQ contracts techniques were not clearly regulated until 1994, their use significantly increased in late 80's among federal agencies (28). Unlike GSA, other federal agencies showed a marked preference for single award contracts because they allow shorter work order processes, and the lack of clear statutory guidance on multiple award contracts made them less attractive to contracting agencies (1). Based on recommendations made by the Defense Acquisition Law Advisory Panel, whose report highlighted the benefits of using multiple award IDIQ contracts (1), Congress enacted the FASA, in which the government regulates the use of this delivery method, providing flexible contracting tools to encourage agencies to execute multiple award over single award IDIQ contracts (1).

After the enactment of the FASA, the act was incorporated into the FAR, including all relevant provisions and definitions such as definite quantity, requirements and indefinite quantity contracts. Indefinite quantity contracts are just one of the three types of indefinite delivery contracts stated by the FAR as shown in Figure 2.1 (4). The difference between definite quantity

and indefinite quantity contracts lies in whether or not it is feasible to estimate an accurate quantity of supplies and/or services to be required during a fixed period of time. In the case of indefinite quantity and requirements contracts, their definitions are closer, mainly differing in the commitment acquired by the owner to order a minimum quantity of supplies and/or services from the contractor for the duration of an IDIQ contract. This type of commitment is not required in a requirements contract, in which the agency reserves the right to issue no work orders under the contract without any compensation for the contractor.

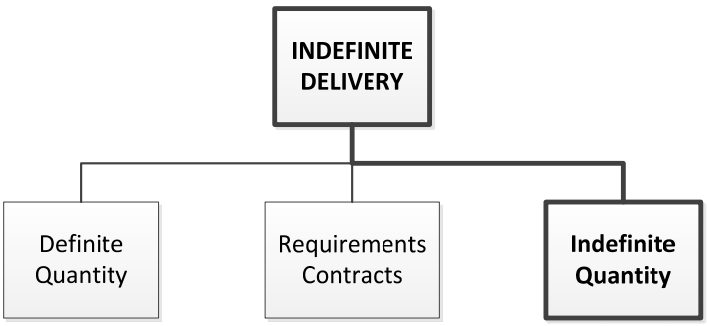


Figure 2.1 Indefinite delivery contract classification.

2.2 IDIQ Generic Models

During the research conducted for the elaboration of this report, it was possible to identify three different IDIQ contracting models which are determined in accordance with the number of firms involved in the contract and the number of task orders to be issued under the contract. These contracting models are also illustrated in Figure 2.2.

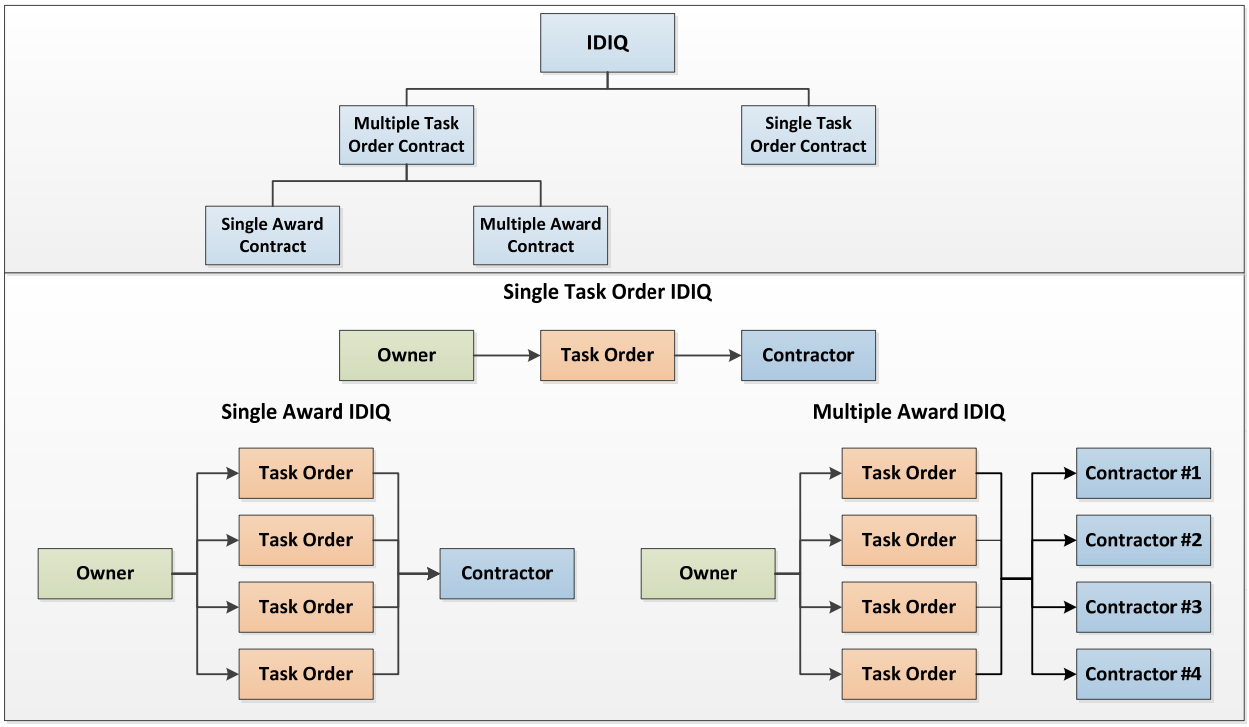


Figure 2.2. Generic IDIQ models.

- *Single task order:* A single contract is awarded to single contractor. Once the need to issue the work arises, the contractor then performs the desired services or furnishes the requisite supplies.
- *Single award:* A single contract is advertised and awarded to a single contractor who then is awarded task orders based on the pricing furnished in the initial bid package.
- *Multiple award:* A single contract is advertised and a pool of qualified contractors is selected. Only those selected are subsequently allowed to bid on task orders. In most cases the task orders are awarded to the lowest bidder among the contractors in the pool.

Unlike the classification presented in the MnDOT IDIQ Implementation Guide, Figure 2.2 includes a multiple award approach. It was not included in the guide since this model is not currently used by MnDOT. However, this report provides some guidance for its possible implementation in the future. The same different between this two documents may be observed on other parts of the text, tables, and figures.

2.2.1 Single Award vs. Multiple Award IDIQ Contracts

Multiple award IDIQ contracts should be executed only when the project engineer anticipates the issuance of enough task orders to allow the participation of more than one general contractor. Along with this decision, the project engineer must determine the optimum number of contractors to be awarded so as not to affect the benefits associated with a highly competitive environment. If too many firms are awarded, contractors may be tempted to bid higher prices given the lower probability of obtaining task orders beyond a stated minimum. On the other hand, when awarding too few contractors, there is a high risk of complaints arising from unsuccessful proposers and regulatory agencies claiming an inappropriate use of public funds. To make an appropriate decision, the project engineer may study historical bidders' behavior regarding similar kind of projects when using different delivery methods. For example; information analyzed could be the average number of bids received per contract and the number of different firms performing these projects during a similar period of time (e.g. one year).

2.2.2 IDIQ Advantages and Disadvantages

When analyzing the three models showed in Figure 2.2, the team identified three different levels of advantages when using IDIQ contracts to acquire supplies or services (see Table 2.1). It means that an agency would find the same and more advantages as it moves from a single task order to a multiple award IDIQ contracting model passing through a single award model. However, when comparing these three models with each other, it was recognized one advantage in level 1 and 2 that is not in level 3. This advantage is related with the number of firms involved in the contract. The use of multiple contractors requires higher efforts by agency staff to coordinate and supervise contractors' performance, so that, agencies in levels 1 and 2 would use less in-house personnel and resources to manage those contracts.

Table 2.1. Contracting Advantages per IDIQ Model

Multiple Award / Single Award	- Owner only has to deal with one contractor	
Multiple Award / Single Award / Single Task Order	- Owner can keep lower inventory levels - Flexibility in quantity and delivery scheduling - Supplies and services are ordered when they are really needed - Agencies commit only for a minimum or no amount of work to be ordered - Owner can direct shipments directly to the users	**Level 1**
Multiple Award / Single Award	- Shorter project delivery period - Lower preconstruction costs - Allows contractor involvement in preconstruction activities - Fast use of year-end funding - Lower cost in future issuance of rask orders - Useful contracting option during emergencies - Increase quality and timeliness of delivery	**Level 2**
Multiple Award	- Reduce potential for graft and corruption - Highly competitive - Lower bid prices - Larger participation of small-size and disadvantaged business - Preference over single award contracts expressed by the FAR	**Level 3**

As with any other delivery method, IDIQ contracting also have some disadvantages. There are two principal disadvantages related to this kind of contracts regardless of the model used. The first weakness of this delivery method is most evident at state level and is related to the lack of knowledge and experience of some agencies and contractors regarding IDIQ contracting (3). The second disadvantage is a result of the uncertainty associated with this kind of contracts which does not allow the agency to determine a reliable Guaranteed Maximum Price (GMP) for the entire contract; an ability that increases agency control over project budgets (28). This study identified only two agencies who have implemented GMP features in their IDIQ contracting system; the GSA (29) and the Department of the Interior (30). However, it was not done for the entire contract; a GMP was established on a task order basis and in the case of the GSA, it was done only for some task orders.

The inability of determining a feasible GMP puts IDIQ contracting at a disadvantaged position in comparison with another emerging delivery method that has been also widely recognized for accelerating the delivery of transportation projects; Construction Manager-General Contractor (CMGC) (31), in which GMP plays an important role. Despite this difference, and although state DOTs have been using IDIQ contracting methods for simple and repetitive tasks while CMGC contracts are reserved for larger and more complex projects, there are reasons to think that these two innovative approaches can be successfully combined. In DB and CMGC IDIQ contracts, the contractor is selected before task orders are developed; thus, it can be used to either furnish preconstruction services or prepare the final design for task orders. By combining the benefits provided by CMGC and IDIQ contracting, determining GMPs on a task order basis as done by the GSA and Department of Interior, and involving contractors in preconstruction activities, agencies could feel more confident to take IDIQ contracting to the next level with larger and broader projects.

2.2.3 IDIQ Suitability and Contracting Model Selection Process

Figure 2.3 presents a proposed decision making process followed to determine the appropriateness of a potential IDIQ project and the most appropriate contracting model to perform the work, including a multiple award contracting approach. This process comprises a series of questions that initially determine if the characteristics of the project(s) are consistent with IDIQ contracting requirements; subsequently, these questions are used to select the contracting model that better fits the project. This is the original model proposed to MnDOT. The model included in the IDIQ Implementation Guide does not include a multiple award contracting approach and it was modified to incorporate On-call contracts as a new terminology to refer only to those IDIQ contracts to be used under emergency or contingency situations.

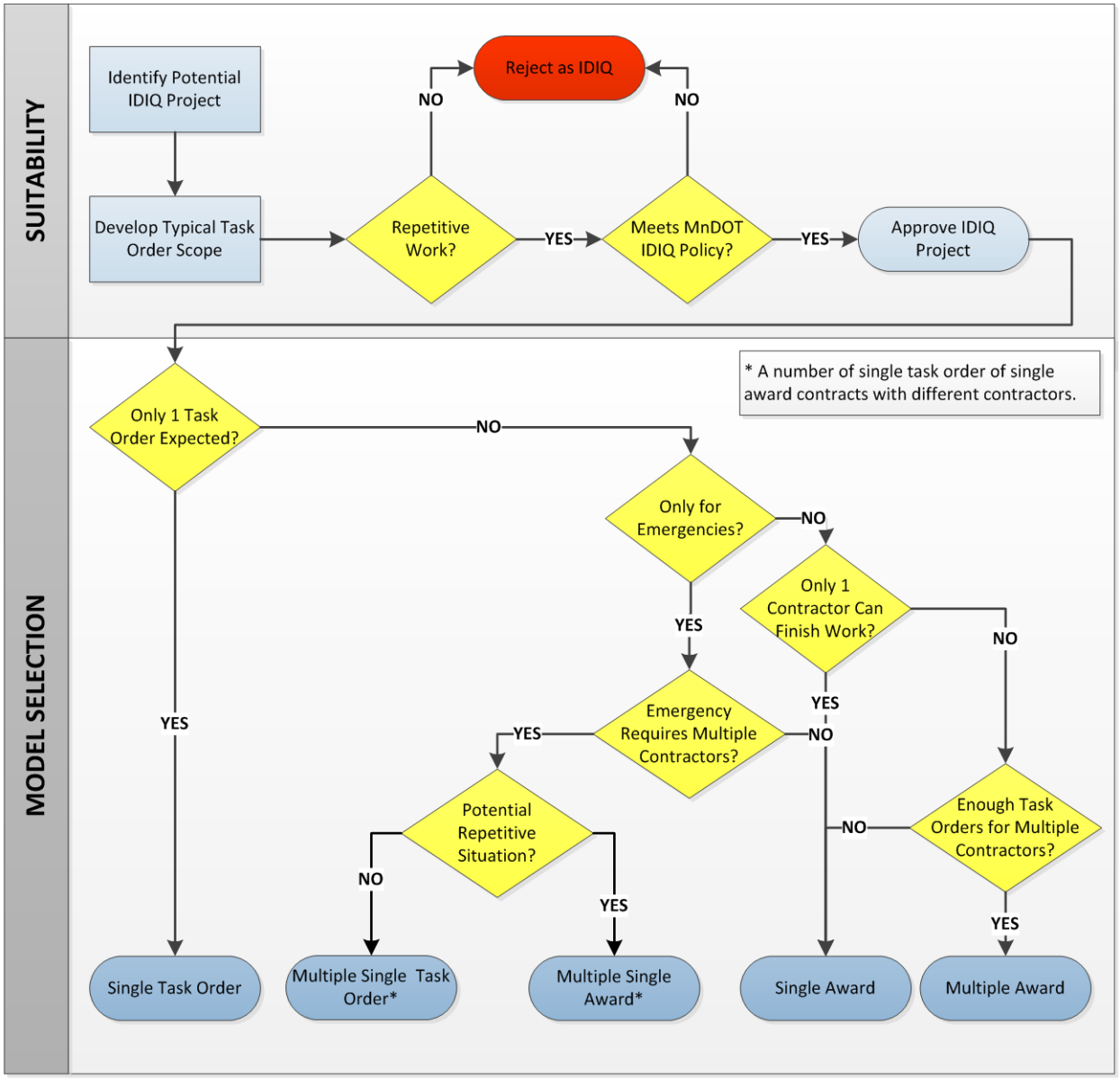


Figure 2.3. IDIQ suitability and model selection.

Selection process described in Figure 2.3 is mostly explained in the MnDOT IDIQ Implementation Guide. However, since the guide does not consider the use of multiple award IDIQ contracts, there is something that must be mentioned here to avoid complications during a possible implementation of this contracting approach in the future. It must be noted that instead of multiple award contracts, IDIQ emergency contracts must be assigned to single general contractors to avoid delays related to task orders awarding processes. Therefore, the use of multiple single task order contracts (more than one independent single task order contract) or multiple single award contracts (more than one independent single award contract) is more appropriate (see Figure 2.3).

2.3 Content Analysis Methodology

The literature review process covered several IDIQ solicitations and contract documents from different types of agencies in the US, academic papers from different publications and researchers worldwide, official reports, and other documents that could provide a better understanding of IDIQ contracting.

Content analysis methods proposed by Neuendorf were applied to all documents and data collected from the literature review to extract the information relevant for this research. Content analysis is a "systematic, objective, quantitative analysis of message characteristics" (23), commonly use in academic and industrial research as a method to make inferences from large amounts of textual information. This method is based on the frequency of occurrence of specific keywords, selected and categorized in accordance with the objective of the study (32). Although it is described by Neuendorf as a quantitative method, it is mainly used to generate qualitative assessments of documents.

Table 2.2 contains the result of the IDIQ content analysis. It shows which agencies use each primary element in their IDIQ contracting program and the type of IDIQ contracts on which the element was used. The table is split in two major categories. The first category is task order pricing features. The features listed are those found for developing a price for one work order order. It is evident that using IDIQ does not change the range of pricing options already available with traditional project delivery. The second category is related to contract administration elements of the IDIQ contract. These elements impact how the contract is administered and furnish insight regarding the differences between IDIQ and other project delivery methods.

Table 2.2 was developed by conducting a content analysis from IDIQ documents collected from twenty federal agencies, ten state and local transportation agencies, and one tri-jurisdictional government transit organization (WMATA). Agencies were placed in each column based on the scope of their contracts and the configuration proposed above in section 1.1.4 IDIQ Terminology rather than the actual terminology used by these agency or MnDOT in their IDIQ contracts.

Table 2.2. IDIQ Document Content Analysis Results

Element \ IDIQ Type	Job Order	Task Order	Delivery Order
Agency Use of Contract Elements			
Work Order Pricing Features			
Fixed price	1, 4, 5, 12, 13, 15, 16, 18, 23, 24, 25, 27, 28, 29	1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 13, 14, 15, 16, 17, 23, 24, 26, 27, 28, 29	1, 4, 5, 8, 10, 15, 27, 29
Unit price	19, 20, 21, 22	29	29, 31
Cost reimbursable	1, 4, 24, 27	1, 4, 5, 6, 8, 14, 16, 23, 24, 30	8
Guaranteed maximum price	9, 15		
Incentive/disincentive	4, 5, 13, 21, 24	4, 5, 7, 8, 15, 16, 23, 24	15
Two-step pricing (design-build work orders)	21, 27, 1, 24, 12, 4, 9, 5		
Contract Administration Features			
Single award	4, 5, 12, 13, 18, 19, 21, 22, 24, 25, 27, 28, 29	1, 4, 5, 6, 7, 8, 9, 11, 13, 16, 17, 23, 24, 27, 28, 29	1, 5, 8, 15, 29, 31
Multiple award	1, 4, 5, 9, 13, 15, 16, 23, 24, 27, 28, 29	1, 2, 4, 5, 6, 8, 9, 13, 15, 16, 23, 26, 27, 29, 30	5, 10, 15, 27
Guaranteed contract minimum value	1, 4, 5, 9, 12, 13, 15, 16, 21, 23, 24, 25, 27, 28, 29	1, 2, 4, 5, 6, 7, 8, 9, 11, 13, 14, 15, 16, 17, 23, 24, 26, 27, 28, 29	1, 5, 10, 15, 29, 31
Maximum contract value	1, 4, 5, 9, 12, 13, 15, 16, 18, 19, 21, 22, 23, 24, 25, 27, 28, 29	1, 2, 4, 5, 6, 7, 8, 9, 11, 13, 14, 15, 16, 17, 23, 24, 26, 27, 28, 29	1, 5, 10, 15, 29, 31
Multi-year contract	4, 9, 12, 13, 23, 27	1, 3, 4, 6, 8, 13, 14, 15, 16, 23, 27, 30	1, 15, 31
Follow-on options to extend	1, 4, 5, 9, 12, 13, 15, 16, 18, 21, 22, 23, 24, 25, 27, 28, 29	1, 2, 3, 4, 5, 6, 7, 8, 9, 11, 13, 15, 16, 17, 23, 24, 26, 27, 28, 29, 30	5, 15, 27, 29
Liquidated damages	1, 4, 12, 13, 15, 16, 21, 22, 23 24, 27	3, 24, 29	
Constructability reviews	1, 4, 9, 12, 15, 21, 22, 25, 27		
Value engineering	1, 4, 13, 15, 23, 24, 27, 28, 29	2, 4, 6, 24, 27, 29	1
Contractor quality control	1, 4, 5, 12, 13, 15, 16, 21, 23, 24, 25, 27, 29	2, 3, 4, 5, 6, 7, 8, 9, 13, 14, 15, 16, 24, 26, 27, 28, 29	5, 15,29, 31
Quality assurance plan	1, 4, 5, 12, 13, 21, 23, 24, 25, 27, 28	2, 3, 4, 5, 6, 11, 13, 14, 17, 23, 24, 26, 27, 29	1, 5, 10, 15, 27, 29, 31

1 = Army Contracting Command; 2 = Architect of the Capitol; 3 = California Department of Transportation; 4 = Department of the Air Force; 5 = Department of Homeland Security; 6 = Defense Information Systems Agency; 7 = Department of Commerce, 8 = Department of Energy; 9 = Department of the Interior; 10 = Department of State; 11 = Department of Education; 12 = Florida Department of Transportation; 13 = Federal Highway Administration; 14 = Georgia Department of Transportation; 15 = General Services Administration; 16 = Department of Health and Human Services; 17 = International Trade Commission; 18 = Metropolitan Atlanta Rapid Transit Authority; 19 = Massachusetts Department of Transportation; 20 = Montana Department of Transportation; 21 = Minnesota Department of Transportation; 22 = Missouri Department of Transportation; 23 = National Aeronautics and Space Administration; 24 = Naval Facilities Engineering Command; 25 = New York State Department of Transportation; 26 = Securities and Exchange Commission; 27 = Army Corps of Engineers; 28 = Department of Agriculture; 29 = Department of Veteran Affairs; 30 = Virginia Department of Transportation; 31 = Washington Metropolitan Area Transit Authority

Base on the results of this analysis and literature review, it is possible to conclude the following. Please note that this analysis also use the terminology proposed in section 1.1.4 IDIQ Terminology since it is more convenient in order to make distinctions between different types of contracting approaches:

- It is evident that federal and military agencies tend to more often combine IDIQ contracts with other contracting approaches. It may be due to their greater experience in this field, in contrast to state and municipal entities which began using this type of contracts recently. The ability to combine two or more constructive approaches allows agencies to handle larger and

more complex IDIQ contracts by mitigating risk and transferring responsibilities to general contractors; an ability that state agencies do not yet have which limits their use to small and simple projects.

- Since job order contracts are usually more complex (because they include the purchase of supplies and services), they are more likely to be combined with different contracting methods. Sometimes task and delivery order contracts may be too simple and the inclusion of an additional approach cannot be justified. Furthermore, some methods fit better with construction projects or are limited to them, such as Guaranteed Maximum Price (GMP), and Constructability Review (CR). For purposes of this study, CR is considered a contracting approach only if prime contractor's responsibilities include the review of the scope and design of the projects prior to the issuance of job orders.
- Table 2.2 presents a clear trend to set fixed-price IDIQ contracts. It means that the contractor must submit its price list along with its proposal, upon which the agency will establish the price of each work order. It is a good practice to increase the agency control over the contract, more precisely over the budget. Additionally, fixed-price IDIQ contracts allow the agency to award larger contracts to a single source (single award contracts), at least at federal level, in accordance with the FAR (it is just one of two requirements) (4).
- Besides certain provisions incorporated by some agencies in their IDIQ contracts to provide direct incentive to contractors, the study found some features inherent to this delivery method and others clauses that indirectly motivate contractors to provide high quality, precise schedules and lower prices in the execution of each work order. One of these indirect incentives is related with the fact that the decision of assigning future work orders to a contractor may be affected by its poor performance and high prices in previous orders. Likewise, it was identified a clear preference for awarding one-year base period IDIQ contracts with a number of one-year extension options. For example, the last Logistics Civil Augmentation Program was awarded for a base contract period of one year with nine one-year extension options (33). Thus, contractors are expected to offer outstanding executions motivated by the possibility of exercising these extension options while agencies can take advantage of knowledge acquired and skills improved by contractors during previous contract periods.
- Although not as common as fixed-price contracts, unit price and cost-reimbursable (also known as cost-award-fee) contracts also show a significant preference in Table 2.2. In the case of unit price IDIQ contracts, this approach was mostly observed in construction services contracts awarded by state agencies; decision that seems to be driven by the execution of simple, small and repetitive contracts, in which it is possible to get reliable amounts of work performed by measuring the product delivered by contractors. On the other hand, cost-reimbursable contracts are commonly used for projects with broad, complex and unclear scopes, in which agencies cannot accurately anticipate the cost of the projects in order to issue fixed-price work orders.

  Base on this analysis, a graph was elaborated to illustrate the observed decision making process followed by federal and state agencies to determine the method to be used to compensate contractors for the work performed under each work order. In fact, some IDIQ solicitation documents anticipate the use of difference compensation methods in accordance with the scope of each work order. This decision making process is presented in Figure 2.4.

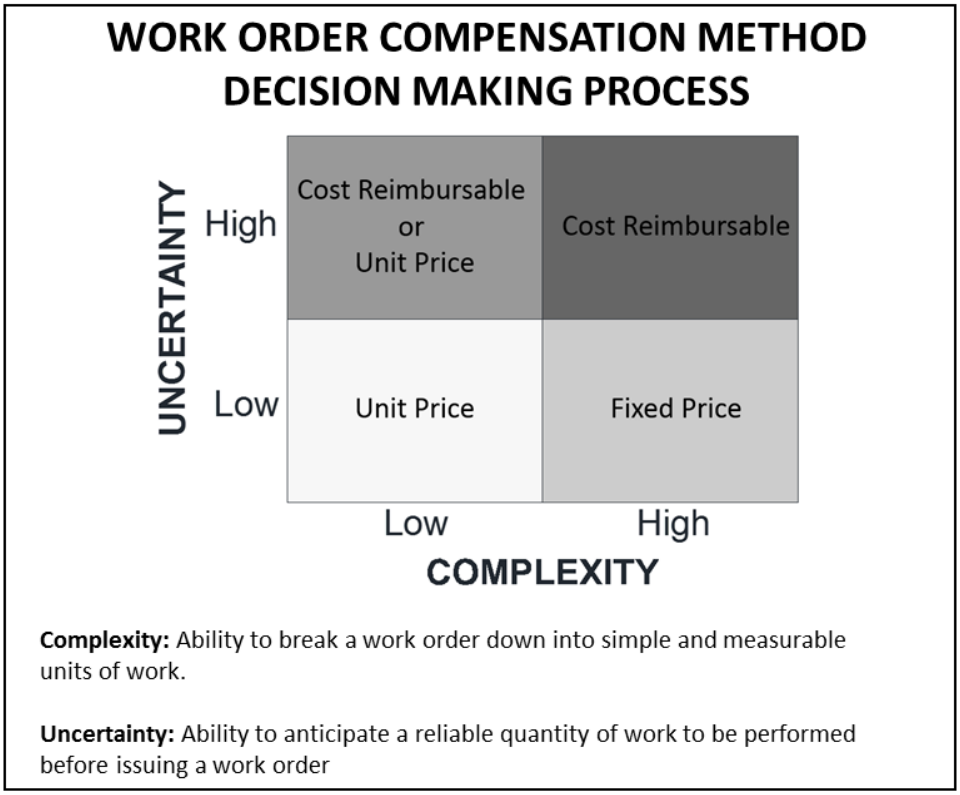


Figure 2.4. Work order compensation method – decision making process.

Chapter 3
Case Study Analysis

This chapter contains a complete analysis of the four external case studies conducted for this research. A detailed description of these projects was submitted with the deliverable for Task 2 (Appendix C and H). The internal case study was not included in this analysis since it was not used to determine the state-of-practice of IDIQ contracting. Instead, this case study was intended to compare current practices adopted by other transportation agencies with the approach used by MnDOT on its first IDIQ contracts. A detailed description of this case study in presented in Appendix H (this appendix includes MoDOT case study since this interview was conducted after submitting the Deliverable for Task 2). Actually, the research team considered that information collected from this internal case study does not represent current MnDOT IDIQ contracting practices. For example, this contract was the only one that compensates the contractor for mobilization expenses using a bid item to be paid by culvert treatment, when MnDOT have used at least four other approaches being the most common the use of no separate mobilization pay item. It means that mobilization expenses are included in the bid times. For this reason, the research team conducted a review of all 22 IDIQ contracts awarded by MnDOT between April 2013 and June 2013. Results obtained from this review are mentioned along this report as required.

3.1 Data Collection

The case studies were collected using a protocol based on Yin's methodology for case study research data collection (24). The structured interviews were developed using the protocol prescribed by Oppenheim (34) and conducted in accordance with the Government Accountability Office procedures (25). Once a case study interview was completed, the raw information collected was reduced and integrated with data from the literature review. Therefore, the information gleaned from the case studies is coupled with information collected in the literature review to validate any conclusion drawn from the case studies.

3.1.1 Yin's Case Study Methodology

The *Case Study Research: Design and Methods* manual published by Robert Yin (24) was used to select the cases and conduct the analysis contained in this chapter. For the selection of suitable cases, Yin recommends the following:

> "You need sufficient access to the data for your potential case study – whether to interview people, review documents or records or make field observations. Given such access to more than a single candidate case, you should choose the case(s) that will most likely illuminate your research questions" (24).

Thus, the case studies analyzed were strategically selected based on the research objectives stated in Chapter 1 of this report. Likewise, following Yin's guidelines (24), before conducting the case studies, it was necessary to develop a theoretical framework for IDIQ contracting, which was obtained from the literature review presented in Chapter 2 and submitted as part of the deliverable for Task 3b.

3.2 Case Study Background

All case studies were jointly selected by the research team and the MnDOT, the research sponsor. All of them are related to construction activities such as repair and maintenance of roads and bridges, and the implementation of safety projects. The structured interview questionnaire was designed and approved by MnDOT. The primary purpose was to better understand the state-of-the-practice in transportation IDIQ contracting techniques. Additional project-specific information was obtained from contract documents provided by each agency.

Information about each case study is summarized in Table 3.1. These case studies were selected because they furnish a wide geographical dispersion and all involve the types of technical scope that MnDOT was contemplating for its own IDIQ program.

Table 3.1. Case Studies

CASE STUDIES' FEATURES AND PROVISIONS				
Features/Provisions	**CFLHD**	**NYSDOT**	**FDOT**	**MoDOT**
Project Title	Roadway Surfacing, Resurfacing, and Repair Contracts: Northern California, Washington, Oregon, and Idaho.	Bridge Maintenance Work Various Routes, Various Towns Broome, Chenango and Tioga Counties.	Design-Build Push-Button Contract. Traffic Operations Projects to Improve Capacity and Safety.	Asphalt Pavement Repair.
IDIQ contract - terminology	Multiple Award Task Order Contract	Job Order Contract	Push Button Contract	Job Order Contract
Work order - terminology	Task Order	Job Order	Task Work Order	Job Order
Delivery method used for work orders	Design-Bid-Build	Design-Bid-Build	Design-Build	Design-Bid-Build
Base contract period	1 year	1 year	3 years	1 year
Actual contract duration	Ongoing	2.2 years	2.5 years	Ongoing
Extension options	Four 1 year periods	Three 1 year periods	Three 1 year periods	One 1 year period
Classification by location(s)	Single State	County-Wide	District-Wide	State-Wide
Minimum guaranteed value	50,000	50,000	12.5 Million (1st Task Work Order)	NA
Maximum value	35 Million	1.2 Million	20 Million	125,000
Minimum value per work order	50,000	NA	NA	NA
Maximum value per work order	7.5 Million	500,000	NA	NA
DBE, TGB, WBE or similar goals	DBE goal to the entire contract	DBE goal for the entire contract	DBE goal for the entire contract	NA
Shortlist	NA	NA	3 or more proposers	NA
Pre-bid meeting	NA	1 or 2 meetings	1 meeting with shortlisted	Some Prebid Meetings are conducted

CFLHD = Central Federal Land Highway Division; DBE = Disadvantaged Business Enterprise; FDOT = Florida Department of Transportation; MoDOT = Missouri Department of Transportation; NA = Not Applicable; NYSDOT = New York State Department of Transportation; TGB = Targeted Group Business; WBE = Women Business Enterprise

They also represent a range of IDIQ contract types including single award, multiple award and stand-by contracts. As will be shown in subsequent sections of this chapter, the case studies also demonstrate four unique approaches to IDIQ contracting that will furnish a range of options around which an agency that is new to IDIQ can tailor its own program.

3.3 Case Study Agency Context

Since IDIQ is a new contracting approach to many agencies, it is important to understand the organizational context in which each of the case study contracts were implemented. All four agencies have legislative authority to use alternative project delivery methods. Both CFLHD and FDOT have experience with construction CMGC and Design-Build (DB) project delivery. MoDOT and NYSDOT are only authorized to use DB and NYSDOT received its legislative authority in 2012, after the case study IDIQ contract was awarded. Therefore, the four cases also portray a range of project delivery experience from New York with only DBB at the time of contract award to Florida with experience in all alternative project delivery methods. The structured interview asked each agency to describe its motivation and objectives for implementing the case study IDIQ contract. Their responses are shown in Table 3.2.

Table 3.2. Motivation and Objectives for Using IDIQ Contracting

Motivations	CFLHD	NYSDOT	FDOT	MoDOT
Cost-related objectives				
Reduce preconstruction cost	✓	✓	✓	✓
Reduce construction cost				✓
Encourage price competition	✓			
More value for agency' money			✓	
Schedule-related objectives				
Reduce/compress/accelerate project delivery period	✓	✓	✓	✓
Flexibility in delivery scheduling	✓	✓	✓	✓
Quality-related objectives				
Increase quality	✓	✓		
Reduce risk related to contractor poor performance	✓			
Reduce risk of contractor default	✓			
Contract administration-related objectives				
Funding flexibility	✓			
Cooperative relationship between agency and contractor(s)		✓		✓
Reduced agency staffing requirements		✓		
Usefulness in emergency situations	✓			
Limited owner's commitment (contractual minimal quantity)		✓		
Reduce change orders				✓
Minimize unbalanced bids				✓

Table 3.2 shows that all four agencies shared the desire to compress the delivery schedule, reduce preconstruction costs, and gain scheduling flexibility. Once again, the notion that

compressing the schedule is the primary owner's motivation for implementing alternative project delivery is validated (31). Only two agencies (CFLHD and NYSDOT) reported the potential to incentivize contractor performance as part of their IDIQ motivation by indicating quality-related objectives. It is also interesting to note that agencies cited more contract administration objectives than the classic cost, schedule and quality objectives. This testifies to the administrative flexibility that is inherent to IDIQ contracts, mainly due to the ability to deliver multiple small projects using a single procurement action that may extend across several years.

Figure 3.1 illustrates the IDIQ experience of each agency in terms of length of time, number of contracts, and average contract size. There are several aspects in information shown in the figure that must be mentioned before analyzing this section. Although FDOT has awarded a large number of DBB – IDIQ (Push-Button) contracts, the figure only refers to DB – IDIQ contracts that are similar to the case study contract. Likewise, even though the FHWA has extensive experience with IDIQ contracting, the case project study agency, CFLHD, only has 4 years of experience. However, CFLHD construction practices are based on the FAR and therefore, the CFLHD IDIQ program is based on a mature set of policies and procedures, making it an "experienced agency" when compared to the three state DOTs. This is given that the FAR is expected to reflect optimum practices resulted from years of experience of all US Federal organizations, regulations that were introduced in 1984 by the Administrator of General Services, the Secretary of Defense; and the Administrator for the National Aeronautics and Space Administration (35).

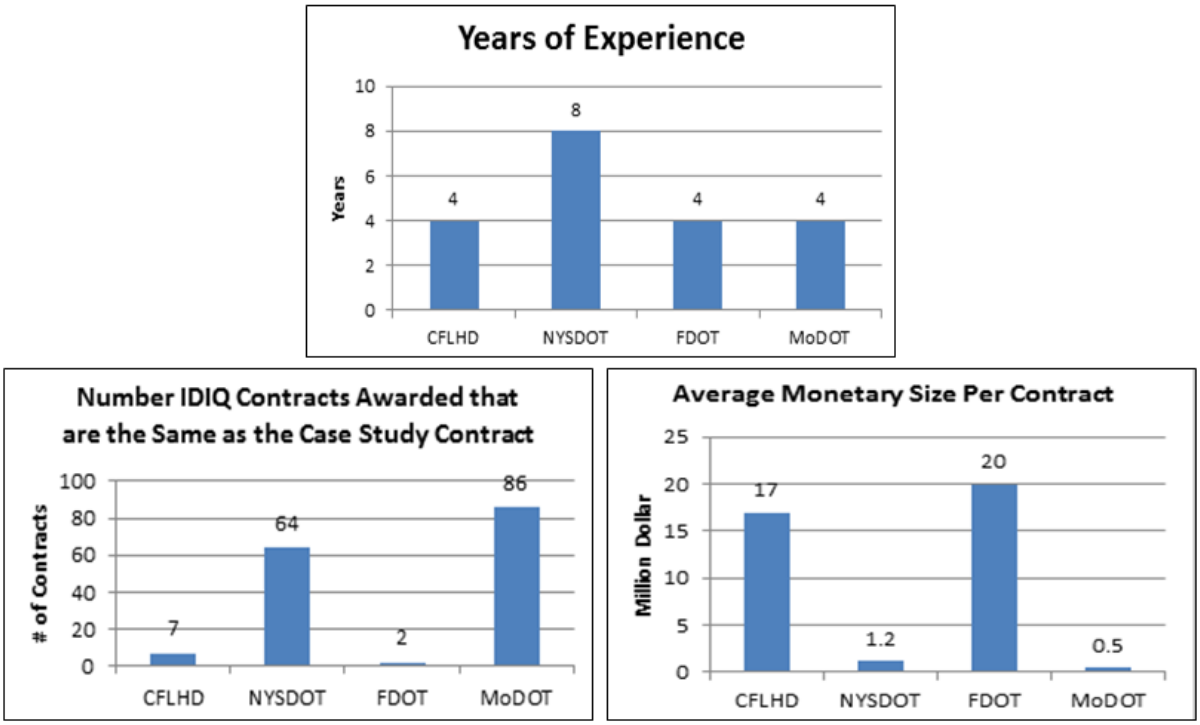


Figure 3.1. Agency IDIQ contract experience.

By combining Figure 3.1 with the information found in the literature review, it is also possible to identify three different risk tolerance-related approaches. First, agencies like MoDOT prefer to

award a large number of small contracts. Since April 2010, MoDOT have awarded 86 IDIQ contracts for an average expected maximum amount of $500,000. Additionally, more than 50% of these contracts had an original expected maximum amount of $300,000 or less, while roughly 20% were estimated to go up to $1 million or above, with the largest contract estimated to be about $1.5 million. On the other hand, with twice as many years of experience as MoDOT, NYSDOT has awarded 64 IDIQ contracts, 22 less than MoDOT with an average monetary size of $1.2 million. Finally, agencies like FDOT award larger contracts on a less frequent basis. In a three years period FDOT has awarded only 2 DB-IDIQ contracts, each of them for an original estimated amount of about $20 million.

In a single year MoDOT, NYSDOT, and FDOT spend relatively the same amount of money in IDIQ contracts for minor construction, repair and maintenance projects (between $8 and $9 million), but with difference in the number of contracts awarded and the monetary size of each of them. This difference can be related to the risk each agency is willing to accept under each contract in spite of the fact that IDIQ contracts are typically considered by agencies as low risk acquisition alternatives regarding contractor poor performance and default (26). This is because typically agencies are only committed to the guaranteed minimum amount of work in the contract, contractors are motivated by the possibility of future work orders, and in the case of multiple award contracts, there are more firms willing to complete unfinished work orders left by other contractors. When awarding a single award IDIQ contract, the agency typically knows the types of the projects to be developed under the contract. The procurement process provides knowledge of costs and qualifications of the contractor to successfully complete all of them. Therefore, risk is directly related to how long the IDIQ contract will be in force and how much funding is allocated to the contract. Hence, it can be concluded that a large, long-term IDIQ contract would correlate to a higher risk profile than a small short-term contract. From the information in Figure 3.2, one can infer that MoDOT by using lots of small IDIQs would illustrate a low risk approach; whereas, CFLHD and FDOT with a small number of large IDIQ contracts represent high risk approaches. NYSDOT is in between and can therefore be classified as using a medium risk approach to its IDIQ program.

3.4 Agency Procurement Models

Analysis of the case studies identified the three different procurement models shown in Figure 3.2.The primary difference among the three models is the number of contractors involved in a single contract and the methods used to select these contractors. For instance, federal agencies such as CFLHD prefer multiple award task order contracts (MATOCs), while the state agencies have a preference for single award IDIQ contracts. Federal agencies expect competition for task orders to increase product quality and timeliness of deliveries, as well as reduce project costs (1, 28). Likewise, by involving multiple firms in the contract, Federal agencies mitigate the risk of contractor default or poor performance. Additionally no price escalation procedures are required for typical multiple award IDIQ contracts since contractors bid current market prices for each work order. This preference for multiple award contracts is also reflected in the fact that the FAR clearly expresses a preference for this contracting approach by directing federal contracting officers to justify using a single award IDIQ and gain authorization before advertising (4).

On the other hand, the literature found that state transportation agencies prefer to use single award IDIQ contracts for minor construction, repair, and maintenance projects. One reason may

be that single award IDIQ contracts allow agencies to develop more expeditious methods to issue task orders under a contract given that there is no competition involved in this process (1). With the exception of FDOT which awards $20 million IDIQ contracts to single contractors, the remaining three agencies seem to prefer awarding lower volume IDIQ contracts with small task orders, which may make it impractical to multiple award contracts.

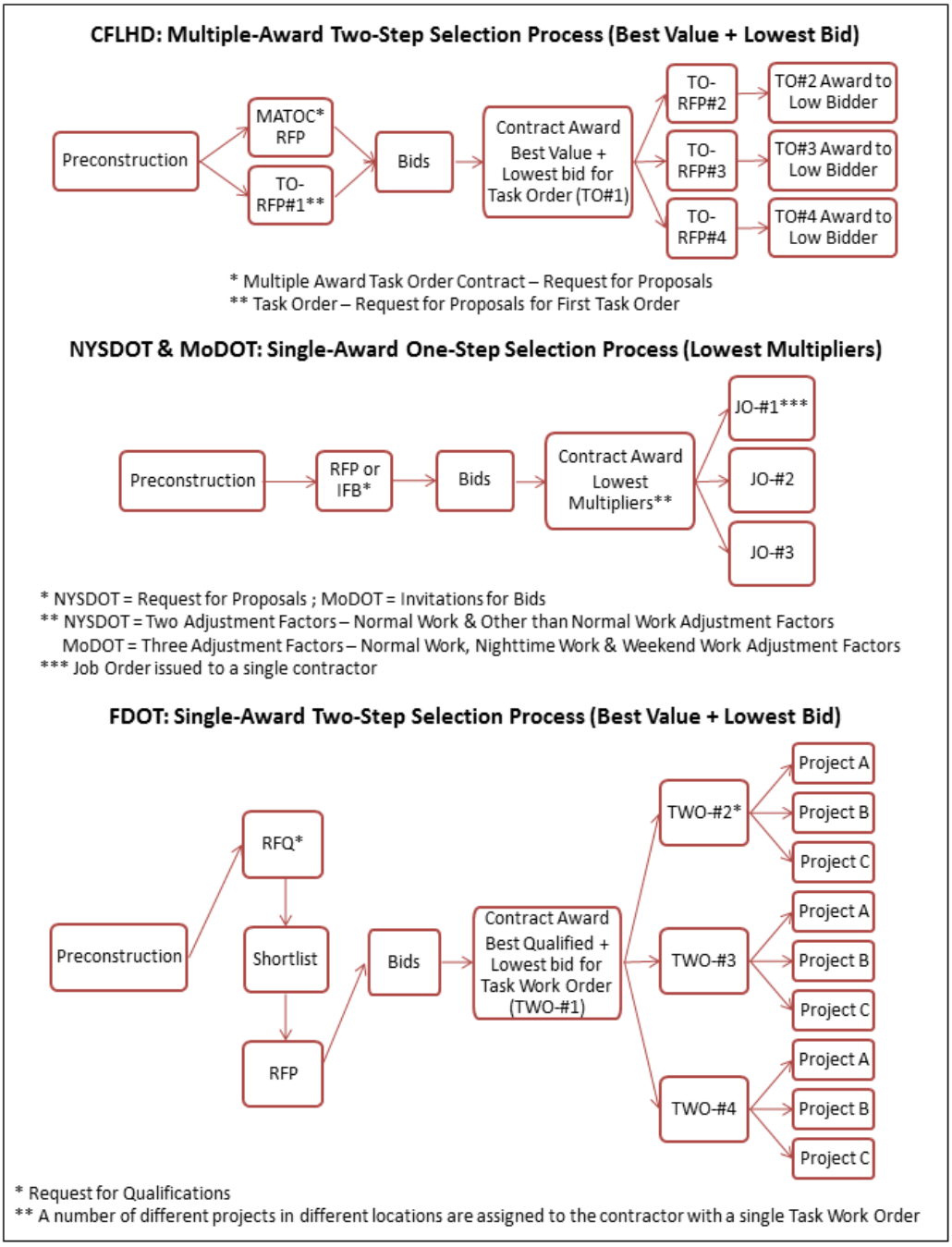


Figure 3.2. Case studies procurement methods.

3.5 Contractor Selection Process

The four case studies utilize two different contractor selection methods. CFLHD and FDOT use a two-step selection process, consisting of evaluating the qualifications and past performance of each proposer followed by receiving bids price for the first job order (task order in MnDOT jargon) from short-listed contractors. CFLHD advertises the RFP for the contract including the technical scope for the first task order. The first step is the evaluation of factors such as previous experience, logistic skills, qualifications and financial capability of each bidder. Step-2 involves evaluating the price proposal and selecting the three lowest bids. That group then is permitted to compete for subsequent task orders on a low bid basis. FDOT follows a similar selection process to select a single contractor. The main difference is that FDOT develops a Step-1 shortlist with three or more proposers and only these bidders are requested to submit a full price and technical proposal for the first job order ("task work order" in FDOT jargon).

Alternatively, NYSDOT and MoDOT decided to use a single-step selection approach, in which contractors are only asked to bid different adjustment factors (also called multipliers) based on a fixed unit price list included in the solicitation. The price list includes all pay items to be required for anticipated scope of the contract's job orders. The adjustment factors comprise the contractor's profit and overhead under different working conditions (see Table 3.3). The contract is awarded to the contractor who bid the overall lowest adjustment factors.

Table 3.3. Adjustment Factors (Multipliers)

ADJUSTMENT FACTORS	
NYSDOT	**MoDOT**
Normal Work Adjustment Factor: 7:00 am to 5:00 pm Monday-Friday	**Normal Work Adjustment Factor:** 6:00 am to 7:30 pm Monday-Friday
	Nighttime Work Adjustment Factor: 7:30 pm to 6:00 am Monday-Thursday
Other than Normal Work Adjustment Factor: 5:00 pm to 7:00 am Monday-Friday All day Saturday, Sunday and Holidays	**Weekend Work Adjustment Factor:** 7:30 pm Friday - 6:00 am Monday Holidays

In addition to the case studies, the research team found that the Massachusetts Department of Transportation (MassDOT) awards IDIQ contracts based on the lowest price list proposed by bidders, similarly to MnDOT. Basically, they advertise a solicitation with a list of pay items and bid quantities based on the first task order plus other items that may be used on subsequent task orders that must be priced and submitted by proposers; thus, the contract is awarded to the lowest bid for the bid quantities in the same manner as a DBB contract for a single project.

Considering each agency's IDIQ contract risk approach with the contractor selection method allows one to conclude that those agencies adopting higher risk approach utilize the more complex two-step selection processes in order to ensure the selection of competitive contractors with relevant experience and qualifications. By doing this, the agency intends to mitigate the risks of poor quality, late deliveries and contractor default by a rigorous prequalification process before considering price.

3.6 IDIQ Proposal Submittal Contents

The complexity of the procurement processes is also reflected in the amount of requirements to be submitted by proposer to compete for these contracts (see Table 3.4). In order to determine the technical and financial suitability of proposers, CFLHD and FDOT require the submission of a larger number of requirements whose evaluation implies a greater expenditure of time, and other resources in the procurement process. However, by awarding larger, longer contracts CFLHD and FDOT minimize the number of procurement actions on a single contract. Thus the two agencies need to procure IDIQ services once every one or two years, whereas, NYSDOT and MoDOT conduct shorter, smaller procurement processes 8 and 30 times per year respectively.

Table 3.4. Agency Submittal Requirements

Requirements	CFLHD	NYSDOT	FDOT	MoDOT
Organization structure/chart	✓		✓	
Previous relevant contracting experience	✓		✓	
Previous contracts contact information	✓			
Team Work qualifications	✓		✓	
QA/QC program	✓		✓	
Subcontracting plan	✓			
Logistics Plan	✓		✓	
Price list for entire contract			✓	
Price list for first task order	✓		✓	
Adjustment Factors (multipliers)		✓		✓
Proof of financial capability	✓		✓	
Proof of bonding capability	✓			
Bid bond	✓	✓		✓

3.7 Funding and Payment Provisions

Table 3.5 presents more information about the IDIQ contracting practices of these four transportation agencies, specifically about payment provisions. This table also indicates for each case study how funds were obtained and when they were secured. By checking Table 3.5, one can see how agencies adopt different methods to tackle each factor; decisions that are usually made base on Federal or local regulations, specific contract features or agency convenience.

Table 3.5. Funding and Payment Provisions

Provisions	CFLHD	NYSDOT	FDOT	MoDOT
Task order compensation method	Fixed Price	Fixed Price	Fixed Price	Unit Price
Funding	Federal	Federal (SEP-14)	State & Federal (Federal Safety Funds)	State
When are funds assigned?	When anticipating a task order	At the beginning 100% of maximum quantity	Funds for this kind of projects are assigned in July every year	When anticipating a Job Order

3.8 Contract Period and Capacity

To better understand each case study agency's method for establishing contract periods and maximum contact amounts, it is necessary to remember the different contracting approaches discussed in a previous section. Information contained in Table 3.1 reflects how NYSDOT and MoDOT award shorter, smaller contracts, while FDOT awards multi-year, multimillion dollar contract. The table does not show that NYSDOT and MoDOT execute a number of simultaneous IDIQ contracts in a single year, ordering a similar volume of work as FDOT over the same period of time. All of the case study contracts include the possibility of both extending the initial contract period and increasing total capacity of the contract. Both features function to create an incentive since the decision to extend the contract and/or increase the capacity depends on satisfactory contractor performance during the original contract period.

Another decision that an agency must make when developing an IDIQ system is whether to stipulate minimum and maximum contract amounts for single work orders. This decision is normally governed by applicable regulations or statutory constraints, and if it is not, becomes a matter of agency preference. In federal-aid projects, Part 16 of the FAR obliges agencies to state maximum and minimum amounts for the entire contract, which is seen in case studies that involve Federal aid (CFLHD, NYSDOT and FDOT). While CFLHD and NYSDOT determine a standard minimum total amount to be used in all IDIQ similar contracts, FDOT establishes this minimum amount based on the total cost of the first job order which is awarded along with the contract. In the FDOT DB – IDIQ case, the minimum amount for the first job order was $12.5 million. FDOT also permits the bundling of multiple projects in multiple locations on a single job order. The case study contract had 13 job orders. The first job order included 11 different projects which represent more than 60% of the maximum expected cost for the contract. This high amount of work in a single job order clearly demonstrates the level of risk FDOT is willing accept and shows its confidence in its IDIQ contracting approach.

Chapter 4
Outreach Surveys

This chapter presents a description of the outreach surveys including objectives, description of participants, and some general findings not specifically related to mobilization expenses, price escalation, or IDIQ surety bonds since these topics are contained in separate chapters.

Valuable information and recommendations were obtained from the analysis of these case studies. However, the study also found some key topics that require further attention to optimize contracting procedures and minimize the risk assumed by MnDOT and other parties involved in IDIQ contracts. The surveys comprised and analyzed in this report are aimed to address these key topics, which are: mobilization, escalation, and construction surety bonds for IDIQ contracts.

4.1 Survey Objectives

This section presents a list of specific objectives to be accomplished by this survey. These objectives were jointly determined by the research team and MnDOT representatives.

- Determine an appropriate method to compensate contractors for mobilization expenses in accordance with the uncertainty inherent in IDIQ contracting.
- Determine an appropriate method to escalate unit prices over time in multi-year IDIQ contracts, in order to compensate contractors for changes in the construction market.
- Determine a performance bond scheme that better fits the specific requirements of IDIQ contracting without impacting more than necessary contractors' bonding capability, and without compromising the success of the project.
- Identify the typical and potential sources of risk in IDIQ contracting and formulate recommendations to handle and mitigate this risk.

4.2 Data Collection and Survey Participants

Table 4.1. IDIQ Surveys Summary

IDIQ Survey Summary			
Launch Date: January 2, 2014			
Closing Date: January 20, 2014			
	Surveys Sent	**Total Responses**	**Response Rate**
Contractors	338	56	17%
Staff	54	54	100%
Sureties	194	39	20%
Total	586	149	25%

Data for this study was collected through three different online anonymous surveys sent to three different types of participants: contractors and subcontractors, MnDOT staff involved in the planning, execution, and closing of IDIQ contracts, and representatives of surety companies doing business in Minnesota. For the purposes of this report, these participants will be referred as

contractors, staff, and sureties, respectively. Table 4.1 summarizes some technical information about these surveys.

4.2.1 Contractors

The contractors' survey was sent to 338 potential bidders and subcontractors members of the Association of General Contractors (AGC). These contractors were selected by MnDOT based on their previous and potential participation in MnDOT construction projects.

As shown in Table 4.2, the majority of contractors (74%) said to have some kind of experience with IDIQ contracting. For this subgroup of participants there were another set of questions aimed to describe they experience and intended to determine their perception of IDIQ contracting in comparison with more traditional delivery methods.

Table 4.2. Contractors' Experience with IDIQ Contracting

Question: Does your company have any experience with IDIQ contracting (bid, work as subcontractor, etc.)?			
Answer		Response	%
Some experience with IDIQ		28	74%
NO experience with IDIQ		7	18%
Don't Know if Have Experience		3	8%
Total		38	100%

In an effort to take advantage of the knowledge and experience of all contractors participating in this study, the research team attached to the survey an IDIQ introductory guide to allow those contractors with no experience in IDIQ contracting to give out a concept in subjects such as mobilization, escalation, bonding, and risk perception in regard to this innovative contracting approach.

Table 4.3 presents a detailed description of the experience of the contractors regarding IDIQ contracting and in accordance with the type of agency in charge of the projects. Percentages in Table 4.3 are calculated out of the actual number of participants that answered this question (25 contractors). For example; 40% of those who answered this question have bid on MnDOT IDIQ contracts that have not won. Likewise, 84% (21 contractors) of those who answered this question have participated somehow in IDIQ contracts awarded by MnDOT.

Table 4.3. Contractors' Experience with IDIQ Contracting per Type of Agency

Contractors' Experience Summary						
Type of Agency	Awarded a Contract	Bid but not Awarded	Work as Subcontractor	Other	Total Responses	
MnDOT	36%	40%	36%	0%	21	84%
State agency in MN (other than MnDOT)	20%	12%	20%	4%	8	32%
Municipal agency in MN	20%	8%	12%	4%	7	28%
State DOT (Other than MnDOT)	12%	8%	16%	4%	6	24%
State agency in other state (not a DOT)	8%	8%	12%	4%	4	16%
Municipal agency in other state	16%	12%	16%	4%	7	28%
State agency in MN (other than MnDOT)	24%	16%	12%	8%	10	40%

In spite of the fact many contractors in this study has participated (in one way or another) in

MnDOT IDIQ contracts, Table 4.3 shows that their experience is not limited to this agency. There are contractors that have been involved in municipal, state, and/or federal IDIQ contracts awarded by transportation and non-transportation agencies. The different backgrounds and profiles of the participants contributed to the collection of valuable data and inputs that will allow MnDOT to take advantage of lessons learned by these contractors and best practices identified from their participation in several IDIQ contracts in different industries.

4.2.2 MnDOT Staff

This survey was sent to 54 MnDOT staff directly or indirectly involved in contracting procedures and MnDOT construction projects. As shown in Table 4.4, more than 90% of the participants in this survey are related in any way to the planning, execution, or closure of IDIQ contracts. Although this is a relatively new contracting approach for MnDOT and most of its awarded IDIQ contracts are still in an early stage of implementation, it is important to collect experiences and opinions from those that have participated in these contracts to improve current IDIQ practices and correct possible issues in upcoming projects.

Table 4.4. Staff Participation in MnDOT IDIQ Contracts

Question: Are you related in any way to the planning, execution or closure of MnDOT IDIQ contracts?			
Answer		Response	%
Involved in IDIQ contracts		38	95%
No involve in IDIQ contracts		2	5%
Total		40	100%

It is also important to determine if those managing and administrating MnDOT IDIQ contracts have some previous experience with IDIQ contracts executed by other owners or organizations. One question in the staff's survey asked the participants if they have been involved in any way with this type of contracts, but awarded by an agency other than MnDOT, either as owner or contractor. Answers to this question are comprised in Table 4.5. Some answers of those with external IDIQ experience will be individually analyzed in order to know their opinions regarding some key aspects and compare them with the rest of the responses. Additionally, Table 4.6 shows the number of contracts in which they have worked. A closer look at this data revealed that the participant with experience from the contractor's point of view is the one who has worked in more than four projects.

Table 4.5. Staff Experience in External IDIQ Contracts

Question: Have you ever participated in the planning, execution and/or closure of IDIQ contracts awarded by others agencies (other than MnDOT)?			
Answer		Response	%
Yes (as owner)-Participated		4	10%
Yes (as contractor)-Participated		1	3%
No-Haven't Participated		35	88%

Table 4.6. Staff Participation in External IDIQ Contracts –Number of Contracts

Question: How many external IDIQ contracts have you been involved in?			
Answer		Response	%
1		2	40%
3		1	20%
>4		1	20%
Don't Know		1	20%
Total		5	100%

4.2.3 Surety Companies

The sureties' survey was sent to 194 representatives of 53 different surety companies. These companies are all the members of the Minnesota Surety Association. As done with the contractors' and staff's surveys, it was necessary to determine the experience of these professionals and their companies in order to elaborate a profile of the participants. In this case, a list with different terms used to refer to IDIQ contracts was provided to participants and they were asked if their companies have furnished bonds for any of those types of contracts. The following list contains the terms presented to the participants and Table 4.7 summarizes their answers regarding this question.

- Indefinite Delivery/Indefinite Quantity (IDIQ) Contract
- Task Order Contract
- Job Order Contract
- Delivery Order Contract
- On-Call Contract

Table 4.7. Sureties' Experience with IDIQ Contracting

Question: Have you furnished bonds for any of the following types of contracts?			
Answer		Response	%
Yes		32	94%
No		1	3%
Don't Know		1	3%
Total		34	100%

Since the beginning of this research project, the selection of an appropriate performance bond scheme has represented a main concern for the research team and MnDOT. After conducting the literature review and the case study analysis, it was concluded that there is not a common criteria between transportation agencies to handle this specific aspect. Unfortunately, there is little or no research about this subject that helps MnDOT to develop an appropriate bonding scheme for IDIQ contracts. However, the inclusion of surety companies in this study will provide new tools to MnDOT to make an effective decision about this matter. Unlike state DOTs, surety companies seems to have more experience with this innovative contracting approach. Using this survey and the opinions of contractors and MnDOT staff about this subject, the research team will recommend a performance bond scheme aimed to benefit bidders by stating fair bonding requirements, and with compromising the success of the task orders issued under the contract. By doing this, MnDOT will be able to increase the participation of small contractors in its IDIQ contracts; an issue that was strongly emphasized by the surety professionals in this study.

Chapter 5
Mobilization Expenses

This chapter comprises principal findings and recommendations in regard with the compensation of contractors for mobilization expenses in IDIQ contracts. First, it presents some findings and conclusions obtained from the case study analysis. Subsequently, it analyzes different potential mobilization clauses included in the surveys to recommend and appropriate approach to address this issue.

5.1 Compensation Methods in Case Studies

As shown in Table 5.1 the four case studies present different approaches to compensate contractors for mobilization expenses. Nonetheless, the are some aspects that are not explained in this table. For example, NYSDOT reimburse mobilization costs in three different ways. First, the Construction Task Catalog (list of unit prices to be used along the contract) contains some mobilization pay items for special equipment. Second, some relevant unit prices include mobilization costs. Finally, other mobilization costs that the contractor considers not covered by the two options mentioned before are expected to be covered by the Adjustment Factors, so firms must consider this aspect when submitting their factors.

Similarly, MoDOT includes some mobilization items on its Fixed Unit Price List (list unit prices to be used along the contract); however, this is the only manner to reimburse these costs. The number of items MoDOT includes for this purpose depends on the scope of the contract and they are expected to be used in accordance with the nature of each job order. On the other hand, the multiple award approach allows CFLHD to request contractors to bid a lump sum mobilization price on a task order basis, relying on obtaining low and competitive prices. Ultimately, FDOT tackles this issue by asking proposer to submit a "Maintenance of Traffic plus Mobilization" (MOT + MOB) item for the first task work order (see Table 5.1). This item represents a percentage of the total proposed construction cost for that order; a percentage that must not exceed 20% and which will be used for all subsequent task work orders.

Table 5.1. Case Studies: Mobilization Compensation Approaches

Mobilization Clauses			
CFLHD	**NYSDOT**	**FDOT**	**MoDOT**
Bid per Job Order	Construction Task Catalog includes some mobilization pay items	(MOT + MOB)* is a percentage of construction cost	Fixed Unit Price List includes pay items for mobilization
*Maintenance of Traffic (MOT) & Mobilization (MOB), paid as a percentage of the construction cost (<20%).			

5.2 Survey Analysis: Mobilization

Before analyzing the data collected by these surveys in relation to appropriate mobilization compensation methods, it is necessary to determine current IDIQ techniques. Table 5.2 shows different approaches adopted by MnDOT in 22 IDIQ contracts awarded between April 2013 and June 2013. It is important to remember that these are the first IDIQ contracts awarded by MnDOT and the agency is still in a process of standardization of IDIQ procedures.

Table 5.2. MnDOT Current Mobilization Compensation Approaches

Current Mobilization Compensation Approaches	
Approaches	Number of Contracts
No separate Mobilization pay item. Mobilization expenses included in the bid items	14
Mobilization expenses included by contractors into one of the pay items	4
No mobilization clauses or individual pay item found in contract documents*	2
One mobilization pay item bid by contractors to be paid on each task order	1
One mobilization pay item bid by contractors to be paid by culvert treatment	1

* It is assumed that in this case mobilization expenses are included in the bid items.

Once identified, the need for a standard and suitable method to compensate contractors for mobilization expenses incurred during the performance of each task order and based on a comprehensive literature review and the case study analysis, the research team and MnDOT representatives developed four different approaches to address this issue. Contractors and staff were asked to rank these alternatives from the most suitable (1) to the least (4). They were also asked to indicate those alternatives that they consider no suitable at all by assigning a zero value. Likewise, the repetition of rank position was allowed for those alternatives they considered equally valuable. Tables 5.3 and 5.4, and Figures 5.1 and 5.2 present the rakings obtained from both groups of participants.

In the case of the ranking obtained from contractors (Table 5.3), their perception about the suitability of these mobilization compensation alternatives seems to be easy to read. However, it is not case of with MnDOT staff. It is easy to identify the most suitable option in Table 5.4 from the staff's perspective. Nevertheless, it is a little harder to assign the second and third positions in this ranking. This drawback can be easily overcome by using the *mean* column to measure the suitability of these alternatives, assigning a value of 5 when a particular option was considered no suitable at all. Thus, those alternatives with low overall rankings, with 1 being the minimum possible mean, will be preferred over those with high overall values, with 5 being the maximum possible mean.

Table 5.3. Contractors' Ranking of Mobilization Compensation Approaches

Question: Please rank the following methods for compensating the contractor for mobilization from the most suitable for IDIQ contracting (1) to the least (4). Put 0 (zero) in those options that you consider not suitable at all, or repeat the number in options that you consider equally suitable.							
Contractors: Mobilization Compensation Approaches	Ranking					Total Responses	Mean
	1	2	3	4	0		
Option 1: Fixed percentage of the construction cost stated by MnDOT and applied to each Task Orders.	4	7	10	8	8	37	3.24
Option 2: Fixed percentage bid by contractors to be applied to each Task Order and factored into the selection of the low bid.	5	12	8	6	6	37	2.89
Option 3: Fixed price bid by contractors to be used on each Task Order.	19	5	6	5	2	37	2.08
Option 4: No separate mobilization pay item. Mobilization expenses are included in the bid items.	1	1	4	15	16	37	4.19

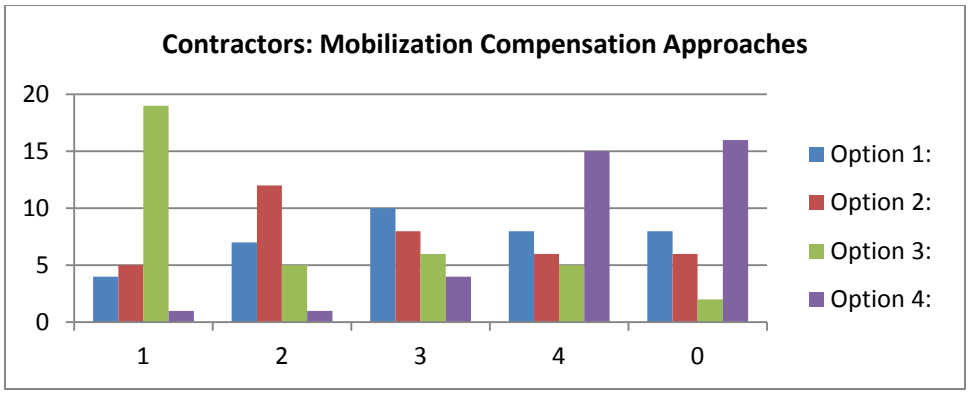


Figure 5.1. Contractors' ranking for mobilization compensation approaches.

Table 5.4. Staff's Ranking for Mobilization Compensation Approaches

Question: Please rank the following methods for compensating the contractor for mobilization from the most suitable for IDIQ contracting (1) to the least (4). Put 0 (zero) in those options that you consider not suitable at all, or repeat the number in options that you consider equally suitable.							
Staff: Mobilization Compensation Approaches	Ranking					Total Responses	Mean
	1	2	3	4	0		
Option 1. Fixed percentage of the construction cost stated by MnDOT and applied to each Task Orders.	5	8	8	3	4	28	2.75
Option 2. Fixed percentage bid by contractors to be applied to each Task Order and factored into the selection of the low bid.	6	7	9	5	2	29	2.66
Option 3. Fixed price bid by contractors to be used on each Task Order.	12	8	8	3	0	31	2.06
Option 4. No mobilization. Mobilization expenses are included in the bid items.	7	5	1	17	5	35	3.23

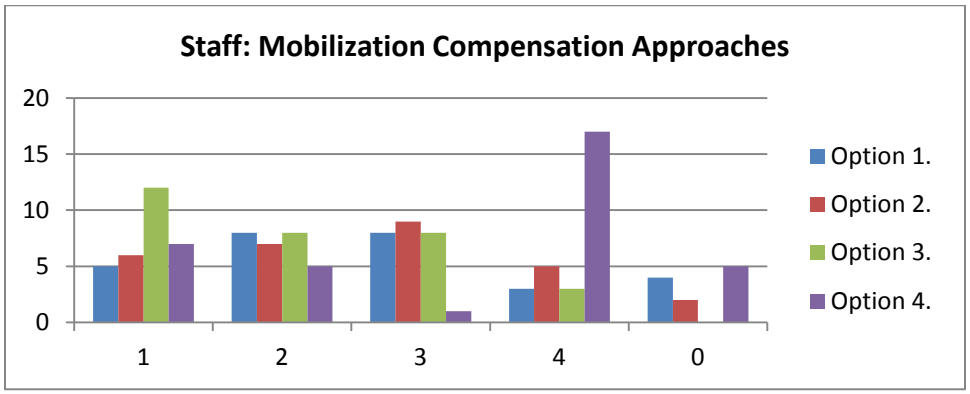


Figure 5.2. Staff's ranking for mobilization compensation approaches.

From Table 5.3 and 5.4 it can be concluded that contractors and staff in this study have a similar perspective about the suitability of the four mobilization compensation alternatives presented to the participants in this survey. As shown in Table 5.5, the analysis of both surveys (contractors and staff) came out with the same ranking. Therefore, it seems that the most suitable option to compensate contractors for mobilization is option 3, in which contractors are required to bid a fixed mobilization price to be used on each task order. On the other hand, the used of no separate

mobilization pay item, which means that mobilization expenses should be included by contractors in the bid items, seems to be least suitable alternative. In fact, for most contractors it is not a possible option.

Table 5.5. Contractors' and Staff's Ranking for Mobilization Compensation Approaches

Final Ranking – Mobilization Compensation Approach				
Staff: Mobilization Compensation Approaches	Contractors' Ranking		Staff's Ranking	
	Mean	Ranking	Mean	Ranking
Option 1. Fixed percentage of the construction cost stated by MnDOT and applied to each Task Orders.	3.24	3	2.75	3
Option 2. Fixed percentage bid by contractors to be applied to each Task Order and factored into the selection of the low bid.	2.89	2	2.66	2
Option 3. Fixed price bid by contractors to be used on each Task Order.	2.08	1	2.06	1
Option 4. No mobilization. Mobilization expenses are included in the bid items.	4.19	4	3.23	4

In order to collect additional inputs and opinions from contractors, staff, and surety companies, an open question was included at the end of each survey asking participants to submit any supplementary comment they may had. Table 5.6 comprises some comments submitted by contractors and staff regarding mobilization in IDIQ contracting. These comments provide additional information used to get a better understanding about the expected characteristics of an effective method to compensate contractors for mobilization.

Basically, the contractors mentioned two important aspects in these comments. In the first comment in Table 5.6, a contractor refers to the difficulty of bidding on a mobilization pay item without knowing the exact location of the projects to be performed. However, one of the contractors proposed a possible solution to this issue (see comment 3) which seems to be a result of its experience with IDIQ contracts with other agencies. This participant suggests the inclusion of multiple regional mobilization pay items in the contract (i.e. county, MnDOT district) to be used on a per task order basis in accordance with the specific location of each project. The second aspect refers to the importance of viewing task orders as individual projects (see comments 1 and 2). It means that each task order must have separate mobilization pay items to give contractors some flexibility to handle their resources. The research team strongly agrees with this approach. The use of a single mobilization pay item for multiple task orders would increase the already high uncertainty inherent in IDIQ contracts, which in turn would increase the risk perceived by contractors, forcing them to submit higher unit prices, as the situation described in comment 1 in Table 5.6.

Table 5.6. Mobilization Related Comments

MOBILIZATION RELATED COMMENTS	
#	Contractors' Comments
1	We need to know where the work will take place. We've received requests for pricing where we didn't know where the work would even occur. When everything is trucked in our business we need to know location. In another instance 1 mobilization was allowed but the plan presented 2 task orders. One task order was a minimum and the second was probable. The project required the use of a portable asphalt plant. We were forced to include moving the asphalt plant twice to the project site thus increasing our bid price…(partial comment)
2	In my opinion a mobilization work item for each task order is appropriate. The value of the mobilization work item should be taken into consideration when evaluating the total bid price. For example if there are going to be three separate tasks orders, they should be viewed as three separate contracts and should have three separate mobilizations. When mobilization costs are included within work item prices, when there is a reduction in work item quantitities mobilization costs are not recouped and the contractor is financially impacted.
3	… We found that including regional mobilization pricing is beneficial (i.e. maybe by MnDOT district)…(partial comment)
#	Staff's Comments
4	District 8 had success with IDIQ contractors that have historically lower mobilization costs. We struggled with high mob cost contracting. For example, our IDIQ seal coat was seen as successful, however, our bituminous IDIQ was much more expensive than expectations
5	I am currently responsible for administering 3 separate multi-year IDIQ contracts totaling approx. $20M for MnDOT. IDIQ contract needs to reduce the Contractors risk as much as possible. Contract must have a minimum and maximum. The scope of work must be narrow. Task orders must have guaranteed minimum value – that minimum value should be relatively high to absorb mobilization risk/cost. Work area should be limited to a geographic area. Task orders must be issued several months prior to commencing work. If the owner issues a task order not meeting the above criteria, contractor is not obligated to perform at bid price. If this criterion is followed, then mobilization can be incidental to the IDIQ bid items.

On the other hand, the participants in the staff's survey introduce another aspect in regard to this matter. It is the impact of scope uncertainty of IDIQ contracts in the estimation of mobilization expenses. For contracts with a broad scope, with mobilization expenses paid either as a separate pay item or as part of the other pay items, bidders may be forced to estimate mobilization expenses based on a task order with the scope that represents the highest possible mobilization cost. In that case, MnDOT would be paying more of these expenses for all task orders that do not meet the requirements for such high mobilization cost. Two possible approaches to address this issue may be in the IDIQ practices adopted by the NYDOT and MoDOT, as described in section 5.1 Case Studies: Mobilization Expenses. IDIQ contracts awarded by NYDOT include separate mobilization pay items for some special equipment and the remaining part of these expenses are contained in the other bid items or in included in the multipliers. It could be a convenient approach to tackle the situation described in comment 1 with the portable asphalt plant (see Table 5.6). Similarly, MoDOT includes different mobilization pay items in its IDIQ contracts to be applied on a task order basis in accordance with the scope of each task order.

By asking contractors to bid on various mobilization pay items anticipating different potential case scenarios as described in the previous two paragraphs, MnDOT would have more flexibility to execute larger contracts covering more locations with a single solicitation. Thus, contracts with broader scopes and with potential projects distributed in larger regions would require a larger amount mobilization pay items to counteract the scope and location uncertainty. In this

way, the restrictions in scope and geographic area proposed in comment 5 would not be necessary (see Table 5.6).

As a result of this survey and the previous work conducted in this project, the research team has concluded that a suitable mobilization approach would be one in which **contractors are required to bid fixed prices on multiple mobilization pay items, whose applicability will be individually determined by MnDOT on a per task order basis in accordance with the scope and location of each project**. The implementation of this method would require further research to develop efficient procedures to determine the set of mobilization pay items required for a given IDIQ contract.

Chapter 6
Price Escalation

This chapter is aimed to provide a complete assessment of multiple price escalation approaches, including the use of traditional escalation clauses by analyzing twelve different existing construction cost indexes, plus two indexes developed by the research team, a District Construction Cost Index, and a Construction Cost Index by Pay Item. Additionally, the team developed an innovative system to deal with this issue, it is called AxE bidding (Cost times Escalation).

6.1 Cost Escalation vs. Price Escalation

Cost escalation, as used in the context of this report, "refers to the difference between the actual cost […] and the contracted cost" (36) of the project. The difference tends to be positive (actual cost > contracted cost) in long-term contracts (37). The cost increase occurs as a result of changes in material cost, adverse weather, natural disasters, poor project planning, underestimation of costs, and scope changes during the contract period (37, 38, 39).

For the purpose of this report, price escalation or price adjustment refers to changes in bid unit prices to compensate for future changes in the construction market. Therefore, a price escalation/adjustment method refers to clauses aimed to modify unit prices in a given contract as a consequence of observed cost escalation during a given period of time. It is not intended to cover all causes of cost escalation, only those resulting from generalized changes in the construction market mainly related to labor, materials and equipment cost, increases in taxes or interest rates, and other factors that may have a direct impact on contract unit prices. It is important to understand that there are other alternatives to contractually address cost escalation without modifying bid unit prices. Some of these alternatives are change orders, using cost reimbursable contracts, and quantity over/under-run clauses.

The distinction between these two terms was the result of the literature review process. However, it is important to mention that many agencies, such as MnDOT, use the term cost escalation to refer to escalation clauses in construction contracts.

6.2 Price Escalation Clauses in Case Studies

After conducting the literature review and analyzing all the case studies, the research team concluded that there is no common practice for dealing with cost escalation on multi-year IDIQ contracts (see Table 6.1). Each of the case study agencies used different indexes published by different sources. The four agencies included in this study present four distinct alternatives; no cost escalation policy, adjustments by using the Engineering News Record's Construction Cost Index, the Bureau of Labor Statistics' Producer Price Index, and the use of a number of indexes issued by a private engineering consulting company which publishes asphalt market price analysis on a weekly basis. Additionally, the literature showed that some agencies, like the California and South Dakota DOTs use indexes developed specifically from their bid tabulations. Since multiple award IDIQ contracts require the pool of IDIQ contractors to bid against each other for each task order, the need to adjust pricing over multiyear contracts is eliminated.

Table 6.1. Case Studies: Price Escalation Clauses

Price Escalation Clauses			
CFLHD	**NYSDOT**	**FDOT**	**MoDOT**
NA	Annually adjustments of Adjustment Factors by using CCI published by ENR	Adjustments made to monthly payments based on the PPI published by BLS	Adjustments made only to some items on a payment basis using indexes published by Poten & Partners

6.3 Price Adjustment Requirements in IDIQ Contracts

As a result of the literature review and the case study analysis, it was concluded that price adjustment requirements vary in accordance with the IDIQ contracting model. It was determined that escalation clauses are mainly required when using single award IDIQ contracts (40).

Single task order contracts are better suited for construction services required in the short term, usually less than a year (5, 41). Thus, given that traditionally price escalation is performed on an annual basis (13, 22), the use of escalation clauses becomes unnecessary. Alternatively, multiple award contracts tend to be longer (33, 42, 43, 44, 45), but every task order is competitively bid using current market pricing making the need to escalate unit pricing needless.

It is also important to understand the difference between the reasons for using escalation clauses on traditional construction contracts, and the reasons to use them on multi-year single award IDIQ contracts. When bidding on traditionally procured contracts, contractors prepare their price proposals usually based on detailed schedules and designs. Therefore, bidders have a good idea about when, where and how each task will be performed and are able to develop estimates of labor, material and equipment costs for each construction activity. The purpose of escalation clauses in these contracts tend to be either to share the pricing risk for highly volatile commodities like diesel fuel and liquid asphalt (46) or compensate a significant variation (as defined in the contract) in actual quantities of work (13, 46). In other words, a minimum observed variation must occur on construction prices in order to trigger the escalation clause and adjust contract unit prices for the portion of work affected by this variation. For example, state DOTs in Florida, Alabama, North Carolina, and South Carolina require a minimum variation of 5% on selected pay items before authorizing an adjustment on covered pay items (47).

Price adjustment practices appeared in the construction industry as a mechanism to modify the original contract conditions on long-term fixed-price contracts as a result of changes in the construction market or unavoidable delays due to availability of materials (46). Unlike traditional contracts, a long-term single award IDIQ contract is composed of multiple short-term projects (task orders) instead of a single multi-year construction project. The pricing for each task order is drawn from the bid prices provided at letting. This is further complicated by the fact that since only one task order is usually guaranteed to the successful bidder, a prudent contractor is discouraged from attempting to develop pricing for the entire contract period. Therefore, the uncertainty regarding the total scope of work for the life of the contract is high and grows proportionally with the length of the contract (38). There is extensive information in the risk management literature regarding the relationship between contract duration, uncertainty, and perceived risk. Most authors agree that the longer contractors are required to maintain

construction prices, the higher the uncertainty. This higher uncertainty is then reflected in larger contingencies as a risk mitigation strategy (37, 38, 48, 49, 50).

Another way to understand the necessity of price adjustment methods in IDIQ contracting is by considering the difference between a traditional fixed-price three-year construction contract with an IDIQ contract with no escalation clause. Based on the above discussion and assuming that at the end these contracts will produce the same quantities of work, one would expect to find higher unit prices on the IDIQ contract given its higher uncertainty on the actual final scope of work at the time of the bid opening. The way to mitigate the risk generated by this uncertainty and makes long-term IDIQ contracts more attractive for owners and contractors would be requesting bid unit prices for short periods of time, usually a year, and proposing escalation mechanisms to fairly adjust unit prices in subsequent periods in proportion with actual changes in the construction market. In order to retain the advantage of a competitive procurement process (51), price adjustment provisions must be clearly specified in the contract and must be completely understood by the contractor.

In typical IDIQ contracts, agencies commit to a minimum guaranteed amount of work to be ordered, after which the agency is no longer obligated to issue further task orders (52). It should be noted that some IDIQs do not contain a guaranteed minimum. In traditional contracts, agencies must pay either for contingencies generated by including no escalation clauses in the contract (50) or for observed changes in costs during the construction period by adjusting bid unit prices. In contrast, no escalation clauses in multi-year single award IDIQ contracts implies that the contractor establish its unit prices including estimated escalation, which if no task orders are issued after the guaranteed minimum it would make the cost of the initial work order very dear.

6.4 Traditional Price Escalation: Construction Cost Index Analysis

It was concluded from the literature and case study analysis that agencies have a clear preference for the use of cost indexes to measure cost escalation and adjust bid prices. This preference was observed in both IDIQ contracting and traditional contracting. However, there was not an observed preference for a specific cost index. Some agencies use national or local indexes published by governmental agencies such as the Bureau of Labor Statistics (BLS), or by private companies that maintain construction cost databases such as the Engineering News-Record (ENR) and the RSMeans. Likewise, other agencies have decided to create their own construction cost index such as the FHWA and some state DOTs.

Construction cost indexes are used in price escalation methods to measure changes in construction prices from period to period. Typically, the original bid price is defined as the base price, and the last index published by the letting date of the contract becomes the base index (53). Then, based on the price adjustment frequency stated in the contract, variation between the base index and the last index published at the moment of the adjustment is proportionally apply to the base price (53).

Adjustments are either applied to specific materials, construction activities, or to the entire remaining portion of the contract. Similarly, as suggested by the BLS, there are different

escalation clauses or price adjustment methods that may be used in an effort to mitigate or redistribute risk, or to obtain more accurate adjustments (53).

In this research, the team has identified the following common assumptions made when using construction cost indexes to adjust contract prices:

1. Changes in the construction market from period to period have equal or similar impact on all kind of construction projects.
2. Weighted price changes between construction periods in few significant materials or construction components represent an overall construction cost change during the same period of time.
3. Steady quality and production rates over time in construction materials and activities.
4. Construction prices for the oncoming period follow a trend marked between the base period and the last period with known index.

Some of the previous assumptions may be avoided or altered by including specific clauses to restrict/ limit price adjustments, or by creating more dynamic adjustment methods that adapt in accordance with the scope of the projects. For instance, assumptions 1 and 2 above are mainly observed on contracts using escalation clauses based on a composite index. These two assumptions may be avoided when using specific indexes for specific materials to adjust only the unit price of those materials in a given contract. For example, a price escalation method that uses two price indexes; a concrete price index and a steel price index, to adjust the unit prices on these two items only.

6.4.1 Use of Cost Indexes

The BLS in its *Escalation Guide for Contracting Parties* (53) proposes the price adjustment methods presented below, but they can be applied to any of the indexes analyzed in this chapter. A strategic selection of one of these approaches may be useful to mitigate or redistribute the risk related to the use of cost indexes and obtain more accurate adjustments.

- *Simple Percentage Method:* This is the most common mechanism of escalation. Using this method, the base or original price (at letting date) is modified by the same percentage as the change calculated for the index (53). The easiest way to escalate a price using this method is dividing the index at the adjustment date (last published index) by the index at the time the base price was set (base index); then this number is multiplied by the base price. An example of this method is shown in Table 6.2.

Table 6.2. Simple Percentage Adjustment - Example

Base Index (at letting date)	125
Current Index (at adjustment date)	135
Variation (Current Index/Base Index)	1.08
Base Unit Price Pay Item A (at letting date)	$100.00
Adjusted Unit Price (Base Unit Price x Variation)	$108.00

- *Escalation of a portion of the base price:* This method only adjusts a portion of the base price according to the percentage of change in the index. One way to do it is determining a certain

dollar amount to be added or subtracted from the base price for each one-percent change in the selected index (53). Using the example above, and assuming only a 70% of the base price will be escalated, and the other 30% will remain unchanged, the dollar amount to be added or subtracted for each one-percent change in the index may be calculated by dividing the portion of the price to be escalated, $70.00 in this case, by 100. Therefore, the adjusted price can be calculated as following (see Table 6.3):

Table 6.3. Escalation of a Portion of the Base Price - Example

Base Index (at letting date)	125
Current Index (at adjustment date)	135
Variation ([Current Index/Base Index – 1] x 8%)	8%
Base Unit Price Pay Item A (at letting date)	$100.00
Adjustment for each 1-pecent ($70.00/100)	$0.70
Adjusted Unit Price (Base Unit Price + [$0.70 x 8])	$105.60

- *Index Points:* Unlike the two methods mentioned before, this method does not consider the percentage of change in the selected index. A dollar amount is added or subtracted from the base price for each point increased or decreased in the selected index (53). Thus, if in the example illustrated in Table 6.3, the owner agreed to increase or decrease the unit price of item A by $0.5 for each point change in the index, the adjusted unit price of item in this case would be $105.00 ($100.00 + $0.5 x [135 – 125]).
- *Limits for Price Adjustment:* Some contracts include escalation clauses that establish limits to the price adjustments during the period of the contract (53). For instance, an agency may establish maximum and minimum adjusted unit prices for specific pay items beyond which the unit price of those items would be renegotiated. Other kinds of limits incorporated into escalation clauses may be those referred in the previous section, in which a minimum fluctuation in the index may occur (upward or downward) in order to adjust contract prices.
- *Multiple Indexes:* Sometimes, escalation clauses may consider the use of more than one index to adjust a single price. It could be considered a more accurate adjustment since it takes into consideration different factors involved in the production of particular goods or services (53). The following example illustrates the use of composite indexes (see Table 6.4).

Suppose that a particular item in a contract is adjusted using three different indexes; one for labor costs which represents the 30% of the final price; another for materials, 60% of final price; and another for equipment, 10% of final price.

Table 6.4. Multiple Indexes Adjustment - Example

Base Unit Price Pay Item A (at letting date)	$100.00		
	Labor	**Materials**	**Equipment**
Current Index (at adjustment date)	115	145.7	260.1
Base Index (at adjustment date)	111.5	144.0	233.3
Variation (Current Index/Base Index)	1.031	1.012	1.115
Weighted Variation per Index (Labor 30%, Materials 60%, Equipment 10%)	0.31	0.61	0.11
Overall Variation (sum of weighed variations)	1.03*		
Adjusted Unit Price	$103.00		

***** The overall increase in the unit price of this item was 3%

The name used by the BLS for this method is “composite indexes”; however, this name is also used by some agencies to refer to a single index calculated by using multiple weighted elements. For the purposes of this report, this method is referred to as multiple indexes.

6.5 Analysis of Construction Cost Indexes

In order to determine the suitability of construction cost indexes for IDIQ contracting, twelve existing indexes, including one published and maintained by MnDOT (not used on IDIQ contracts) and two indexes developed by the research team by using MnDOT historical bid data (summarized in Appendix N), were applied to four different types of projects over a five-year period, from July 1st, 2008 to July 1st, 2013. Unit prices on these four sample projects were adjusted on an annual basis, and the results of these adjustments were compared with actual observed prices of the same construction activities during the same period of time. This sample projects and their actual observed unit prices are presented in Appendix O.

6.5.1 Configuration of Sample Projects

The types of projects selected for this study are asphalt pavement, concrete pavement, traffic barriers and drainage projects. The selection, scoping, and pricing of sample projects for these four types of contracts were conducted following the steps below:

- Identify types of projects previously awarded by MnDOT as IDIQ contracts, those that MnDOT is planning to develop into future IDIQ contracts, and those repetitive types of projects that traditionally are best suited to IDIQ contracts.
- From the MnDOT historical bid database (54), select a sample project for each type of contract identified in the previous step, in which the most representative items must be characteristic of its category.
- Discard those items whose units are not precisely defined (e.g. each, lump-sum), and keep those with consistent and specific characteristics that allow a price comparison over time.
- Determine the participation (%) of each pay item on the total cost of its respective sample projects and discard irrelevant pay items that do not have a significant impact in the final cost of the projects.
- After checking frequency of occurrence of each pay item in the projects, replace those pay items with low frequency by more repetitive similar items whose price change over time would be easier to track.
- Assign the same final total cost to all four sample projects, $1.5 million, which will represent the total cost for all projects if performed during the first year. Then adjust the total cost of each pay item (quantity x unit price) in order to keep the same proportions of the original contract. Thus, if two different types of asphalt were replaced by a type of asphalt that is more commonly used by MnDOT, the participation in the project (%) of the latest must be equal to the sum of the participation of both discarded pay items.

Mobilization and Traffic Control pay items were not discarded given their high frequency of occurrence on MnDOT construction project and because their removal could unbalance the project affecting its integrity and the results of the study, as it is intended to measure the impact

of the indexes on typical projects. However, these pay items were not annually adjusted, but its participation in the total cost of each project (%) was unchanged along the five years.

There is not a specific reason for the selection of $1.5 million as the base total cost (from July 1st, 2008 to July 1st, 2009) for all projects, it is irrelevant to the goals of the study. Regardless of its value, it is important to have the same base total cost for all sample projects since it makes it easier to compare the impact of the same index on different types of contracts. Quantities and unit prices are also irrelevant for the sample projects, since price changes of each pay item will be applied to the total cost of pay item rather than to its unit price. Nonetheless, the actual variation in the price of each pay item will be measured from observed unit price fluctuations registered by MnDOT for the same item, for a similar work quantity, and in the same period of time.

The two indexes developed by the research team consist of a district index created by using the Chained Fisher Ideal Index Method (55), and other state index by pay item measuring the change in as many pay items as possible. These items were selected in accordance with its frequency of occurrence in MnDOT construction contracts. All analyzed indexes are intended to be applied statewide except for the regional one created by the team. Therefore, the application of the district index in the sample projects must be compared with observed changes in unit prices in a district level.

All bids received by MnDOT between January 2008 and September 2013 for the pay items contained in the sample projects were considered in this study. Historical bid data obtained from MnDOT official website (54) was shaped into a three-dimensional arrangement based on the pay item identification number, letting date, and bid quantity.

Since a deeper analysis on each pay item on the sample projects indicates that units prices in all pay items is inversely proportional to the bid quantity, except in one case (2501603/00124 Lining Culvert Pipe 24”) in which no relation was found between unit price and quantity, and given that average bid quantities on a single pay item may vary from period to period, it was necessary to group all bids received by MnDOT in groups of bids for similar work quantities. Bid quantity ranges for each pay item were determined based on the distribution of the bids on a scatter plot and the average largest variation between the lowest and largest bids received for the same item for the same contract at the same moment. In other words, this average variation was recognized as the typical maximum difference between two bids for the same pay item and quantity. Figure 6.1 and Table 6.5 illustrate the process followed to define the bid quantity ranges for one pay item, and the estimation of average unit prices for that item in six-month intervals.

As will be presented later in this report, the adjustment of the sample projects due to the cost indexes was performed annually since this is the typical time-frame used to adjust construction prices. Adjustment in the actual total cost of all pay items was performed in six-month intervals. This decision was made with the intention of observing the behavior of the prices between adjustments. Actual prices in sample projects were estimated for January 1st and July 1st on each year, from July 2008 to July 2013. Thus, bid unit prices collected by MnDOT between October and March were used to estimate the average unit price of each item in January 1st and those

between April and September to determine the actual average unit price in July 1st (see Table 6.5).

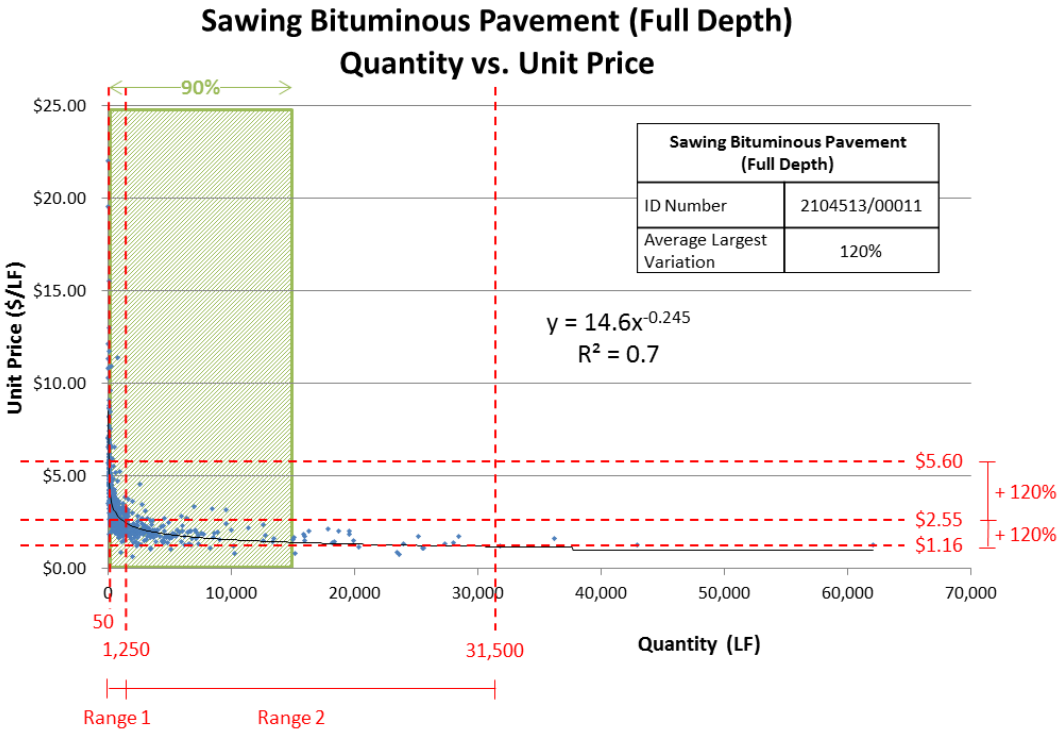


Figure 6.1. Sawing Bituminous Pavement – bid range determination.

Table 6.5. Sawing Bituminous Pavement – Average Unit Price

Sawing Bituminous Pavement (Full Depth) – Average Unit Price ($/LF)												
Time / Quantity (LF)	2008		2009		2010		2011		2012		2013	
	Jul. 1st Apr-Sep	Jan. 1st Oct-Mar	Jul. 1st Apr-Sep	Jan. 1st Oct-Mar	Jul. 1st Apr-Sep	Jan. 1st Oct-Mar	Jul. 1st Apr-Sep	Jan. 1st Oct-Mar	Jul. 1st Apr-Sep	Jan. 1st Oct-Mar	Jul. 1st Apr-Sep	
Range 1 (50 -1,250)	$3.24	$3.68	$3.51	$3.71	$3.34	$4.28	$3.83	$3.67	$3.84	$4.54	$4.05	
Range 2 (1,250-31,500)	$1.96	$1.98	$1.76	$2.04	$2.00	$1.91	$2.21	$2.11	$2.05	$2.06	$2.10	

Variation in the unit price of a single pay item was calculated by computing the arithmetic average of the variations of each quantity range between two periods of time, as shown in the equation 3 below. In order to calculate the unit price variation between two periods in a single quantity range, both periods must contain an average unit for the given item, otherwise, this quantity range is not considered to estimate the final variation for that item in that period. Eq.1 shows how the variation between July 1st 2008 and January 1st 2009 was calculated for the pay item presented in Table 6.5.

$$\frac{Average\ Range\ 1 + Average\ Range\ 2}{Number\ of\ Average\ Rates} = \frac{\frac{\$3.24+\$3.68}{2} + \frac{\$1.96+\$1.98}{2}}{2} = \$2.71 \qquad \text{eq.1}$$

In an effort to discard unbalance bids, those bids with units prices equal to $0.00 (zero) were excluded from the study. Likewise, outliers were removed from the data by applying the modified Z-score method on each quantity range on an annual basis. The modified Z-score method was selected given that it is more suitable for small samples (56), which was the case of some quantity ranges in this study. To use only commonly contracted quantities in the study, the five percent lowest quantities were discarded and quantity ranges were determined until at least 90% of the observations were covered (see Figure 6.1).

6.5.2 Modified Z-Score Method

The modified Z-score method was used in an effort to remove unit prices related to unbalanced bids that could compromise the integrity of the research. Since the use of the mean and sample standard deviation to detect and remove outliers in numerical data sets (commonly used to handle outliers) may not be appropriate for small samples, due to the fact that these tow indicators may be highly affected by one or few extreme values (57), and given that the way in which MnDOT historical data was arranged generated a number of small data sets that were individually analyzed, it was necessary to find a method more suitable for this research.

According to Iglewicz and Hoaglin, the modified Z-score method would be a more appropriate method for this study since it works better for small data sets (56). Instead of the mean and sample standard deviation, this method uses the median ($\tilde{x}$) and the absolute deviation of the median (MAD) to calculate the modified Z-score (M_i) for each number in the sample as shown below (57).

$$MAD = median\{|x_i - \tilde{x}|\} \qquad \text{eq.2}$$

$$M_i = \frac{0.6745\,(x_i - \tilde{x})}{MAD} \qquad \text{eq.3}$$

Where: MAD is the absolute deviation of the median;
x_i corresponds to each number in the data set;
$\tilde{x}$ is the sample median; and
M_i is the modified Z-score for each number in the data set.

Following Iglewicz and Hoaglin's suggestions, all unit prices whose absolute modified Z-score was less than 3.5 ($|M_i| < 3.5$) were removed from the data set (56). In this way, it was possible to obtain more realistic unit prices for the last five years (2008-2013).

6.5.3 Chained Fisher Ideal Index Method

Construction management literature contains a wide range of equations used to develop indexes, but there is one that is frequently found. This equation is the Fisher ideal index (eq. 4). Actually,

this equation is being used by some transportation agencies such as the FHWA, California DOT (Caltrans), and Colorado DOT (58).

$$F(p) = \sqrt{\frac{\sum_{i=1}^{n}(p_{it}q_{it})}{\sum_{i=1}^{n}(p_{i0}q_{it})} \times \frac{\sum_{i=1}^{n}(p_{it}q_{it})}{\sum_{i=1}^{n}(p_{i0}q_{it})}} \quad \text{eq.4}$$

Where:
$L = Laspeyres\ price\ index$
$P = Paasche\ price\ index$
$F = Fisher\ price\ index$
$p = Average\ unit\ price$
$q = Total\ quantity\ of\ work$
$n = Number\ of\ pay\ items\ used\ to\ calculate\ index$
$0 = Base\ reference\ period$
$t = Period\ for\ which\ the\ change\ in\ price\ is\ being\ measured$

Therefore, p_{it} represents the average unit price of the pay item i during the period for which the change in price is being measured. Similarly, q_{i0} represents the total quantity of work for the pay item i performed during the base reference period.

The Fisher ideal index equation is usually calculated in relation to a base reference period as shown in eq. 4. However, the Chained Fisher Ideal Index Method suggests the calculation of the index in relation to the previous year (55). Therefore, the subscript 0 in eq.4 should be replaced by $t - 1$. Thus, the process of calculation of this index basically consists of multiplying the outcome from eq. 4 by the index for the previous period.

Eq. 4 is being used in cost indexes in which the base period is equal to 1 (one), such as the National Highway Construction Cost Index (NHCCI) published by the FHWA, or in indexes with base periods equal to 100. Nonetheless, it seems the most agencies prefer to use a base period index equal to 100. In fact, the NHCCI is the only index used in this study with a base period index equal to 1. It may be because in this way the index is easier to read a percentage of change. Based on the evident preference for indexes with base period index equal to 100, the research team decides to use this approach for the proposed indexes. It is important to note that the index by pay item was not developed by using the Fisher equation. It uses an aggregated price equation which will be explained later in this report.

6.6 Sample Projects: Actual Project Cost

Before comparing the impact of different cost indexes on the four sample projects, the actual costs of these projects were calculated on six-month intervals and compared with each other. Figures 6.2, 6.3, and 6.4 illustrate the average costs for these projects at the state level, for Metro and District 6, respectively. Figures 6.3 and 6.4 will be used to evaluate the proposed regional index. Actual costs presented in these figures represented average costs for these projects for the five-year period comprised in this study.

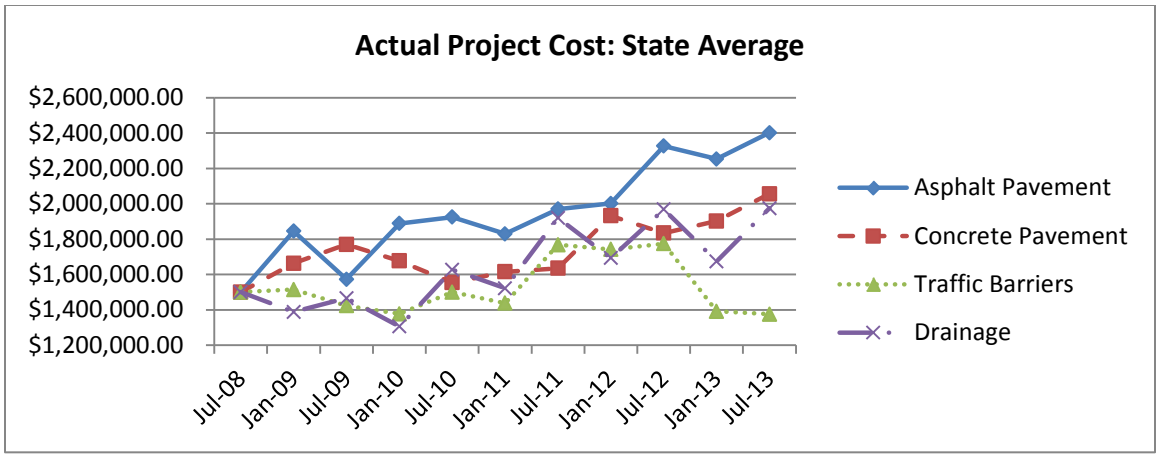


Figure 6.2. Actual project cost – state average.

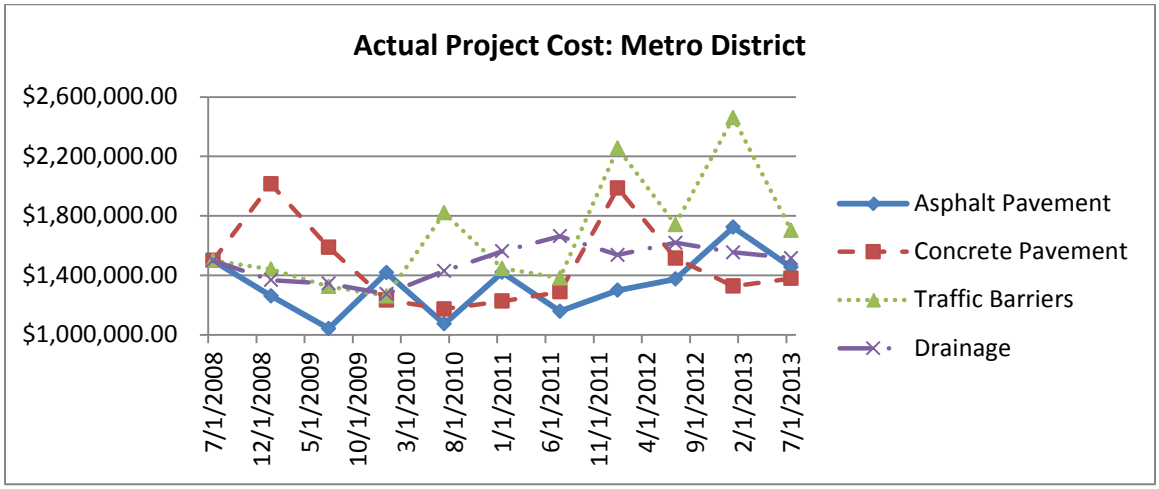


Figure 6.3. Actual project cost – Metro District.

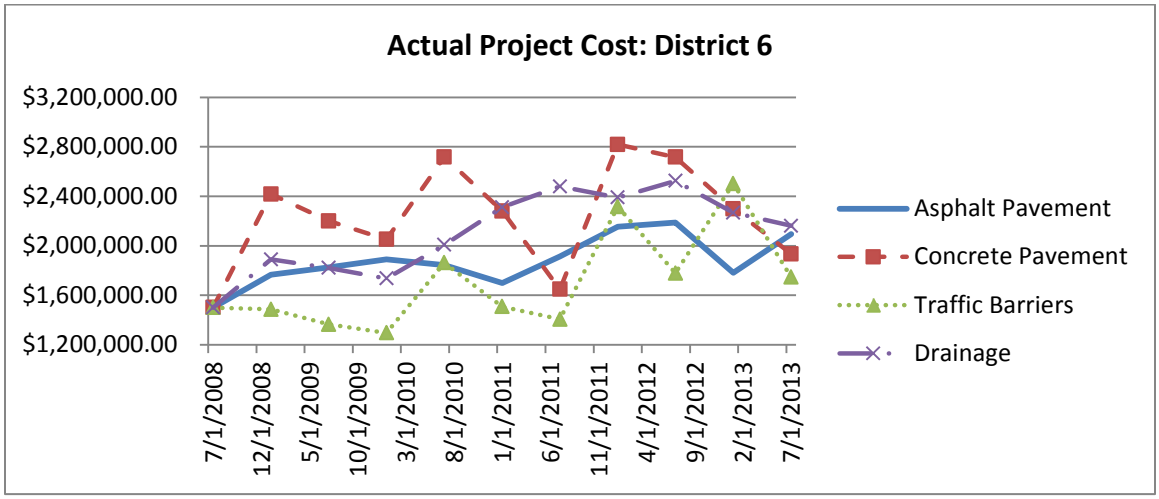


Figure 6.4. Actual project cost – District 6.

Figures 6.2, 6.3, and 6.4 challenge assumptions 1 and 2 stated in section 6.4 Traditional Price Escalation: Construction Cost Index Analysis regarding the use of construction cost indexes to adjust contract prices. This figures show how different types of projects are differently impacted by changes in the construction market during the same period of time. For instance, in Figure 6.2 asphalt pavement projects present a higher volatility, while drainage projects show a seasonal behavior due to their cyclical variations. Moreover, only during one of the ten six-month periods did all the variations in state average costs follow the same direction (project costs in all sample projects increased between January and July 2011). Although the team considers that the use of district average costs is an appropriate way to evaluate the applicability of the proposed regional index at this stage of the study, it is recommended to conduct further research about the variation of construction prices over time at the state level. The calculation of these district average costs was conducted with a limited number of observations that may negatively impact the accuracy of the outcomes. In fact, interpolation and proportional relationships were used multiple times to estimate missing values.

6.7 Existing Construction Cost Indexes

Table 6.6 presents a description of the twelve existing indexes used in this study, whose use has been widely recognized in the building and highway construction industry. This table indicates the components used by each cost index, the scope of each index based on the area covered by their periodical publications, the frequency of publication, and the type of index (input or output index). Four building construction cost indexes were involved in this study; the national and local (Minnesota) indexes from the RSMeans Construction Cost Index (CCI) (59) and the national and local indexes from the Building Cost Index (BCI) published by the ENR (60).

The remaining eight correspond to some cost indexes commonly used on highway construction contracts, and others developed by three different state DOT agencies. These indexes are; the national and local CCI from the ENR (60), the discontinued Highway and Street Construction (BHWY) (61) and current Other Non-Residential Construction (BONS) (62) Producer Price Indexes (PPIs) (used as a single index) from the BLS, the National Highway CCI (NHCCI) from the FHWA (55), the quarterly and 12-month construction indexes from California DOT (Caltrans) (58), and CCIs from South Dakota DOT (SDDOT) (63) and MnDOT (64).

This study involved input and output cost indexes as shown in Table 6.6. Input indexes measure the price change in one or more construction components or materials, while output indexes indicate observed changes in the construction prices including general costs, overhead, profit, risk, and other possible external factors (55, 65). Calculated indexes for the five-year period comprised in this study for all twelve existing indexes analyzed in this section are presented in Appendix P.

Table 6.6. Building and Highway Construction Cost Indexes

INDEX	COMPONENTS	SCOPE	FREQUENCY	TYPE
Building Construction				
RsMeans: Construction Cost Index (CCI) (National & Local)	9 types of buildings 66 construction materials Wage rates for 21 different trades 6 types of construction equipment	• National: 30-city average • Local: 318 cities	• Quarterly	Input
Engineering News Record: Building Cost Index (BCI) (National & Local)	Cement Structural Steel Lumber Labor	• National: 20-city average • Local: 20 cities	• Monthly	Input
Highway Construction				
Engineering News Record: Construction Cost Index (CCI) (National & Local)	Cement Structural Steel Lumber Labor	• National: 20-city average • Local: 20 cities	• Monthly	Input
Bureau of Labor Statistics: Producer Price Index (PPI) – Highway and Street Construction (BHWY) & Other Non-Residential Construction (BONS)	BHWY: Material and supply inputs for highway and street construction BONS: Material and supply inputs for construction related to: Water and sewer lines Oil and gas pipelines Power and communication lines Highway, street and bridge construction Flood control	• National	• Monthly	Input
U.S. Federal Highway Administration: National Highway Construction Cost Index (NHCCI)	Pay items with constant price-determining characteristics from 45 U.S. states	• National	• Quarterly	Output
California Department of Transportation: Price Index for Selected Highway Construction Items (Quarterly & Annual)	Roadway excavation Aggregate base Asphalt concrete pavement Portland cement concrete (Pavement) Portland cement concrete (Structure) Bar reinforcing steel Structural steel	• California	• Quarterly • Last 12 months	Output
South Dakota Department of Transportation: Construction Cost Index (CCI)	Unclassified excavation Liquid asphalt Asphalt concrete Gravel cushion (sub-base and base) Portland cement concrete pavement Class A concrete (structures) Reinforcing steel Structural Steel	• South Dakota	• Annual	Output
Minnesota Department of Transportation: Construction Composite Cost Index	Excavation Index Excavation Structures Index Reinforcing steel Structural steel Structural concrete Surfacing Index Bituminous pavement Concrete Pavement	• Minnesota	• Quarterly • Annual	Output

Figure 6.5 to 6.7 show the adjustments that would be applied if using each existing cost index on each sample project. Indexes were classified in three groups; Building Construction related (Figure 6.5), Highway Construction related (Figure 6.6), and those locally developed that apply only in Minneapolis or Minnesota (Figure 6.7). Additionally, to provide a benchmark for each sample project, a data series representing the ideal semiannual adjustment was included in each graph. This ideal adjustment is intended to modify last period project prices into actual observed bid unit prices in January and July each year.

Figures 6.5 to 6.7 are intended to present the actual cost of the same projects at different times and the cost determined by using different construction indexes. This provides a clear idea of the results of using this kind of price adjustment methods on IDIQ contracts given that this contracting approach implies the execution of similar projects along the contract period, which usually cover more than one year. A five-year period was selected based in the fact that this is the largest possible contract period (base contract period + contract extensions) in those IDIQ contracts already awarded by MnDOT. Additionally, it corresponds to the last five years in order to use recent data that permits to infer current trends and relations between actual construction prices and construction cost indexes.

All existing cost indexes in this study are composite indexes and are typically used to adjust all the pay items encompassed by the contract, or its remaining portion. Therefore, agencies usually make all four assumptions mentioned before in this report in regard with the use of these cost indexes in contract escalation clauses.

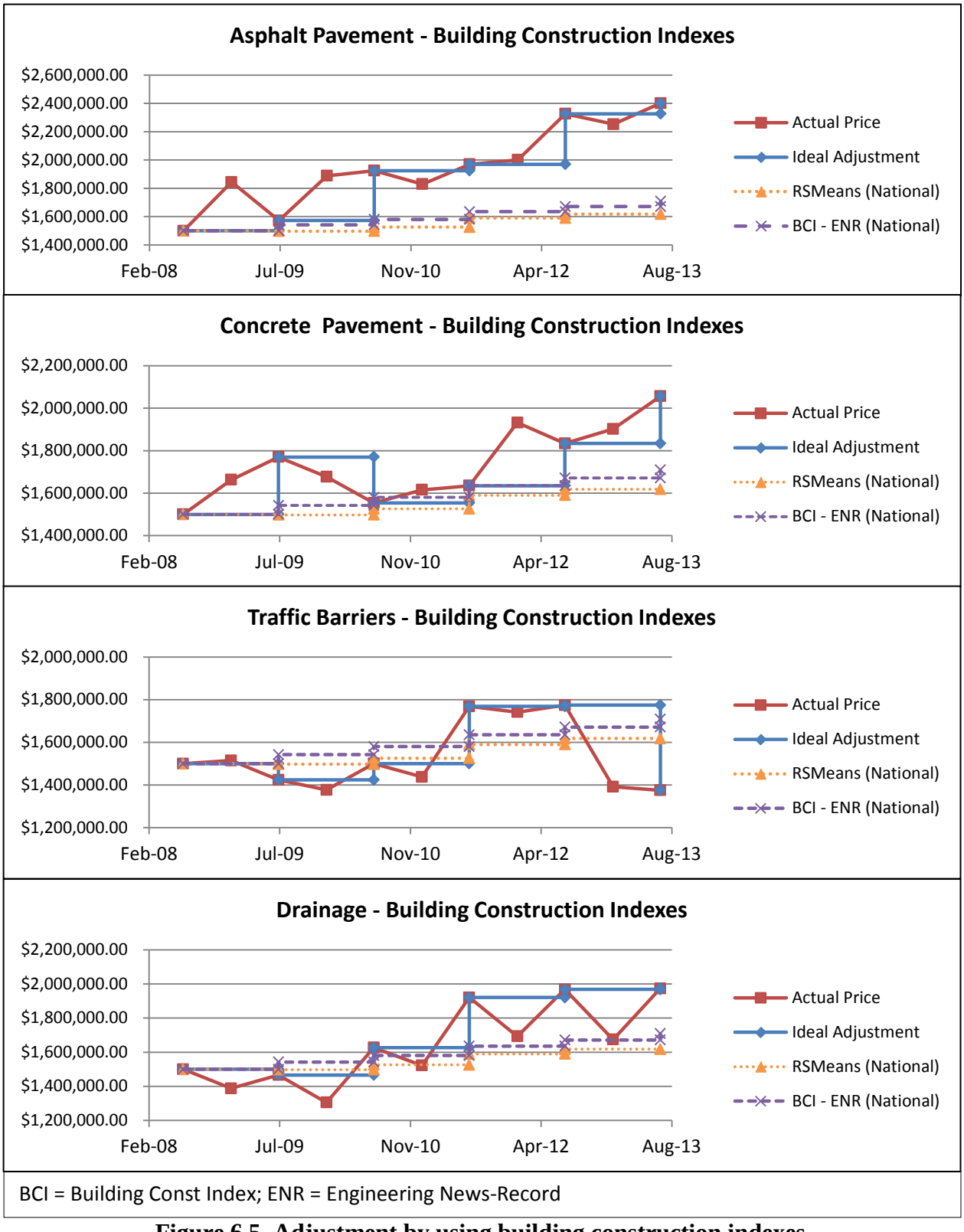
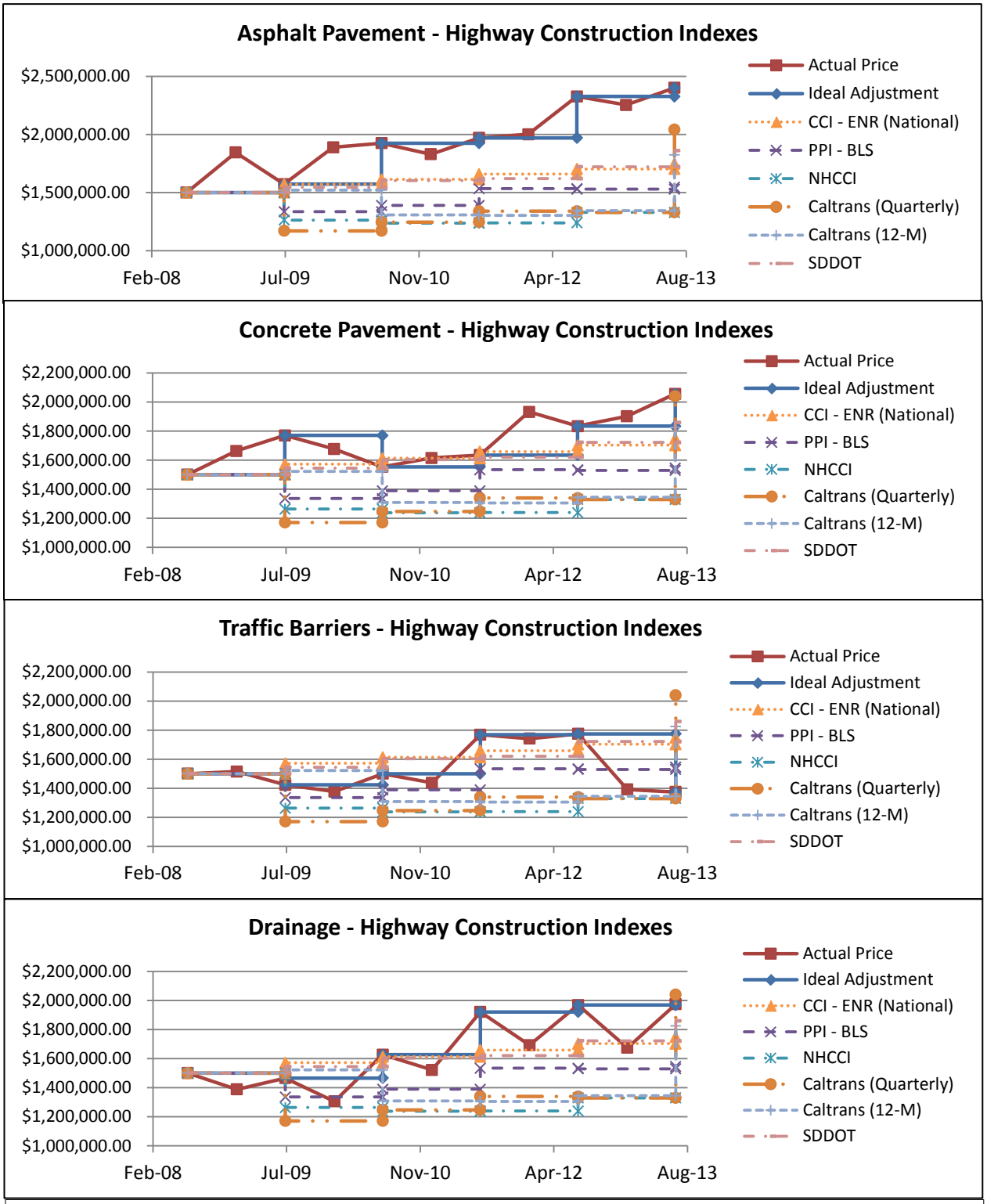
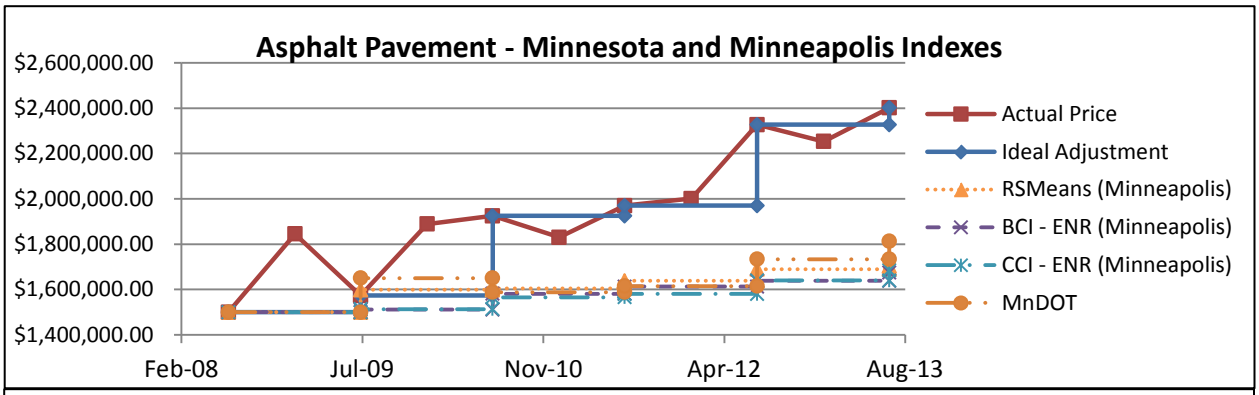


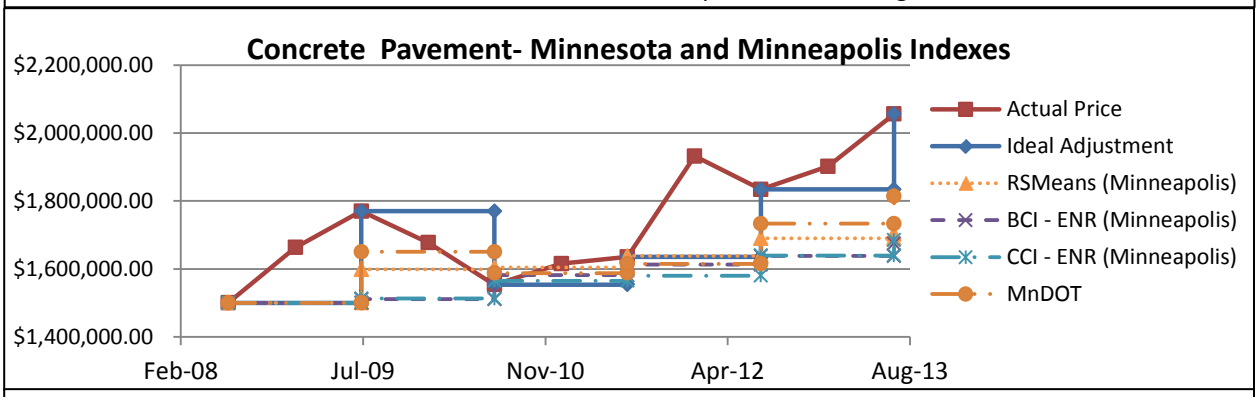
Figure 6.5. Adjustment by using building construction indexes.

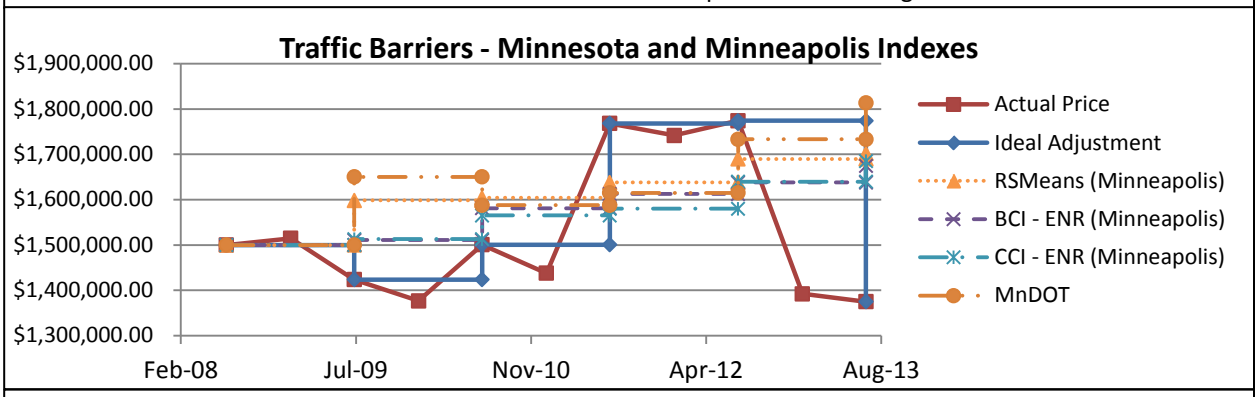


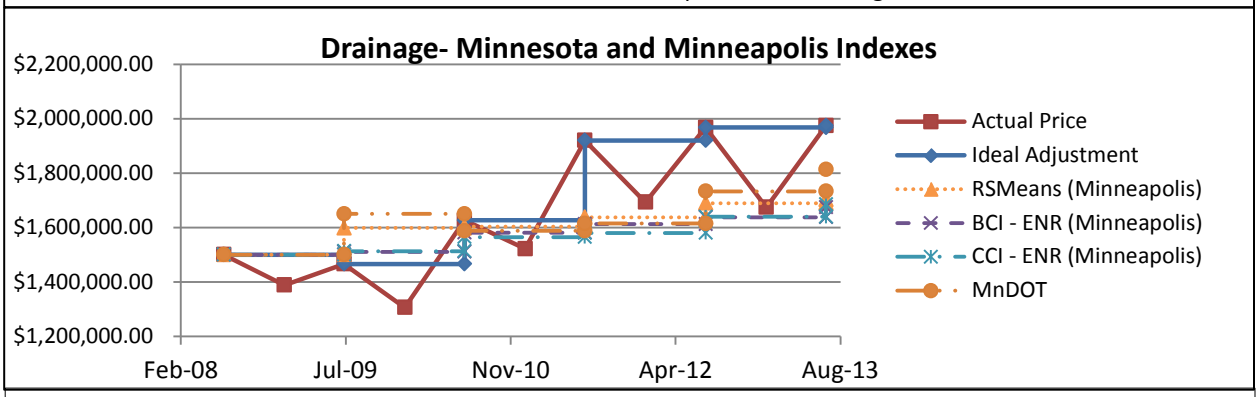
12-M = 12-montth index; BLS = U.S. Bureau of Labor Statistics; Caltrans = California Department of Transportation; CCI = Construction Cost Index; ENR = Engineering News-Record; NHCCI = National Highway Construction Cost Index; PPI = Producer Price Index; SDDOT = South Dakota Department of Transportation

Figure 6.6. Adjustment by using highway construction indexes.









BCI = Building Cost Index; CCI = Construction Cost Index; ENR = Engineering News-Record; MnDOT = Minnesota Department of Transportation

Figure 6.7. Adjustment by using local indexes.

Table 6.7 presents a compilation of Figures 6.5 to 6.7. This table allows an easier comparison between cost indexes and works as a tool to measure their appropriateness on each type of project. Average variations shown in Table 6.7 correspond absolute difference between the actual cost and the adjusted cost of the projects (|1-(adjusted cost/actual cost)|).

Table 6.7. Average Variation pre Index and Type of Project

Cost Indexes	Average Variation (+/-)				
	Asphalt Pavement	Concrete Pavement	Traffic Barriers	Drainage	Average per Index
Building Construction Indexes (National)					
RSMeans - CCI (National)	18.82%	7.93%	6.44%	10.83%	**11.00%**
ENR - BCI (National)	18.76%	8.07%	10.25%	10.28%	**11.84%**
Average per Type of Project	**18.79%**	**8.00%**	**8.34%**	**10.56%**	-
Highway Construction Indexes					
ENR - CCI (National)	17.20%	7.72%	11.07%	9.30%	**11.32%**
BLS – PPI	26.98%	16.54%	10.62%	17.52%	**17.91%**
NHCCI	33.83%	25.16%	20.94%	26.41%	**26.58%**
Caltrans (Quarterly)	30.12%	19.96%	26.47%	21.90%	**24.61%**
Caltrans (12-M)	27.06%	17.59%	20.56%	18.94%	**21.04%**
SDDOT	16.96%	6.48%	12.38%	8.15%	**10.99%**
Average per Type of Project	**25.36%**	**15.58%**	**17.01%**	**17.04%**	-
Minnesota & Minneapolis Indexes					
RSMeans - CCI (Minneapolis)	18.33%	7.63%	11.02%	10.61%	**11.90%**
ENR - BCI (Minneapolis)	19.96%	9.40%	9.96%	10.76%	**12.52%**
ENR - CCI (Minneapolis)	20.34%	9.46%	10.26%	11.21%	**12.82%**
MnDOT - CCI	18.09%	5.50%	12.92%	10.19%	**11.68%**
Average per Type of Project	**19.18%**	**8.00%**	**11.04%**	**10.69%**	-

The following observations and conclusions were drawn from a deeper assessment of Figures 6.5 to 6.7 and Table 6.7. It is important to highlight that these observations apply to MnDOT and the five-year period comprised in this study only:

- Unexpectedly, those national construction indexes commonly used to adjust contract prices in building construction projects (RSMeans and BCI) presented an overall closer relation to actual price changes in MnDOT construction industry.
- Regardless of the kind of construction projects (building or highway) and the national or local coverage of the cost indexes, these construction cost indexes seem to work best in concrete pavement contracts. Nine out of the twelve indexes in this study showed a lower average variation in concrete pavement projects. The remaining three (RSMeans, PPI, and NHCCI) presented a lower variation in traffic barrier contracts.

- The SDOT CCI showed the lowest overall variation closely followed by national RSMeans CCI; however, the low average in the RSMeans index seems to be consequence of its significant low variation in traffic barrier projects. If removing the traffic barrier sample project from the study, SDDOT CCI would average variation would decrease even more (10.53%) followed by the MnDOT CCI (11.26) and the national ENR CCI (11.41%), and sending the RSMeans CCI to the sixth place with an average variation of 12.53%.
- All construction cost indexes presented the largest average variation in asphalt pavement projects, which is a significant observation given that, as determined in this research, those pay items related to these types of projects represent the largest portion of MnDOT average annual construction budget (25%) for the period comprised in this study.
- When considering the actual sign (positive or negative) of each variation obtained from Figures 6.5 to 6.7 (actual cost > adjusted cost, or, actual cost < adjusted cost), in 94% of the adjustments made to the asphalt pavement sample project (by all construction cost indexes), the difference benefited MnDOT with adjusted contract prices lower than observed unit prices. This percentage drops to 83% for concrete pavement and drainage projects, and 53% for traffic barrier contracts. Therefore, although lower for traffic barrier projects, the use of construction costs indexes as part of escalation clauses seems to represent a higher benefit for MnDOT while allocating more risk to the contractors.
- In spite of the fact that MnDOT CCI did not show the lowest overall variation, this index presented the lowest variation for a single type of project; concrete pavement. Additionally, this was the only index that in the case of the concrete pavement project, increased when observed prices increased and decreased when they decreased.
- NHCCI seems to be the least suitable index for escalation clauses in MnDOT construction contracts. NHCCI presented the largest variation in all types of projects, except in the one for traffic barriers, in which was the second largest variation after the one obtained from the quarterly Caltrans index.
- The fact that actual contract unit prices may increase in one period and decrease in next one, as shown in all sample contracts, challenges assumption number 4 mentioned previously regarding the use of cost indexes. These project cost fluctuations imply that unit prices for the upcoming period do not follow the trend stated by the base period and the last period with known index.

6.8 MnDOT Composite Cost Index Analysis

As mentioned before, the MnDOT CCI is not being used in current MnDOT IDIQ contracts. However, a deeper analysis of this index was conducted in order to determine why it did not show the lower overall variation in spite of having been calculated by using MnDOT historical bid data. This section explains why this index does not meet MnDOT expectations, even though it uses actual contract bids.

The composite cost index published on a quarter and annual basis by MnDOT, is the result of the weighted average of three different indexes for three different types of work; excavation, structures, and surfacing (64). Likewise, these three indexes are determined by using six different materials or construction activities (indicator items): excavation for the excavation index; reinforcing steel, structural steel, and structural concrete for the structures index; and bituminous and concrete pavement for the surfacing index (64).

This research found three main issues in MnDOT CCI. The first observed issue is that the six indicator items have not been appropriately selected. Only 12 out of the 28 quarterly composite indexes between 2006 and 2012 have been successfully published. The remaining 16 were not computed "due to the absence of data for one of the six indicator items" (81). The method to calculate this index requires that all indicators are contracted during its corresponding period. Thus, indicator items must be commonly required in MnDOT construction contracts regularly throughout the year. However, some of these materials and construction activities such as structural steel and concrete pavement have appeared only in 50% and 70% of the quarters, respectively, between 2006 and 2012 (64).

This issue seems to be the result of a change in the method for calculating the index. Before 2006, quarterly indexes have been calculated even without the occurrence of some indicator items during the corresponding period. To overcome this issue MnDOT could either select different items, change time-frequency of the index publication, or modify the index calculation method in a way to provide for missing data. Such adjustments have been done with other construction cost indexes (55).

Despite the missing data in the quarterly MnDOT CCI, MnDOT could still use the annual index in its escalation clauses, which requires that all indicator items are contracted at least once during the year, and what seems to be happening every year since 1988 (64). However, the other two observed issues mentioned below also affect this annual index.

The second issue corresponds to the fact that the three indexes used to calculate the final composite index have not been appropriately weighted. Elements in a composite index are usually weighted in accordance with their influence or participation in the total amount of data collected, or in the case or internal indexes developed by some agencies, it depends on the portion of the annual construction budget associate to each component. In order to calculate the composite cost index, MnDOT calculate the weighted average of the excavation, structures and surfacing indexes based on the fixed weights shown in Table 6.8. These weights remain unchanged, assuming that these elements are equally used year after year.

Table 6.8. MnDOT Composite Cost Index – Fixed and Observed Weights

	Fixed Weight	Average Observed Weight
Excavation Index	14%	20%
Structures Index	31%	19%
Surfacing Index	55%	61%
Composite Index	100%	-

The team determined the average relative annual participation of each indicator item (assuming that these items represent 100% of annual construction budget) in the annual construction budget for the five-year period comprised in this study, and concluded that MnDOT fixed weights are not consistent with its actual construction practices (see Table 6.8).

The third issue is related to the process to calculate and publish the index. An efficient and effective price escalation method, based on a specific construction cost index, relies on the

timeliness of the index publication. When reviewing the reports issued by MnDOT, it was found that some time indexes are released two or more periods later. For instance, the report for the second quarter of 2011, which goes from April 1st to June 30th, was published on November 16, 2011. Likewise, the report for the fourth quarter of the same year, which also includes the annual cost index for 2011, was published on April 11, 2012 (64).

The three main identified issues regarding MnDOT CCI discussed above could be the reason for not using this index to adjust contract unit prices in MnDOT IDIQ contracts. In fact, it was found that there were no contracts that include the MnDOT CCI in its escalation clauses. Alternatively, traditionally procured MnDOT contracts have a fuel escalation clause that "provides for compensation adjustments in the costs of motor fuels (diesel and gasoline) consumed in prosecuting the contract work" (66). These adjustments are performed based on a fuel index published by MnDOT, but built from fuel prices published by the OPIS Energy Group (66). In the case of IDIQ contracts, MnDOT has decided to use a fixed adjustment rate to be applied to all bid unit prices on an annual basis.

6.9 Proposed Construction Cost Indexes

In an effort to improve results obtained from the use of construction cost indexes the research team developed two different cost indexes by using MnDOT historical bid data for all projects awarded between January 2008 and August 2013, for a total of 1,361 contracts. As mentioned before, these proposed alternatives are a regional index calculated by district and a state index developed by using several recurrent pay items. These proposed alternatives are output indexes since they are calculated by using historical unit prices that include general costs, overhead, profit, risk, and other possible external factors.

6.9.1 MnDOT District Construction Cost Index

This index was developed using the Chained Fisher Ideal Index Method described in section before in this chapter. Unlike the NHCCI which uses bid data from several pay items from multiple transportation agencies (55), the team opted for a more traditional approach for this district index, which consists of using the Fisher index equation on few significant pay items. The use of a small number of construction materials or activities is widely accepted by agencies on many industries (see Table 6.6). However, an inadequate selection of these items may lead to inconsistent indexes as explained above in in the MnDOT Composite Index Cost Index Analysis.

Appendix Q presents the structured of bid items used to select the bid items for both proposed indexes. It shows the average annual contribution of each item within its own category during the five-year period comprised in this study. These percentages plus the frequency of occurrence of each item during a regular year, allow the team to select four main pay items: Common Excavation, Aggregate Base Class 5, Structural Concrete and Type SP-12.5 Wearing Course Mixture (3,B).

The development of indexes to be applied on small regions bring out an issue that may impact the accuracy of the measurements, it is the limited amount of data. In order to build the sample projects for the Metro and District 6 (see Figure 6.3 and 6.4) the team had to estimate several missing data by interpolation and assuming proportional relationships with known similar items. Foreseeing a similar issue during the calculation of the index over time, the team identified

substitutes for each of the four bid items, based on their similarity with the principal components and their frequency of occurrence. Thus, if one of these items is not used during a given period, district engineers may use the next item in the list as presented in Table 6.9. If any of the items in the list is observed during a given period, the index for this period must be calculated with the remaining components. Although this is not a desired situation, substitution and adaptability are some of the advantages of the use of the Chained Fisher Ideal Index Equation (55).

Table 6.9. District Construction Cost Index Substitute components

Principal Components		Substitute Components		
ID #	Description	Order	ID #	Description
2105501/00010	Common Excavation (Standard Specifications)	1	2106607/00010	Excavation – Common (Special Provisions)
		2	2106607/00060	Common Embankment
		3	2105522/00030	Select Granular Borrow (CV)
2211503/00050	Aggregate Base (CV) Class 5	1	211503/00060	Aggregate Base (CV)
2301511/00010	Structural Concrete	1	2301604/01080	Concrete Pavement 8.0”
		2	2301604/01090	Concrete Pavement 9.0”
		3	2301604/00130	Pavement Replacement (Type CX)
2360501/23200	Type SP-12.5 Wearing Course Mixture (3,B)	1	2360501/24500	Type SP-12.5 Wearing Course Mixture (4,E)
		2	2360501/23300	Type SP-12.5 Wearing Course Mixture (3,C)
		3	2360501/24200	Type SP-12.5 Wearing Course Mixture (4,B)
		4	2360501/22200	Type SP-12.5 Wearing Course Mixture (2,B)

Table 6.10 presents the District Construction Cost Index annually calculated from 2008 to 2012. The annual calculation of the index was decided giving the lack of data to update the index quarterly or semiannually.

Table 6.10. MnDOT District Construction Cost Index

MnDOT Construction Cost Index by District								
Year	MnDOT Districts							
	1	2	3	4	6	7	8	Metro
2008	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
2009	102.69	121.13	103.53	81.34	119.68	162.43	89.08	106.85
2010	119.79	121.51	105.94	87.36	122.46	105.37	77.47	86.78
2011	120.33	121.38	100.86	87.59	112.07	110.46	117.45	89.39
2012	120.31	143.01	124.61	97.41	144.01	131.05	113.10	96.98

Following a similar procedure as the one used in this chapter to analyze the twelve existing construction cost indexes, this regional approach was applied to the sample projects illustrated in Figures 6.3 and 6.4, in Metro and District 6, respectively. Average variations obtained from the application of this index on these projects are presented in Table 6.11

Table 6.11. Average Variations

MnDOT District Construction Cost Index	Average Variation (+/-)				
	Asphalt Pavement	Concrete Pavement	Traffic Barriers	Drainage	Average per Index
MnDOT District Index - Metro District	22.10%	17.40%	23.89%	17.54%	20.23%
MnDOT District Index - District 6	16.82%	34.92%	14.43%	14.77%	20.24%
Average per Type of Project	19.46%	26.16%	19.16%	16.15%	-

When comparing absolute averages in Table 6.11 with those obtained from the application of the existing indexes previously analyzed in this report, it seems that many existing alternatives may be more appropriate to escalate contracts in these two MnDOT districts. Given that the limited amount of data also impacted the conformation of the sample projects, the decision of discarding a regional approach is not conclusive. A complementary study must be conducted in case that MnDOT considers the possibility of measuring changes in construction prices at district level.

6.9.2 State Construction Cost Index by Pay Item

Based on the assumption that the accuracy of a cost index increases as more elements are involved in its calculation, the research team proposed the creation of a comprehensive index including as many bid items as possible. After defining a large group of significant repetitive pay items, they were arranged in categories in accordance with their specific characteristics. These categories were defined by using the identification number of the selected items.

A total of 50 pay items, representing 28% of the average annual MnDOT construction budget, were selected to form this index. Basically, the team developed a system that measures price variations in these bid items and defines independent indexes for each of them. Subsequently, following a bottom-up approach, these items are used to develop indexes for larger categories establishing five levels of categories. Thus, those materials and constructions activities not included in the 50 selected items are placed in the most appropriate category based on its identification number. The selected bid items comprise the Level 5 of this system which is the starting point to determine indexes for larger categories until reaching Level 1 which consists of a single overall index (see Table 6.13). Lower levels are also used when the lack of data does not allow the calculation of the index for one item contained in Level 5. Items are placed in the categories based on the following interpretation of the identification number (see Table 6.12).

Table 6.12. Index per Pay Item: Definition of Levels

ID# 2104501/00010				
Level 1	Level 2	Level 3	Level 4	Level 5
2	210	21045	2104501	2104501/00010

Original indexes at Level 5 are determined using a three-dimensional arrangement similar to one mentioned before in section 6.5.1 Configuration of Sample Projects. Therefore, quantity ranges are defined and average variations among these ranges determine individual indexes. For lower levels, indexes are determined by calculating weighted averages with the respective items or subcategories. It is known as the aggregate price index method (55) which is illustrated in eq. 5.

Table 6.13. Index per Pay Item: Structure

MnDOT Construction Cost Index													
Weights Distribution													
Level 1		Level 2			Level 3			Level 4			Level 5		
ID	%	ID	%	Norm. %	ID	%	Norm. %	ID	%	Norm. %	ID	%	Norm. %
2	100%	210	11.42%	19.92%	21045	14.17%	14.17%	2104501	19.74%	25.05%	2104501/00010	15.20%	27.35%
											2104501/00016	11.23%	20.21%
											2104501/00022	16.38%	29.47%
											2104501/00041	3.85%	6.93%
											2104501/00042	8.92%	16.05%
								2104505	50.45%	64.02%	2104505/00100	24.39%	25.74%
											2104505/00110	19.58%	20.66%
											2104505/00120	33.71%	35.58%
											2104505/00122	17.07%	18.02%
								2104511	2.43%	3.08%	2104511/00011	82.99%	100.00%
								2104513	4.14%	5.25%	2104513/00011	97.92%	100.00%
								2104521	2.04%	2.59%	2104521/00220	24.31%	100.00%
					21055	24.21%	24.21%	2105501	34.45%	48.76%	2105501/00010	100.00%	100.00%
								2105522	36.20%	51.24%	2105522/00030	49.74%	100.00%
					21056	14.01%	14.01%	2105604	15.72%	100.00%	2105604/00035	38.30%	100.00%
					21066	47.61%	47.61%	2106607	99.94%	100.00%	2106607/00010	34.72%	65.91%
											2106607/00060	17.96%	34.09%
		221	2.02%	3.52%	22115	92.08%	100.00%	2211503	91.33%	100.00%	2211503/00050	50.51%	53.53%
											2211503/00060	43.85%	46.47%
		223	1.79%	3.12%	22325	90.64%	90.64%	2232501	97.74%	100.00%	2232501/00040	18.47%	25.51%
											2232501/00050	24.98%	34.51%
											2232501/00080	28.94%	39.98%
					22326	9.36%	9.36%	2232603	91.20%	100.00%	2232603/00025	31.11%	41.55%
											2232603/00030	43.76%	58.45%
		230	9.45%	16.48%	23015	42.33%	100%	2301511	64.75%	100.00%	2301511/00010	100.00%	100.00%
		236	24.62%	42.94%	23605	97.85%	100.00%	2360501	85.55%	100.00%	2360501/22200	6.61%	8.75%
											2360501/23200	34.58%	45.78%
											2360501/23300	12.96%	17.16%
											2360501/24200	9.15%	12.11%
											2360501/24500	12.23%	16.19%
		250	2.93%	5.11%	25015	24.51%	31.71%	2501511	40.11%	100.00%	2501511/20180	5.01%	16.91%
											2501511/90242	13.07%	44.13%
											2501511/90302	4.63%	15.63%
											2501511/90362	6.91%	23.33%
					25016	25.61%	33.13%	2501603	76.32%	100.00%	2501603/00010	5.02%	100.00%
					25035	27.17%	35.15%	2503541	78.50%	100.00%	2503541/90122	8.91%	65.37%
											2503541/90182	4.72%	34.63%
		254	1.30%	2.27%	25455	91.65%	100.00%	2545533	9.48%	100.00%	2545533/00404	100.00%	100.00%
		255	2.13%	3.72%	25545	44.31%	100.00%	2554501	66.78%	100.00%	2554501/02038	60.44%	100.00%
		258	1.67%	2.91%	25825	82.14%	100.00%	2582502	89.65%	93.76%	2582502/11104	5.27%	9.56%
											2582502/12104	1.59%	2.89%
											2582502/31104	5.18%	9.40%
											2582502/31108	4.66%	8.46%
											2582502/31204	7.76%	14.08%
											2582502/41104	19.26%	34.95%
											2582502/42104	8.35%	15.15%
											2582502/42204	1.41%	2.56%
											2582502/42404	1.62%	2.94%
								2582503	5.97%	6.24%	2582503/00130	58.50%	73.78%
											2582503/00140	20.79%	26.22%
TOTAL			57.33%			48.93%			39.09%			27.92%	

$$I_t = \frac{w_1 I_{1t} + w_2 I_{2t} \dots w_n I_{nt}}{(w_1 + w_2 \dots w_n)} \qquad \text{eq.5}$$

Where: t = Period for which the change in price is being measured
n = Number of indexes in upper level used to determine I_t
I_t = Index for a given category (group of similar items or subcategories) at period t
I_{1t} = Index of element 1 of the category at period t
w_1 = Normalized weight of element 1

Unlike the Fisher Index method, in which weights are indirectly assigned by the total quantities of the index components, this method requires the determination of weights for all items and categories in relation with the previous level. For the purposes of this section, categories refers to the elements that compose each level from Level 1 to 4, and items will be the elements in Level 5. Table 6.13 presents the actual weight (%) of each item and category, which is the average annual contribution of the element to its respective category. Additionally, this table presents a normalized weight (Norm. %) which is the one actually used in equation 5.

To evaluate this index the team developed three different systems; quarterly semi-annual and annual index. These three systems were fully calculated for the five-year period comprised in this study and are presented in Appendix R.

Table 6.14 contains the absolute average variations obtained by the application of this index in the four sample project illustrated in Figure 6.2

Table 6.14. MnDOT Construction Cost Index By Pay Item

MnDOT Construction Cost Index by Pay Item	Average Variation (+/-)				
	Asphalt Pavement	Concrete Pavement	Traffic Barriers	Drainage	Average per Index
MnDOT Quarterly CCI	8.1%	10.6%	11.5%	11.6%	10.47%
MnDOT Semi-annual CCI	1.0%	21.8%	10.1%	7.8%	10.18%
MnDOT Annual CCCI	8.3%	17.4%	17.8%	5.5%	12.23%
Average per Type of Contract	5.8%	16.6%	13.1%	8.3%	-

These are some observations and conclusions drawn for the application and evaluation of this index.

- Even though this index was built out from MnDOT historical bid data such as the samples used to evaluate its performance, this analysis is not comparing data from the same time periods. Thus, while the average actual cost of the sample projects in July 1st 2010 was estimated by using bid data from a six month period between April 1st and October 1st 2010, price adjustments of this project in July 1st 2010 were determined by variation of average prices between the second quarter of 2009 and the second quarter for 2010, for the

quarter index. Similarly, the semi-annual index considered the first six months of both years 2009 and 2010, and the annual index even did not include data from 2010 since the annual index for this year was not known until January 1st next year. This is a typical characteristic of price escalation by using price indexes, and it was used by the team to guarantee the integrity of this analysis.

- Besides showing the lowest average variation among all indexes included in this study the MnDOT Semi-annual CCI presented a very low variation in asphalt pavement projects, which constitutes the major part of MnDOT construction projects. In fact, the Quarterly (second lowest overall variation) and Annual CCIs also presented low variations for this type projects. Although these variations appear to be high in comparison with the Semi-annual CCI, they are less than half of the lowest average variation observed in all other indexes included in this study.
- This innovative index system provides some flexibility to the traditional escalation methods, which use a single number to adjust all types of projects. By using this method all projects would be individually adjusted in accordance with their scope and composition.

6.10 MnDOT Current IDIQ Escalation Clause

The clause currently used by MnDOT in its IDIQ contracts is aimed to adjust all items in the Bid Schedule (BS) on an annual basis, and in accordance with a fixed adjustment rate stated by MnDOT.

> "To compensate for the potential of this Contract to extend over several construction seasons the Department will adjust the Unit Prices of all items on the Bid Schedule by 2% once per year on the anniversary date of the letting of this Contract. Items not listed on the Bid Schedule will not be adjusted. Fuel escalation will not be paid for items where the Inflation Index for cost increase is utilized" (22).

There were found 4 contracts that escalate unit prices in the Task Order Item List (TOIL), instead of adjusting all unit prices in the Bid Schedule. The TOIL is a "complete list of bid items generated from the Bid Schedule that defines which items will be utilized repetitively to perform the IDIQ Contract" (22).

It seems that the use of this fixed annual adjustment rate (FAAR) has been accepted by contractors since MnDOT has successfully awarded more than twenty IDIQ contracts in less than two months. Additionally, its simplicity increases MnDOT budget control and reduces administrative burden related to the maintenance of conventional escalation systems.

Adjusted prices obtained by using a 2% FAAR are closer to those obtained with the local ENR CCI for Minneapolis. Despite the administrative convenience of using a constant rate to adjust unit prices over time, it seems that the fixed rate currently used is not consistent with historical bid data from recent years. Table 6.15 presents the average variation obtained by using this rate on each sample project. This table shows a large overall average variation in comparison with the one obtained by the other indexes. In fact, based on current bid data, the MnDOT CCI seems to be more suitable for IDIQ contracting than the system currently being used in this kind of contracts.

Table 6.15. Average Variation – Fixed Annual Adjustment Rate (2%)

MnDOT Current IDIQ Clause	Average Variation (+/-)				
	Asphalt Pavement	Concrete Pavement	Traffic Barriers	Drainage	Overall Average Variation
Fixed annual Adjustment (2%)	18.1%	9.5%	10.1%	11.8%	**12.4%**

On the other hand, the use of the same FAAR for all kinds of projects implies the acceptance of some assumptions mentioned before in relation to the use of construction cost indexes, and whose validity has already been questioned in this report.

These assumptions may be avoided, or their impact could be mitigated, by developing a system intended to determine a FAAR on a per-contract basis and in accordance with current construction market conditions, unit price forecasts, tentative contract scope, locations, weather conditions, applicable regulations, and other specific characteristics of the contract. Currently, this rate seems to be the result of a consensus decision making process internally conducted by MnDOT, rather than the result of a systematic process aimed to determine current construction price trends.

6.11 Development of an Alternative Price Escalation Method

Using the information already discussed in this report, and after determining MnDOT opinion and expectancies in regard to the implementation of alternative IDIQ contracting escalation clauses, the research team decided to develop an innovative price escalation method in an effort to overcome some observed issues in regard to the use of traditional escalation clauses. These are some key factors to be considered for the development of an optimal IDIQ price escalation method:

- The method should be intended to predict contract price changes between the period immediately preceding the adjustment date and the oncoming period, rather than using observed construction price changes between two previous contract periods.
- The method should be flexible enough to adapt to the project scope, location, expected weather conditions, applicable regulation, typical changes in productivity, changes in MnDOT contracting practices, and other specific characteristics of the project.
- The method should rely on timelines easy to obtain data. Additionally, it should provide for missing data.
- The method should be as simple as possible in a way that is easy to understand and replicate by contractors in order to make them feel that contract prices will be fairly adjusted over time. The higher the contractors' confidence in the method, the lower the uncertainty, risk allocated for contractors, and bid unit prices. Its simplicity should also maintain MnDOT administrative requirements as low as possible.
- The method should provide for adjustments in accordance with actual changes in construction prices, rather than for extraordinary and unexpected changes in original contract conditions.

The MnDOT current FAAR price escalation method was chosen as the starting point for the development of a more appropriate escalation system given its convenience for MnDOT and its

acceptance by contractors. As a result, the team designed an innovative bidding method called AxE (Cost times Escalation) which seeks to eliminate the need to depend on external construction cost indices or to develop a MnDOT construction cost index by shifting the escalation risk to the contractor during bidding and allowing it to propose its own escalation adjustment factor. The proposed process requires competing contractors to submit a FAAR, which will be used to modify bid unit prices over time throughout the IDIQ contract's life cycle. The adjustment rate is also factored into the selection of the low bid in a manner similar to A+B bidding.

6.12 AxE Bidding – Method Development

The process followed to develop a suitable price escalation method for MnDOT multi-year single award IDIQ contracts, which resulted in the AxE bidding alternative described in this section, consisted of answering a series of strategic questions intended to improve the current IDIQ contracting escalation clause in a way that it fits better with the requirements of this contracting approach.

How can this method better fit actual project price changes for different kind of projects?
In order to make this method more suitable for different types of projects, a flexible approach is required that allows users to determine a FAAR based on the characteristics and requirements inherent to each contract. Likewise, this rate should be the result of a project cost forecast, based on a detailed analysis of the current construction market and typical price behavior of construction materials, labor, and equipment. This analysis should also include all other internal and external factors that may impact contract unit prices.

What would be a reliable source of data to determine an adequate FAAR?
Since this rate is to be applied to all bid unit prices, which include material, labor, and equipment costs, as well as general costs, overhead, profits and contingencies, an adequate source of data would be the contractors who are the ones that really combine all these factors into a final bid unit price. Even if there is another source claiming more accurate price estimations for given commodities or construction tasks, it would be irrelevant if contractors are not willing to charge MnDOT for that amount. Therefore, contractors are the ones that finally determine actual unit prices for MnDOT construction projects.

How should this data be collected?
There are two possible ways to collect this data from contractors; either indirectly through bid unit prices submitted for previous MnDOT construction contracts, or directly from them with the only purpose of determining the FAAR for a given IDIQ contract. However, contractors are not usually willing to disclose their price lists and projections, so that it would be difficult to obtain this data directly from them. According to this, there are two possible answers for this question. Historical bid data could be used by MnDOT to calculate a FAAR for a given contract, or given that contractors are no usually willing to share their pricing methods, they may be require to bid a FAAR based on their unit price lists, projections, and experience, without disclosing this data. These two answers led the research team to the following question.

Who should collect and process the data, MnDOT or contractors?
Agencies and contractors are inured to forecast construction costs in order to obtain more accurate estimates and construction budgets for future and long-term contracts (67, 68, 69). Therefore, the calculation of an applicable FAAR for a given contract should not represent a significant challenge for either party. However, if the contractor is the one who determines the FAAR to be used on a single award IDIQ contract, it may increase its reliance on a fair annual adjustment, decreasing the uncertainty generated by long contract periods, and resulting in lower bids due to a lower perceived risk.

How to prevent high FAARs from contractors?
The answer proposed by the authors for this question is competition. By asking contractors to bid FAARs on a per-contract basis, and letting them to know that these rates will be factored into the selection of the low bid, it would be expected of them to try to keep these rates as low as possible.

There is extensive information on construction management literature about the procurement of lower price proposals by increasing the level of competition during the bidding phase of the construction projects (51). Likewise, lessons learned from the implementation of A+B bidding (cost + time) indicate that competition not only decreases contract cost but also other type of factors such as construction time (70). Therefore, it would be reasonable to think that under an AxE contract construction firms will be motivated to bid fair low FAARs.

How should the FAAR be factored into the selection of the low bid?
In order to answer this question, the team proposed different alternatives, and quantified the risk related to each alternative for different case scenarios.

Given that in a single award IDIQ contract, the distribution of work along the contract period is normally hard to determine beyond a rough approximation, it is difficult to estimate during the bidding process which AxE bid will represent the lowest total cost at the end of the contract. Thus, another possibility is to use the total bid (first period) and future adjusted BSs (for each contract period) to compare AxE bids.

The alternatives proposed in this report for the selection of the low bid consist of different options for the escalation factor (E) to be applied to the total bid BS (A) (or original BS used during the first contract period) in the selection formula (AxE). These options are shown in Table 6.16.

Table 6.16. AxE – Selection Formulas

Selection Formulas	AxE		E
	Expanded	Factored	
BS 2	$A(1 + r)$		$1 + r$
BS 3	$A(1 + r)^2$		$(1 + r)^2$
Sum BS 1-3	$A + A(1 + r) + A(1 + r)^2$	$A(r^2 + 3r + 3)$	$r^2 + 3r + 3$
Weighted Sum TOIL 1-3**	$0.7A + 0.2A(1 + r) + 0.1A(1 + r)^2$	$A(0.1r^2 + 0.4r + 1)$	$0.1r^2 + 0.4r + 1$
A = Bid Schedule for Period 1; E = Escalation Factor; r = Fixed Annual Adjustment Rate (FAAR); BS 2 = Bid Schedule for Period 2			

** First period = 70%; second period = 20%; third period = 10%

To determine the maximum number of contract periods to be considered in the alternatives listed presented in Table 6.16, the authors used the maximum number of periods covered by the IDIQ contracts already awarded by MnDOT before September 2013. It was found that the maximum number of times these contracts will be adjusted during the base contract period (construction time without extensions) is two, and it will happen in approximately 60% of these contracts. It means that 60% of MnDOT current IDIQ contracts will be effective for at least three contract periods. No periods beyond the base construction duration, or contract extensions, were considered since at that time MnDOT will have the possibility of deciding whether or not to extend the contract in accordance with adjusted unit prices at that moment, actual unit prices that would be obtained if reprocuring the contract, and the cost of executing a new contract.

Before conducting the risk analysis of this innovated bidding method, and quantifying this risk for all proposed case scenarios, it is important to understand where this risk is allocated. The principal risk identified by the team is the possibility of awarding the contract to a firm that does not offer the lower BS along the entire base contract period. Figure 6.8 illustrates this risk in a three-year contract, which would require two adjustments. oferta

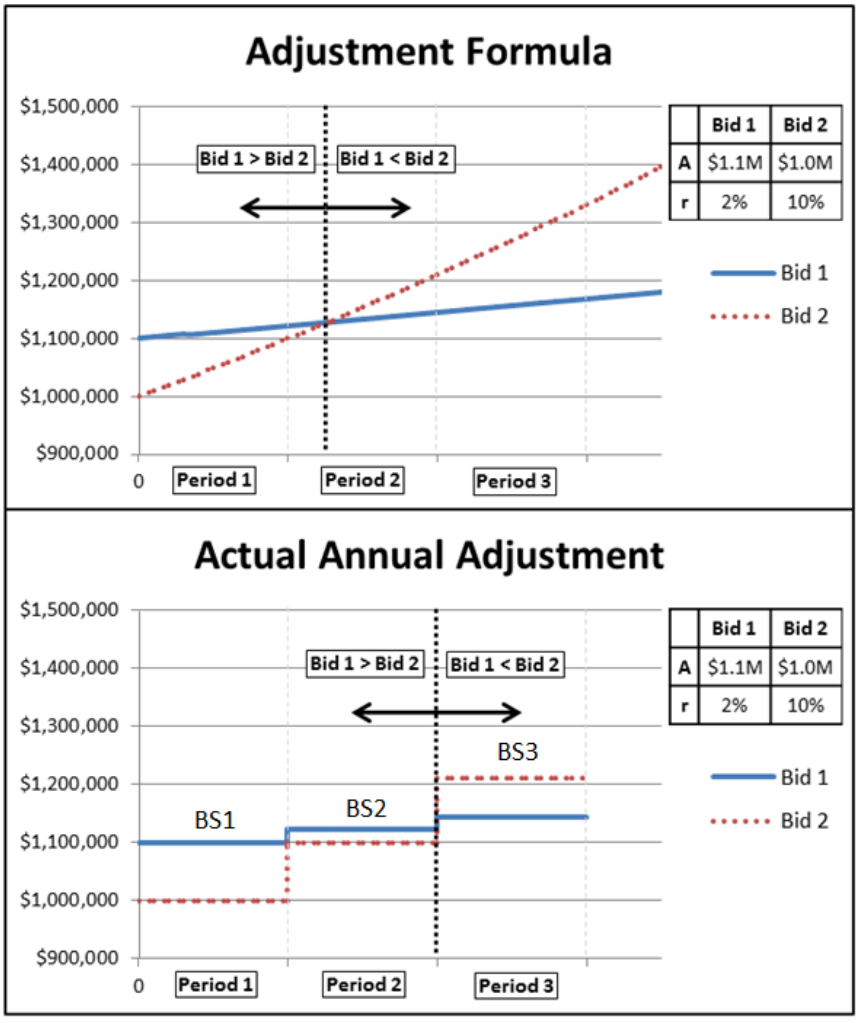


Figure 6.8. Bid comparison – critical situation.

In the case illustrated in Figure 6.8, the cost of all work performed during the third period will be higher if selecting Bid 1 than the cost that would be paid for the same work under Bid 2 during the same period. Given the difficulty of determining a feasible work distribution along these three periods, it is not possible to quantify the impact that this situation will have in the total final cost of the project when awarding the contract. However, a closer look at the case studies and some features of this contracting approach allow the team to concluding that lower unit prices during earlier contracts periods would represent a higher benefit for MnDOT than those during final stages of the contract.

IDIQ contracting commonly provides for a minimum guaranteed amount to be ordered to the successful bidder(s) throughout the duration of the contract (52). This amount normally corresponds to the expected cost of the first work order, or a quantity of work that could be easily covered by the first few task orders. Therefore, this minimum guaranteed amount is usually covered during the first contract period, allowing the agency to discontinue the issuance of task orders for subsequent periods if deemed necessary. Thus, it would be more important to assure a lower BS for the first year since MnDOT could stop issuing task orders to the contractor during the second or third period in the case that adjusted unit prices are unfavorable for the agency.

Based on the identified higher relevance of first year unit prices, the risk quantified in this study corresponds to the probability of awarding the contract to a firm that does not offer the lowest BS for the first period. The risk situation illustrated in Figure 6.8 may occur between two contractors when the firm with the lowest price proposal bid a higher FAAR. Therefore, larger differences in the FAAR and lower in the price proposals would represent a higher risk. For this reason, it is recommended to set limits for the FAAR bid by contractors in an effort to mitigate this risk.

Table 6.17 presents the probability of selecting a higher price proposal (BS) for the first contract period for each selection formula in different case scenarios. Each pair of FAARs (r_1 and r_2) in Table 6.17 may be seen as an option to limit the size of the FAARs. Likewise, the risk quantified for each option for each selection formula, would correspond to the worst-case scenario if using that option and that selection formula. For example, the first pair of rates in Table 6.17 represents a possible option used by MnDOT to limit the size of the rates bid by contractors; then, the worst-case scenario when using those limits would be a higher BS (A_1) with a -4% FAAR competing against a lower BS (A_2) with a 10% FAAR (see Table 6.17). In that case, the probability of awarding the contract to the firm with the higher BS would be between 23% and 81%, depending on the selection formula used.

Table 6.17. AxE Risk Analysis – Different Case Scenarios

	AxE - Risk Analysis Different Case Scenarios Probability of Awarding to Firm 1					
	A1 > A2 r1<r2		BS 2 A(1 + r)	BS 3 A(1 + r)^2	Sum BS 1-3 A(r^2 + 3r + 3)	Weighted Sum BS 1-3 A(0.1r^2 + 0.4r + 1)
	r1	r2				
Fixed Annual Adjustment Rates	-4%	10%	53%	81%	54%	23%
	-2%	10%	47%	76%	47%	20%
	0%	10%	39%	68%	40%	16%
	-4%	8%	47%	76%	48%	20%
	-2%	8%	40%	69%	41%	16%
	0%	8%	31%	59%	31%	12%
	-4%	6%	41%	70%	41%	16%
	-2%	6%	31%	59%	33%	12%
	0%	6%	24%	47%	24%	9%
	-4%	4%	33%	60%	33%	12%
	-2%	4%	24%	48%	25%	9%
	0%	4%	16%	31%	16%	5%
	Risk Ranges in which Firm 1 Wins the Contract v = (A1/A2 – 1) x 100%					
Fixed Annual Adjustment Rates	-4%	10%	0% > v ≤ 14.4%	0% > v ≤ 31.2%	0% > v ≤ 14.7%	0% > v ≤ 5.7%
	-2%	10%	0% > v ≤ 12.1%	0% > v ≤ 25.9%	0% > v ≤ 12.4%	0% > v ≤ 4.8%
	0%	10%	0% > v ≤ 9.9%	0% > v ≤ 20.8%	0% > v ≤ 10.1%	0% > v ≤ 4.0%
	-4%	8%	0% > v ≤ 12.4%	0% > v ≤ 26.3%	0% > v ≤ 12.6%	0% > v ≤ 4.8%
	-2%	8%	0% > v ≤ 10.1%	0% > v ≤ 21.4%	0% > v ≤ 10.4%	0% > v ≤ 4.0%
	0%	8%	0% > v ≤ 8.0%	0% > v ≤ 16.6%	0% > v ≤ 8.0%	0% > v ≤ 3.1%
	-4%	6%	0% > v ≤ 10.4%	0% > v ≤ 21.7%	0% > v ≤ 10.4%	0% > v ≤ 4.0%
	-2%	6%	0% > v ≤ 8.0%	0% > v ≤ 16.8%	0% > v ≤ 8.2%	0% > v ≤ 3.1%
	0%	6%	0% > v ≤ 5.9%	0% > v ≤ 12.4%	0% > v ≤ 5.9%	0% > v ≤ 2.2%
	-4%	4%	0% > v ≤ 8.2%	0% > v ≤ 17.1%	0% > v ≤ 8.2%	0% > v ≤ 3.1%
	-2%	4%	0% > v ≤ 5.9%	0% > v ≤ 12.6%	0% > v ≤ 6.2%	0% > v ≤ 2.2%
	0%	4%	0% > v ≤ 4.0%	0% > v ≤ 8.0%	0% > v ≤ 4.0%	0% > v ≤ 1.4%

A1 = Bid Schedule for period 1 bid by firm 1; E = Escalation Factor; r1 = Fixed Annual Adjustment Rate (FAAR) bid by firm 1; BS 1 = Bid Schedule for Period 1

Table 6.17 presents the probability of selecting a higher price proposal (BS) for the first contract period for each selection formula in different case scenarios. Each pair of FAARs (r_1 and r_2) in Table 6.17 may be seen as an option to limit the size of the FAARs. Likewise, the risk quantified for each option for each selection formula, would correspond to the worst-case scenario if using that option and that selection formula. For example, the first pair of rates in Table 6.17 represents a possible option used by MnDOT to limit the size of the rates bid by contractors; then, the worst-case scenario when using those limits would be a higher Bid Schedule (A_1) with a -4% FAAR competing against a lower BS (A_2) with a 10% FAAR (see Table 6.17). In that case, the probability of awarding the contract to the firm with the higher BS would be between 23% and 81%, depending on the selection formula used.

To quantify this risk, it was also necessary to estimate the frequency of occurrence of different variations between the low bids and other bids received for the same contracts in all the contracts comprised in this study. The following example explains how this information was used to quantify the risk, and also provides a better idea about how Table 6.17 should be interpreted. This example corresponds to the worst-case scenario for the first FAAR limits proposed in Table

6.17 (-4% and 10%) when using the weighted BS sum (last column Table 6.17) as the selection formula.

Example:

- In a given multi-year single award IDIQ contract, MnDOT receives two AxE bids from two different contractors; Firm 1 and Firm 2. The BS submitted by Firm 1 (A_1), which is to be used during the first contract period, is higher than the BS from Firm 2 ($A_1 > A_2$). Firm 1 is fairly certain construction prices will decrease during the next few years, so that, Firm 1 decided to offered a negative FAAR of -4% (r_1). On the other hand, Firm 2 is expecting a significant increase in construction prices within the contract period and submits a FAAR of 10% (r_2). According to Table 6.17, the contract would be awarded to Firm 1, despite having bid a higher BS, if the variation between BSs ($v = [A_1/A_2 - 1] \times 100\%$) is between 0% and 5.7% ($0\% < v \leq 5.7\%$), which in accordance with MnDOT historical bid data occurs 23% of the times. Therefore, if MnDOT decides to establish -4% and 10% as limits for adjustment rates submitted by contractors, in the worst-case scenario MnDOT would pay up to 5.7% more for the work performed during the first contract period (assuming that bid quantities in the BS are proportional to those in the work orders to be issued under the contract).

Negative rates were also included in Table 6.17 since it is possible that contractors predict a decrease in contract unit prices for the next few years, situation that could benefit MnDOT but also increases the risk of paying more for the same work during the first period, as shown in Table 6.17. For instance, a contractor could bid a large price proposal or BS for the first year, and win the contract due to a low FAAR. Thus, the lower the contractor can bid in the FAAR, the higher the BS the contractor can submit for the first year.

The idea of using the weighted sum of the BSs for all three periods (last column in Table 6.17), is because, as mentioned before, lower unit prices are more significant during the first contract period. Likewise, obtaining lower unit prices for the second period is more important than getting those for the third period given the higher probability of performing work during earlier contract periods. In fact, in some of the contracts awarded by MnDOT, the third period (after the second adjustment) does not cover a complete year, increasing the probability of performing less or no work during that period.

The equations for the selection of the low bid proposed in Table 6.17 should be analyzed and modified if needed, in accordance with data collected during the implementation of this method in IDIQ contracts. For instance, after finishing a significant number of this contracts, they could be assessed in order to determine possible patterns in the work distribution for different contract periods; patterns that may help to determine more appropriate formulas and/or weights.

Weights proposed in Table 6.17 may vary in order to increase or decrease the risk accepted by MnDOT under single award IDIQ contracts. However, those proposed by the research team seem to be adequate for a preliminary implementation due to the apparent amount of work that could be expected for each period and the observed number of contracts that require one, two or no adjustments during their base contract periods.

In spite of the fact that the first contract period has a higher relevance on IDIQ contracts, later periods should not be underestimated. When awarding a single award IDIQ contract, the agency typically has an overall idea of the projects to be developed under the contract and their cost, and relies on the skills and willingness of the contractor to successfully complete all of them. Therefore, if MnDOT decides to discontinue the work with a given contractor, probably other contracts would have to be procured for the remaining projects, expending more money, time and other resources that might be limited or unavailable at that moment. Consequently, MnDOT should try (to the maximum extent practicable and in accordance with contract requirements) to continue issuing work orders with the same contractor until finishing the contract.

The research team highly recommends the use of a weighted sum of BSs to select the low bid. Besides being a significantly less risky method for MnDOT, this alternative recognizes the higher value of obtaining lower unit prices for work to be performed during earlier contract periods. Although weights proposed in this report may be changed before a preliminary implementation of this method to reduce the risk allocated for MnDOT as low as desired, it is important to understand that MnDOT should be willing to accept a convenient amount of risk. A very low risk, as defined in this report, would diminish the impact of the FAAR in the selection formula, which may result in higher adjustment rates.

6.13 Survey Analysis: Price Escalation

In an attempt to collect opinions and concerns from different stakeholders, the surveys developed in Task 5 contained some question about this matter. Price escalation sections of the surveys were mainly intended to determine their perception in regard with different escalation alternatives, including those already mentioned in this report.

With the intention of determining the impact of using no escalation clauses in IDIQ contracts, contractors were asked if they would bid on IDIQ contracts with no escalation clauses. Likewise, they provided their opinion about the impact on bid prices if there were no escalation clauses in an IDIQ contract. Their answers to these two questions are presented in Table 6.18 and 6.19.

Table 6.18. Contractors' Participation in IDIQ Contracts with No Escalation Clauses

Question: Would you bid on an IDIQ contract with NO escalation clauses?			
Answer		Response	%
Yes		9	25%
No		16	44%
Don't Know		11	31%
Total		36	100%

Table 6.19. Impact of No Escalation Clauses on Bid Prices

Question: What would the impact be on bid prices if there were NO escalation clause in an IDIQ contract?			
Answer		Response	%
Higher bids		35	97%
No impact in bids		1	3%
Lower bids		0	0%
No opinion		0	0%
Total		36	100%

Although the decision whether to bid or not on an IDIQ with no escalation clauses does not show a strong trend, there are still more contractors that are sure that they would not participate in these contracts. On the other hand, almost all those that answered these questions (97%) agree that the lack of price escalation provisions would increase bid prices on IDIQ contracts. Consequently, the next step in the survey was to identify an adequate approach to adjust unit prices over time from the perspectives of MnDOT internal and external customers.

Following a similar procedure as the one presented in Chapter 5 to find a suitable mobilization approach, participants in the contractors' and staff's surveys were asked to rank seven different alternatives from the most suitable for IDIQ contracting (1) to the least (7). Also, participants were asked to assign zero to those alternatives that they do not consider suitable at all, and repeat ranking positions in those cases that consider that two alternatives are equally valuable.

Tables 6.20 and 6.21 contain the rankings proposed by the contractors and staff. The use of the mean to obtain an overall ranking of each survey seems to be more useful in this case given the larger amount of alternatives. However, unlike what happened in the previous chapter to determine the most suitable mobilization approach, in this occasion both sets of participants presented very different opinions in regard to the optimum characteristics of price escalation methods for IDIQ contracting. In spite of the fact that both groups agree that the use of no escalation clauses is the least preferred approach, their ranking positions for the other alternatives are clearly different. To calculate the ranking means (last columns in Tables 6.19 and 6.20), a value of 8 was assigned for those responses in which the participants considered a particular option no suitable at all. Thus, those alternatives with low overall rankings, with 1 being the minimum possible mean, are preferred over those with high overall values, with 8 being the maximum possible mean.

Table 6.20. Contractors' Ranking of Price Escalation Approaches

Question: Please rank the following methods to adjust unit prices over time from the most suitable for IDIQ contracting (1) to the least (7). Put 0 (zero) in those options that you consider not suitable at all, or repeat the number in options that you consider equally suitable.

Contractors: Price Escalation Approaches	Ranking (1=most suitable, 4=least suitable, 0=No suitable at all)								Total Responses	Mean
	1	2	3	4	5	6	7	0		
Option 1. Fixed annual percentage stated by MnDOT to adjust all bid items.	4	3	4	9	1	6	6	3	36	4.58
Option 2. Fixed annual adjustment rate (%) bid by contractors to be applied to each Task Order and factored into the selection of the low bid.	9	6	6	5	3	2	2	3	36	3.44
Option 3. Using a national or local existing index (ENR, BLS, RSMeans, SDDOT CCI).	2	9	5	5	2	1	6	6	36	4.47
Option 4. Using a regional index (by district or similar) developed and kept by using MnDOT past bids.	0	5	4	7	2	3	9	6	36	5.25
Option 5. Using a state index by category developed and kept by using MnDOT past bids (asphalt, concrete, structures, etc.)	0	2	2	11	6	2	6	7	36	5.39
Option 6. Using an index by pay item. Measure the change of a pay item by using MnDOT past bids for that or similar pay items.	4	3	4	7	3	5	5	5	36	4.72
Option 7. No escalation. Bid prices are used along the base contract period and kept during potential contract extensions.	1	3	0	2	3	3	9	15	36	6.42

Table 6.21. Staff's Ranking of Price Escalation Approaches

Question: Please rank the following methods to adjust unit prices over time from the most suitable for IDIQ contracting (1) to the least (7). Put 0 (zero) in those options that you consider not suitable at all, or repeat the number in options that you consider equally suitable.

Staff: Price Escalation Approaches	Ranking (1=most suitable, 4=least suitable, 0=No suitable at all)								Total Responses	Mean
	1	2	3	4	5	6	7	0		
Option 1. Fixed annual percentage stated by MnDOT to adjust all bid items.	10	5	3	4	2	2	0	2	28	2.96
Option 2. Fixed annual adjustment rate (%) bid by contractors to be applied to each Task Order and factored into the selection of the low bid.	1	9	4	3	2	0	4	4	27	4.19
Option 3. Using a national or local existing index (ENR, BLS, RSMeans, SDDOT CCI).	3	3	5	2	2	7	2	3	27	4.52
Option 4. Using a regional index (by district or similar) developed and kept by using MnDOT past bids.	1	6	8	3	3	1	2	3	27	4.00
Option 5. Using a state index by category developed and kept by using MnDOT past bids (asphalt, concrete, structures, etc.)	0	4	8	6	3	2	1	3	27	4.22
Option 6. Using an index by pay item. Measure the change of a pay item by using MnDOT past bids for that or similar pay items.	1	3	1	4	9	2	3	4	27	5.04
Option 7. No escalation. Bid prices are used along the base contract period and kept during potential contract extensions.	5	1	2	2	0	4	9	5	28	5.29

Table 6.22 includes an additional column that presents a combined ranking that may provide a better understanding of the opinions collected by these surveys. However, this combined ranking assumes that the relevance of each response, regardless of whether or not it comes from an external or external costumer (contractor or staff), is equally weighted. The assignation of these weights should be made by MnDOT decision makers in accordance with their criterion and specific expectancies in regard to this matter. The following equation illustrates how these combined means were calculated for each option (i) assuming that responses from contractors and staff are equally valuable for decision makers.

$$Combined\ Mean_i = \frac{Contractors\ Total\ Responses_i X Contractors\ Mean_i + Staff\ Total\ Responses_i X Staff\ Mean_i}{Contractors\ Total\ Responses_i + Staff\ Total\ Responses_i} \quad \text{eq.6}$$

Table 6.22. Contractors' and Staff's Price Escalation Approaches

Final Ranking – Price Escalation Approaches						
Price Escalation Approaches	Contractors' Ranking		Staff's Ranking		Combined Ranking*	
	Mean	Ranking	Mean	Ranking	Mean	Ranking
Option 1. Fixed annual percentage stated by MnDOT to adjust all bid items.	4.58	3	2.96	1	3.87	2
Option 2. Fixed annual adjustment rate (%) bid by contractors to be applied to each Task Order and factored into the selection of the low bid.	3.44	1	4.19	3	3.76	1
Option 3. Using a national or local existing index (ENR, BLS, RSMeans, SDDOT CCI).	4.47	2	4.52	5	4.49	3
Option 4. Using a regional index (by district or similar) developed and kept by using MnDOT past bids.	5.25	5	4.00	2	4.71	4
Option 5. Using a state index by category developed and kept by using MnDOT past bids (asphalt, concrete, structures, etc.)	5.39	6	4.22	4	4.89	6
Option 6. Using an index by pay item. Measure the change of a pay item by using MnDOT past bids for that or similar pay items.	4.72	4	5.04	6	4.86	5
Option 7. No escalation. Bid prices are used along the base contract period and kept during potential contract extensions.	6.42	7	5.29	7	5.93	7

* The combined ranking was calculated assuming that the relevance of each response, regardless of whether or not it comes from an external or external costumer (contractor or staff).

According to the combined ranking in Table 6.22, option 2 seems to be the more suitable. It consists of requesting bidders to submit a fixed annual adjustment rate on a per contract basis. This adjustment rate would be used to annually adjust all bid unit prices in the contract, and additionally, it would be factored into the selection of the selection of the low bid. The most suitable price escalation method determined by the combined ranking is consistent with an ongoing complementary study conducted by the research team, which is analyzing and evaluating the different approaches contained in this study. It has been found that option 2 would reduce the uncertainty perceived by contractors, allowing them to submit lower unit prices, and taking advantage of competition to motivate bidders to submit low adjustment factors. Additionally, this method would provide some flexibility to assign adjustment factors based on the specific characteristics of each project. A complete report with the findings obtained from this complementary study will be included in the final report of this project.

Although the combined ranking presented in Table 6.22 is not totally conclusive due to the assumption mentioned before. There is a different way to arrange and interpret this data that may

help decision makers to narrow their alternatives. Without considering option 7 (no escalation), the other option may be group in three different categories as presented in Table 6.23.

Table 6.23. Price Escalation Option by Category

Price Escalation Options by Categories		
Category	Description	Options
Category 1	Involve the use of fixed annual adjustment rates	Option 1 Option 2
Category 2	Involve the use of external existing construction cost indexes	Option 3
Category 3	Involve the development of one or multiple construction cost indexes by MnDOT	Option 4 Option 5 Option 6

By calculating overall rankings for each category and each group of participants, as shown in Table 6.24, it can be concluded that most of the participants in both surveys agree that the most suitable alternative to adjust unit prices over time, in IDIQ contracts, should use a FAAR regardless of the source of this fixed escalation factor.

Table 6.24. Final Ranking for Price Escalation Approaches per Category

Final Ranking per Category – Price Escalation Approaches				
Price Escalation Categories	Contractors' Ranking		Staff's Ranking	
	Mean	Ranking	Mean	Ranking
Category 1	4.01	1	3.56	1
Category 2	4.47	2	4.52	3
Category 3	5.12	3	4.42	2

* The combined ranking was calculated assuming that the relevance of each response, regardless of whether or not it comes from an external or external costumer (contractor or staff).

In order to determine if MnDOT current fixed annual adjustment rate (2%) is appropriate from the contractors' perspective and in accordance with actual changes in the construction market, contractors were asked to provide and adjustment factor that they consider would be enough to cover the material pricing risk over time. In other words, a rate below which they would not bid on a contract. Their responses are illustrated in Figure 6.9.

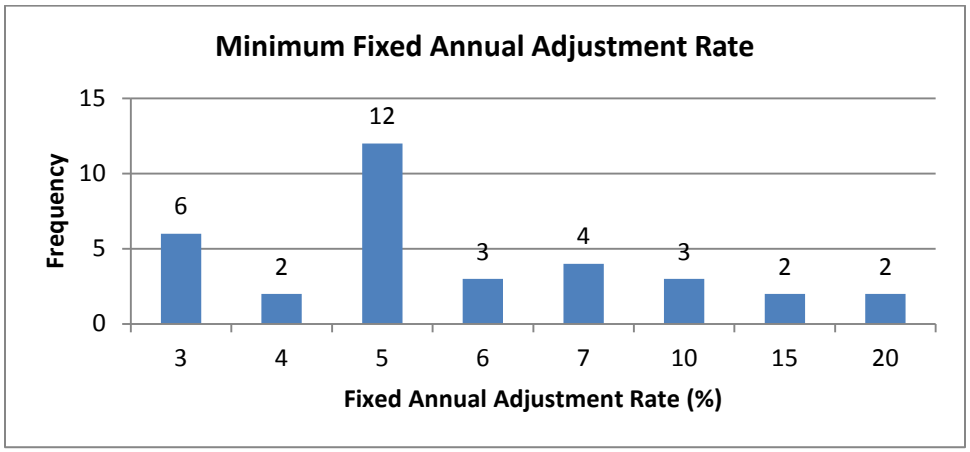


Figure 6.9. Minimum fixed annual adjustment rate.

It could be concluded that the current actual adjustment rate used by MnDOT in its IDIQ contracts is not enough to cover actual changes in material pricing. However, the research team is aware that these may be biased answers. In fact, 14 of those that answered this question have participated either bidding or as subcontractors in MnDOT IDIQ contracts. It means that they have somehow accepted a 2% annual adjustment rate despite the fact that they stated in this question it was too low for them. As mentioned before, it could mean that they consider that 2% is a low annual adjustment rate, but it does not prevent them from bidding in those contracts. Thus, the risk generated by a potential higher increase of prices in the construction industry could be being mitigated by increasing bid unit prices.

Although some contractors are willing to maintain bid unit prices without adjustments for a two-year period, almost 75% of those who answered this question (35 contractors) will maintain unit prices for one year or less. Reasons stated by some contractors for maintaining prices for a maximum period of 12 months are related to the high volatility of asphalt price and escalation contingences added by most suppliers for multi-year contracts. Figure 6.10 illustrates contractors' responses for this question

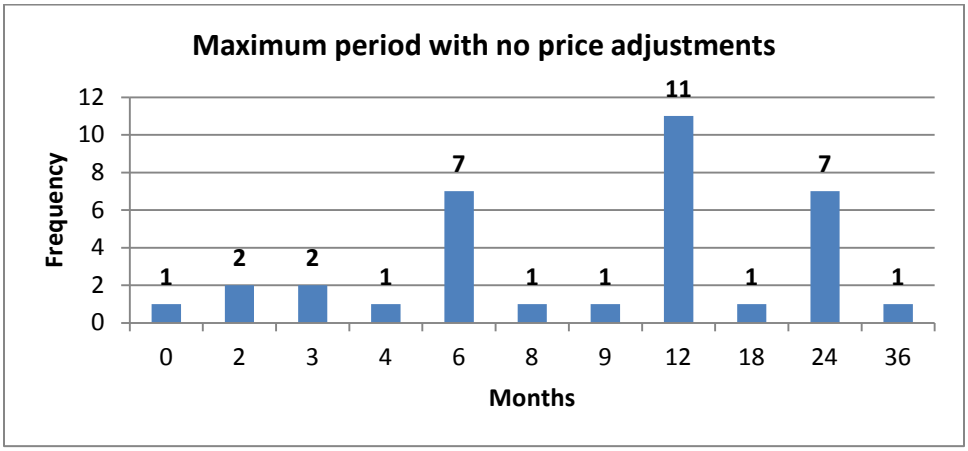


Figure 6.10. Maximum contract period without unit price adjustments.

As a radical alternative, one of the participants in the internal survey suggested the elimination of multi-year IDIQ contracts to avoid the risk related to the escalation of unit prices over time. However, the research team considers it would requires a change in the scope of the IDIQ contracts awarded by MnDOT into shorter and simpler projects that justifies the use of one-year IDIQ contracts.

This chapter provided enough tools for MnDOT to make a decision about IDIQ contracting. From the perspective of the research team AxE bidding appears to be the most appropriate option; opinion that seems to be supported by the results of the surveys. Its simplicity seems to benefit both MnDOT and contractors by keeping low agency administration burden and allowing contractor to estimate an appropriate annual adjustment to lower their contingencies and bid prices while encouraging them to submit low FAARs through competitive procedures.

On the other hand, if MnDOT decides to adopt a more traditional approach by using cost indexes, the team would recommends the implementation of the Construction Cost Index by Pay

Item analyzed earlier in this chapter given the lower average variation showed in comparison with the other indexes and its outstanding superior performance in asphalt pavement projects. However, the adoption of this approach would require a higher initial inversion by MnDOT and in fact, it seems no to be a good alternative from the perspective of the participants in these surveys.

Chapter 7
IDIQ Surety Bonds

Finding a suitable bond scheme for MnDOT IDIQ contracts became a major concern for MnDOT and the research team. The main research question about this matter was:

> *Should performance bonds be furnished for the maximum amount of the IDIQ contract or only for each task order?*

This issue was initially approached in this research by the literature review and case study analysis. However, no final recommendations could be made out of these procedures. Therefore, this topic was included in the outreach surveys allowing a complete suitability analysis of performance bonds schemes.

7.1 Performance Bond Schemes in Case Studies

Table 7.1 presents the different performance bond schemes adopted by each case study. In the case of multiple award IDIQ contracts the decision seems easier, performance bonds must be required per task order given that one firm cannot be responsible for work performed by another contractor. In the case of MoDOT and NYSDOT it seems that requesting one performance bond for the entire contract works fine for them. It is important to remember that these two agencies develop significantly smaller IDIQ contracts in comparison with FDOT (the other DOT using single award contracts). According to Steffanie Workman (FDOT interviewee), FDOT does require the contractor to furnish a performance bond; however, she could not provide further information about this matter and the documents provided by FDOT do not address this issue.

In the case of CFLHD the amount of the performance bond must be 100% of each task order, and NYSDOT and MoDOT require the contractor to furnish a performance bond for 100% of the maximum expected amount to be ordered along the contract.

Table 7.1. Case Studies: Performance Bond Schemes

Performance Bond Schemes			
CFLHD	**NYSDOT**	**FDOT**	**MoDOT**
One per Job Order (100%)	One for the entire contract (100%)	Required (no details provided)	One for the entire contract (100%)

7.2 Survey Analysis: IDIQ Surety Bonds

Although IDIQ contracting is still considered by state DOTs as an innovative contracting approach, it seems that this is not a new approach for most surety companies. As showed in Table 4.7, 94% of the companies have furnished bonds for type of contracts.

Tables 7.2, 7.3 and 7.4 contain the opinions of the contractors, MnDOT staff, and surety companies, respectively, in regard to three different performance bonds schemes. **Note that the question for the contractors was stated in a different way**. Unlike MnDOT staff and sureties, they were requested to select the least preferred alternatives. It can be seen that contractors and sureties agree in the suitability of the second bonding scheme for IDIQ contracts. However, the

internal survey shows a preference for the first alternative, which has been described as a harmful approach for small contractors.

Table 7.2. Contractors' Question - Performance Bond Schemes

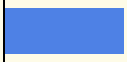
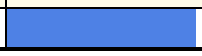
Question: Which of the below performance bond schemes would make it unlikely that your company would bid for an IDIQ contract. (Check all that apply)			
Answer		Response	%
Contract bond at award covering the maximum amount to be ordered under the contract.		12	34%
Contract bond at award covering the minimum guaranteed amount and subsequent bonds (once covered the minimum guaranteed amount) on a Task Order basis.		1	3%
Contract bond at award covering the contract Bid Schedule (list of bid unit prices and quantities) and subsequent bonds (once covered the initial bond) on a Task Order basis.		4	11%
None of the above		19	54%

Table 7.3. Staff's Question - Performance Bond Schemes

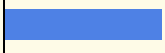
Question: Which of the below performance bond schemes would be the most suitable for IDIQ contracting. (Check all that apply)			
Answer		Response	%
Contract bond at award covering the maximum amount to be ordered under the contract.		14	45%
Contract bond at award covering the minimum guaranteed amount and subsequent bonds (once covered the minimum guaranteed amount) on a Task Order basis.		10	32%
Contract bond at award covering the contract Bid Schedule (list of bid unit prices and quantities) and subsequent bonds (once covered the initial bond) on a Task Order basis.		6	19%
No Opinion		4	13%

Table 7.4. Sureties' Question - Performance Bond Schemes

Question: Which of the below performance bond schemes would be the most suitable for IDIQ contracting. (Check all that apply)			
Answer		Response	%
Contract bond at award covering the maximum amount to be ordered under the contract.		7	22%
Contract bond at award covering the minimum guaranteed amount and subsequent bonds (once covered the minimum guaranteed amount) on a Task Order basis.		15	47%
Contract bond at award covering the contract Bid Schedule (list of bid unit prices and quantities) and subsequent bonds (once covered the initial bond) on a Task Order basis.		8	25%
No Opinion		7	22%

Many comments submitted by surety companies highlighted the impact that the first alternative in the tables above would represent for small contractors. In fact, 82% of them indicated that this approach would highly impact the contractor's ability to bid for other contracts, impact that would be even higher on small contractors.

In addition to the amount to be cover be these bonds, many sureties have identified longer contract periods as a factor that may impact contractor's ability to receive a bond. Some of them state that IDIQ contracts for more than one or two years make bonding very difficult. A couple of them propose the determination of maximum contract amounts by year; a practice that has been observed on Florida DOT push-button contracts.

There are 3 comments provided by one of the participants that comprise most of the aspect mentioned above and comments submitted by others (see Table 7.5). The last of these tips is actually other performance bond scheme that should be considered by MnDOT decision-makers.

Table 7.5. Surety Company Comments

#	Sureties' Comments
1	Limit the contract period to 1 year (2 at the most) or allow the surety to file an annual bond. Long terms scare sureties and make it hard for smaller contractors to get bonds.
2	Include in the contract the maximum total amount of work that will be awarded in the year, and also the maximum probable amount of task orders given to the contractor at any one time. The uncertain possibility that the state will award the maximum total for the year all at once or all under one task order is detrimental.
3	Set a bond amount that covers the exposure at any one time, not at the total for the whole contract period. For example, if the total for the year would be $1,000,000 and the largest task order would be $100,000, and tasks orders wouldn't overlap, then set a flat bond amount...say $200,000

Chapter 8
Consolidated Conclusions and Recommendations

In order to develop an effective IDIQ Implementation Guide for MnDOT, it was necessary to conduct a comprehensive research to get a better understanding of this innovative contracting method and determine current practices adopted by different agencies across the U.S., particularly in the transportation industry. Three different contracting approaches or models were identified and analyzed in this research; single work order, single award, and multiple award IDIQ contracts. It was concluded that in spite of the fact that multiple award IDIQ contracts seem to represent more benefits for owners, it is not always the most appropriate approach. That is the reason why, unlike federal agencies, state DOTs (including MnDOT) show a clear preference for single award IDIQ contracts. This approach seems to better fit their procurement methods and limited resources, and even with less apparent benefits, DOTs have perceived an opportunity to improve their contracting practices using this method.

There are some benefits of IDIQ contracting practices that were clearly identified during the case study analysis. According to the interviewees from each case study, the implementation of IDIQ techniques accelerates the project delivery period, reduces preconstruction cost, and provides a flexible delivery scheduling. Furthermore, the research team identified that the use of multiple award IDIQ Contracts also promotes price competition and reduce risk of contractor default.

There is still not a clear trend related to IDIQ contracting practices among transportation agencies. It seems that some agencies are trying to develop their own terminology, provisions, and processes, generating a wide variety of IDIQ contracting techniques. This lack of standard procedures made it necessary for the development of complementary studies to appropriately address some key aspects in the IDIQ Implementation Guide. These aspects are mobilization, price escalation, and surety bonds in IDIQ contracts.

Some conclusions obtained from this study and recommendations provided by the research team in regard with the three keys aspects mentioned in the previous paragraph are presented below.

- It is recommended that MnDOT adopt a mobilization compensation approach in which contractors are required to bid fixed prices on multiple mobilization pay items, whose applicability will be individually determined by MnDOT on a per task order basis in accordance with the scope and location of each project. Besides the fact that this approach seems to satisfy both internal and external customers, the agency will have more flexibility to execute more complex and larger contracts covering more locations with a single solicitation. Therefore, contracts with broader scopes and with potential projects distributed in larger regions would require a larger amount mobilization pay items to counteract the scope and location uncertainty.
- It was found that single award IDIQ contracts have particular price escalation requirements in comparison with single task order and multiple award IDIQ contracts. Given the absence of competence in the adjudication of task orders (in single award IDIQ contracts), contractors are either required to maintain unit prices throughout the contract period or expect a fair adjustment in contract prices in accordance with actual changes in the construction market. However, given the dynamic of the

construction industry, the volatility of the prices of some materials and construction activities, and the difficulty in determining a feasible distribution of work along the duration of an IDIQ contract, it is hard for contractors to accurately estimate unit prices for multi-year contracts, making it difficult for them to bid on long-term contracts with no escalation clauses.

- This research found that traditional price escalation techniques for construction projects are not an appropriate alternative for MnDOT IDIQ contracts which led the team to develop three innovative alternatives which involve the use of regional indexes, the creation of an index structure based on the maximum number of significant repetitive bid items as possible, and the innovative AxE bidding.
- The research team highly recommends the use of AxE bidding. Basically, this alternative method was designed to increase contractors' confidence in fair future adjustments, which would be reflected in lower bids since contractors would perceive a lower need for contingencies; which are typically included in price proposals to compensate the uncertainty in obtaining reasonable prices in future contract periods. Thus, AxE allows the contractors to determine a FAAR that they consider appropriate in accordance with the specific features and requirements of each project. At the same time, they are motivated to bid low FAARs by using this in the selection of the low bid. Additionally, this method conserves one of the characteristics observed in the current IDIQ escalation clause used by MnDOT in its IDIQ contracts; low administrative requirements to conduct the annual adjustments.
- In spite of the fact that the use of the State Construction Cost Index by Pay Item was not considered by participants in the outreach surveys as an adequate alternative to adjust unit price in IDIQ contracts, the quarterly and semi-annual approaches showed the lowest overall average variation in comparison with the other indexes evaluated in this report. All three approaches of this index presented an exceptional good performance for asphalt pavement projects, especially the semi-annual index. For that reason, this would be the alternative recommended by the research team in case that MnDOT prefers to use cost indexes in its escalation clauses instead of the innovative AxE bidding method proposed in this report.

Chapter 9
Recommendations for Future Research

This report and the IDIQ Implementation Guide in the Appendix A provide MnDOT a set of tools to improve its IDIQ contraction practices, making this contracting method more attractive for the agency and potential contractors. However, some aspects of this implementation guide can still be improved by conducting complementary studies. The list below contains some proposed research projects that may derive from this research and which could improve MnDOT contracting procedure.

- Applicability of multiple award IDIQ contracts in MnDOT construction projects.
- Develop a procedure to determine adequate sets of mobilization pay items in IDIQ contracting.
- AxE bidding preliminary implementation: A case study analysis.
- Alternative approach to handle traffic control unit prices in long-term IDIQ contracts.
- Impact of early contractor involvement in IDIQ contracts.

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Appendix A

MnDOT Indefinite Delivery/Indefinite Quantity Implementation Guide

Indefinite Delivery/Indefinite Quantity Implementation Guide

Minnesota Department of Transportation

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Institute for Transportation

February 15, 2014

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CHAPTER 1
GENERAL

Disclaimer: This Indefinite Delivery/Indefinite Quantity (IDIQ) Implementation Guide is not currently applicable on federally funded projects. All contract requirements of a Non-IDIQ contract apply to an IDIQ contract, unless otherwise provided for in the contract. Likewise, this guide only regulates the use of Single Award and Single Task Order contracts, as the current contracting approaches used by the Minnesota Department of Transportation (MnDOT).

Introduction to IDIQ Contracting

Indefinite delivery/indefinite quantity (IDIQ) contracting practices were first used by the newly organized General Services Administration (GSA) by the Federal Property and Administrative Service Act of 1949. Its purpose was to accelerate the acquisition of supplies and services by federal agencies. This method began to be accepted only during the second half of the 2000's by state and municipal agencies in states like Georgia, Florida, New York and Missouri. Since its implementation, multiple Congressional studies have been conducted in response of repetitive protests claiming contracting agencies were using it to circumvent competitive bidding laws. As a result, Congress enacted the Federal Acquisition Streamlining Act (FASA) in 1994 which regulates the use of federally funded IDIQ contracts, making it more transparent, efficient, and competitive. State Departments of Transportation (DOTs), including Minnesota DOT (MnDOT), have adopted different federal procedures for their own IDIQ contracting techniques, tailoring them to fulfill state regulations and agency preferences.

What is an IDIQ contract?

The Federal Acquisition Regulation (FAR) defines an IDIQ contract as a method to "provides for an indefinite quantity, within stated limits, of supplies or services during a fixed period" (FAR 2005). This definition seems to be accepted by state agencies across the country with one slight difference. An IDIQ contract does not always require specifying minimum and maximum quantities of work to be ordered under the contract. Instead, this decision depends more on state regulations or agency preferences. Under an IDIQ contract work is performed on a Task Order basis. Thus, in the case of MnDOT, the department places a Task Order with one contractor when the actual need appears. MnDOT is required to order, and the contractor to furnish, at least a stated minimum quantity of work. In addition, if the department orders, the contractor must furnish any additional quantities, not to exceed the stated maximum quantity. The minimum quantity should not exceed the amount the department is fairly certain to order. The contract may state quantity limits as number of units or as dollar values.

Figure 1.1 presents the IDIQ contract classification and highlights the two contracting models currently used by MnDOT

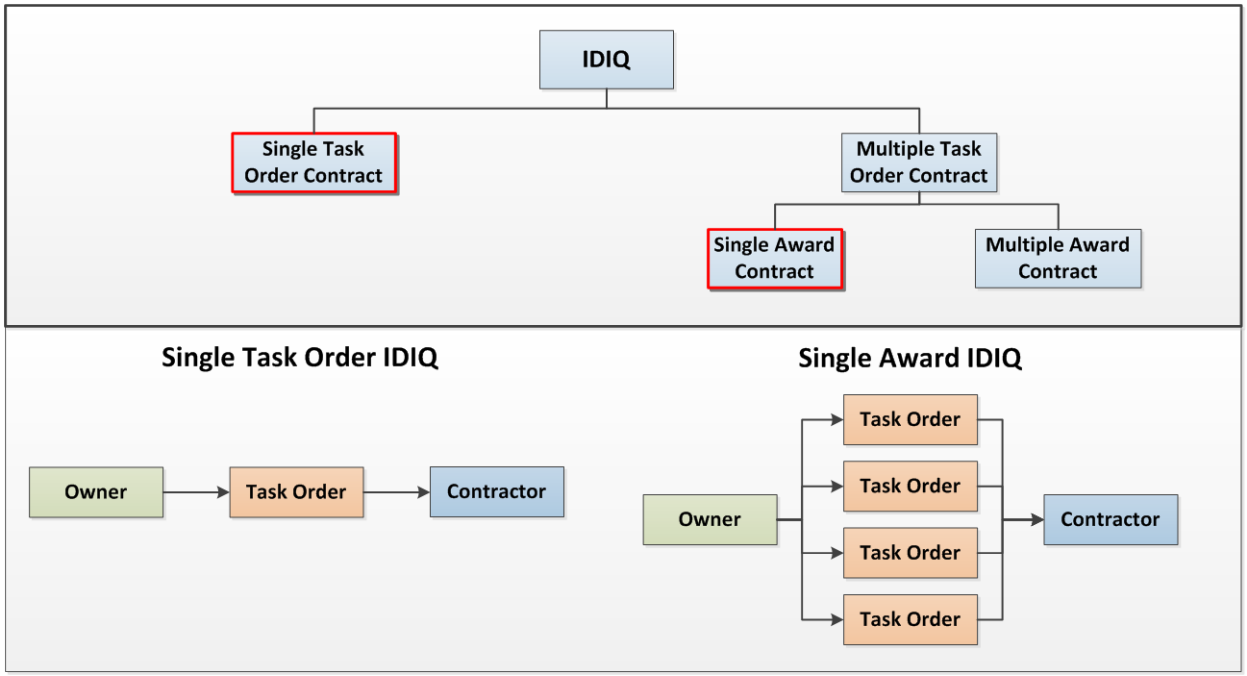


Figure 1.1 IDIQ contracting classification.

Definitions

Below is a list of definitions to be used in this guide and may be found in other IDIQ contract documents.

- IDIQ: Type of contract that provides for an indefinite quantity of work during a fixed period of time. This term is used to refer either to Single Task Order or Single Award contracts.
- Single Task Order: A single contract is awarded to single contractor. Once the need to issue the Task Order arises, the contractor then performs the desired services or furnishes the requisite supplies.
- Single Award: A single contract is advertised and awarded to a single contractor who then is awarded Task Orders based on the pricing furnished in the initial bid package.
- On-call: IDIQ contract to facilitate a quick response to potential contingency situations. May be either Single Task Order or Single Award.
- Contingency Situation: An event that may but is not certain to occur, which will require a quick response from MnDOT.
- Contract Time: Number of working days assigned to an individual Task Order based on the quantity of work in the Task Order.
- Task Order: A Task Order becomes the contract document and determines location, contract time, and scope of work. Additionally, a Task Order outlines all required pay items, quantities, and unit prices as stated in the Bid Schedule.
- Bid Schedule: List of pay items included in the proposal that are used for the basis for selecting the lowest responsible bidder. Payments to the contractor will be made

based on the Bid Schedule and any necessary negotiated items as shown on the Task Orders when authorized.

- Task Order Item List (TOIL): Complete list of bid items generated from the Bid Schedule that defines which items will be utilized repetitively to perform the IDIQ contract.
- Fixed Annual Adjustment Rate (%): A percentage submitted by the contractor that indicates the annual adjustment of all prices in the Bid Schedule. This rate is factored into the selection of the low bid.

How projects are traditionally delivered?

Before 2000, most of the roadway construction projects in Minnesota were delivered through traditional low-bid, design-bid-build (DBB) contracting. In this method, design must be fully accomplished, using either an in-house or consultant designer, in order to begin with the bidding phase to select the low-bid responsive contractor. In other words, design and construction are contracted separately, so that, there is not a contractual relationship between the designer and the contractor as shown in Figure 1.2.

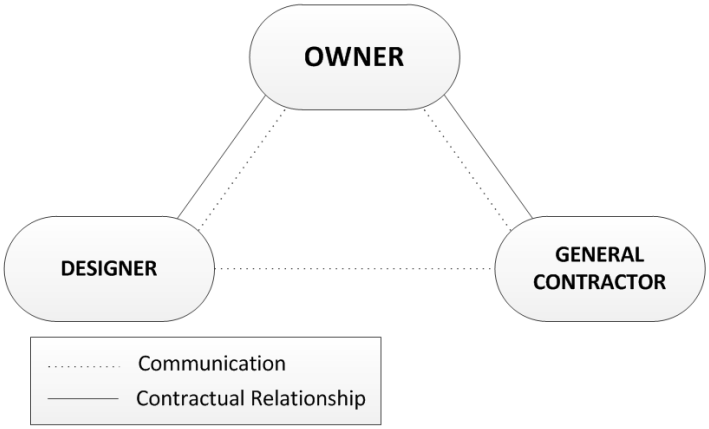


Figure 1.2 Design-Bid-Build (adapted from AIACC 1996).

Since 2000, MnDOT has been implementing innovative delivery methods and contracting approaches in order to improve its acquisition procedures by decreasing project delivery times, construction periods, and costs. Some of these innovative contracting methods are design-build (DB), construction manager/general contractor (CMGC), best value contracting, and A+B (cost + time) bidding. This IDIQ implementation manual is aimed to include IDIQ practices in MnDOT innovative contracting methods by providing guidance to construction and design personnel about the appropriate use of this delivery method to acquire supplies and/or services.

Why use IDIQ?

TABLE 1.1 Contracting Advantages by IDIQ Model

Single Award	**Single Task Order**	- Owner can keep lower inventory levels - Flexibility in quantity and delivery scheduling - Supplies and services are ordered when they are really needed - Agencies commit only for a minimum or no amount of work to be ordered - Owner can direct shipments directly to the users - Useful contracting option during emergencies	**Level 1**
		- Shorter project delivery period - Lower preconstruction costs - Allows contractor involvement in preconstruction activities - Fast use of year-end funding - Lower cost in future issuance of work orders - Increase quality and timeliness of delivery	**Level 2**

There have been identified two levels of advantages when using IDIQ contracts to acquire supplies or services (see Table 1.1). These levels were determined based on the IDIQ models used by MnDOT. It means that an agency would find the same and more advantages as it moves from a Single Task Order to a Single Award IDIQ contracting model. However, it does not suggest the use of Single Award over Single Task Order contracts. If there is a significant possibility of not requiring more than one Task Order under a given contract, MnDOT shall use a Single Task Order model to not create false expectations in contractors.

When should IDIQ be used?

The kind of projects suitable for IDIQ contracting are those that involve recurrent and repetitive tasks mainly related to information technology and consulting services, repair and maintenance activities, and minor construction. This guide is intended to regulate the use of IDIQ contracts on MnDOT construction projects.

Procurement Overview

MnDOT use a one-step low-bid procurement bidding process to select a contractor to deliver the contract. An Invitation for Bids (IFB) is issued to solicit a price proposal, and some information that MnDOT will evaluate to determine which proposer is the lowest responsible bidder to successfully deliver any of the Task Orders that will compose the contract. The IDIQ awarding process will be explained in detail in Chapter 4. Figures 1.3 and 1.4 summarize the procurement process for Single Task Order and Single Award IDIQ contracts, respectively. The principal difference between these two processes is the expected number of Task Orders to be issue.

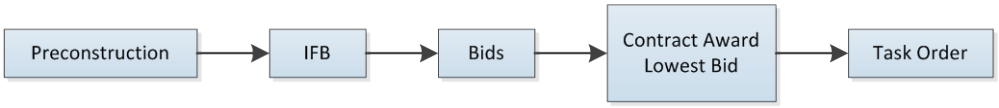


Figure 1.3 Single Task Order procurement process.

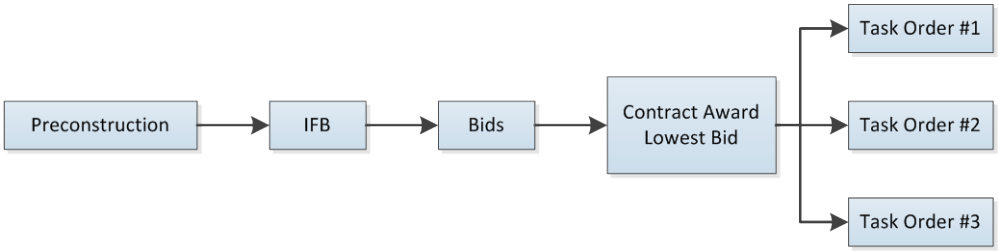


Figure 1.4 Single Award procurement process.

CHAPTER 2
SELECTING AN IDIQ PROJECT

IDIQ selection process

This chapter presents the decision making process to determine the suitability of a potential IDIQ project and the most appropriate contracting model to perform the work. Additionally, this chapter includes a deeper explanation of some relevant factors mentioned in the decision making process illustrated in Figure 2.1.

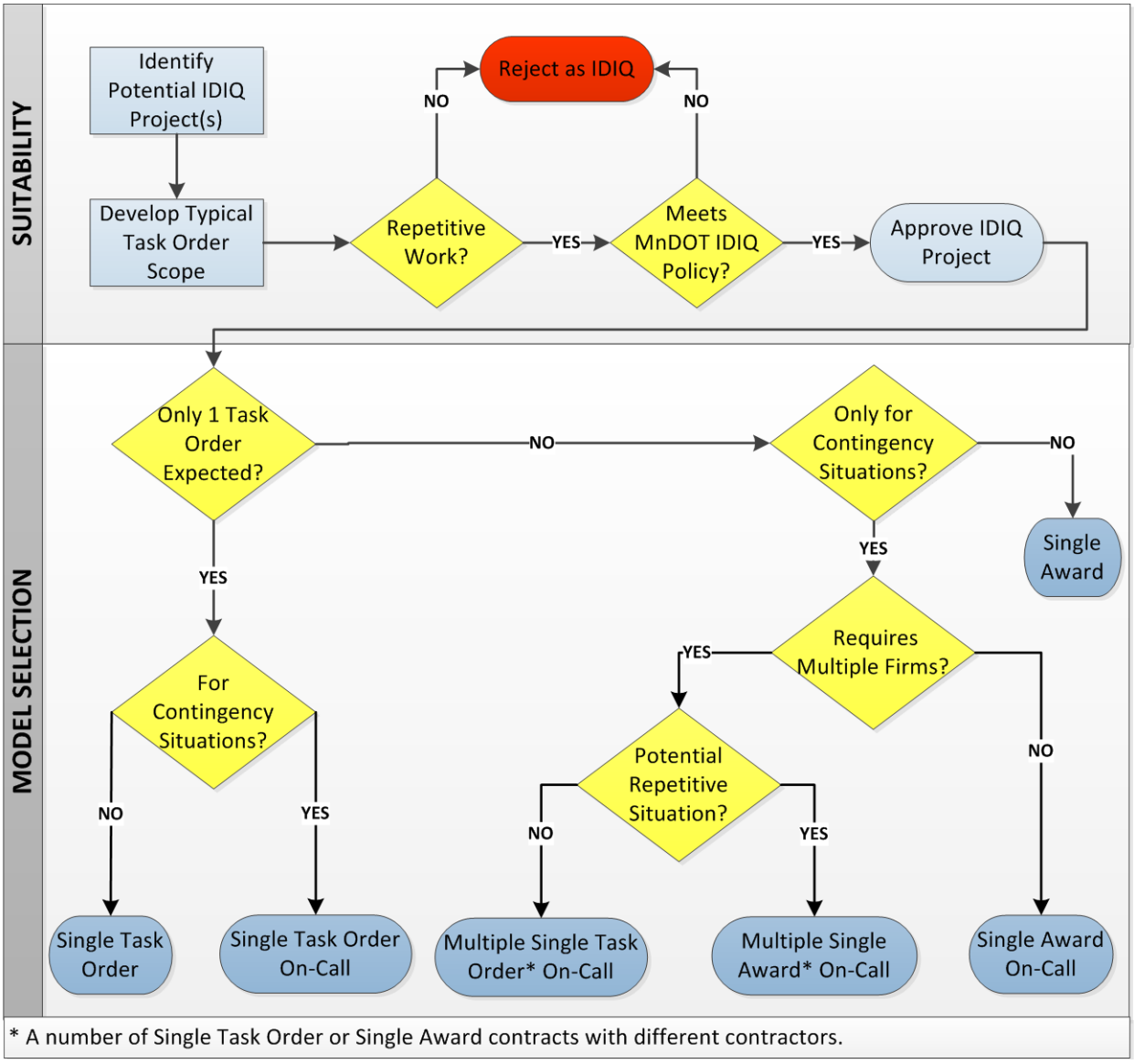


Figure 2.1 IDIQ project and model selection.

On-call Contracts

The capability of IDIQ contracts to issue Task Orders without conducting an entire procurement process allows a quick response to contingency situations such as natural and environmental disasters, and industrial accidents. IDIQ techniques have been widely used by federal, state, and local agencies to obtain supplies, services, and/or equipment required to mitigate short-term impact after this type of events.

In case of foreseeing potential contingency situations, MnDOT may deliver On-call contracts to cover different affected areas across the state using as many contracts and contractors as required. More than one general contractor may be assigned to the same area in accordance with the expected amount of work to be required after these events. The use of Single Task Order or Single Award On-call contracts depends on the probability of repetition of these contingency situations during the contract period (see Figure 2.1).

Potential Project Types Suited for IDIQ

The following list comprises the types of projects that are suitable for IDIQ contracting in accordance with MnDOT contracting practices. It is possible for MnDOT to execute an IDIQ contract with more than one of the types of projects listed below.

- Bituminous mill and overlay
- High tension cable guardrail
- Concrete pavement repair
- Concrete Pavement Rehabilitation
- District-wide projects (pavement striping)
- Contaminated soil disposal
- Combining multiple noise wall maintenance contracts
- Combining small chip seal projects
- Culvert lining
- Relamping

CHAPTER 3

IDIQ PRECONSTRUCTION ACTIVITIES

This chapter outlines major preconstruction procedures and aspects MnDOT must consider before advertising and awarding IDIQ contracts and previously to the execution of Task Orders. Additionally, it mentions some preconstruction services that can be obtained from contractors to develop more constructable task orders.

Risk Analysis

One important aspect to address in IDIQ risk analysis is the value of being able to retain a contractor with a good performance record to deliver more than one task order. Additionally, the promise of future work creates an incentive for the contractor to deliver high quality products. However, to make that direct connection between past performance and the ability to compete for future work on a project-by-project basis, the agency must surmount statutory barriers as well as potential industry opposition.

IDIQ contracting has provided a way for agencies to satisfy the procurement risk requirements discussed above. This project delivery method permits a transportation agency to increase or decrease a particular contractor's work without the need to reprocure every new project based on its performance on previous Task Orders. The contract essentially creates a defined capacity to perform construction on an ongoing basis as long as the quality, cost, and timeliness of the work are satisfactory. It also provides a means to limit the risk of poor performance by only guaranteeing the contractor a minimum amount of work and permits the agency to effectively terminate the contract of a marginal contractor without the risk of protest or claim by merely not issuing any further Task Orders on the IDIQ contract.

Other risks are related to the size of the IDIQ contracts and how often are they awarded. For instance, MnDOT may decide to award a significant number of small and simple IDIQ contracts during a given period of time or few larger and broader contracts during the same period. When awarding an IDIQ contract, the agency typically has an overall idea of the projects to be developed under the contract and their costs, and relies on the skills and willingness of the contractor to successfully complete all of them. Therefore, longer and larger contracts increase the risk of contractor default and its impact, in which case the agency would have to conduct a new bidding process for the remaining work, expending more money, time and other resources that might be limited or unavailable at that moment.

In spite of the fact that longer and larger contracts increase the risk factors discussed above, MnDOT may diminish this risk by conducting more rigorous letting procedures to ensure the selection of qualified, experienced, and reliable contractors. Thus, there are two critical options; awarding a large number of small contracts by using fast and simple procurement processes, or few larger and broader contracts through more complex selection methods. While moving between these critical alternatives, Project Engineers must adapt their procurement procedures in a way that they are not more complicated than necessary in order to guarantee an acceptable risk at a minimum administrative workload. Moreover, MnDOT will be careful not to award more IDIQ contracts than its staff can actually handle. For instance, the execution of multiple contracts in a single year implies overlapping contracting periods; therefore, MnDOT would have to deal with supervision of multiple contracts either with in-house staff or by

outsourcing, significantly increasing administrative burden.

One of the major issues regarding IDIQ contracting is the lack of knowledge of some agencies and firms in the construction industry about this innovative delivery method. To address this issue, MnDOT should conduct periodical training sessions to instruct its staff in IDIQ practices. Additionally, pre-bid meetings before awarding every IDIQ contract should explain to potential proposer the features of this delivery method.

Another risk associated with this delivery method, which will be discussed later in this guide, is related to the appropriate scoping of Task Orders, the anticipated amount of Task Order to be issued under the contract, and the determination of the minimum guaranteed value for IDIQ contracts. The minimum guaranteed value in an IDIQ contract is typically related to the size of the task orders to be issued under the contract, in fact, in a single award contract this minimum value usually corresponds to the monetary size of the first task order. There are two major factors evaluated by proposers when developing bids; the minimum guaranteed value and the probability of getting task orders beyond this value. Therefore, if in a single award contract proposers decide to bid based on the worst case scenario, which would be the minimum guaranteed value, and if this value is too low, bids collected may be higher than if using other delivery methods.

Project Engineers must consider mitigating the risks mentioned in the previous paragraph as follows:

- Anticipated value of potential Task Orders may not be lower than the value of a typical contract for similar work if using a different delivery method. In other words, IDIQ contracts must be planned so that they are composed by projects that otherwise would be individually procured. It is no recommended to breakdown into multiple Task Orders a project that traditionally would be completed by one contractor under one contract.
- To the maximum extend, minimum guaranteed values should be equal to the anticipated value of the first task order. Otherwise, they must not be lower than the lowest expected Task Order, assuming that Task Orders were scoped as indicated above.
- The Project Engineer must estimate an approximated minimum number of Task Order to be issued under a given contract and this number must be announced to potential bidders in the IFB. Thus, bidders may be motivated to submit low prices.

Risk Register

The risk analysis presented above was intended to identify and mitigate different risk factors inherent in IDIQ contracting. This analysis is useful to optimize MnDOT contracting practices to make IDIQ contracts more attractive for the department and potential bidders. However, as part of the risk management plan, the Project Engineer, designers, and others involved in the preconstruction activities, must identify, register, and attend specific risk factors on a per contract and Task Order basis. This process does not differ much from the one followed to address risk elements in other delivery methods. In fact, most of the risk events typically found in traditionally procured construction projects may be identified in IDIQ contracts.

Appendix L.1 presents a sample of a Risk Management Register Form for an IDIQ contract. This form includes some risk events related to the factors stated above assuming that some of the mentioned recommendations were not considered. The Risk Management Register Form should be prepared during the planning phase of every IDIQ contract and updated before the issuance of each Task Order. Appendix L.2 includes a blank copy of this form. Likewise,

Appendix L.3 contains a list of common risk events organized by category. It is worth mentioning that the form in Appendix L.1 is just an example. Each IDIQ contract and Task Order must be individually assessed and its risk events independently evaluated and addressed.

Project description checklist

Before scoping the typical projects to be delivered under an IDIQ contract, the Project Engineer must develop a checklist including all major factors involved in the contract. This list constitutes a preliminary summary of the project and may be updated or modified at any moment throughout the procurement. Items listed below represent those major factors to be considered when planning and scoping projects executed by MnDOT under IDIQ contracts. Items may be removed or added as applicable.

- IDIQ Contract Name
- Location(s)
- Primary reason for selecting IDIQ delivery
- Minimum Guaranteed Value
- Maximum Value
- Minimum Value per Task Order
- Maximum Value per Task Order
- Estimated Project Delivery Period
- Required Delivery Date
- Compensation Method
- Base Contract Period
- Extension Options
- Major Features of Work – pavement, signing, sound barriers, etc.
- Major Anticipated Schedule Milestones
- Major Project Stakeholders
- Major Potential Obstacles
    - With Right of Way, Utilities, and/or Environmental Approvals
    - During Construction Phase of Potential Task Orders
- Main Identified Sources of Risk
- Safety Issues
- Other appropriate from the MnDOT Standard Specifications

Early Contractor Involvement

Given that in IDIQ contracts the general contractor is engaged with the contract before developing the scope for Task Orders subsequent to the initial one, MnDOT has an opportunity to engage them in furnishing different preconstruction services, including participation in the planning phase of the project by providing input aimed to obtain more constructable designs. Constructability in IDIQ contracts is a review of the capability of the industry to determine if the required level of tools, methods, techniques, and technology are available to permit a competent

and qualified construction contractor to build the project feature in question to the level of quality required by the contract. It includes:

- Evaluating the ability of subcontractors to understand the required level of quality
- Accurately estimating the cost of providing required quality by subcontractors and suppliers.
- Making use of locally available construction materials.
- Configuring the Task Order scope to match the IDIQ contractor's means and methods.

Contractor's participation in preconstruction activities may be obtained in two ways. Based on the Task Order complete documentation flowchart presented in Appendix A, the contractor's input may be requested during the development of Task Order scope, or it may be submitted by the contractor for MnDOT consideration before signing a Task Order.

Cost Estimates

Although the uncertainty inherent in IDIQ contracts prevents accurate estimation of the total cost of all Task Orders to be issued under a given contract, a total anticipated number of Task Orders and an approximation of the average cost of the projects may be used to develop a conceptual estimate. This conceptual estimate should include contingencies to compensate perceivable risk and uncertainty. This estimate should be used to determine the contract ceiling and the minimum guaranteed value to be stated in the IFB.

Once the contract is awarded, the conceptual estimate is adjusted by using actual unit prices submitted by the successful contractor and becomes a preliminary estimate. For budget control purposes, this estimate must be frequently updated by using actual costs of completed Task Order and scope adjustments generated by lessons learned from these projects. Figure 3.1 summarizes the estimating process of IDIQ contracts.

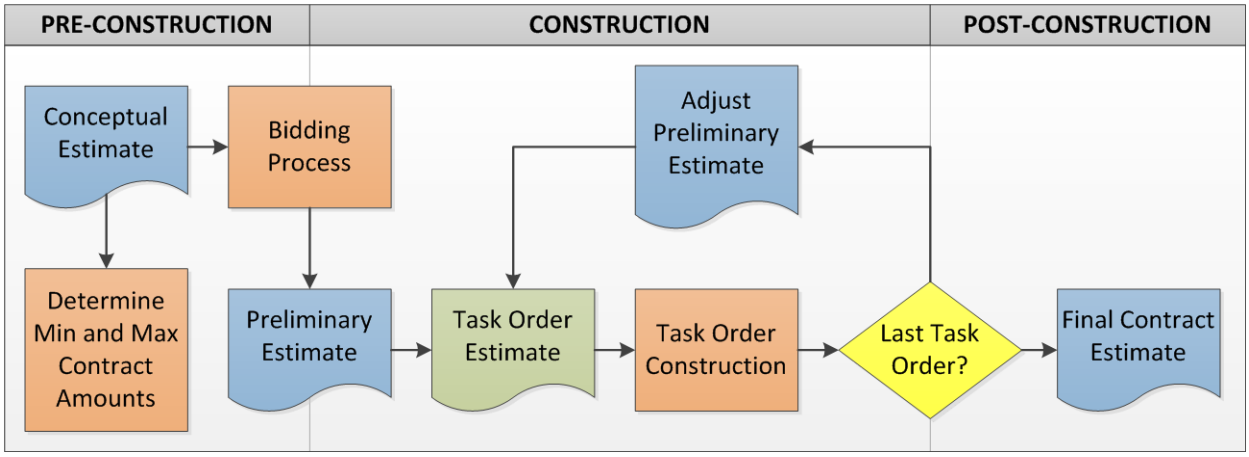


Figure 3.1 IDIQ estimating process.

As shown in Figure 3.1, there are two basic types estimates in IDIQ contracts; one intent to determine the total cost of the project (conceptual, preliminary, and final), and one conducted on a Task Order basis. Despite the limitations to develop a detailed estimate for an IDIQ

contract, cost estimates for individual Task Orders are more accurate. They are developed by using unit prices from the Bid Schedule, negotiated prices for items not included in the Bid Schedule, and some contingency items as will be discussed in the following section and as shown in Appendix D.

Funding

IDIQ contracting offers great funding flexibility and allows a better use of resources since funds may be assigned when anticipating a task order, and also provides a mechanism to rapidly obligate/expend funding that comes available from other sources that were not contemplated during the original procurement. If necessary, MnDOT could use an IDIQ contract to effectively utilize available year-end funds with projects that match contract scope.

This funding flexibility also allows MnDOT to secure at the beginning of the contract only those funds related to the minimum amount of work guaranteed to all awardees.

Task Order Pricing Encumbrance of Funds

To encumber the amount needed for a given Task Order, the Project Engineer must prepare the IDIQ Project Budget Tracking Form (Appendix E.1) to inform Capital Programs to ensure sufficient funds to cover the project. The encumbrance process is further explained and illustrated in the flowchart presented in Appendix B of this guide.

The Project Engineer should consider contingencies when requesting the funds and preparing the Task Order Form; consider any incentives or invoice items. The Task Order Form has fields for these contingencies (see Appendix D). A field for "other" is also under contingencies; money included in this field is limited to 2% of the total amount of the task order, and must be group specific. The "other" contingency money can be used for:

- Spec. Book or Special Provision items with pre-determined prices, such as 1404 Additional Traffic Control Items, water directed for dust control, erosion control items; or
- Minor variations in quantities.

The Task Order payment cannot exceed the amount in the original Task Order. The Project Engineer must issue another Task Order (and encumber funds) prior to allowing overruns, that exceed dollar values encumbered in the Task Order.

The following steps describe the process to secure state funds for each Task Order. As mentioned at the beginning of this guide, IDIQ contracting is not currently approved for use on MnDOT federally funded projects.

1. Districts will fill out the IDIQ Project Budget Tracking Form (Appendix E.1) and the Individual Control Section Attribute Form (Appendix F), available at: http://www.dot.state.mn.us/const/tools/idiq.html
2. IDIQ Project Budget Tracking Form is forwarded to Office of Financial Management/Office of Transportation System Management (OFM/OTSM) for approval.
3. OFM/OTSM will approve and send back to the District.
4. The District will complete their Task Order and attach their approved Project Budget Tracking Form and the Individual Control Section Attribute Form to: *DOT_ContractChanges-Enc@state.mn.us

5. Office of Construction and Innovative Contracting (OCIC) will add the groups, sign off on the form, and send to Office of Financial Management (OFM).
6. OFM will do the encumbrances in SWIFT, sign the form, and send it back to OCIC.
7. OCIC will enter the information into the Construction Management System (CMS).
8. OCIC will let the Districts know when it is entered into CMS.

Pay Items Not Contained in the Bid Schedule

Pay items that are not contained in the Bid Schedule, may be added to the contract on a negotiated basis, (in accordance with MnDOT special provision 1904) the first time they are encountered in the contract. These additional pay items will be identified in the task order prepared by the Project Engineer. Once a mutual agreement has been reached, the unit price will be added to the contract and the new unit price pay items will be used for all subsequent task orders where they are applicable. Negotiated price approval must be obtained from MnDOT Construction Cost Support Unit.

Scheduling

The IFB shall contain an anticipated procurement schedule highlighting some important dates and milestones such as:

- Deadline for submitting clarifications
- Pre-bid meeting
- Deadline for submitting bids
- Opening of price proposals
- Anticipated first task order

Regarding construction schedules, each contractor will be in charge of elaborating the schedule of the work to be performed under each task order awarded to the contractor in accordance with the requirements stated in the IFB or task order documents for a schedule, critical path, or bar chart.

CHAPTER 4

IDIQ SOLICITATION

This section presents MnDOT IDIQ advertisement activities, including a description of the IFB and a brief explanation of the letting process.

IDIQ Advertisement

As done with all construction projects awarded by MnDOT, IDIQ contracts are advertised on the MnDOT official bid letting website to ensure fair and open competition. This website is maintained by the Office of Technical Support and aimed at contractors, subcontractors and suppliers. When advertising an IDIQ contract, an IFB will be issue indicating some relevant information to interested firms. More information about the IFB is provided in the next section.

No task orders issued under an IDIQ contract have to be publicly advertised on the MnDOT official bid letting website. Instead, they are directly submitted to the successful contractor. The contractor is required to review, sign, and return the Task Order to MnDOT to proceed with the Task Order execution process as presented in Appendix A.

Invitation for bids

The IFB contains all contract requirements, the scope of the task orders to be issued under the IDIQ contract, and the instructions to submit competitive proposals. Some information requested by the IFB is for informational purposes and is intended to conduct an initial review on a pass/fail basis to determine responsive responsible bidders. The IFB includes the Bid Schedule; a list of pay items that must be priced and submitted by all interested contractors and which will be used to determine the lowest bidder.

The list below outlines some factors commonly included in a typical IFB for an IDIQ contract. This list may be modified as applicable in accordance with particular requirements of a given IDIQ contract.

- General contract information
- Project Engineer and contact information
- Anticipated scope of work
- Selection criteria
- Copy of contracts documents
- Work location(s)
- Minimum guaranteed value
- Maximum value
- Maximum annual value
- Minimum value per Task Order
- Maximum value per Task Order
- Maximum value to be assigned in simultaneous Task Orders
- Targeted Group Business (TGB) or Veteran-Owned Small Business (VSB) goals
- Contract duration and extension options

- Maximum number of calendar days allowed to contractor to commence work after fully executed Task Order
- Payment provisions
- Bid Schedule
- Major anticipated schedule milestones
- Required submittals
- Mobilization clauses
- Price escalation clauses
- Other information relative to the project

Formal Clarification Process

MnDOT will use a clarification process to allow the contractor to ask questions of the department during the contract advertisement period. The department will clarify questions regarding the IFB in responses, but will not make material changes. If material changes are needed, the department will issue an addendum.

Beginning with contract advertisement and continuing until award of a contract, no employee, member or agent of any potential contractor, subcontractor, or supplier shall have ex parte communications regarding the contract with any member of MnDOT, except for communications expressly permitted by the MnDOT Project Engineer. Any potential contractor, subcontractor, or supplier engaging in prohibited communications may be disqualified at the sole discretion of MnDOT.

The contractor shall direct questions regarding the project, including questions prior to bidding to the Engineer's attention. All requests for clarifications of the bidding package must be in writing and submitted via e-mail.

IDIQ contract award

Option 1:

As mentioned above, MnDOT conducts a one-step low-bid process to select the contractor to perform work under all task orders to be issued during the contract period. This process mainly consists of a pass/fail review of proposals followed by the selection of the low bid based on Bid Schedules submitted by bidders. The equation presented below indicates the process to determine the price proposal submitted by each bidder; where *n* corresponds to the number of bid items included in the Bid Schedule. Bid quantities stated by MnDOT in the Bid Schedule are used only for the selection of the low bid.

$$Price\ Proposal = \sum_{i}^{n} Bid\ Quantity_i \times Bid\ Unit\ Price_i$$

Option 2:

As mentioned above, MnDOT uses an AxE (cost times escalation) process to select the contractor to perform work under all task orders to be issued during the contract period. This process mainly consists of a pass/fail review of proposals followed by the selection of the low

bid based on Bid Schedules and the fixed annual adjustment factors submitted by bidders. The equations presented below indicate how the Bid Schedule and the fixed annual adjustment rate are used to select the low bid; where *n* corresponds to the number of bid items included in the Schedule and *r* is the fixed annual adjustment rate submitted by contractors. Bid quantities stated by MnDOT in the Bid Schedule are used only for the selection of the low bid.

$$Cost = A = \sum_{i}^{n} Bid\ Quantity_i \times Bid\ Unit\ Price_i$$

$$Escalation = E = 0.1r^2 + 0.4r + 1$$

$$Low\ bid\ selection\ criteria = AxE$$

CHAPTER 5

THE IDIQ CONTRACT

This chapter outlines the main information contained in an IDIQ contract. Additionally, it identifies the major responsibilities of MnDOT and all subcontractors in a typical IDIQ contract.

Contract Content

Most of the information in the IFB (Chapter 4) will be also included in the contract, as applicable, with some slight differences. For instance, the contract must include the Bid Schedule with all unit prices submitted by the successful bidder and the TOIL developed from the Bid Schedule.

Bid Schedule

A Bid Schedule is developed by MnDOT for each IDIQ contract and attached to the IFB. The Bid Schedule is intended to contain all pay items to be required for the execution of all task orders issued under the contract. During the letting phase of the contract, the Bid Schedule is used for selecting the lowest responsible bidder. Once the contract is awarded, the Bid Schedule is used to develop the Task Order Item List (TOIL), which defines those items that will be utilized repetitively to perform the IDIQ contract. Unit prices stated in the Bid Schedule are applicable for all Task Orders and can be adjusted over time as shown later in this chapter. Items required for a given Task Order, and not included in the Bid Schedule, will be priced as shown in Chapter 6 of this guide.

Bid quantities stated in the Bid Schedule and included in the IFB must be determined in accordance with the expected participation of each item in a typical Task Order; otherwise, the contract could be incorrectly awarded to a firm that did not represent the most valuable offer to MnDOT.

Task Order Item List

The TOIL contains those items from the Bid Schedule that the Project Engineer considers will be used repetitively to perform all task orders under a given IDIQ contract. The TOIL is a mechanism to identify the scope of work for all task orders. Most of the items included in the Bid Schedule but not in the TOIL correspond to lump sum activities that have been included in the contract to be used in specific Task Orders.

Mobilization

Option 1:

Mobilization shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies and incidentals to the project site; for the establishment of all contractor's offices and buildings or other facilities necessary for work on the project, as indicated on each Task Order. Mobilization may include

bonding, permit, and demobilization costs.

MnDOT IDIQ contracts do not have a lump sum item for mobilization; all costs incurred by the contractor for mobilization shall be incidental to other work. It means that mobilization expenses should be included by contractors in the bid items.

Option 2:

Mobilization shall consist of preparatory work and operations, including, but not limited to, those necessary for the movement of personnel, equipment, supplies and incidentals to the project site; for the establishment of all contractor's offices and buildings or other facilities necessary for work on the project, as indicated on each Task Order. Mobilization may include bonding, permit, and demobilization costs.

To compensate contractors for these mobilization expenses, bidders are required to bid fixed prices on multiple mobilization pay items, whose applicability will be individually determined by MnDOT on a per Task Order basis in accordance with the scope and location of each project.

Cost Escalation

Option 1:

To compensate for the potential of this contract to extend over several construction seasons MnDOT will adjust the unit prices of all items on the Bid Schedule by 2% once per year on the anniversary date of the letting of this Contract. Items not listed on the Bid Schedule will not be adjusted. Cost Escalation will apply to Task Orders with regard to actual date work performed. Payments will be delivered in accordance with the following:

- After one-year anniversary date, add 2% to the original bid prices for work done during year 2.
- After two-year anniversary date, add 4% to the original bid prices for work done during year 3.
- After three-year anniversary date, add 6% to the original bid prices for work done during year 4.

Option 2:

To compensate for the potential of this contract to extend over several construction seasons MnDOT will adjust the unit prices of all items on the Bid Schedule once per year on the anniversary date of the letting of this contract. These adjustments are conducted in accordance with the fixed annual adjustment rate (%) bid by the successful contractor. Items not listed on the Bid Schedule will not be adjusted. Cost Escalation will apply to Task Orders with regard to actual date work performed.

Roles and Responsibilities

MnDOT and contractor roles and responsibilities in IDIQ contracts are similar as those when using more traditional delivery methods. Below are listed some major responsibilities assigned to each party in IDIQ contracts. However, they can be modified, transferred or shared with other parties at MnDOT discretion.

IDIQ Contracting – Roles and Responsibilities	
MnDOT	**General Contractor**
• Establish and communicate objectives for project success. • Determine maximum and minimum quantities to be ordered under each Task Order (if any) and under the entire contract. • Establish performance objectives. • Ensure compliance with laws, mandates, regulations, and procurement policies. • Define roles for all parties involved in the contract. • Facilitate design and construction progress. • Develop the design for all tack orders either by using in-house staff or an external consulting design firm. • Develop the Bid Schedule for each IDIQ contract, and scope each Task Order. • Determine TGB or Veteran-Owned Business goals. • Obtain the required level of competition. • Leverage available funding for the benefit of the project and the traveling public. • Distribute authority to make decisions among the parties to the contract as well as internally.	• Construct the project addressed by each Task Order issued under the contract. • Furnish preconstruction services as required by MnDOT for any Task Order. • Select construction means and methods. • Prequalify, advertise and receive subcontractor and material supply bids. • Manage subcontractors. • Actively participate and comply with QA/QC program. • The general contractor must review, sign, and return task orders to MnDOT within a given period of time in order to proceed with the respective work. • Inform itself and all subcontractors about applicable federal and state regulations. • Provide a copy of contract to all subcontractors. • Deliver timely payments to all subcontractors and material suppliers in accordance with contract provisions. • Provide a safe work environment for workers, subcontractor personnel, material suppliers, and MnDOT staff. • Execute the traffic control plan developed either by MnDOT or by itself. • Provide all required surety bonds as stated in the contract. • Make good faith efforts to meet TGB of VSB goals and all other programs required by the MnDOT Office of Civil Rights (OCR) to be included in a given contract.

Contract Bond

Option 1:

The successful bidder shall furnish a payment bond equal to the contract amount and a performance bond equal to the contract amount as required by Minnesota Statutes, section 574.26. The surety and form of the bonds shall be subject to MnDOT approval. No separate payment will be made to the Contractor for bond costs.

In accordance with Minnesota Statutes, MnDOT shall require for all contracts less than or equal to five million dollars ($5,000,000.00), that the aggregate liability of the payment and performance bonds shall be twice the amount of the contract. All contracts in excess of five million dollars ($5,000,000.00) shall have an aggregate liability equal to the amount of the contract. Upon request from MnDOT, the contractor shall provide evidence of payment and performance bond coverage in the current contract amount.

Option 2:

Initially, the successful bidder shall furnish a payment and a performance bond each of them equal to the minimum guaranteed amount stated in the IFB. Once covered the minimum guaranteed amount, subsequent payment and performance bonds shall be furnished on a Task Order basis covering 100% of their cost estimate. The surety and form of the bonds shall be subject to MnDOT approval. No separate payment will be made to the Contractor for bond costs.

MnDOT Office of Civil Rights

The MnDOT OCR has several programs aimed to ensure equal opportunities for all business and personnel on MnDOT projects. Whether to include or not specific OCR programs within an IDIQ contract mainly depend on funding sources and contract monetary size. OCR often requires the incorporation of special provisions within an IDIQ contract regarding the following programs.

- Targeted Group Business Program (TGB)
- Veteran-Owned Small Business Program
- Equal Employment Opportunity Program (EEO)
- Federal On-the-Job Training Program (OJT)

For IDIQ contracts, these programs and all stated goals resulted from them apply for the entire contracts.

<u>Targeted Group Business and Veteran-Owned Small Business programs</u>

Any MnDOT highway construction project should have established TGB and Veteran-Owned Business participation goals, except those receiving federal funds, in which case the DBE program applies. TGB and Veteran-Owned Business Program specialists evaluate each proposal for state funded MnDOT projects or contracts before the project is advertised. The specialists

then set TGB small business participation goals. These goals are stated in the TGB special provisions, which is included in the contract/proposal.

In order to be considered as a TGB or Veteran-Owned Business, a firm must meet a number of requirements a complete some forms used to determine its suitability with the program. Requirements are listed and forms are available on MnDOT OCR website.

Equal Employment Opportunity and Federal On-the-Job Training programs

MnDOT is responsible for ensuring equal opportunity for employment in the construction trades on state and federally funded projects regardless of race, gender, ethnicity, sexual orientation, age, religion, marital status and status with regard to public assistance. The EEO program requires contractors to actively recruit women and minority applicants for employment in accordance with federal and state EEO laws and MnDOT policies. The EEO program requires a workplace free from discrimination, harassment and violence.

A team of Civil Rights Specialists manage the EEO program. They perform in-depth EEO project reviews as required by federal regulation, monitor the implementation of EEO requirements and investigate and resolve EEO concerns on projects. The Civil Rights Specialists manage the OJT Program and Support Services Programs which are administered to recruit, train and place minority and women applicants with highway construction contractors.

The Federal Highway Administration OJT policy requires state DOTs to establish apprenticeship and training programs targeted to move women, minorities, and disadvantaged persons into journey level positions to ensure that a competent workforce is available to meet highway construction hiring needs, and to address the historical under-representation of members of these groups in highway construction skilled crafts.

The Civil Rights Specialists work with Tribal Employment Rights Offices, contractors, and MnDOT districts to ensure appropriate application of Tribal sovereignty when highway contracting occurs on Tribal reservations.

CHAPTER 6

TASK ORDER

This chapter discusses the definition of task order, its content, and outlines the process for developing, pricing and executing every task order.

What is a task order?

Every project to be executed within an IDIQ contract is developed under the issuance of a task order. A task order becomes the contract document and determines location, contract time, and scope of work. Additionally, a task order outlines all required pay items, quantities, and unit prices.

Task Order Scoping

When determining potential Task Orders scope, the Project Engineer must be careful when determining expected task order sizes. IDIQ minimum guaranteed values are usually established so that MnDOT is committed to issue at least one typical Task Order to the contractor. The minimum guaranteed value usually corresponds to the first anticipated Task Order. Since this minimum value represents the worst case scenario for bidders, they may be tempted to bid based on these conditions. Therefore, Task Orders should be neither too small to prevent high bids nor too high to prevent MnDOT for committing beyond a reasonable amount of work.

To determine an optimal scope for Task Orders issued under a given IDIQ contract it is important to consider what would be a common monetary size for this kind of projects if using more traditional delivery methods. By using this value to scope potential task orders, MnDOT will guarantee that even in the worst case scenario bids will be similar or lower than those obtained if using a different delivery method. Lower bids may be still expected since contractors could be motivated to reduce prices given the possibility of repeat work. Even if when submitting price proposals bidders do not consider the possibility of getting Task Orders beyond the guaranteed minimum to submit lower prices, MnDOT would still take advantage of others benefits provided by IDIQ contracting techniques such as the flexibility in quantity and delivery scheduling, shorter project delivery times, and lower preconstruction cost. It is no recommended to breakdown into multiple task orders a project that traditionally would be completed by one contractor under one contract.

Task Order Form

This section indicates how a Task Order Form must be completed by the Project Engineer on each of its sections. This form must be completed by the Project Engineer before starting with the encumbrance process. It can be found at: http://www.dot.state.mn.us/const/tools/idiq.html

A Task Order consists of the following sections:

Section I. Scope of Work

Make sure everything in the Task Order names the origin section from the contract. Follow the format of the contract. If the contract outlines what the first Task Order will consist of do not add or subtract from the original description. When drafting the Task Order's Scope of Work, tell the whole story using plain English. List or tabulate each location that the work will be performed and if applicable, describe which costs for each segment are negotiated.

Section II. Cost Estimate

Break down the cost estimate for these Task Orders by Control Section and State Project Number. For each Control Section and State Project Number table, list all the known items, estimated quantities, and estimated cost along with an estimated grand total for the work needed to complete that portion of the Task Order.

Section III. Impact Delay Analysis

Address contract time and assign working days for the Task Order. Be clear in what it is expected and allowed (e.g. if issuing a Task Order late in the season, MnDOT expects them to continue working or the contract will allow winter suspension.).

Section IV. Attachments

Complete individual forms as instructed on individual forms and attach or submit to others as required by the individual form. Missing information will be cause for rejection/return of Task Order until all requirements are met, which will delay processing. Below are listed some common attachments.

- Office of Civil Rights: Indicate TGB/VSB goal met, or attach Waiver form.
- Utility Notification: indicate no impact, adjust/relocate, reimbursable
- Attach MnDOT Utility Certification Form (Appendix G) (Required)
- Attach Permits (as required) including:
  - Watershed
  - DNR
  - Corp of Engineers (COE)
  - Judicial Ditch Authority
  - Storm Water Pollution Prevention Plans (SWPPP) amendments
- Funding authorization and Source is IDIQ Project Budget Tracking Form and the Encumbrance form (required)

Section V. Disclaimer

The following language must be shown in this section:

This Task Order represents a complete and equitable adjustment to the contract price and time; and includes all costs, both direct and indirect, associated with delays, impacts, and time extensions.

Section VI. Signatures

The Task Order must contain the following signatures:

- MnDOT Project Engineer
- Contractor
- Municipal Approval (if required)
- Consultant Recommendation (if required)
- Commissioner of Transportation
- Commissioner of Administration

When Writing a Task Order

Below are listed some recommendations for the Project Engineer to be considered when developing a Task Order.

- If this is the first Task Order for this contract, it is recommended to submit a draft to the following e-mail address for review: *DOT_ContractChanges-Enc@state.mn.us
- Verify that with addition of Task Order, the maximum contract value will not be exceeded.
- Provide lag time to allow contractor to procure materials.
- Assign working days to each Task Order. If extra work is added to a task, negotiate the additional time with the contractor.

Task Order Approval Process

To submit a Task Order for approval:

- Send the Task Order to the contractor for signature,
- Combine with other required forms to create the Task Order Package, and
- Send completed Task Order Package to: *DOT_ContractChangesEnc

Task Order Package

The Task Order Package consists of the following forms and documents:

- Task Order document (Appendix D),
- IDIQ Project Budget Tracking Form (Appendix E.1),
- IDIQ Individual Control Section and State Project Number attributes Form(s) (Appendix F),

- Utility Certification Form (Required) (Appendix G),
- Additional Encumbrance Request (to request funds above minimum value of the contract) (Appendix H), and
- Other Attachments as listed in section IV of the Task Order Form.

After Task Order Approval

When a Task Order has been approved and fully executed:

- OCIC will notify the Project Engineer via email,
- OCIC will update CMS and download info to FieldOps (FOS), and
- The Project Engineer will issue a Notice to Proceed (NTP) (Appendix K) to the contractor. The engineer will notify the contractor verbally and in writing that the Task Order has been approved and is fully executed. It is recommended that this letter be sent via certified mail to a signatory party of the contractor.

Task Order Revision

If changes to a Task Order are required, MnDOT must issue a new Task Order. Due to fund encumbrance requirements, Work Order – Minor Extra Work documents are not allowed. Task Orders will also function as a Supplemental Agreement for any necessary Contract changes.

Submit a Transmittal (Justification) letter with these Task Orders for Contract Revision. There should be no Force Account on an IDIQ Contract.

Working Period for Task Orders

Each Task Order defines the number of working days assigned to its corresponding project and some principal milestones. However, the contractor must provide a minimum 48-hour notice to the Project Engineer prior to performing any work.

Each Task Order must be treated as an intermediate completion date in FieldOps (FOS). Track using FOS Working Day Statements; provide Working Day Statements to the Contractor during duration of active Task Orders.

<u>Failure to Complete Work on Time</u>

Project Engineer shall assess liquidated damages (LDs) per calendar day per Table 1807-1 (Appendix I), for each Task Order not completed within the time specified for that Task Order. LDs shall be assessed based on the value of the respective Task Order.

Partial Payments

The Project Engineer shall prepare an estimate of the value of work completed to date, at least once a month, at regular intervals. If the Contractor requests payment for Material On Hand (MOH), pay for non-perishable materials that will be incorporated into the permanent

construction if all other requirements of 1906 have been met.

Project Engineer must not pay for quantities greater than what is called for in the Task Order. A general backsheet must be created for MOH, which identifies which Task Order the MOH is for, and remove MOH from the backsheet as materials are incorporated into the project.

Acceptance of Work

Work performed under a given Task Order is inspected after the contractor has notified the Project Engineer, in writing, that this work has been completed. If the work is acceptably complete, the Project Engineer shall accept the work, in writing. If the Work is not acceptably complete, instructions for correction shall be issued, and another inspection shall be performed upon notice from the contractor that the corrections are complete. Upon partial acceptance, the contractor is relieved of further responsibility for the maintenance of work performed under that Task Order. Partial acceptance is not effective until done in writing; the Project Engineer shall issue a Certificate of Task Order Acceptance (Appendix J) to the Contractor within ten business days after a satisfactory inspection. Partial acceptance does not invalidate or alter any other terms of the Contract.

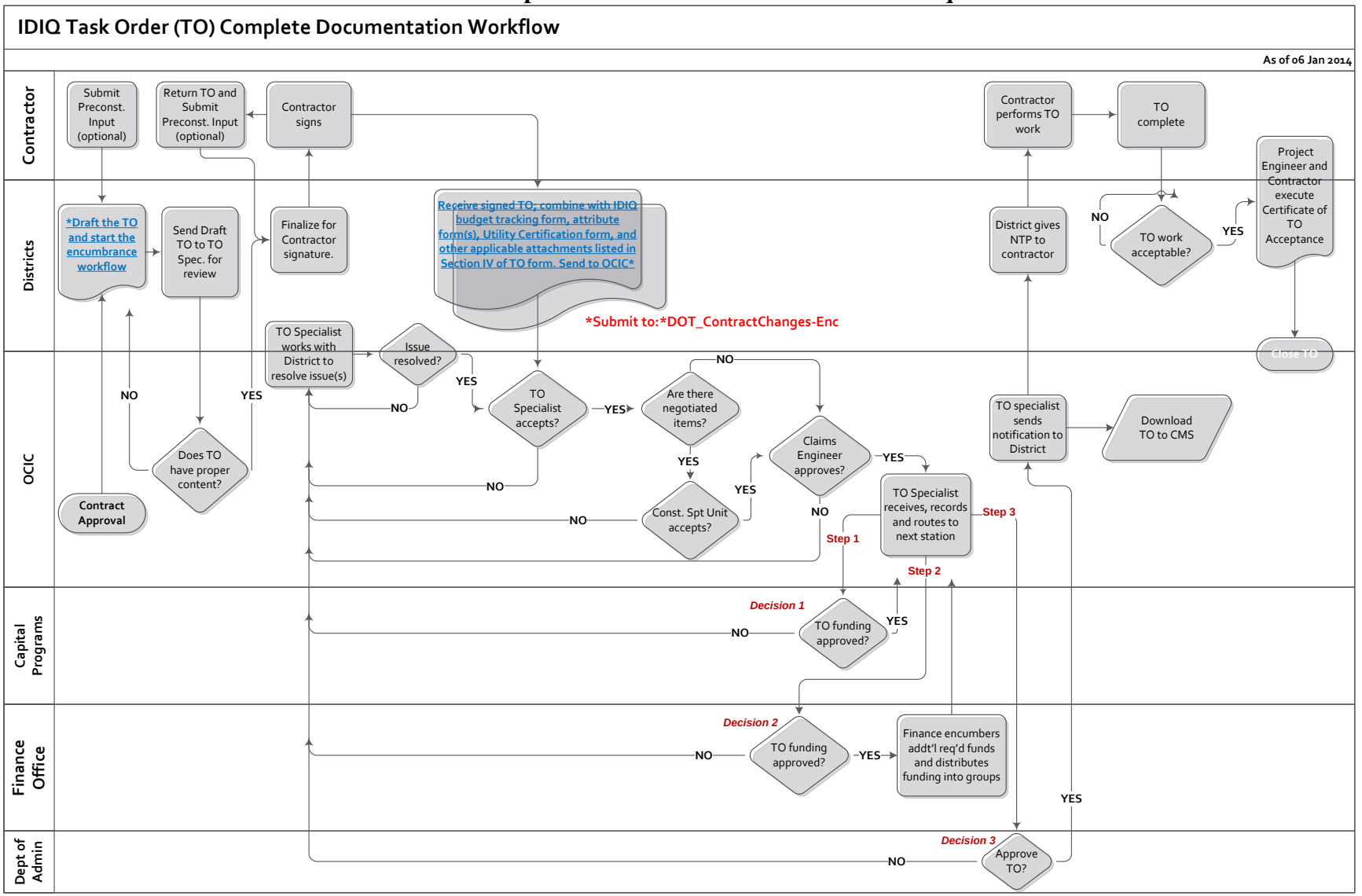
Upon receipt of Contractor signed Certificate of Task Order Acceptance (Appendix J), forward a copy to Supervisor of Managerial Accounting in the Finance Section of MnDOT Central office in St. Paul.

Developing, Executing and Closing Task Orders

Appendix A, B, and C present the Task Order complete documentation workflow, encumbrance process, and closing procedure, respectively. These three flowcharts comprise the complete process that goes from the conception of each Task Order to the acceptance of the work delivery by the contractor for the corresponding project.

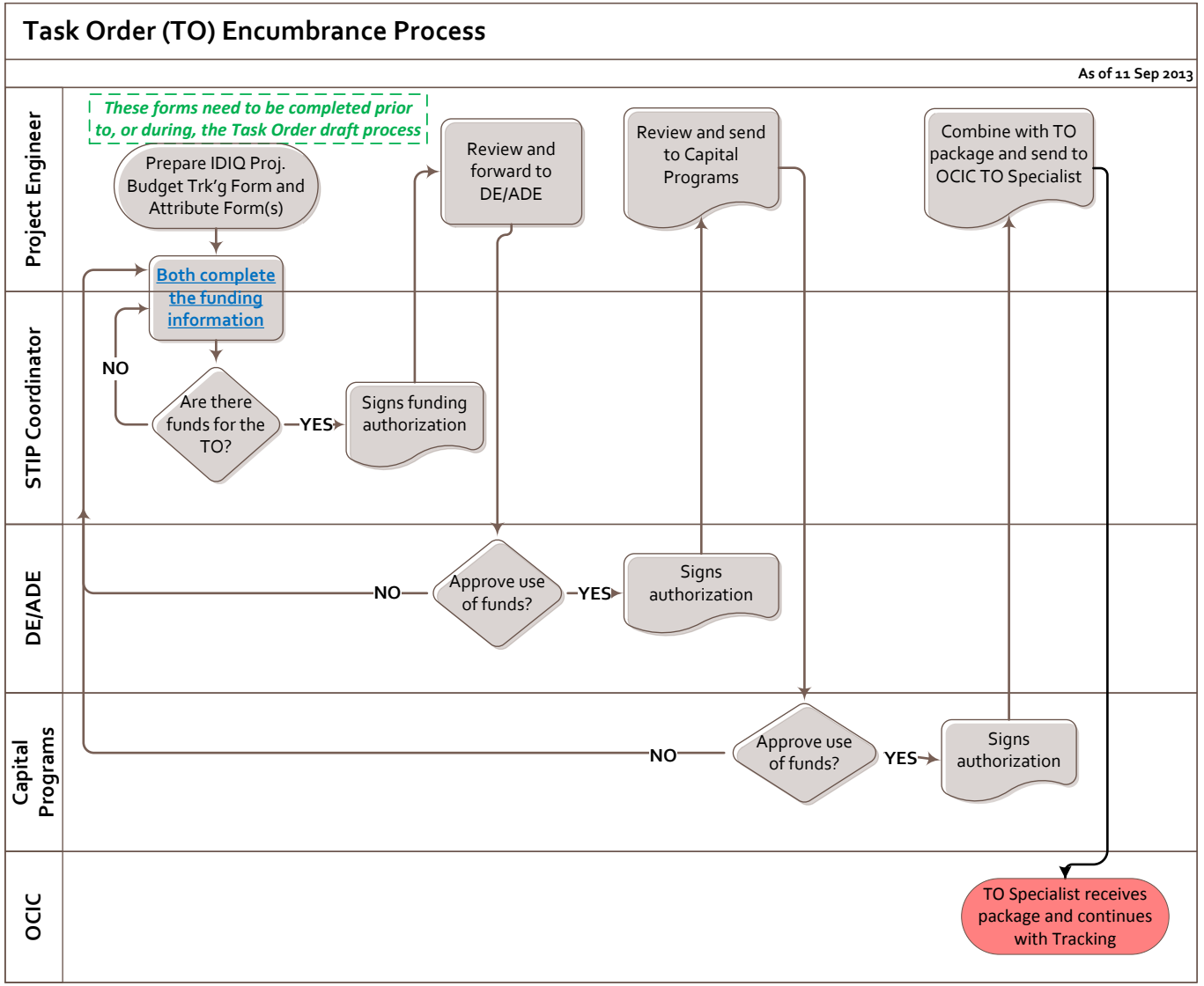
Appendix A. IDIQ Complete Documentation Workflow

Available at: http://www.dot.state.mn.us/const/tools/idiq.html



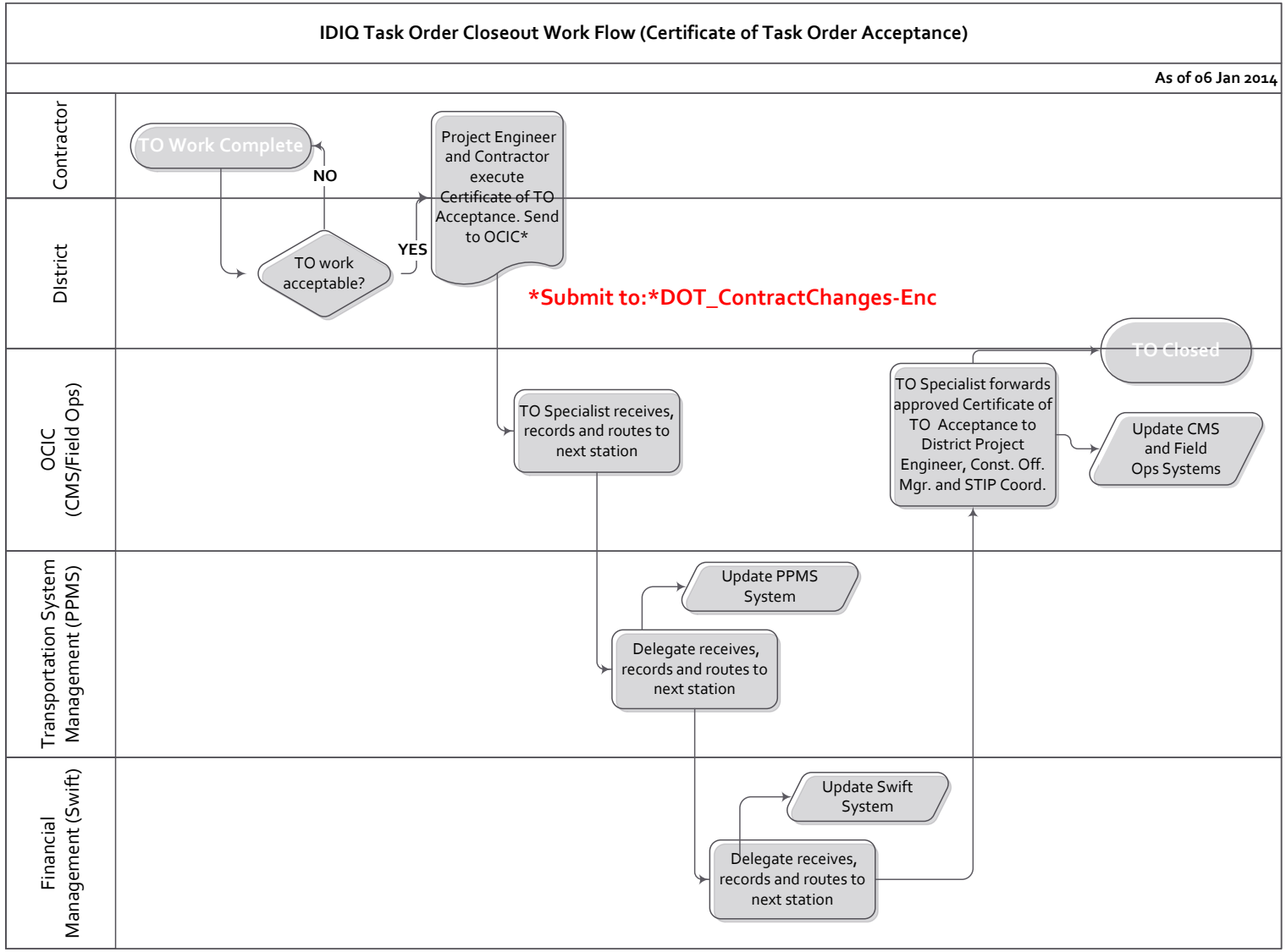
Appendix B. Task Order Encumbrance Process

Available at: http://www.dot.state.mn.us/const/tools/idiq.html



Appendix C. Task Order Closeout Workflow

Available at: http://www.dot.state.mn.us/const/tools/idiq.html



Appendix D. Task Order Form

Available at: http://www.dot.state.mn.us/const/tools/idiq.html

STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION Supplement To Contract No. 1XXXXX
(9/2013)

TASK ORDER NO.

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CONTRACTOR NAME AND ADDRESS:	STATE PROJECT NO.
	FEDERAL PROJECT NO.
LOCATION OF WORK:	CONTRACT MAXIMUM: $ X,XXX,XXX.XX

This Contract is between the State of Minnesota, acting through its Commissioner of Transportation, and Contractor as follows:

I. SCOPE OF WORK

In accordance with S-xx from the Contract, the following work is hereby authorized by this Task Order.

This Indefinite Delivery/Indefinite Quantity (IDIQ) Contract provides for fill in the original scope (what work is to be performed) at the locations where this task order will be performed.

(this information can be in written or tabular form, but must give an adequate description and be inserted here)

The Engineer has determined that the work shown below will be performed and payment for this Task Order will be at the Contract and Negotiated Prices as shown in Section II. Cost Estimate.

Contract time for this Task Order will be assigned in accordance with S-xx from the Contract and as described in Section III. Impact Delay Analysis. Contract Time will not start until the Engineer informs the Contractor in writing to proceed. The Contractor will not proceed with Construction until receiving notice from the Engineer.

This Task Order covers the known and anticipated costs attributable to the work covered by this Task Order. If the Contractor incurs unknown and unanticipated additional work that affects cost or impacts the critical path, the Contractor reserves the right to request an adjustment to the Contract Amount or Contract Time in accordance with MNDOT 1402.

STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION (9/2013) Supplement To Contract No. 1XXXXX

TASK ORDER NO.

II. TASK ORDER ESTIMATE OF COST

Group xx – SP xxxx-xx TH xx at Location xxxxx						
Line No.	**Item No.**	**Description**	**Unit**	**Quantity**	**Task Order Unit Price**	**Total Price**
IDIQ CONTRACT ITEMS (from TOIL)						
					Subtotal	
Non IDIQ CONTRACT ITEMS (from Bid Schedule)						
					Subtotal	
					Cost Escalation Year 1	
					Cost Escalation Year X	
Negotiated Items						
					Subtotal	
Contingency Items:						
Incentives						
Material Invoices						
Other (Up to 2% of Task Order Total)						
					Subtotal	
					Total	

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TASK ORDER NO.

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II. TASK ORDER ESTIMATE OF COST

Group xx – SP xxxx-xx TH xx at Location xxxxx						
Line No.	**Item No.**	**Description**	**Unit**	**Quantity**	**Task Order Unit Price**	**Total Price**
IDIQ CONTRACT ITEMS (from TOIL)						
					Subtotal	
Non IDIQ CONTRACT ITEMS (from Bid Schedule)						
					Subtotal	
					Cost Escalation Year 1	
					Cost Escalation Year X	
Negotiated Items						
					Subtotal	
Contingency Items:						
Incentives						
Material Invoices						
Other (Up to 2% of Task Order Total)						
					Subtotal	
					Total	

III. IMPACT DELAY ANALYSIS

This Task Order requires that :
Construction Operations on this Task Order be started on or before Month, Day, Year.
All work for this Task Order Contract will be completed within xx Working Days.

IV. ATTACHMENTS (Check appropriate box)

Office of Civil Rights: ☐ DBE/TGB/Vet's Preference Goal Met or ☐ Waiver Form Attached(If Required)
Utilities have been notified: ☐ No impact ☐ Adjust/Relocate ☐ Reimbursable
MnDOT Utility Certification Form: ☐ MnDOT Utility Certification Form Attached (Required)
Permits Required and Attached: ☐ Watershed, ☐ DNR, ☐ COE, ☐ Judicial Ditch Authority, ☐ SWPPP
Funding Authorization, Source and Control Section Funding: ☐ IDIQ Budget Tracking and IDIQ Control Sections Attributes Forms Attached (Required at the time of final submittal to OCIC for approval)

STATE OF MINNESOTA DEPARTMENT OF TRANSPORTATION Supplement To Contract No. 1XXXXX
(9/2013)

TASK ORDER NO. #
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V. DISCLAIMER

This Task Order represents a complete and equitable adjustment to the contract price and time; and includes all costs, both direct and indirect, associated with delays, impacts, and time extensions.

VI. SIGNATURES

MnDOT PROJECT ENGINEER By: _____ Date: _____	**MUNICIPAL APPROVAL (IF REQUIRED)** By: _____ Date: _____	**COMMISSIONER OF TRANSPORTATION** By: _____ Pursuant to Delegation Date: _____
CONTRACTOR By: _____ Date: _____	**CONSULTANT RECOMMENDATION (IF REQUIRED)** By: _____ Date: _____	**COMMISSIONER OF ADMINISTRATION** By: _____ Pursuant to Delegation Date: _____

Appendix E.1. IDIQ Project Budget Tracking Form

Available at: http://www.dot.state.mn.us/const/tools/idiq.html

Minnesota Department of Transportation
IDIQ Project Budget Tracking Form -
State Funds Only

(9/13)

ATP	Prime SP	Task Order SPs			
Project Description			TH	Task Order TO -	Task Order Amount $
Contract Number		Contract Minimum $		Contract Maximum $	Last Day to Add Task Orders

Contract Funding Summary - Total Funding	Current Encumbrance	Previous Task Orders	New Task Order	Remaining Available	Additional Funds Needed	Fiscally Constrained * Yes or No
	$	$	$	$	$	

*If Task Order requires additional funding, please fill New Funding Source Information below. If no additional funds are needed, please skip to Task Order Encumbrance Information.

***New Funding Sources: Fiscal Constraint**	Seq. #	SP	Amount Requested	Notes / Description
Source 1 State SRC			$	
Source 2 State SRC			$	
Source 3 State SRC			$	
		Total Amount Requested	$	

Task Order Encumbrance Information			
Appropriation Number	Fund	Fin Department ID	Amount

Requested By: Please Print	Signature	Date
District Planner/STIP Coordinator		
Concurrence By: Please Print	Signature	Date
DE or ADE for Program Delivery		
Approval By: Please Print	Signature	Date
Capital Programs and Performance Measures		

Appendix E.2. Instructions for IDIQ Budget Tracking Form – State Funds Only

Available at: http://www.dot.state.mn.us/const/tools/idiq.html

Instructions for IDIQ Budget Tracking Form - State Funds Only

ATP: Enter the ATP where the funding is coming from.

Prime SP: Enter the S.P. that the project was Let under.

Task Order SP's : Enter the all the SP's that the Task Order will be spending funds on. Behind the SP's put the dollar amounts in parentheses for that SP.

Project Description: Insert the description from PPMS.

TH: List all the routes.

Task Order: Enter the Task Order number this is for.

Task Order Amount: This is a calculated field.

Contract Number: Enter the Contract Number that it is Let under (can find this on the funding screen in PPMS).

Contract Minimum: Enter the Contract minimum (make sure to look at the contract to find this amount).

Contract Maximum: Enter the Contract maximum (make sure to look at the contract to find this amount).

Last Day to Add Task Orders: Enter the date that is in the contract or talk to the District Construction Resident Engineer for the date.

Current Encumberance: The dollar amount that is currently encumbered.

Previous Task Orders: The cumulative dollar amount of the previous Task Orders.

New Task Order: The dollar amount of the new Task Order.

Remaining Available: This is an automatically calculated field (Current Encumbrance minus Previous Task Orders minus New Task Order).

Additional Funds Needed: If the Remaining Available is a negative number then you would enter that number in here (as a positive value). If the Remaining Available is a positive number, then you would enter a zero or leave it blank.

Fiscally Constrained: If there is a value in the Additional Funds Needed, put Yes in here and then an explanation is needed in the Fiscal Constraint Field's.

Source 1: Explain where the additional money is coming from. An example is if the money is coming from your Setaside account the following would be entered:

Seq. # = 1353, SP = 8808-SAS-14, Amount Requested = $250,000, Notes/Description = The estimate in the STIP for this project was $7,933,635 (100% State Funds). A portion of the funds will be used from this project to fund S.P. 3413-53.

Note: If the project is being funded by multiple sources, fill out the next funding source in Source 2 just like above.

Task Order Encumbrance Information: Fill out the appropriate funding string information on where the funding is coming from. If there is multiple funding, please specify on the bottom of the form on which SP's have which funding.

Note: At this time there should be no operations money used on these forms. If you are using your operations money on these, please have the money transferred to the SRC account prior to submitting these forms.

Signature Blocks: Electronic or actual signatures are required in all blocks. Also fill in the date that it is signed.

Note: No PPMS change form is needed for IDIQ projects if these are filled out correctly.

Appendix F. IDIQ Individual Control Section Attribute Form

Available at: http://www.dot.state.mn.us/const/tools/idiq.html

Individual Control Section/SP Number/Group Attribute Form Information Selection Sheet

(9/13)

On/Off System Choices
01: Off National Highway System
02: On National Highway System

Functional Area Box 1 Choices
Rural
Small Urban
Urban

Functional Area Box 2 Choices
A: Interstate
B: Other Principal Arterials
C: Minor Arterial
D: Major Collector
E: Minor Collector
F: Local
G: Interstate
H: Other Freeway/Expressway
J: Other Principal Arterials
K: Minor Arterial
L: Collector
M: Local
N: Interstate
P: Other Freeway/Expressway
R: Other Principal Arterial
S: Minor Arterial
T: Collector
W: Local

Work Type Box 1 Choices
New Facilities
Capacity Additions to Existing Facilities
System Preservation
System Enhancement and Operation

Work Type Box 2 Choices
01: Right of Way Costs
02: Engineering Costs
03: Construction of New Roads
04: Construction of New Bridges
10: Right of Costs
11: Engineering Costs
12: Relocation with Added Capacity
13: Relocation with Added Capacity
14: Major Widening
15: Bridge Replacement With Added Capacity
16: Bridge Rehabilitation with Added Capacity
21: Right of Way Costs
22: Engineering Costs
23: Relocation with No Added Capacity
25: Restoration, Rehabilitation & Resurfacing
26: Minor Widening
27: Bridge Replacement With No Added Capacity
28: Bridge Rehabilitation with No Added Capacity
31: Right of Way Costs
32: Engineering Costs
33: Safety Improvements
34: Traffic Management/Traffic Engineering
35: Environmental Improvements
99: Maintenance

IDIQ Funds - Individual Control Section/SP Number/Group Attribute Form

(9/13)

Contract Number:_____ **Vendor Name:** _____ **District:**_____

S.P. Number: _____ **Task Order Total :** _____ **Page:** _____ **of:** _____

Information Below to be completed by District STIP Coordinator			
Task Order Number			
Group Number			
SP Number			
Bundle ID			
Element ID			
Fin Dept ID:	T79390		
Appropriation	T79		
Amount			
Federal Participation	☐ N/A	☐ Yes	☐ No
On/Off System *See Selection Sheet for Options			
Functional Area 1 *See Selection Sheet for Options			
Functional Area 2 *See Selection Sheet for Options			
Work Type 1 *See Selection Sheet for Options			
Work Type 2 *See Selection Sheet for Options			
Remarks:			
Information Below to be completed by Finance			
Budget FY &/or Accounting Date not current			
Category 72141 (000 Roads/107 Bridges)	000	107	
Fund	2700	3510	
Fin Dept ID:	T79390		
Appropriation	T79		
Account 4723	00	02	03
Source	6133	6150	
Project			
Amount			
PO Number			
PO Line Number			
Remarks:			

Information Below to be completed by District STIP Coordinator			
Task Order Number			
Group Number			
SP Number			
Bundle ID			
Element ID			
Fin Dept ID:	T79390		
Appropriation	T79		
Amount			
Federal Participation	☐ N/A	☐ Yes	☐ No
On/Off System *See Selection Sheet for Options			
Functional Area 1 *See Selection Sheet for Options			
Functional Area 2 *See Selection Sheet for Options			
Work Type 1 *See Selection Sheet for Options			
Work Type 2 *See Selection Sheet for Options			
Remarks:			
Information Below to be completed by Finance			
Budget FY &/or Accounting Date not current			
Category 72141 (000 Roads/107 Bridges)	000	107	
Fund	2700	3510	
Fin Dept ID:	T79390		
Appropriation	T79		
Account 4723	00	02	03
Source	6133	6150	
Project			
Amount			
PO Number			
PO Line Number			
Remarks:			

Appendix G. Utility Certification Form

Available at: http://www.dot.state.mn.us/const/tools/idiq.html

MnDOT Utility Certification Form
Utility Coordination for ID/IQ Projects

Project Information:

S.P. _____ Task No. _____

Other Project No(s). _____

MnDOT District Project Manager: _____

UTILITY COORDINATION CERTIFICATION

This certification is submitted with regard to existing utilities on the above noted project(s).

1) There are **no utility relocations** to be made on the above referenced project(s).

_____ _____
Project Manager Date

Or

2) There are **utility relocations** to be made on the above referenced project(s). The following utility companies have been issued Notice & Orders and must complete the required relocations prior to the _____ day of _____, 20_____.

Utility Company	Notice & Order Date

The following steps have been completed in accordance with State Statutes.

Checklist Step	Utility Coordination Tasks	Date Completed
1	Utilities Identified – Gopher State One Call	
2 & 3	Information Meeting Conducted (If Applicable)	
5	Design Meeting Conducted	
9	Gopher State One Call Contacted (90 Day Notice)	

Statutes also require holding at least one preconstruction meeting to coordinate utility relocation.

_____ _____
Project Manager Date

Contract Document Information

- Utility information depicted on final plans – must indicate survey quality level.
- Special Provision Information Included in Proposal – utility contact information, relocation description and schedule, pre-work activities, and restrictions.

NOTE: This form should be completed and saved to with the project files. Submit a copy to the Utilities Engineer..

ID/IQ Certification Form 9/20/2013

Appendix H. Additional Encumbrance Request

Available at: http://www.dot.state.mn.us/const/tools/idiq.html

Minnesota Department of Transportation

State Road Construction (SRC) Budget - Additional Encumbrance for FY 2014

ATP	Prime SP	Project Description		
Contract Number		Contract Minimum	Contract Maximum	Last Day to Add Task Orders

Requested Additional SRC Encumbrance to Use District SRC Budget Authority			
Appropriation Number	Fund	Department Fin ID	Amount

Requested By: District Planner/STIP Coordinator	
Concurrence By: DE or ADE for Program Delivery	
Approval By: Capital Programs	

Appendix I. Schedule of Liquidated Damages

Available at: http://www.dot.state.mn.us/pre-letting/spec/2014/2014-Std-Spec-for-Construction.pdf

Table 1807-1 Schedule of Liquidated Damages		
Original Contract Amount		Liquidated damage charge per calendar day, $
From more than, $	To and including, $	
0	25,000	300
25,000	100,000	400
100,000	500,000	900
500,000	1,000,000	1,200
1,000,000	2,000,000	1,500
2,000,000	5,000,000	2,500
5,000,000	10,000,000	3,000
10,000,000	—	3,500

Appendix J. Certificate of Task Order Acceptance

Available at: http://www.dot.state.mn.us/const/tools/idiq.html

State of Minnesota Department of Transportation
Certificate of Task Order Acceptance

Low S.P. No. _____ Contract No. _____ Task Order _____

This is to certify that to the best of my knowledge, the items of work shown below in this Certificate herein have been actually furnished in accordance with the Plans and Specifications, except non-conforming work that is allowed to remain in place in accordance with the Plans and Specifications. In accordance with MnDOT Standard Specification 1516.1, the Contractor is hereby relieved of further responsibility for maintenance of Work covered by this Task Order.

Dated _____ Signature _____
MnDOT Project Engineer/Supervisor

Line No.	Item No.	Description	Unit	Final Quantity	Task Order Unit Price	Total Price
• Group x – SP xxxx-xx TH xx at Location xxxxx						
IDIQ CONTRACT ITEMS (from TOIL)						
	xxxx.xxx	xxxxxxxxx		0	$x,xxx.xx	
					Subtotal	
Non IDIQ CONTRACT ITEMS (from Bid Schedule)						
	xxxx.xxx	xxxxxxxxx		0	$x,xxx.xx	
					Subtotal	
					Cost Escalation Year 1	
					Cost Escalation Year X	
Negotiated Items						
	xxxx.xxx	xxxxxxxxx		0	$x,xxx.xx	
					Subtotal	
Contingency Items:						
Incentives						
Material Invoices						
					Subtotal	
Total						

The undersigned Contractor hereby certifies that the work shown in the Task Order has been performed in accordance with the terms of the Contract, and agrees that the Value of Work Certified for this Task Order is $_____. This certificate constitutes the "final estimate" with respect to the work of the Task Order. The Contractor reserves the right to dispute quantities in accordance with Minnesota Statutes §161.34, however, by signing this certification the Contactor acknowledges the Department will not be required to pay interest on such disputed quantities under either Minn Stat 161.322 or Minn Stat 16A.124.

Dated _____ Signature _____
Contractor Representative

This acceptance does not invalidate or alter any of the terms of the Contract.
cc: Finance Section, Supervisor of Managerial Accounting
Capital Programs, PPMS Coordinator

Appendix K. Notice to Proceed

Available at: http://www.dot.state.mn.us/const/tools/idiq.html

Month Date, Year

Signatory Party
Company Name
Address Line 1
Address Line 2 – if needed
City, State Zip-Code

RE: SP XXXX - XXX Task Order XXX
Notice to Proceed

Dear Prefix. Last Name:

Task Order XXX for SP XXXX - XX has been fully executed and a copy is included with this letter.

This letter shall serve as your Notice to Proceed in accordance with the conditions noted in Task Order XXX.

Working Day charges will be assessed beginning on Month Date, Year with all work required by Task Order XXX to be completed by Month Date, Year

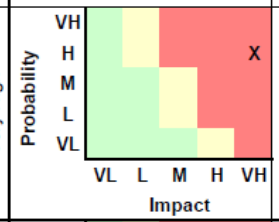
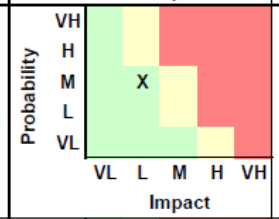
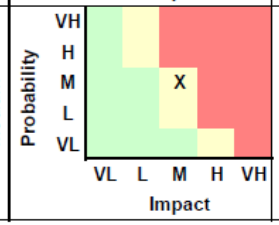
Sincerely,

Project Engineer's Name
Project Engineer

Cc: Project File

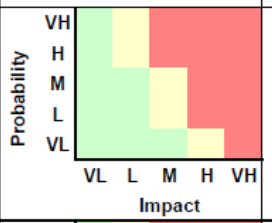
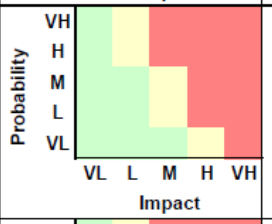
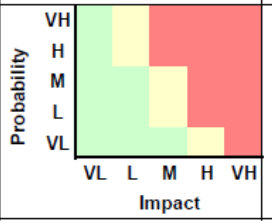
Appendix L.1. Risk Management Register Form - Sample

Sample Risk Management Register for Project XXXX

Risk Identification										Qualitative Risk Assessment			Risk Response Plan		Monitoring and Control		
#	RMP No.	Status	Risk Category	Risk Extent	Risk Event	Cause	Effect	Threat or Opportunity	Primary Objective	Probability	Impact	Risk Matrix	Response Strategy	Response Actions	Responsibile Entity	Interval or Milestone Check	Status: Date and Review Comments
1		Active	Project Management	Contract	Small Minimum Guaranteed Amount	Inaquate Task Order scoping	Project cost increases	Threat	Cost	High	Very High		Mitigate	Estimate total number of Task Orders to be issued and communicate this number to bidders	Progam Engineer	Monthly	xx/xx/2014
4		Active	External	TO #1	Permit delays	Permits expire. Permits or agency actions are delayed or take longer then expected.	Fines, penalties and project delays	Threat	Time	Medium	Low		Transfer	Consultant reponsible for coordinating permits and identifying permit requirements.	Environmental Engineer	Monthly	xx/xx/2014
5		Active	Construction	TO #2	Differing site conditions	Unexpected geotechnical issues. Natural or manmade obstructions.	Increased project costs	Threat	Cost	Medium	Medium		Mitigate	Thorough geotechnical investigations performed	Geotechnical Engineer	At completion of subsurface exploration	xx/xx/2008

Appendix L.2. Risk Management Register Form – Blank

Risk Management Register for Project _____

Risk Identification										Qualitative Risk Assessment			Risk Response Plan		Monitoring and Control		
#	RMP No.	Status	Risk Category	Risk Extent	Risk Event	Cause	Effect	Threat or Opportunity	Primary Objective	Probability	Impact	Risk Matrix	Response Strategy	Response Actions	Responsibile Entity	Interval or Milestone Check	Status: Date and Review Comments
1																	
4																	
5																	

Appendix L.3. Risk Sample Risk Events

When identifying risk it is important to specify the risk correctly. As a guideline for identifying risk, use the following risk statement structure to help fill in the appropriate risk columns on the risk register.

Sample Risk Events
IDIQ Risks
Lack of knowledge of contractors about IDIQ
Lack of knowledge of in-house engineers about IDIQ
Small Minimum Guanranteed Amount
Construction Risks
Unidentified utility impacts
Unexpected archeological findings
Changes during construction not in contract
Unidentified hazardous waste
Site is unsafe for workers
Lack of knowledge of contractors about IDIQ
Delays due to traffic management and lane closures
Design Risks
Incomplete quantity estimates
Insufficient design analysis
Complex hydraulic features
Surveys incomplete
Inaccurate assumptions during the planning phase
Environmental Risks
Unanticipated noise impacts
Unforeseen Section 4(f) resources affected
Environmental clearance for borrow site required
Unanticiapated barriers to wildlife
Unforeseen air quality issues
External Risks
Project not fully funded
Politically driven accelerated schedule
Permit agency actions cause unexpected delays
Public objections
Inflation and other market forces
Organizational Risks
Resource conflicts with other projects
Inexperienced staff assigned to project
Lack of specialized staff
Approval and decision processes cause delays
Priorities change on existing programs
Project Management Risks
Inadequate project scoping and scope creep
Consultant and contractor delays
Estimating and/or scheduling errors
Lack of coordination and communication
Lack of knowledge of in-house engineers about IDIQ
Small Minimum Guanranteed Amount
Unforeseen agreements required
Right of Way Risks
Additional ROW may be needed
Acquisition of ROW may take longer than anticipated
Discovery of hazardous waste during the ROW phase

Generic Project Sample Risk List
Technical, Quality, or Performance Risks
Examples include reliance on unproven or complex technolgy, unrealistic performance goals, long term performance, process roadblocks, new emerging initiatives, increases in complexity, etc..
External Risks
Examples include a shifting regulatory environment, labor issues, changing customer priorities, government agency risks, and weather. Also to be considered are consultant and vendor contract risks, contract type and contractor responsibilities.
Organizational Risks
Examples include lack of prioritization of projects, inadequacy or interruption of funding, inexperienced and poorly developed and trained workforce, and resource conflicts with other projects in the organization.
Project Management Risks
Examples include poor allocation of time and resources, inadequate quality of the project plan, lack of project manager delegated authority, and lack of project management disciplines.

Appendix B

Deliverable Task 1: IDIQ Case Study Project List

Task 1: Benchmark the State-of-the-Practice in IDIQ Contracting

Project Title: Indefinite Delivery/Indefinite Quantity

Organization: InTrans, Iowa State University

Principal Investigator: Douglas D. Gransberg, PE, PHD

MnDOT or Local Champion: Kevin Kosobud, PE

Deliverable Task 1: IDIQ Case Study Project List

The case studies presented below were selected from a list of 6 potential projects in a meeting held on August 13, 2012, between Kevin Kosobud and the research team.

AGENCY	DESCRIPTION
Florida DOT	District 7. Design-Build Push-Button Contract. Traffic Operations Projects to Improve Capacity and Safety (TOPICS)
New York City DOT	Maintenance and Repair of Highway Systems Through a Job Order Contracting Program. Contract #C030790
Texas DOT	On/Off System Bridge Replacement (IDIQ).
Federal Highway Administration	IDIQ MATOC: Roadway Surfacing, Resurfacing, and Repair Contracts: Northern California, Washington, Oregon, and Idaho. Solicitation Number: DTFH68-12-R-00004

Appendix C

Deliverable Task 2: Case Study Analysis Report

Structured Interview Report Case # 1 - Central Federal Lands Highway Division (CFLHD)

I. Agency and Interviewee General Information

Date:	January 31st, 2013
Agency:	Federal Highway Administration (FHWA) Central Federal Lands Highway Division (CFLHD)
Location:	FHWA Resource Center, Lakewood, CO.
Interviewee:	Mark Meng, PE, PMP - Contract Developer Engineer
Interviewers:	Jorge Andres Rueda - Graduate Research Assistance Kate Hunter - Graduate Research Assistance

Annual construction budget	$175 - $225 Million
Average number of new construction projects	30 -40 (in 14 states)
Average number of repair or maintenance projects	75%-80% of the contracts
Contract monetary size range	$100,000 - $40 Million
Delivery methods and construction approaches used by the agency	Indefinite Delivery/Indefinite Quantity Design-Bid-Build Design-Build Construction Manager/General Contractor A+B Value Engineering (within all contracts) Lane Rental Incentive/Disincentive Provisions No Excuse Incentives Lump sum (on items but NOT on contracts)

II. Agency IDIQ Contracting – Experience

IDIQ contracts awarded	6-10 Contracts
Annual average of IDIQ contracts awarded	1 Contract
Years of experience using IDIQ contracting	4 years
Single award IDIQ contracts (SATOC) awarded	1 Contract
Average monetary size of IDIQ contracts	17 Million

III. Agency IDIQ Contracting – General Information

Name used to refer to IDIQ contracts	Multiple Award Task Order Contracts (MATOC) Single Award Task Order Contracts (SATOC)
Name used to the other issued under an IDIQ contract	Task Order (TO)

IV. Case Study – General Information

Project title	IDIQ MATOC: Roadway Surfacing, Resurfacing, and Repair Contracts: Northern California, Washington, Oregon, and Idaho
Scope	Roadway surfacing, resurfacing, and repair contracting tool for work in Oregon, Idaho, Washington, and Northern California. The scope of work for task orders may include, but are not limited to, the following construction services: traffic control (permanent and temporary), contractor sampling and testing, asphalt milling, profile grinding, asphalt paving, thin asphalt overlays, patching, crack & joint sealing for flexible and rigid pavements, chip seals, micro surfacing, slurry seals, ultra-thin bonded wearing course, subexcavation, minor drainage improvements, placement of aggregate, roadway pulverization, grading, and slope stabilization.
Contract duration	1 Year and options to extend the contract for four additional one-year periods.
Average TO duration	3 – 4 months.
Minimum guaranteed amount	$50,000 for the contract
Maximum amount	35 Million
TO limits	From $50,000 to 7.5 Million
DBE goals	The contractor must submit a Subcontracting Plan for the entire contract which includes the participation of DBEs.
Contract funding	The contract is funded with federal funds and funds are assigned when anticipating the issuance of a TO.
Contractor's key personnel	The Contractor is allowed to remove, change or add personnel at any moment during the contract.
Bonding	Potential contractors will be required to demonstrate bonding capacity of up to $7,500,000.00 per TO with a yearly capacity of up to $15,000,000. Performance bonds are required to cover 100% of each TO.

V. Case Study – Delivery Method Selection

Reasons to use IDIQ contracting	Reduce/compress/accelerate project delivery period Encourage price competition Reduce preconstruction costs Reduce risk related to contractors poor performance Funding flexibility Recurring nature of the project Usefulness in emergency situations

VI. Case Study – Procurement Process

Number of awards	The contract was awarded to 3 contractors (as usual).
Procurement process	MATOC RFP + TO-RFP (First Task Order Request for Proposals). MATOC RFP involves technical qualifications and TO-RFP involves bid price for the first TO.
Shortlist	No shortlist developed.
Pre-bid meeting	Proposers were not interviewed.
Contractors selection method	Best qualified + lowest bid for first job order. CFLHD calls this method "Best-value negotiated type procurement." However, although they have the possibility to negotiate price or scope, they have never negotiated with contractors in IDIQ contracts.
TO development, pricing and execution	CFLHD develops the TO scoping document without involving the contractors' opinion; it is only sent to them for price. Final scope is determined by price when bids are received. They do not negotiate with contractors.
Information required to be submitted in response to RFP	Organizational structure/chart Past IDIQ project experience Past related project experience (non-IDIQ) References from past projects Subcontracting plan (includes DBE plan – required at award) Price list (per task order)
Protest	CFLHD has never had protest related to their selection process.

VII. Case Study – Payment Provisions

Compensation method	Unit price
Mobilization	Mobilization is bided per TO. Demobilization is no included.
Price escalation	Escalation is not required since contractors submit proposal on a TO basis.

VIII. Case Study – Quality Assurance

QA system	It is the same as the one used in regular construction projects.
Factors with high impact on quality	Qualifications of the Contractor's staff Contractor's past project experience Use of agency specifications
Factor with some impact on quality	Number of contractors involved
Factors with slight impact on quality	Quality management plans Use of incentive/disincentive provisions
Factors with no impact on quality	Warranty provisions (CFLHD has never used warranty provisions on IDIQ contracts)

IX. Case Study – Complementary Information

Interviewee personal opinion about IDIQ contracting	• IDIQ has impacted positively CFLHD's contracting procedures. • It is not worthy to use single award IDIQ contracts. • Saves a lot on procurement costs on larger contracts but very expensive procurement costs for small jobs.
Additional information	• Due to the fact that IDIQ contracting allows the rapid use of funds, sometimes TOs are issued to use funds than otherwise will be lost due to the lack of time to initiate an entire procurement process. • CFLHD does not allow to other agencies the use of its IDIQ contracts. • Difficult to use in emergency contracts due to the recent change in Federal funding laws for emergency situations.

Structured Interview Report Case # 2 – New York State Department of Transportation (NYSDOT)

I. Agency and Interviewee General Information

Date:	February 12th, 2013
Agency:	New York State Department of Transportation
Location:	Albany, NY
Interviewee:	Peter Weykamp- JOC Program Engineer
Interviewers:	Jorge Andres Rueda - Graduate Research Assistance Kate Hunter - Graduate Research Assistance

Delivery methods and construction approaches used by the agency	Indefinite Delivery/Indefinite Quantity Design-Bid-Build Design-Build Fast-Track A+B Value Engineering Lane Rental Incentive/Disincentive Provisions Quality-Based Contractor Pre-qualification Lump Sum Cost Reimbursable

II. Agency IDIQ Contracting – Experience

IDIQ contracts awarded	56 State Funded Contracts 8 Federal Funded Contracts
Annual average of IDIQ contracts awarded	8 Contracts
Years of experience using IDIQ contracting	8 years
Average Job Orders issued under a Task Order (TO)	29 – State Funded Contracts 15 – Federal Funded Contracts
Average monetary size of IDIQ contracts	1.14 M – State Funded Contracts 1.3 M – Federal Funded Contracts

III. Agency IDIQ Contracting – General Information

Name used to refer to IDIQ contracts	Job Order Contracts (JOC)
Name used to orders issued under an IDIQ contract	Job Order Work Order – Not commonly used

IV. Case Study – General Information

Project title	Job Order Contract for Bridge Maintenance Work Various Routes, Various Towns Broome, Chenango and Tioga Counties. D261160
Scope	This is 1 of the 8 contracts that constitute the three year pilot program to contract element-level bridge maintenance activities using the Job Order Contracting (JOC) which was approved on December, 2007, through the Federal "Alternative Contracting" SEP-14 program. Work has included red flag culvert repairs, steel repairs, gusset plate repairs, and scour repair in the Region 9. (not all NYSDOT's JOC are limited to this composition)
Expected duration	1 Year and options to extend the contract for 3 additional one-year periods. (Same expected contract duration for all federal funded JOCs. 1 additional one-year period for state funded JOCs)
Actual duration	1 year and 2 months (reach maximum amount)
Minimum guaranteed amount	$50,000 for the contract
Maximum amount	1.2 M, renewable up to three times
TO limits	$500,000
DBE & M/WBE goals	DBE (federal funded) or Minority and Women's Business Enterprises (M/WBE) (state funded) goals are stated to the entire contract, but they are hard to reach. NYSDOT monitors Equal Employment Opportunity EEO and Nondiscrimination Department policies in all its contracts
Contract funding	The contract is funded with federal funds and 1 M dollars were secured since the beginning of the contract. Additional $200,000 were required and assigned later
Contractor's key personnel	The Contractor is allowed to remove, change or add personnel at any moment during the contract.
Bonding	Bid Security = 25% of the total bid. Performance **B**ond = 100% of the contract Labor Bond = 100% of the contract Material Bond = 100% of the contract

V. Case Study – Delivery Method Selection

Reasons to use IDIQ contracting	Reduce/compress/accelerate project delivery period

	Flexibility in delivery scheduling Reduced agency staffing requirements

VI. Case Study – Procurement Process

Number of awards	The contract was awarded to 1 contractor (as usual).
Procurement process	Request for Proposals (RFP) only.
Shortlist	No shortlist developed.
Pre-bid meeting	1 o 2 meetings are held during a 5 week advertisement period.
Contractors selection method	Lowest multiplier. The contractor bids two different adjustment factors, one for normal hours (7 am – 5 pm) and one for other than normal hours. Lowest adjustment factors from an acceptable, responsive, responsible bidder wins. This factors are to be applied to a Construction Task Catalog developed by an external consultant.
TO development, pricing and execution	Joint Scope Meeting → RFP → Contractor Develops Proposal → Contractor Proposal review and approval → Issue Lump Sum Job Order
Information required to be submitted in response to RFP	The proposal basically consists of the two adjustment factors. No prequalification proof is required.
Protest	CFLHD has never had protest related to their selection process.

VII. Case Study – Payment Provisions

Compensation method	Lump Sum
Mobilization	A ratio is calculated based on the location of the contractor in order to reimburse mobilization and demobilization expenses.
Price escalation	Allowable adjustments made to the Contractor's bid adjustment factors will be made. These adjustments will be made at the written request of the Contractor, not more frequently than annually, on the contracts anniversary date. Adjustment Factors Updated Every 12 Months Based on Cost Construction Index Published by ENR.

VIII. Case Study – Quality Assurance

QA system	It is the same as the one used in regular construction projects.
Factors with some impact on quality	Qualifications of the Contractor's staff Contractor's past project experience Use of agency specifications Use of incentive/disincentive provisions

Factor with no impact on quality	Number of contractors involved Quality management plans Warranty provisions

IX. Case Study – Complementary Information

Interviewee personal opinion about IDIQ contracting	• IDIQ has impacted positively NYSDOT's contracting procedures for maintenance work. • Traditional contracting is not fast enough for typical and repetitive work.
Additional information	• IDIQ contracting is also use for facility work and environmental conservation. • Although the interviewee stated that contractors are not required to respond to emergency situations. There is a special note in the contract that indicates otherwise.

Structured Interview Report Case # 3 – Florida Department of Transportation (FDOT)

I. Agency and Interviewee General Information

Date:	February 22nd, 2013
Agency:	Florida Department of Transportation – District 7
Location:	Tampa, Florida
Interviewee:	Steffanie L. Workman – DB-PB Project Administrator
Interviewers:	Jorge Andres Rueda - Graduate Research Assistance Kate Hunter - Graduate Research Assistance

Delivery methods and construction approaches used by the agency	Indefinite Delivery/Indefinite Quantity Design-Build

II. Agency IDIQ Contracting – Experience

IDIQ contracts awarded	2 using state and federal funds
Years of experience using IDIQ contracting	3.5 years
Task Orders (TO) issued under this contract	14 Task Orders. Each task order consists of multiple projects for a total of 47 projects.
Monetary size of this contract	$20.1 M

III. Agency IDIQ Contracting – General Information

Name used to refer to IDIQ contracts	Push Button Contracts (PB)
Name used to the orders issued under an IDIQ contract	Task Work Order

IV. Case Study – General Information

Project title	District 7 Design Build – Push Button
Scope	"The type of projects that may be assigned under this Contract shall include, but not be limited to modifications and improvements to median openings, intersections, signing and pavement markings, traffic signals, highway lighting, and intelligent transportation systems (ITS). Elements of work may include roadways, structures, intersections, interchanges, geotechnical activities, surveys, drainage, signing and pavement markings, signalization, lighting, utility relocation, maintenance of traffic, cost estimates, environmental permits, quantity computation books, coordination, public involvement efforts, and all necessary incidental items for a complete project. No right-of-way acquisition will be required under this project. This is a district 7 wide contract.
Expected duration	3 years
Actual duration	30 months
Contract Possible Extension	3 one-year extensions. $8,450,000 allocated for each year.
Minimum guaranteed amount	$12,500,000 which corresponds to Task 1 which was issued along with the RFP.
Maximum amount	According to contract documents it is $15M; first year = $5M, second year = $2.75M, and third year = $7.45 (this totals more the 15M, but interviewee could not clarify this inconsistency). If required additional funds may be added, which explains how this contract was over $20M.
TO limits	No monetary limits are stated, but Task Work Orders goes from $33,000 to 2.65 M. There is a duration limit of 270 calendar days.
Key personnel	Contract allows the contractor to change its key personnel at any moment, but with previous notification to FDOT.
DBE goals	DBE goals are stated to the entire contract, and for this case it was 8.1 %.
Contract funding	The contract is funded with federal and state funds, only those projects that meet Federal aid conditions were federal funded. District 7 received funds on an annual basis.

Contractor's key personnel	The Contractor is allowed to remove, change or add personnel at any moment during the contract.
Bonding	Performance bond is required, but interview has not information about it.

V. Case Study – Delivery Method Selection

Reasons to use IDIQ contracting	Flexibility in delivery scheduling

VI. Case Study – Procurement Process

Number of awards	The contract was awarded to 1 contractor (as usual).
Procurement process	Request for Qualifications (RFQ) + Request for Proposals (RFP)
Shortlist	A shortlist developed with 3 or 4 potential contractors.
Pre-proposal meeting	1 pre-proposal meeting with the contractors in the shortlist.
Contractors selection method	Best qualified + lowest bid for first Task Order. $\frac{(0.6)BPP+(0.4)ML}{TS} = Adjusted\ score$ BPP = Bid Price Proposal for initial Task Order ML = Master Item Lists Pricing TS = Technical Score Note: Department will provide the pay items and bid quantities in the Master Pay Item List, ML. Pay items and quantities for the initially assigned project locations will not be included in the ML calculation. However, when pay items included in the Master Pay Item List are also needed for the initially assigned project locations, the unit prices shall be identical. If submitted unit prices for identical pay items are different, the lower of the prices shall be used for the current and all future Task Work Orders.
TO development, pricing and execution	First Task Work Order: Funding Justification (Federal or State) → Scope Meeting → Issue Task Work Order → Finalized Design → Notice to proceed → Adjust Task quantities → Construction Begins Subsequent Task Work Orders: Funding Justification (Federal or State) → Scope Meeting → Issue Task Work Order & Notice to Proceed → Finalized Design → Adjust Task quantities → Construction Begins Note: The different between the first TO and the rest is that subsequent TO use previous designs or part of them. The Contractor is not involved in the development of the scope of the TOs.
Information and	Past related project experience (IDIQ or non-IDIQ)

documents required to be submitted in response to RFP	Specific Qualifications from Prime Contractor, its staff and/or subcontractors. Organizational structure Price proposal guarantee Technical Proposal Price Proposal
Protest	There was one protest regarding the selection process for this contract, but the interviewee does not have information about it. The protest was sustained (in favor of the protestor.

VII. Case Study – Payment Provisions

Compensation method	Lump Sum Lump Sum proposals are required under each Task Work Order. Each proposal must be submitted with unit prices for all items involved in the project and these unit prices must be same for all Task Work Orders. (Design as a % of construction) Any new pay item for subsequent work orders will be pay by a Supplementary Agreement. The price must not exceed 10% of the price published at FDOT website.
Mobilization	Maintenance of Traffic (MOT) + Mobilization (MOB) must a percentage of the proposed construction cost. This percentage must not be greater than 20% and is the same for all Task Work Orders.
Price escalation	Use Producer Price Index (PPI) published by the Bureau of Labor Statistics for Highway and Street Construction (This index was discontinued). Adjustment is done to contractor's monthly payments.

VIII. Case Study – Quality Assurance

QA system	It is the same as the one used in regular construction projects.

IX. Case Study – Complementary Information

Interviewee personal opinion about IDIQ contracting	• IDIQ has impacted positively FDOT's contracting procedures.

Appendix D

Deliverable Task 3a: Pilot IDIQ Contracting Framework and IDIQ Examples Request for Proposals Template

MINNESOTA
DEPARTMENT OF TRANSPORTATION
DISTRICT

REQUEST FOR PROPOSALS

INDEFINITE DELIVERY/
INDEFINITE QUANTITY SINGLE-AWARD CONTRACT

S.P.

FEDERAL PROJECT NUMBER

NOTE: Yellow highlighted Passages may not be needed in final IDIQ RFP

Green highlighted passages require MnDOT clarification

TABLE OF CONTENTS

1.0 INTRODUCTION

The Minnesota Department of Transportation (MnDOT), DISTRICT , is requesting proposals from entities ("Proposers") interested in the Indefinite Delivery/Indefinite Quantity ("IDIQ") Single-Award Contract (the "Contract").

The Contract will be funded with local, state and federal-aid dollars thereby requiring that the Proposers adhere to all pertinent federal, state and local requirements.

1.1 Procurement Process

MnDOT will use a One-phase Low-Bid procurement process to select a contractor to deliver the Contract. This Request for Proposals (this "RFP") is issued to solicit information that MnDOT will evaluate to determine which Proposer is the lowest responsible bidder to successfully deliver any of the Job Orders that will compose the Contract. Once the firm has been selected, all Job Orders issued under the Contract will be negotiated only with this contractor setting a lump sum/unit prices for each Job Order. MnDOT will award the Contract, if any, to the Proposer offering the lowest multiplier/bid price, as described in this RFP.

1.2 Contract Goals *{INSERT PROJECT GOALS – Examples below}*

The following goals have been established for the Contract:

a)
-
-
-
-

b)
-
-
-
-

c)
-
-
-
-

d)
-
-

-
-

f)

-
-
-
-

Figure 1 is a flow chart demonstrating MnDOT's process for developing, negotiating and executing each job order.

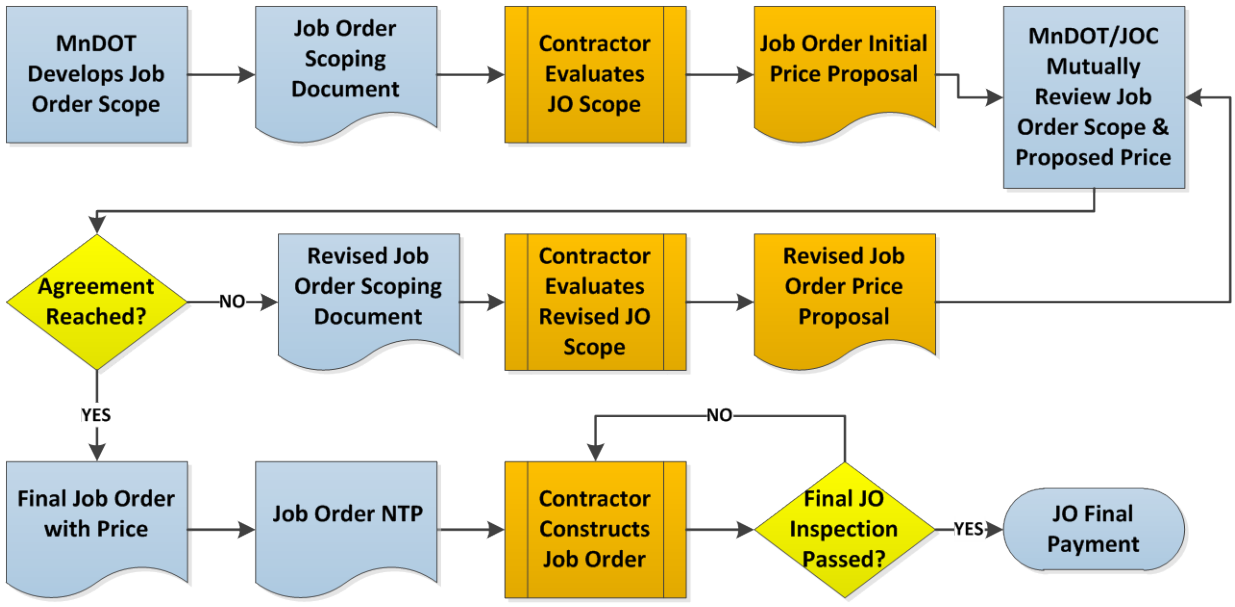


Figure 1

1.3 Proposer Information

To allow receipt of any addenda or other information regarding this RFP, each Proposer is solely responsible for ensuring that MnDOT's Project Manager as described in Section 2.4 has its contact person name and e-mail address. If an entity intends to submit a proposal as part of a team, the entire team is required to submit a single proposal as a single Proposer.

2.0 Background Information; RFP Process

2.1 Contract Description; Scope of Work *{INSERT DESCRIPTION – Example below}*

Job Orders under this contract are primarily located in County, Minnesota, between the cities of and . The Contract limits extend a total of miles from approximately to .

The Contract scope is to . The Contract scope also includes .

Job Orders under this contract generally consist of . Additional major responsibilities to the successful contractor will be quality, safety, and public relations, among other things.

A contract kick-off meeting will be held on *{DATE}* from *{TIME}* at *{LOCATION}* for interested Proposers. *{use if applicable}*

Additional information regarding the project can be found on the following websites:

- *{INSERT LINKS}*

The National Environmental Policy Act (NEPA) has been completed. The was signed on .

The National Environmental Policy Act (NEPA) is in process. *{use if applicable}*

2.2 Estimated Cost; Maximum Time Allowed

The total compensation of all job order contracts may not exceed $_____. Estimated cost, which may not exceed $_____ (per Job Order), and time allowed will be established individually for each Job Order issued under this Contract, in accordance with the requirements of the work. The IDIQ Contract itself shall be effective for *{insert contract time}* and based on MnDOT's evaluation of the Contractor's performance may be extended for up to *{insert number of periods}* one-year periods.

2.3 Contract Schedule

The deadline for submitting RFP questions and the proposal due date stated below apply to this RFP. MnDOT also anticipates the following additional Contract milestone dates. This schedule is subject to revision by addenda to this RFP.

Issue RFP

Deadline for submitting RFP questions *{min ten calendar days recommended}*

DBE Meet and Greet

Proposals due date

Evaluation of Proposals *{delete if low bid}*

Price Proposals opened

Anticipated First Job Order

2.4 MnDOT Project Management; Ex Parte Communications

is MnDOT's Project Manager. As MnDOT's Project Manager, is MnDOT's sole contact person and addressee for receiving all communications about the project. Only written inquiries will be accepted. Except as permitted by Section 7.1 and below, all inquiries and comments regarding the project and the procurement thereof must be made by e-mail or letter to:

Mail Delivery:

Mn/DOT's Project Manager

Minnesota Department of Transportation

District

{STREET ADDRESS}

{CITY, STATE, ZIP}

E-mail: @state.mn.us

During the Contract procurement process, commencing with issuance of this RFP and continuing until award of the Contract (or cancellation of the procurement), no employee, member or agent of any Proposer shall have any ex parte communications regarding this procurement with any member of MnDOT or the Federal Highway Administration, their advisors (i.e. cities, counties) or any of their contractors or consultants involved with the procurement, except for communications expressly permitted by the MnDOT Project Manager and this RFP.

Any Proposer engaging in such prohibited communications may be disqualified at the sole discretion of MnDOT.

2.5 Questions and Clarifications; Addenda

Questions and requests for clarification regarding this RFP must be submitted in writing to MnDOT's Project Manager as described in Section 2.4. To be considered, all questions and requests must be received by 4:00 pm, Central Standard Time, on the date indicated in Section 2.3.

MnDOT reserves the right to revise this RFP at any time before the Proposals due date. Such revisions, if any, will be announced by addenda to this RFP.

MnDOT will use the following guidelines when responding to questions and requests for clarification and issuing addenda:

- MnDOT will answer questions and requests for clarification Questions and post the answers to MnDOT's website *{INSERT LINK}*.

- MnDOT will send an e-mail notification to the contact person for each Proposer as soon as each addendum or clarification is issued. The notification will include an electronic copy of the addendum or clarification when possible.

2.6 Major Participant

As used herein, the term "Major Participant" means any of the following entities: all general partners or joint venture members of the Proposer; all individuals, persons, proprietorships, partnerships, limited liability partnerships, corporations, professional corporations, limited liability companies, business associations, or other legal entity however organized, holding (directly or indirectly) a 15% or greater interest in the Proposer; any subcontractor(s) that will perform work valued at 10% or more of the overall Job Order amount.

2.7 MnDOT Consultant/Technical Support *{MODIFY AS REQUIRED}*

MnDOT has retained the consulting firms of to provide guidance in preparing and evaluating this RFP and advice on related financial, contractual and technical matters.

2.8 Organizational Conflicts of Interest

The Proposer's attention is directed to 23 CFR Part 636 Subpart A and in particular to Section 636.116 regarding organizational conflicts of interest. Section 636.103 defines "organizational conflict of interest" as follows:

> Organizational conflict of interest means that because of other activities or relationships with other persons, a person is unable or potentially unable to render impartial assistance or advice to the owner, or the person's objectivity in performing the contract work is or might be otherwise impaired, or a person has an unfair competitive advantage.

The Proposer is prohibited from receiving any advice or discussing any aspect relating to the Contract or the procurement of the project with any person or entity with an organizational conflict of interest, including, but not limited to, MnDOT Consultant/Technical Support firms listed in Section 2.7. Such persons and entities are prohibited from participating in any Proposer organization relating to the Contract.

The Proposer agrees that, if after award, an organizational conflict of interest is discovered, the Proposer must make an immediate and full written disclosure to MnDOT that includes a description of the action that the Proposer has taken or proposes to take to avoid or mitigate such conflicts. If an organizational conflict of interest is determined to exist, MnDOT may, at its discretion, cancel the Contract. If the Proposer was aware of an organizational conflict of interest prior to the award of the Contract and did not disclose the conflict to MnDOT, MnDOT may terminate the contract for default.

MnDOT may disqualify a Proposer if any of its Major Participants belong to more than one Proposer organization. See Section 3.7.2 for additional information regarding this matter.

2.9 Changes to Organizational Structure

Individuals, Key Personnel and Major Participants identified in the proposal may not be removed, replaced or added to without the written approval of the Commissioner of Transportation, or designee. The Commissioner, or designee, may revoke an awarded contract or job order if any individual, Key Person or Major Participant identified in the proposal is removed, replaced or added to without the Commissioner's, or designee's, written approval. To qualify for the Commissioner's, or designee's, approval, the written request must document that the proposed removal, replacement or addition will be equal to or better than the individual, Key Person or Major Participant provided in the proposal. The Commissioner, or designee, will use the criteria specified in this RFP to evaluate all requests. Requests for removals, replacements and additions must be submitted in writing to MnDOT's Project Manager as described in Section 2.

2.10 Past Performance or Experience

Past performance or experience does not include the exercise or assertion of a person's legal rights.

2.11 Equal Employment Opportunity

The Proposer will be required to follow both State of Minnesota and Federal Equal Employment Opportunity (EEO) policies.

In accordance with the Minnesota Human Rights Act, Minnesota Statute 363.03 Unfair Discriminatory Practices, MnDOT will affirmatively assure that on any project constructed pursuant to this advertisement equal employment opportunity will be offered to all persons without regard to race, color, creed, religion, national origin, sex, marital status, status with regard to public assistance, membership or activity in a local commission, disability, sexual orientation, or age.

In accordance with Minnesota Human Rights Act, Minnesota Statute 363.073 Certificates of Compliance for Public Contracts, and 363.074 Rules for Certificates of Compliance, MnDOT will assure that appropriate parties to any contract entered into pursuant to this advertisement possess valid Certificates of Compliance. Any Proposer that is not a current holder of a compliance certificate issued by the Minnesota Department of Human Rights must contact the Department of Human Rights immediately for assistance in obtaining a certificate.

2.12 Disadvantaged Business Enterprises

It is the policy of MnDOT that Disadvantaged Business Enterprises (DBEs), as defined in 49 CFR Part 26, and other small businesses shall have the maximum feasible opportunity to participate in contracts financed in whole or in part with public funds. Consistent with this policy, MnDOT will not allow any person or business to be excluded from participation in,

denied the benefits of, or otherwise be discriminated against in connection with the award and performance of any U.S. Department of Transportation (DOT)-assisted contract because of sex, race, religion, or national origin. MnDOT has established a DBE program in accordance with regulations of the DOT, 49 CFR Part 26. In this regard, the contractor will take all necessary and reasonable steps in accordance with 49 CFR Part 26 to ensure that DBEs have the maximum opportunity to compete for and perform the contract.

Determine a DBE goal for the Contract This goal applies to each job order on an individual basis.

MnDOT's updated directory of DBE contractors can be viewed at the following website: http://www.dot.state.mn.us/eeocm/index.html.

3.0 CONTENT OF PROPOSALS; How Information in the PROPOSAL Will Be Used

This section describes specific information that must be included in the Proposal. Proposals must follow the outline of this Section 3.0. Proposers shall provide brief, concise information that addresses the requirements of the Contract consistent with the evaluation criteria described in this RFP.

Documents submitted pursuant to this RFP will be subject to the Minnesota Government Data Practices Act.

Some of the information requested in this RFP is for informational purposes only, while other information will be used in the qualitative analysis of the proposals. MnDOT will initially review proposals on a pass/fail basis. The purpose of this initial review is for MnDOT to determine whether the proposal, on its face, is responsive to this RFP. A proposer will be, on its face, responsive to this RFP if it appears to include all of the components of information required by this RFP in the manner required by this RFP. This initial pass/fail review does not include any qualitative assessment as to the substance of the information submitted. Those proposals that pass the pass/fail review will then be reviewed on a qualitative basis according to the criteria specified in Section 4.3.

The following Sections 3.1 through 3.7 describe the information that is required and how it will be used.

3.1 Introduction

Provide a Cover Letter stating the business name, address, business type (e.g., corporation, partnership, joint venture) and roles of the Proposer and each Major Participant. Identify one contact person and his or her address, telephone and fax numbers, and e-mail address. This person shall be the single point of contact on behalf of the Proposer organization, responsible for correspondence to and from the organization and MnDOT. MnDOT will send all Contract-related communications to this contact person. Authorized representatives of the Proposer

organization must sign the letter. If the Proposer is a joint venture, the joint venture members must sign the letter. If the Proposer is not yet a legal entity, the Major Participants must sign the letter. The letter must certify the truth and correctness of the contents of the proposal. The Cover Letter shall be limited to one page.

The Introduction must also include a Table of Contents. The Table of Contents shall be limited to one page.

This information will be used to identify the proposer and its designated contact, and will be reviewed on a pass/fail basis only and not as part of the qualitative assessment of the proposal.

3.2 Proposer Organization and Experience *{INSERT PROJECT RQMTS}*

The information required by this section will be used in the qualitative assessment of the proposal. MnDOT will evaluate the capabilities of the Proposer organization to effectively deliver any of the Job Orders that will compose the Contract.

3.2.1 Organizational Chart(s)

Provide an organizational chart(s) showing the flow of the "chain of command" with lines identifying participants who are responsible for major functions to be performed and their reporting relationships, in managing, and building a typical job order. The chart(s) must show the functional structure of the organization down to the design discipline leader or construction superintendent level and must identify Key Personnel by name. Identify the Proposer and all Major Participants in the chart(s). Identify the critical support elements and relationships of project management, project administration, Executive Management, construction management, quality management, safety, environmental compliance and subcontractor administration. For each organizational chart, provide a brief, written description of significant functional relationships among participants and how the proposed organization will function as an integrated team.

3.2.2 Proposer Experience *{INSERT RQMTS – Examples below}*

Describe the experiences on transportation projects that the Proposer, each Major Participant has managed, designed, and/or constructed. If the Proposer is not yet existing or is newly formed, please explain. For projects in which several of the proposed participants were involved, the Proposer may provide a single project description. Highlight experience relevant to the Contract that the participants listed above have gained in the last 10 years. Demonstrate experiences in each of the following areas:

- *{Insert criteria}*
-

Each project description must include the following information:

(1) A narrative describing the project.

(2) Name of the project, the owner's contract information (project manager name, phone number, e-mail address), and project number. If the owner project manager is no longer with the owner, provide an alternative contact at the agency that is familiar with the project. The alternative contact must have played a leadership role for the owner during the project.

(3) Dates of design, construction, management and/or warranty periods;

(4) Detailed description of the work or services provided and percentage of the overall project actually performed; and

(5) Description of scheduled completion deadlines and actual completion dates. Describe reasons for completing the project in advance of the completion deadline. Describe reasons for completing the projects later than the completion deadline specified within the original contract.

MnDOT may elect to use the information provided as a reference check.

3.3 Key Personnel

The information required by this section will be used in the qualitative assessment of the proposal.

3.3.1 Resumes of Key Personnel

Resumes of Key Personnel shall be provided as Appendix A – Resumes of Key Personnel to the proposal. Resumes of Key Personnel shall be limited to two pages each. If an individual fills more than one position, only one resume is required. Only one individual per position is required unless otherwise specified. The listing below describes the functions for the key personnel for the Contract ("Key Personnel").

Level A Personnel

- *{List Level A key personnel here}*
-

Level B Personnel

- *{List Level B key personnel here}*

Include the following items on each resume:

a) Relevant licensing and registration.

b) Years of experience performing similar work.

c) Length of employment with current employer.

d) Actual work examples

a. Including projects, duties performed, % of time on the job, and dates of work performed. Work examples must contain constructed projects (e.g.: Preliminary/conceptual design and unsuccessful pursuits projects will not count as final design experience).

3.3.2 Other Information for Key Personnel

In addition to resumes, provide the following information for each Key Personnel:

a) Percent of time committed to the Contract.

b) Percent of time committed to other projects.

3.3.3 Key Personnel: Job Descriptions; Minimum Qualifications for Acceptance; and Qualifications Exceeding Minimums

The qualifications and experience of Key Personnel will be reviewed as part of the qualitative assessment of the proposal. Key Personnel will be evaluated, in part, based on the extent they meet and/or exceed such requirements, including, but not limited to, relevant education, training, certification, and experience. The following provides a brief job description and minimum requirements of the Key Personnel assigned to the Contract. Any certifications that are required to meet the requirements of the RFP shall be in place by the time the first notice to proceed is issued.

{Match minimum qualifications to Level A key personnel list above} ***{MODIFY AS REQUIRED}***

a) Contractor's Project Manager

- Contractor's Project Manager will be responsible for the overall construction, quality management and/or contract administration for the Contract. This person must be on site within two hours for the duration of the project. This person will have full responsibility for the prosecution of the work, act as a single point of contact in all matters, and have authority to bind Contractor on all matters relating to the project.

- Must have recent experience managing the construction of projects of similar scope and complexity (10 years preferred).

- Must have recent experience managing construction projects that relate to this contract, specifically ***Insert expected types of job orders*** (10 years preferred).

b) Construction Quality Manager

- Shall be independent of production.
- Shall report directly to the Proposer's Executive Committee. Will be responsible for the overall construction quality of the project, implementing quality planning and training, and managing the contractor's quality management process and construction quality program.
- Must be on-site for the duration of the project.
- Must have experience developing, implementing, and maintaining quality management systems (10 years preferred).
- Must have developing, implementing, and maintaining quality management systems on roadway/bridge construction processes (5 years preferred).
- Must have the authority to stop work.
- May also be assigned the duties of the environmental manager.

c) Environmental Manager

- Work closely in the development of the Erosion Control Plan and oversee its implementation.
- Shall report directly to the Contractor's and MnDOT's Project Managers and must be on site as necessary for the duration of the project.
- Shall have the authority to stop all work due to environmental concerns and permitting requirements.
- Responsible for ensuring compliance with all necessary Environmental Documents and permits associated with the project.
- Must have recent experience in environmental compliance and be familiar with permitting requirements in Minnesota related to watershed districts, NPDES, 404, 401, contaminated materials, ground water, etc.

3.4 Contract Understanding

The information required by this section will be used in the qualitative assessment of the proposal. To demonstrate the Proposer familiarity with the Contract and Contract requirements, the Proposer must provide a narrative on the items listed in Section 4.3.

3.5 Contract Management Approach

The information required by this section will be used in the qualitative assessment of the proposal. Provide, at a conceptual level, the Proposer understanding of and the Proposer approach to successfully delivering any of the Job Orders that will compose the Contract by meeting or exceeding the Contract's established goals (see Section 1.2). Proposers shall include a description of the items listed in Section 4.3.

3.6 Legal and Financial

The information required in response to Sections 3.6.1, 3.6.3, 3.6.4 and 3.6.5 shall be submitted as Appendix B – Legal and Financial. Information provided in response to these sections will not count towards the overall page limitation defined in Section 5.2. Information required by this section will be evaluated on a pass/fail basis.

3.6.1 Acknowledgment of Clarifications and Addenda

Identify all clarifications and addenda received by number and date.

3.6.2 Organizational Conflicts of Interest

Identify all relevant facts relating to past, present or planned interest(s) of the Proposer's team (including the Proposer, Major Participants, proposed consultants, contractors and subcontractors, and their respective chief executives, directors and key project personnel) which may result, or could be viewed as, an organizational conflict of interest in connection with this RFP. See Section 2.8.

Disclose: (a) any current contractual relationships with MnDOT (by identifying the MnDOT contract number and project manager); (b) present or planned contractual or employment relationships with any current MnDOT employee; and (c) any other circumstances that might be considered to create a financial interest for the Contract by any current MnDOT employee if the Proposer is selected to participate in the Contract. The Proposer must also disclose any current contractual relationships where the firms listed in Section 2.7 and other key stakeholders (cities, counties). The foregoing is provided by way of example, and shall not constitute a limitation on the disclosure obligations.

For any fact, relationship or circumstance disclosed in response to this Section 3.6.2, identify steps that have been or will be taken to avoid, neutralize or mitigate any organizational conflicts of interest.

In cases where Major Participants on different Proposer organizations belong to the same parent company, each Proposer must describe how the participants would avoid conflicts of interest through the qualification and proposal phases of the Contract.

The required information for Organizational Conflicts of Interest shall be submitted as Appendix C – Organizational Conflicts of Interest. Information provided in response to this section will not count towards the overall page limitation defined in Section 4.2.

3.6.3 Legal Structure

If the Proposer organization has already been formed, provide complete copies of the organizational documents that allow, or would allow by the time of contract award, the Proposer and Major Participants to conduct business in the State of Minnesota (e.g.: Certificate of Good Standing). If the Proposer organization has not yet been formed, provide a brief description of the proposed legal structure or draft copies of the underlying agreements.

3.6.4 Bonding Capability

Provide a letter from a surety or insurance company stating that the Proposer is capable of obtaining a performance bond and payment bond covering the Contract in the amount of $ million. The letter shall state the rate charged per dollar for later use in computing bonding costs for each job order. The letter shall also state that the Proposer is capable of obtaining a warranty bond covering the Contract warranty period for the amount of $ million. *{warranty bond is typically 4% of project cost}*Letters indicating "unlimited" bonding capability are not acceptable. The surety or insurance company providing such letter must be authorized to do business in the State of Minnesota with an A.M. Best Co. "Best's Rating" of A- or better and Class VIII or better.

3.6.5 Proposer Information

For the Proposer (if the Proposer is not yet existing or newly formed, please explain), each Major Participant, and any affiliate of the Proposer or a Major Participant (including the firm's parent company, subsidiary companies, and any other subsidiary or affiliate of the firm's parent company) whose experience is cited as the basis for the firm's qualifications:

a. Describe any project that resulted in assessment of liquidated damages, stipulated damages or monetary deductions for not meeting intermediate and completion deadlines against the firm within the last five years. Describe the causes of the delays and the amounts assessed. Describe any outstanding damage claims for projects in which any firm was involved within the last five years.

b. Describe the conditions surrounding any contract (or portion thereof) entered into by the firm that has been terminated for cause, or which required completion by another party, within the last five years. Describe the reasons for termination and the amounts involved.

c. Describe any debarment or suspension from performing work for the federal government, any state or local government, or any foreign governmental entity, against the firm.

For each description, identify the project owner's representative and current phone number. Indicate "None" to any subsection above that does not apply.

4.0 EVALUATION PROCESS

4.1 Proposal Evaluation

MnDOT will initially review the proposals for responsiveness to the requirements of this RFP. Then then Mn/DOT will identify Proposer that submitted the lowest multiplier/bid price with which the contract will be signed.

4.2 Interview

MnDOT reserves the right to conduct interviews with all Proposers prior to development of the Contract. MnDOT may conduct these interviews during its evaluation of the overall proposal submittal process and scoring. If elected by MnDOT, MnDOT will determine the schedule for interviews following receipt of the proposals.

4.3 Debriefing Meetings

Once MnDOT announces the selected Contractor (if any), MnDOT may arrange debriefing meetings with Proposer organizations. The purpose of a debriefing meeting is for MnDOT to provide informal and objective comments to Proposers on MnDOT's review of their proposals, and provide feedback that may help Proposers improve their proposals for future procurements. A debriefing meeting also provides an informal setting to discuss this RFP and the procurement process; however, the Proposer should not use the debriefing meeting as a forum in which to address issues raised in any Protest under Section 7. If a Proposer has filed a protest under Section 7, and the Proposer also requests a debriefing meeting, the debriefing meeting will be scheduled to occur after MnDOT has issued a final agency decision regarding the merits of the Protest as provided in Section 7.

5.0 PROCEDURAL REQUIREMENTS FOR PROPOSAL Submittal (time, place, format)

The following section describes requirements that all Proposers must satisfy in submitting proposals. Failure of any Proposer to submit their proposal as required in this RFP may result in rejection of its proposal.

5.1 Due Date, Time and Location

All proposals must be received by 9:00 a.m., Central Standard Time, on the proposal due date indicated in Section 2.3, and must be delivered by e-mail in pdf format to:

Minnesota Dept of Transportation

395 John Ireland Blvd, MS 650

St. Paul, MN 55128

@state.mn.us

The maximum e-mail size MnDOT can receive is 10 MB. If necessary, break the pdf into multiple e-mails to meet this requirement. Any proposal that fails to meet the deadline or delivery requirement will be rejected without opening, consideration or evaluation. Proposers will receive a confirmation email upon successful delivery to MnDOT.

5.2 Format

The proposal must not exceed ({*spell number*}) single-sided pages (not including the Cover Letter and Table of Contents, section dividers or Appendices).

There are no maximum page limits to the Appendices (see Section 3.3.1 on page limits per person), but the Appendices shall only contain information relevant to the requested Appendix information in this RFP. Appendices shall not be used to further enhance a proposal beyond these requirements. The proposal shall contain the following Appendices: *{change as required}*

- Appendix A – Resumes of Key Personnel
- Appendix B – Legal and Financial
- Appendix C – Organizational Conflicts of Interest

Section dividers shall only be used to convey the heading of the section and shall not be used to supplement or enhance any information included in the proposal (photos, but not photo renderings, on the dividers are acceptable). MnDOT discourages lengthy narratives containing extraneous information. All information must be printed on 8.5" x 11" paper. All printing, except for the front cover of the proposal, must be Times New Roman, 12-point font. Text contained on charts, exhibits, design plans, and other illustrative and graphical information shall be no smaller than 10-point Times New Roman. All dimensional information must be shown in English units.

The front cover of each proposal must be labeled with " Indefinite Delivery/Indefinite Quantity Single-Award Contract" and "Proposal" and the date of submittal.

5.3 Quantities

Proposals shall contain unit prices for the following supplies and services.

{Insert supplies and services to be required in Job Orders}

6.0 Contract additional information

This Section 6.0 is provided for informational purposes only so that each Proposer has information that describes the Contract procurement process, including a summary of certain anticipated Contract requirements. MnDOT reserves the right to make changes to the following, and the Proposers must only rely on the actual Contract when and if it is issued. This Section 6.0 does not contain requirements related to the proposal. A draft of the Contract may be made available for Proposers to review and submit comments to MnDOT. MnDOT will take submitted comments into consideration in finalizing the Contract.

6.1 The Contract

As an Indefinite Delivery/Indefinite Quantity Single-Award Contract, this contract provides for an indefinite quantity, within a stated limit, of specific services to be furnished during a fixed period, with quantities and deliveries to be scheduled by placing Job Orders with a single contractor. The contract will specify the following information.

a) Scope of work to be performance under the issuance of Job Orders.
b) Duration of the contract.
c) Payment term and conditions.
d) Maximum compensation of all issued job orders.
e) Maximum compensation of a single job order
f) Mn/DOT's Project Manager information.
g) Other conditions and specifications.

6.2 Warranties

The Contract will require the contractor to provide a warranty for each job order awarded.

6.3 Pre-Proposal Meeting

MnDOT will offer each Proposer the opportunity to meet before the proposal due date to discuss the Contract and the procurement process, as well as separate meetings to discuss any Alternative Technical Concept (ATC) being developed. In any such meeting, MnDOT will meet with only one Proposer at a time. Proposers would not be required to accept the meeting offers.

7.0 Protest Procedures

This Section 7.0 sets forth the exclusive protest remedies available with respect to this RFP. Each Proposer, by submitting its proposal, expressly recognizes the limitation on its rights to protest contained herein. These provisions are included in this RFP expressly in consideration for such waiver and agreement by the Proposers. Such waiver and agreement by each Proposer are also consideration to each other Proposer for making the same waiver and agreement.

If a Proposer disregards, disputes or does not follow the exclusive protest remedies set forth in this RFP, it shall indemnify, defend, protect and hold harmless MnDOT, its officers, officials, employees, agents, representatives and consultants from and against all liabilities, expenses, costs (including attorneys' fees and costs), fees and damages incurred or suffered as a result. The submission of a proposal by a Proposer shall be deemed the Proposer's irrevocable and unconditional agreement with such indemnification obligation.

7.1 Protests Regarding Facially Apparent Deficiencies in RFP

The Proposer may protest the terms of this RFP prior to the time for submission of proposals on the grounds that (a) a material provision in this RFP is ambiguous, (b) any aspect of the procurement process described herein is contrary to legal requirements applicable to this procurement, or (c) this RFP in whole or in part exceeds the authority of MnDOT. Protests regarding this RFP shall be filed only after the Proposer has informally discussed the nature and basis of the protest with MnDOT's Project Manager in an effort to remove the grounds for protest.

Protests regarding this RFP shall completely and succinctly state the grounds for protest and shall include all factual and legal documentation in sufficient detail to establish the merits of the protest. Evidentiary statements, if any, shall be submitted under penalty of perjury.

Protests regarding this RFP shall be filed as soon as the basis for protest is known to the Proposer, but in any event it must be actually received no later than ten calendar days before the proposal due date, provided that protests regarding an addendum to this RFP shall be filed and actually received no later than five calendar days after the addendum to this RFP is issued (or no later than the proposal due date, if earlier).

Protests regarding this RFP shall be filed in writing by hand delivery or courier to the Protest Official with a copy to MnDOT's Project Manager. The "Protest Official" is defined as:

Kent Allin, Materials Management Division

Department of Administration

112 Administration Building

50 Sherburne Avenue

St. Paul, MN 55155

MnDOT will distribute copies of the protest to the other Proposers and may, but need not, request other Proposers to submit statements or arguments regarding the protest and may, in its sole discretion, discuss the protest with the protesting Proposer. If other Proposers are requested to submit statements or arguments, they may file a statement in support of or in opposition to the protest within seven calendar days of the request. MnDOT may also file a written statement with the Protest Official.

No hearing will be held on the protest. The Protest Official or his designee will review the facts and arguments presented in the written submissions and will decide the protest on the basis of the written submissions. The Protest Official will consider whether MnDOT's position (a) is reasonable, and (b) is in compliance with the Minnesota Statutes. The protest Official will recommend to the MnDOT Commissioner, and send a copy the MnDOT's Project Manager, whether any changes or addenda to the RFP and procurement process are warranted. The Protest Official's recommendation will be in writing and will state the reasons for the decision. MnDOT will furnish copies of the decision in writing to each Proposer. The Commissioner will issue MnDOT's final decision within ten calendar days of receiving the recommendation and include written reasons for the decision (or incorporate those of the Protest Official). The decision shall be final and conclusive. If necessary to address the issues raised in the protest, MnDOT will make appropriate revisions to this RFP by issuing addenda. MnDOT may extend the proposal due date, if necessary, to address any protest issues.

The failure of a Proposer to raise a ground for a protest regarding this RFP within the applicable period shall constitute an unconditional waiver of the right to protest the terms of this RFP and shall preclude consideration of that ground in any protest of qualification of a Proposer unless such ground was not and could not have been known to the Proposer in time to protest prior to the final date for such protests.

7.2 Protests Regarding Responsiveness and Evaluation Process

A Proposer may protest the results of the above-described evaluation and qualification process by filing a written notice of protest by hand delivery or courier to the Protest Official with a copy to MnDOT's Project Manager. The protesting Proposer shall concurrently deliver a copy of its notice of protest to the other Proposers. The notice of protest shall specifically state the grounds of the protest.

Notice of protest of any decision to accept or disqualify a proposal on responsiveness grounds must be filed within five calendar days after the earliest of notification of non-responsiveness,

the scheduled date for interviews (if any) or the public announcement short listing. Notice of protest of the decision on short listing must be filed within five calendar days after the public announcement of short listing.

Within seven calendar days of the notice of protest, the protesting Proposer must file with the Protest Official, with a copy to MnDOT's Project Manager, a detailed statement of the grounds, legal authorities and facts, including all documents and evidentiary statements, in support of the protest. The protesting Proposer shall concurrently deliver a copy of the detailed statement to all other Proposers. Evidentiary statements, if any, shall be submitted under penalty of perjury.

Failure to file a notice of protest or a detailed statement within the applicable period shall constitute an unconditional waiver of the right to protest the evaluation or qualification process and decisions thereunder, other than any protest based on ATCs not reasonably ascertainable as of such date.

Other Proposers may file by hand delivery or courier to the Protest Official, with a copy to MnDOT's Project Manager, a statement in support of or in opposition to the protest. Such statement must be filed within seven calendar days after the protesting Proposer files its detailed statement of protest. MnDOT will promptly forward copies of any such statements to the protesting Proposer.

MnDOT may, at its option, file a written response to the Protest with the Protest Official, with a copy to the Proposer and any Proposers who have filed statements with the Protest Officials. MnDOT will respond with 14 calendar days upon its detailed statement of protest.

The Protest Official will consider whether the Committee's decision (a) is reasonable; and (b) is in compliance with the Minnesota Statutes. The Protest Official will review the facts and arguments presented in the written submissions of the protesting firm, and the written submissions of MnDOT and other Proposers, if any The Protest Official will recommend, within 14 calendar days after MnDOT's response, that the MnDOT Commissioner, acting through the Committee, either (1) affirm the Committee's original decision; or, depending on the nature of the protest, (2) reinstate a firm disqualified on responsiveness grounds, or add a firm to the short list. If MnDOT does not submit a written response, the Protest Official will make a recommendation within 21 calendar days upon the receipt of the detailed statement of protest. The Protest Official's recommendation will be in writing and include the reasons for the decision. The Commissioner will issue MnDOT's final decision within ten calendar days of receiving the recommendation, and include written reasons for the decision (or incorporate those of the Protest Official). The Commissioner will deliver the written decision to the protesting Proposer and copies to the other Proposers.

If a notice of protest regarding responsiveness is filed prior to the interview process (if any), MnDOT may proceed with the interview process and may qualify Proposers before the protest is withdrawn or decided, unless the Protest Official or his designee determines, in his or her sole discretion, that it is in the public interest to postpone the qualification prior to a decision. Such a determination shall be in writing and shall state the facts on which it is based.

If the Protest Official or his designee concludes that the Proposer filing the protest has established a basis for protest, the Protest Official or his designee will determine what remedial steps, if any, are necessary or appropriate to address the issues raised in the protest. Such steps may include, without limitation, withdrawing or revising the decisions, issuing a new request for qualifications or taking other appropriate actions.

7.3 Costs and Damages

All costs of a protest shall be the responsibility of the protestor and undertaken at the protestor's expense. In addition, if the protest is denied, the Proposer filing the protest may be liable for MnDOT's costs reasonably incurred in defending against the protest, including legal and consultant fees and costs, and any unavoidable damages sustained by MnDOT as a consequence of the protest. MnDOT shall not be liable for damages to the Proposer filing the protest or to any participant in the protest, on any basis, express or implied.

Appendix E

Deliverable Task 3a: Pilot IDIQ Contracting Framework and IDIQ Examples
IDIQ Contract and Job Order Templates

MINNESOTA DEPARTMENT OF TRANSPORTATION
INDEFINITE DELIVERY/INDEFINITE QUANTITY
SINGLE-AWARD CONTRACT
Mn/DOT IDIQ CONTRACT No.
CFMS No.

THIS Indefinite Delivery/Indefinite Quantity Single-Award Contract is entered into by and between the State of Minnesota through its Commissioner of Transportation ("Mn/DOT") and ("Contractor").

Recitals

A. Job Orders under this contract are primarily located in County, Minnesota, between the cities of and . The Contract limits extend a total of miles from approximately to .

B. The Contract scope is . The Contract also includes .

C. Job Orders under this contract generally consist of . Additional major responsibilities to the Contractor are quality, safety, and public relations, among other things.

D. The Contract was awarded to the contractor who submitted the *lowest price list* according to the items listed in the Request for Proposals obligating Contractor to perform all work necessary to complete any of the Job Orders that will compose the Contract by the deadlines specified in each Job Order, for the prices established in the Contractor's proposal, subject only to certain specified limited exceptions and the addition of new items that may appear in future Job Orders. To allow Mn/DOT to budget for the Job Orders and to reduce the risk of cost overruns, the Contract includes restrictions affecting Contractor's ability to make claims for an increase in the Price List or an extension of Completion Deadlines. Contractor has agreed in the Contract to assume such responsibilities and risks and has reflected the assumption of such responsibilities and risks in the Price List.

E. If Contractor fails to complete any of the Job Orders that will compose the Contract within the time limitations set forth for each Job Order, then Mn/DOT will suffer substantial losses and damages. The Contract Documents therefore provide that Contractor shall pay Mn/DOT substantial Liquidated Damages if any of such completions is delayed.

NOW, THEREFORE, in consideration of the sums to be paid to Contractor by Mn/DOT for each Job Order successfully delivered, the foregoing premises and the covenants and agreements set forth herein, the parties hereto hereby agree as follows.

Indefinite Delivery/Indefinite Quantity (IDIQ) Single-Award Contract

1. Term of IDIQ Contract

1.1 Effective Date: *[Spell out full date (e.g.,April 1, 2001)]*, or the date the State obtains all required signatures under Minnesota Statute§ 16C.05, subdivision 2, whichever is later.

The Contractor must not accept work under this IDIQ contract until this contract is fully executed and the Contractor has been notified by the State's Project Manager that it may begin accepting Job Orders.

1.2 Job Orders: The term of work under Job Orders issued under this IDIQ contract may not extend beyond the expiration date of this IDIQ contract.

1.3 Expiration Date: *[Spell out full date (e.g.,April 1, 2001)]*, or when reaching the maximum contract price (see 4.1), whichever occurs first.

1.4 Survival of Terms: The following clauses survive the expiration or cancellation of this IDIQ contract and all Job Orders: 8. Indemnification; 9. State Audits; 10. Government Data Practices and Intellectual Property; 13. Publicity and Endorsement; 14. Governing Law, Jurisdiction, and Venue; and 18. Data Disclosure.

2. Scope of Work

The Contractor, who is not a state employee, may be requested to provide any of the following supplies and services under individual Job Orders:

[PROVIDE INFORMATION ON THE DUTIES YOU WANT THE CONTRACTOR TO PERFORM. Example: "The Scope of Work for this IDIQ contract may include one or all of the following as described. A complete detailed description of required work will be furnished in each Job

The Contractor understands that only the receipt of a fully executed Job Order authorizes the Contractor to begin work under this IDIQ contract. Any and all effort, expenses, or actions taken before the Job Order is fully executed is not authorized under Minnesota Statutes and is under taken at the sole responsibility and expense of the Contractor. A sample Job Order is attached and incorporated into this IDIQ contract as Appendix A.

The Contractor understands that this IDIQ contract only guarantees a minimum amount of work (in dollars) to be ordered under this IDIQ contract.

3. Time

The Contractor must comply with all the time requirements described in Job Orders. In the performance of Job Orders, time is of the essence.

4. Consideration and Payment

4.1 Consideration. The State will pay for all supplies and services satisfactorily provided by the Contractor for all Job Order issued under this IDIQ contract. The total compensation of all Job Orders may not exceed $_____ and may not be less than $_____.

Travel Expenses. Reimbursement for travel and subsistence expenses actually and necessarily incurred by the Contractor as a result of any Job Order will be

reimbursed in same manner and in no greater amount than provided in the current "Commissioner's Plan" promulgated by the commissioner of Employee Relations. The Contractor will not be reimbursed for travel and subsistence expenses incurred outside Minnesota unless it
has received the State's prior written approval for out of state travel. Minnesota will be considered the home state for determining whether travel is out of state.

4.2 Payment

A. **Invoices.** The State will promptly pay the Contractor after the Contractor presents an itemized invoice for the supplies and services actually provided and the State's Project Management accepts the invoiced supplies and services. Invoices must be submitted timely no more frequently than monthly.

B. **Retinage.** Under Minnesota Statute§ 16C.08, subdivision 5(b), no more than 90 percent of the amount due under any Job Order may be paid until the final product of the Job Order has been reviewed by the State's agency head. The balance due will be paid when the State's agency head determines that the Contractor has satisfactorily fulfilled all the terms of the Job Order.

5. Conditions of Payment

All supplies and services provided by the Contractor under a Job Order must be performed to the State's satisfaction, as determined at the sole discretion of the State's Project Manager and in accordance with all applicable federal, state, and local laws, ordinances, rules, and regulations. The Contractor will not receive payment for work found by the State to be unsatisfactory or performed in violation of federal, state, or local law.

6. Project Managers

The State's Project Manager for this IDIQ contract is [NAME, TITLE, ADDRESS, TELEPHONE NUMBER], or his/her successor, and has the responsibility to monitor the Contractor's performance.

The Contractor's Project Manager is [NAME, TITLE, ADDRESS, TELEPHONE NUMBER]. If the Contractor's Project Manager changes at any time during this IDIQ contract, the Contractor must immediately notify the State.

7. Assignment, Amendments, Waiver, and Contract Complete

7.1 Assignment. The Contractor may neither assign nor transfer any rights or obligations under this IDIQ contract or any Job Order without the prior consent of the State and a fully executed Assignment Agreement, executed and approved by the same parties who executed and approved this IDIQ contract, or their successors in office.

7.2 Amendments. Any amendment to this IDIQ contract or any Job Order must be in writing and will not be effective until it has been executed and approved by the same parties who executed and approved the original contract, or their successors in office.

7.3 Waiver. If the State fails to enforce any provision of this IDIQ contract or any Job Order, that failure does not waive the provision or its right to enforce it.

7.4 Contract Complete. This IDIQ contract and any Job Order contain all negotiations and agreements between the State and the Contractor. No other understanding regarding this IDIQ contract or Job Order, whether written or oral, may be used to bind either party.

8. Indemnification

In the performance of this contract by Contractor, or Contractor's agents or employees, the contractor must indemnify, save, and hold harmless the State, its agents, and employees, from any claims or causes of action, including attorney's fees incurred by the state, to the extent caused by Contractor's:

A. Intentional, willful, or negligent acts or omissions; or

B. Actions that give rise to strict liability; or

C. Breach of contract or warranty.

The indemnification obligations of this section do not apply in the event the claim or cause of action is the result of the State's sole negligence. This clause will not be construed to bar any legal remedies the Contractor may have for the State's failure to fulfill its obligation under this contract.

9. State Audits

Under Minnesota Statute§ 16C.05, subdivision 5, the Contractor's books, records, documents, and accounting procedures and practices relevant to any Job Order are subject to examination by the State and/or the State Auditor or Legislative Auditor, as appropriate, for a minimum of six years from the end of this IDIQ contract.

10. Government Data Practices and Intellectual Property

10.1 The Contractor and State must comply with the Minnesota Government Data Practices Act, Minnesota Statute Ch. 13, as it applies to all data provided by the State under any Job Order, and as it applies to all data created, collected, received, stored, used, maintained, or disseminated by the Contractor under the Job Order. The civil remedies of Minnesota Statute§ 13.08 apply to the release of the data referred to in this clause by either the Contractor or the State.

If the Contractor receives a request to release the data referred to in this Clause, the Contractor must immediately notify the State. The State will give the Contractor instructions concerning the release of the data to the requesting party before the data is released.

10.2 Intellectual Property Rights

A. *Intellectual Property Rights.* The State owns all rights, title, and interest in all of the intellectual property rights, including copyrights, patents, trade secrets, trademarks, and service marks in the Works and Documents *created and paid for under Job Orders*. Works means all inventions, improvements, discoveries (whether or not patentable), databases, computer programs, reports, notes, studies, photographs, negatives, designs, drawings, specifications, materials, tapes, and disks conceived, reduced to practice, created or originated by the Contractor, its employees, agents, and subcontractors, either individually or jointly with others in the performance of this IDIQ contract or any Job Order. Works includes "Documents." Documents are the originals of any databases, computer programs, reports, notes, studies, photographs, negatives, designs, drawings, specifications, materials, tapes, disks, or other materials, whether in tangible or electronic forms, prepared by the Contractor, its employees, agents, or subcontractors, in the performance of a Job Order. The Documents will be the exclusive property of the State and all such Documents must be immediately returned to the State by the Contractor upon completion or cancellation of the Job Order. To the extent possible, those Works eligible for copyright protection under the United States Copyright Act will be deemed to be "works made for hire." The Contractor assigns all right, title, and interest it may have in the Works and the Documents to the State. The Contractor must, at the request of the State, execute all papers and perform all other acts necessary to transfer or record the State's ownership interest in the Works and Documents.

B. *Obligations*

1. N*otification*. Whenever any invention, improvement, or discovery (whether or not patentable) is made or conceived for the first time or actually or constructively reduced to practice by the Contractor, including its employees and subcontractors, in the performance of the Job Order, the Contractor will immediately give the State's Project Manager written notice thereof, and must promptly furnish the Project Manager with complete information and/or disclosure thereon.

2. *Representation.* The Contractor must perform all acts, and take all steps necessary to ensure that all intellectual property rights in the Works and Documents are the sole property of the State, and that neither Contractor nor its employees, agents, or subcontractors retain any interest in and to the Works and Documents. The Contractor represents and warrants that the Works and Documents do not and will not infringe upon any intellectual property rights of other persons or entities. Notwithstanding Clause 8, the Contractor will indemnify; defend, to the extent permitted by the Attorney General; and hold harmless the State, at the Contractor's expense, from any action or claim brought against the State to the extent that it is based on a claim that all or part of the Works or Documents infringe upon the intellectual property rights of others. The Contractor will be responsible for payment of any and all such

claims, demands, obligations, liabilities, costs, and damages, including but not limited to, attorney fees. If such a claim or action arises, or in the Contractor's or the State's opinion is likely to arise, the Contractor must, at the State's discretion, either procure for the State the right or license to use the intellectual property rights at issue or replace or modify the allegedly infringing Works or Documents as necessary and appropriate to obviate the infringement claim. This remedy of the State will be in addition to and not exclusive of other remedies provided by law.

11. Affirmative Action Requirements for Contracts in Excess of $100,000 and if the Contractor has More than 40 Full-time Employees in Minnesota or its Principal Place of Business

The State intends to carry out its responsibility for requiring affirmative action by its Contractors.

11.1 Covered Contracts and Contractors. If the Contract exceeds $100,000 and the contractor employed more than 40 full-time employees on a single working day during the previous 12 months in Minnesota or in the state where it has its principle place of business, then the Contractor must comply with the requirements of Minnesota Statute § 363A.36 and Minnesota Rule Parts 5000.3400-5000.3600. A contractor covered by Minnesota Statute § 363A.36 because it employed more than 40 full-time employees in another state and does not have a certificate of compliance, must certify that it is in compliance with federal affirmative action requirements.

11.2 Minnesota Statute § 363A.36. Minnesota Statute § 363A.36 requires the Contractor to have an affirmative action plan for the employment of minority persons, women, and qualified disabled individuals approved by the Minnesota Commissioner of Human Rights ("Commissioner") as indicated by a certificate of compliance. The law addresses suspension or revocation of a certificate of compliance and contract consequences in that event. A contract awarded without a certificate of compliance may be voided.

11.3 Minnesota Rule Parts 5000.3400-5000.3600.

A. *General*. Minnesota Rule Parts 5000.3400-5000.3600 implement Minnesota Statute § 363A.36.
These rules include, but are not limited to, criteria for contents, approval, and implementation of affirmative action plans; procedures for issuing certificates of compliance and criteria for determining a contractor's compliance status; procedures for addressing deficiencies, sanctions, and notice and hearing; annual compliance reports; procedures for compliance review; and contract consequences for non-compliance. The specific criteria for approval or rejection of an affirmative action plan are contained in various provisions of Minnesota Rule Parts 5000.3400-5000.3600 including, but not limited to, parts 5000.3420-5000.3500 and 5000.3552-5000.3559.

B. *Disabled Workers*. The Contractor must comply with the following affirmative action requirements for disabled workers.

1. The Contractor must not discriminate against any employee or applicant for employment because of physical or mental disability in regard to any position for which the employee or applicant for employment is qualified. The Contractor agrees to take affirmative action to employ, advance in employment, and otherwise treat qualified disabled persons without discrimination based upon their physical or mental disability in all employment practices such as the following: employment, upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.
2. The Contractor agrees to comply with the rules and relevant orders of the Minnesota Department of Human Rights issued pursuant to the Minnesota Human Rights Act.
3. In the event of the Contractor's noncompliance with the requirements of this clause, actions for noncompliance may be taken in accordance with Minnesota Statutes Section 363A.36, and the rules and relevant orders of the Minnesota Department of Human Rights issued pursuant to the Minnesota Human Rights Act.
4. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices in a form to be prescribed by the commissioner of the Minnesota Department of Human Rights. Such notices must state the Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified disabled employees and applicants for employment, and the rights of applicants and employees.
5. The Contractor must notify each labor union or representative of workers with which it has a collective bargaining agreement or other contract understanding, that the contractor is bound by the terms of Minnesota Statutes Section 363A.36, of the Minnesota Human Rights Act and is committed to take affirmative action to employ and advance in employment physically and mentally disabled persons.

C. *Consequences*. The consequences for the Contractor's failure to implement its affirmative action plan or make a good faith effort to do so include, but are not limited to, suspension or revocation of a certificate of compliance by the Commissioner, refusal by the Commissioner to approve subsequent plans, and termination of all or part of this contract by the Commissioner or the State.

D. *Certification*. The Contractor hereby certifies that it is in compliance with the requirements of Minnesota Statute§ 363A.36 and Minnesota RuleParts 5000.3400-5000.3600 and is aware of the consequences for noncompliance.

12. Workers' Compensation and Other Insurance

Contractor certifies that it is in compliance with all insurance requirements specified in the solicitation document relevant to this Contract. [IF NO SOLICITATION WAS DONE (E.G., SINGLE SOURCE PROCUREMEN) INSERT ALL INSURANCE REQUIREMENTS

HERE]

Further, the Contractor certifies that it is in compliance with Minnesota Statute§ 176.181, subdivision 2, pertaining to workers' compensation insurance coverage. The Contractor's employees and agents will not be considered State employees. Any claims that may arise under the Minnesota Workers' Compensation Act on behalf of these employees or agents and any claims made by any third party as a consequence of any act or omission on the part of these employees or agents are in no way the State's obligation or responsibility.

13. Publicity and Endorsement

13.1 ***Publicity***. Any publicity regarding the subject matter of a Job Order must identify the State as the sponsoring agency and must not be released without prior written approval from the State's Project Manager. For purposes of this provision, publicity includes notices, informational pamphlets, press releases, research, reports, signs, and similar public notices prepared by or for the Contractor individually or jointly with others, or any subcontractors, with respect to the program, publications, or services provided resulting from a Job Order.

13.2 ***Endorsement***. The Contractor must not claim that the State endorses its products or services.

14. Governing Law, Jurisdiction, and Venue

Minnesota law, without regard to its choice-of-law provisions, governs this IDIQ contract and all Job Orders. Venue for all legal proceedings out of this IDIQ contract and/or any Job Order, or its breach, must be in the appropriate state or federal court with competent jurisdiction in County, Minnesota.

15. Payment to Subcontractors

(If applicable) As required by Minnesota Statute§ 16A.1245, the prime contractor must pay all subcontractors, less any retainage, within 10 calendar days of the prime contractor's receipt of payment from the State for undisputed supplies and services provided by the subcontractor(s) and must pay interest at the rate of one and one-half percent per month or any part of a month to the subcontractor(s) on any undisputed amount not paid on time to the subcontractor(s).

16. Minnesota Statute§ 181.59

The vendor will comply with the provisions of Minnesota Statute§ 181.59 which requires:

> Every contract for or on behalf of the state of Minnesota, or any county, city, town, township, school, school district, or any other district in the state, for materials, supplies, or construction shall contain provisions by which the contractor agrees: (1) That, in the hiring of common or skilled labor for the performance of any work under any contract, or any subcontract, no contractor, material supplier, or vendor, shall, by reason of race, creed, or color, discriminate against the person or persons who are citizens of the United States or resident aliens who are qualified and available to perform the work to which the employment relates; (2) That no contractor, material supplier, or

vendor, shall, in any manner, discriminate against, or intimidate, or prevent the employment of any person or persons identified in clause (1) of this section, or on being hired, prevent, or conspire to prevent, the person or persons from the performance of work under any contract on account of race, creed, or color; (3) That a violation of this section is a misdemeanor; and (4) That this contract may be canceled or terminated by the state, county, city, town, school board, or any other person authorized to grant the contracts for employment, and all money due, or to become due under the contract, may be forfeited for a second or any subsequent violation of the terms or conditions of this contract.

17. Termination

17.1 Termination by the State. The State or commissioner of Administration may cancel this IDIQ contract and any Job Order at any time, with or without cause, upon 30 days' written notice to the Contractor. Upon termination, the Contractor will be entitled to payment, determined on a pro rata basis, for supplies and services satisfactorily provided.

17.2 Termination for Insufficient Funding. The State may immediately terminate this IDIQ contract and any Job Order if it does not obtain funding from the Minnesota legislature or other funding source; or if funding cannot be continued at a level sufficient to allow for the payment of the supplies and services covered here. Termination must be by written or fax notice to the Contractor. The State is not obligated to pay for any supplies or services that are provided after notice and effective date of termination. However, the Contractor will be entitled to payment, determined on a pro rata basis, for supplies and services satisfactorily provided to the extent that funds are available. The State will not be assessed any penalty if the IDIQ contract or Job Order is terminated because of the decision of the Minnesota legislature or other funding source, not to appropriate funds. The State must provide the Contractor notice of the lack of funding within a reasonable time of the State's receiving that notice.

18. Data Disclosure

Under Minnesota Statute § 270C.65, Subdivision 3 and other applicable law, the Contractor consents to disclosure of its social security number, federal employer tax identification number, and/or Minnesota tax identification number, already provided to the State, to federal and state agencies and state personnel involved in the payment of state obligations. These identification numbers may be used in the enforcement of federal and state laws which could result in action requiring the Contractor to file state tax returns, pay delinquent state tax liabilities, if any, or pay other state liabilities.

19. E-Verify Certification (In accordance with Minn. Stat. §16C.075)

For services valued in excess of $50,000, Contractor certifies that as of the date of services performed on behalf of the State, Contractor and all its subcontractors will have implemented or be in the process of implementing the federal E-Verify program for all newly hired employees in the United States who will perform work on behalf of the State. Contractor is responsible for collecting all subcontractor certifications and may do so utilizing the E- Verify Subcontractor Certification Form available at http://www.mmd.admin.state.mn.us/doc/EverifySubCertForm.doc. All subcontractor certifications must be kept on file with Contractor and made available to the State

upon request. All subcontractor certifications must be kept on file with Contractor and made available to the State upon request.

20. Security Bonds

Contractor shall provide to Mn/DOT and maintain at all times during the term of the Contract security for performance of the Work as described below (or other assurance satisfactory to Mn/DOT in its sole discretion). Each bond required hereunder shall be provided by a Surety licensed as surety and qualified to do business in the State. The Surety shall have a "Best's Rating" of A- or better and Financial Size Category of VIII or better by A.M. Best Co.

{Performance bond must cover the Contract in the amount of $[100% of the maximum quantity]} OR

{Performance bond must cover the first Job Order to be issued in the amount of $[100% of the first job order]}.

(Optional if 100% of the first Job Order is selected) The Contracttor understands that while this IDIQ contract mandates a performance bond only for the first Job Order, any and all subsequent Job Order shall also require performance bonds covering 100%of their value or a value indicated by MnDOT in the Job Order Scoping Document.

1. CONTRACTOR

The Contractor certifies that the appropriate person(s) have executed the contract on behalf of the Contractor as required by applicable articles or bylaws.

By: _____

Title: _____

Date: _____

2. STATE AGENCY

By: _____
(with delegated authority)

Title: _____

Date: _____

3. COMMISSIONER OF ADMINISTRATION
As delegated to Materials Management Division

By: _____

Date: _____

Appendix A

MINNESOTA DEPARTMENT OF TRANSPORTATION
JOB ORDER

THIS Job Order is between the State of Minnesota, acting through its Commissioner of Transportation ("Mn/DOT") and ("Contractor"). This Job Order is issued under the authority of the Indefinite Delivery/Indefinite Quantity Single-Award Contract No. , CFMS No. , and is subject to all provisions of the IDIQ contract which is incorporated by reference.

Job Order

1. Term of Contract

1.1 Effective date: , or the date the State obtains all required signatures under Minnesota Statute§ 16C.05, subdivision 2, whichever is later.
The Contractor must not begin work under this Job Order until this Job Order is fully executed and the Contractor has been notified by the State's Project Manager to begin the work.

1.2 Expiration date: , or until all obligations have been satisfactory fulfilled, whichever occurs first.

2. Contractor's Duties
The Contractor, who is not a state employee, will:

[PROVIDE SUFFICIENT DETAIL IN THE DUTIES SO THAT YOU CAN HOLD THE CONTRACTOR ACCOUNTABLE FOR THIS WORK. DO THIS BY EITHER: 1) LISTING THE CONTRACTOR'S DUTIES, DELIVERABLES, AND COMPLETION DATES WITH PRECISE DETAIL HERE OR 2) USING AN EXHIBIT THAT CONTAINS THE PRECISE DUTIES AND DELIVERABLES. YOU MUST INDICATE THAT THE EXHIBIT IS INCORPORATED INTO THE CONTRACT, SUCH AS "PERFORM THE DUTIES SPECIFIED IN EXHIBIT A WHICH IS ATTACHED AND INCORPORATED INTO THIS JOB ORDER."]

3. Consideration and Payment

3.1 Consideration. The State will pay for all supplies and services provided by the Contractor under this Job Order as follows:

A. **Compensation.** The Contractor will be paid according to the breakdown of costs contained in Appendix , which is attached and incorporated into this Job Order.

B. **Travel Expenses.** Reimbursement for travel and subsistence expenses actually and necessarily incurred by the Contractor as a result of this Job Order will not exceed $ [INSERT TOTAL TRAVEL BUDGET HERE. IF NONE, INSERT

"$0.00"]..

C. **Total Obligation.** The total obligation of the State for all compensation and reimbursements to the Contractor under this Job Order will not exceed $ [THIS MUST BE THE TOTAL OF 3.1(A) AND 3.1(B) ABOVE].

3.2 Invoices. The State will promptly pay the Contractor after the Contractor presents an itemized invoice for the supplies and services actually provided and the State's Project Manager accepts the invoiced services. Invoices must be submitted timely and according to the following schedule:

[EXAMPLE: "Upon completion of the services," OR IF THERE ARE SPECIFIC DELIVERABLES, LIST HOW MUCH WILL BE PAID FOR EACH DELIVERABLE.]

4. Project Managers

The State's Project Manager for this Job Order is [NAME, TITLE, ADDRESS, TELEPHONE NUMBER], or his/her successor, and he/she has the responsibility to monitor the Contractor's performance and will certify acceptance on each invoice submitted for payment.

The Contractor's Project Manager is [NAME, TITLE, ADDRESS, TELEPHONE NUMBER]. If the Contractor's Project Manager changes at any time during this Job Order, the Contractor must immediately notify the State's Project Manager.

1. CONTRACTOR

The Contractor certifies that the appropriate person(s) have executed the contract on behalf of the Contractor as required by applicable articles or bylaws.

By: _____

Title: _____

Date: _____

2. STATE AGENCY

By: _____
(with delegated authority)

Title: _____

Date: _____

3. COMMISSIONER OF ADMINISTRATION
As delegated to Materials Management Division

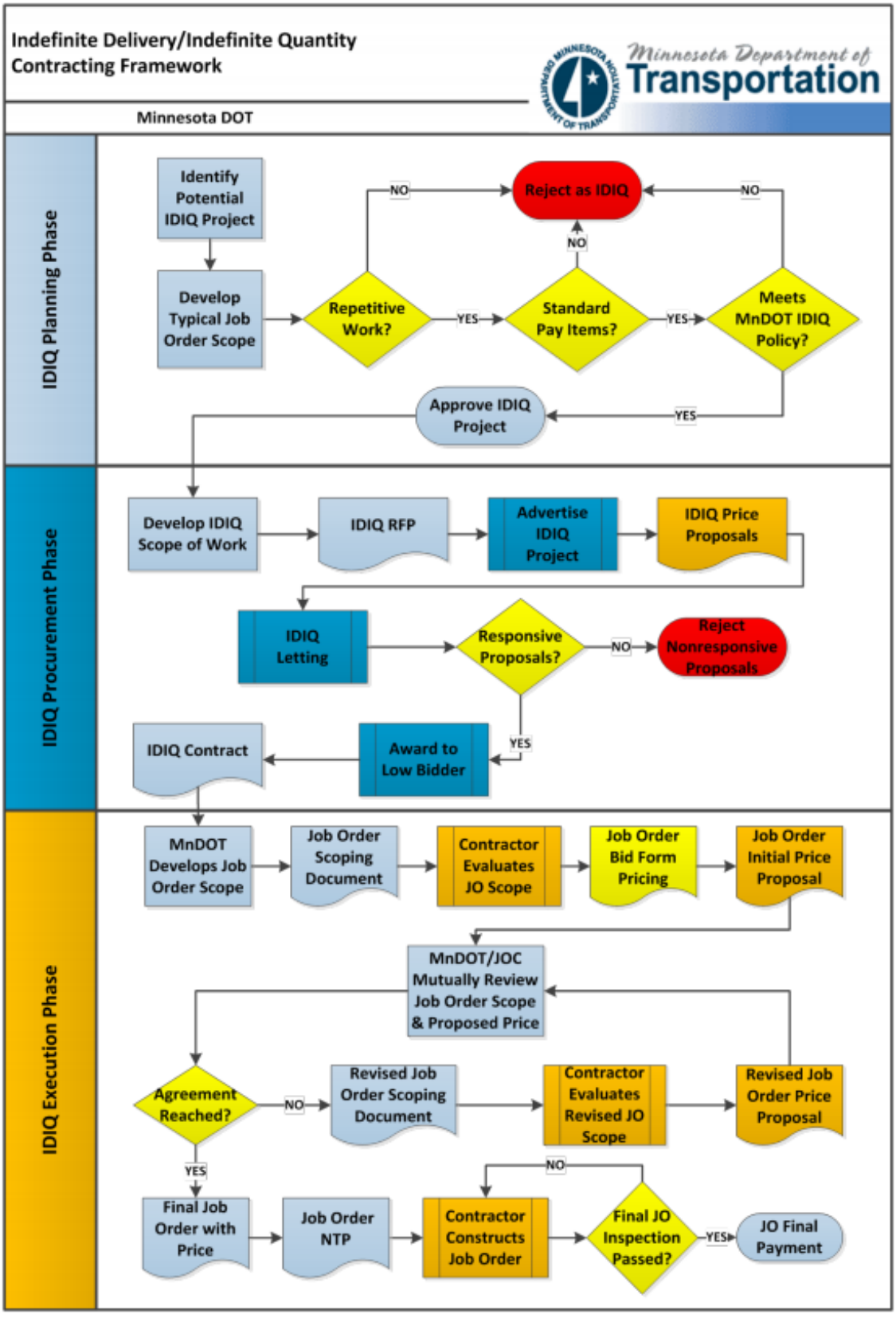
By: _____

Date: _____

Appendix F

Deliverable Task 3b: Generic IDIQ Contracting Framework and Draft Detailed Outline for IDIQ Guide

IDIQ Framework



IDIQ Implementation Guide

Chapter 1. Introduction

1.1 IDIQ Contracting

- What is an IDIQ contract?
- How projects are traditionally delivered?
- Known issues with traditional project delivery (DBB)

1.2 Why IDIQ ?

- When should IDIQ be used? (type of projects suitable for IDIQ)
- Advantages and drawbacks of IDIQ
- Who should consider using IDIQ?
- Developing a justification for using IDIQ

Chapter 2. Selecting an IDIQ Project

2.1 IDIQ Selection Factors (focuses on advantages and disadvantages of IDIQ contracting and traditional PDMs
against the selection factors)

- Project-level Issues
- Agency-level Issues

2.2 Public Law/Policy/Regulatory Issues

Chapter 3. IDIQ Solicitation

3.1 Legal Requirements

3.2 Project scoping (doing the background work)

3.3 Timing of IDIQ Solicitation

3.4 IDIQ Funding

3.5 IDIQ contractor Selection Procedures

- RFP/IFB Solicitation
- Elements of Solicitation
- RFP/IFB Contents
- Evaluation Process
- Award Process
- Disadvantaged Business Enterprises/Targeted Group Business
- Bonding Capability
- Protest

Chapter 4. The IDIQ Contract

4.1 Contract Content

4.2 Roles and Responsibilities

- MnDOT
- General Contractor
- Subcontractors and vendors
- Relationship
- Coordination

Chapter 5. The IDIQ Preconstruction Activities

5.1 Risk identification and mitigation

5.2 Permitting and third party coordination

5.3 Constructability Review

5.4 Cost Estimates

5.5 Scheduling

5.6 Bid packages

Chapter 6. Job Orders

6.1 What is a Job Order?

6.2 Developing, Pricing and Executing Job Orders

6.3 Job Order Price Proposal Submittal Requirements

- Job Order Bid Form

Chapter 7. Subcontractor Procurement

7.1 Subcontractor procurement in IDIQ contracting

7.2 Subcontractor selection

7.3 Subcontractor prequalification

7.4 General Contractor self-performance

Chapter 8. Project Administration

8.1 Project monitoring

8.2 Change orders

8.3 Quality management

8.4 Disputes and resolution

8.5 Inspection

Appendix G

Structured Interviews for IDIQ Case Studies

Structured Interviews for IDIQ Case Studies

This appendix contains a model of the structured interview used to collect information from the four case studies conducted in this research. This interview was used to collect the information analyzed in Chapter 3. The structured interview is divided into nine parts ad shown below:

I. Agency Interviewee General Information
II. Agency IDIQ Contracting – Experience
III. Agency IDIQ Contracting – General Information
IV. Case Study – General Information
V. Case Study – Delivery Method Selection
VI. Case Study – Procurement Process
VII. Case Study – Payment Provisions
VIII. Case Study – Quality Assurance
IX. Case Study – Complementary Information

Structured Interview Questionnaire - Agency

CONDITIONS: This interview can either be conducted in person or via telephone. The following protocol shall be followed during its administration:

1. The questionnaire shall be sent to the respondent at least 2 weeks prior to the interview via email.
2. Two days prior to the interview, a follow-up message with the questionnaire attached will be sent to confirm the date and time of the interview.
3. To maximize the quality and quantity of information collected, the primary respondent should be encouraged to invite other members of his/her organization to be present during the interview. Thus, a single transportation agency response can be formulated and recorded.
4. The interviewer will set the stage with a brief introduction that emphasizes the purpose of the research, the type of information expected to be collected, and the ground rules for the interview.
5. Once the interviewees indicate that they understand the process at hand, the interview will commence.
6. The interviewer will read each question verbatim and then ask if the interviewee understood the question before asking the interviewee to respond.
7. Each question contains a specific response that must be obtained before moving to the next question. Once that response is obtained, the interviewer can record as text additional cogent information that may have been discussed by the interviewees in working their way to the specific response.
8. Upon conclusion of the interview, the interviewer will ask the interviewees if they have additional information that they would like to contribute and record those answers as text.
9. The interviewer will assemble a clean copy of the final interview results and return them to the interviewee for verification.

I. Agency and Interviewee General Information

1. Interviewee name:
2. Interviewee job position in the agency:
3. Interviewee telephone number:
4. City and state in which the respondent agency is headquartered:

   A. Name of Agency:
5. What type of organization do you work for?

   ☐ State DOT ☐ Other public transportation agency
   ☐ Other: {explain}
6. Annual construction budget:
7. Average annual number of new construction projects:
8. Average annual number of repair projects:
9. Average annual number of maintenance projects:
10. Average annual number of other recurring projects (other than repair and maintenance):

11. Project monetary size range: $ to $
12. Average monetary size of a new construction project $
13. Average monetary size of a repair project $
14. Average monetary size of a maintenance project $
15. Average monetary size of a different recurring project (other than repair and maintenance) $
16. Which of the following delivery methods and contracting approaches are or have been commonly used by your agency? Please check all that apply.

☐ Indefinite Delivery/Indefinite Quantity	☐ Partnering
☐ Design-Bid-Build	☐ A+B
☐ Design-Build	☐ Value Engineering
☐ Design-Build-Warrant	☐ Lane Rental
☐ Design-Build-Maintain (Operate)	☐ Construction Warranties
☐ Construction Manager as Agent	☐ Incentive/Disincentive Provisions
☐ Construction Manager-at-Risk	☐ Transfer of Quality Control
☐ Construction Manager as Advisor	☐ No Excuse Incentives
☐ Multi-Prime	☐ Lump Sum
☐ Fast-Track	☐ Guaranteed Maximum Price

☐ Quality Assurance/Control ☐ Cost Reimbursable
☐ Quality-Base Contractor Prequalification

☐ Other(s): {explain}

II. Agency IDIQ Contracting - Experien

Questions below are associated to construction services contracts, the purchase of either supplies or services related to construction projects. For purposes of this interview terms "Job Order Contract" and "Job order" will be used to refer to IDIQ construction services contracts and orders issued under this contracts respectively.

1. Is your agency restricted on the use of Job Order Contracts?

   ☐ Yes ☐ No

   If yes:

   A. What is the restriction?

      ☐ Legislative ☐ Regulation ☐ Policy
      ☐ Other: {explain}

   B. Is your agency able to obtain a waiver for Job Order Contracts?

      ☐ Yes ☐ No

      If yes, explain how: {explain}

2. Has your agency awarded any Job Order Contract?

   ☐ Yes ☐ No If not, stop with the interview

3. How many Job Order Contracts has your agency awarded?

   ☐ 1-5 ☐ 6-10 ☐ 11-15 ☐ 16-20 ☐ >20

4. On average, how many Job Order Contracts does your agency award annually?

   ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ >4

5. How long have your agency used Job Order Contracts?

   ☐ 1 year ☐ 2 years ☐ 3 years ☐ 4 years ☐ >4 years

6. On average, how many Job Orders are issued under a single Job Order Contract?

   ☐ 1-3 ☐ 4-6 ☐ 7-9 ☐ >9

7. Average monetary size of a Job Order Contracts:

III. Agency IDIQ Contracting – General Information

1. What term is used by your agency to refer to Job Order contracts? Please check all that apply.

   ☐ Job Order Contracts ☐ Bundled Contracts
   ☐ Delivery Order Contracts ☐ On-Call Contracts
   ☐ Task Order Contracts ☐ Retainer Contracts

☐ Master Contracts
☐ Framework Contracts
☐ Other(s): {explain}
☐ On-Demand Contracts

If more than one term is used explain the reason below.

2. What term is used by your agency to refer to each order issued under an IDIQ contract? Please check all that apply.

☐ Task Order
☐ Delivery Order
☐ Job Order
☐ Other(s): {explain}
☐ Work Order
☐ Work Order Contract

If more than one term is used explain the reason below.

IV. Case Study – General Information

1. Case Study Project Title:
2. Short Description of Scope : (*list major features of work… 3-4 sentences, or get a copy of the RFP/RFQ. Include location of project)*

3. Expected contract duration for this contract:

   A. Average contract duration for Job Order Contracts:

4. Actual contract duration for this contract:
5. What was the minimum guaranteed amount?
6. . What was the maximum amount?
7. Was there a limit of the size of a job order and if so what was it?
8. Was there an option to extend the IDIQ and if so what were the conditions?
9. How was the DBE (or similar) goal, if any, applied to the contract?

   ☐ To each Job Order on an individual basis (the same %)
   ☐ Individually stated when issuing each Job Order
   ☐ To the entire contract

10. How was this Job Order Contract funded?

☐ State funds ☐ Federal funds ☐ State and Federal funds

☐ Other(s): {explain}

11. In which part of the contracting period were funds assigned?

☐ At the beginning (100% maximum quantity)

☐ When anticipating the issuance of a Job Order (one at a time)

☐ Other: {explain}

12. Does the contract allow the removal of Contractor's personnel throughout the contract?

☐ Yes ☐ No

13. Does the contract allow the change of Contractor's personnel throughout the contract?

☐ Yes ☐ No

14. What Contractor's personnel must be devoted, if any, for the life of the contract?

☐ Project Manager ☐ Estimator
☐ Superintendent ☐ None
☐ Other(s): {explain}

15. General Composition:

☐ Road Construction ☐ Bridge Construction
☐ Road Repair ☐ Bridge Repair
☐ Road Routine Maintenance ☐ Bridge Routine Maintenance
☐ Other: {explain}

A. Are all Job Order Contracts in your agency limited to this composition?

☐ Yes ☐ No

16. According to the principal location or locations, how would you classify this contract?

☐ City-Wide ☐ State-Wide
☐ County-Wide
☐ District-Wide
☐ Other: {explain}

17. Were performance bonds required for this contract and if so how were these bonds required?

☐ Yes ☐ No

If yes

A. How were bonds required?

☐ One for the entire contract (100% maximum quantity)

☐ One per Job Order (100% of each job order)

☐ One for the first Job Order only (100% first Job Order)

☐ Other: {explain}

V. Case Study – Delivery Method Selection

1. Which of the following were reasons that your agency uses to select IDIQ contracting method? Check all that apply. Which of the below is the **single** most significant reason for selecting IDIQ contracting method? (*Interviewer circle the check box*)

	IDIQ Contracting
Reduce/compress/accelerate project delivery period	☐
Agency experience in this contracting method	☐
Increase agency control over budget	☐
Increase Quality	☐
Encourage innovation	☐
Facilitate Value Engineering	☐
Project monetary size	☐
Encourage price competition	☐
Increase DBEs and small business participation	☐
Reduce preconstruction costs	☐
Reduce risk related to contractors pour performance	☐
Optimize use of agency resources	☐
Funding flexibility	☐
Third party issues (permits, utilities, etc.)	☐
Recurring nature of the project	☐
Flexibility in delivery scheduling	☐
Usefulness in emergency situations	☐
Reduced agency staffing requirements	☐
Limited owner's commitment (contractual minimum quantity)	☐
Other (explain below)	☐

VI. Case Study – Procurement Process

1. Do you award to a single contractor in your typical IDIQ process?

   ☐ Yes ☐ No

   A. If the answer is No, how many contractors are selected to compete for subsequent job orders?

   ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ >4

2. What type of procurement process was used by your agency to advertise this Job Order Contract?

☐ Request for Qualifications (RFQ) only ☐ Request for Proposals (RFP) only
☐ RFQ + RFP ☐ Request for letters of Interest
☐ Invitation for Bids (IFB)
☐ Other: {explain}

A. Was this decision made as usual compared with other construction services contracts?

☐ Yes ☐ No

If not, explain why it is different:

3. Did you develop a shortlist for this Job Order Contract?

☐ Yes ☐ No

If yes to question 3:

A. How many potential contractors were in the short list?

☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ >4

B. Was this decision made as usual compared with other construction services contracts?

☐ Yes ☐ No

If not, explain why it was different:

4. Did you interview Proposers as part of the selection process?

☐ Yes, in person ☐ Yes, remotely (video teleconference or other means)

☐ No

A. Was this decision made as usual compared with other construction services contracts?

☐ Yes ☐ No

If not, explain why it was different:

5. How was the contractor(s) selected for this project?

☐ Lowest price list ☐ Lowest bid for first Job Order
☐ Lowest multiplier ☐ Best qualified
☐ Best qualified + lowest price list ☐ Best qualified + lowest multiplier
☐ Best qualified + lowest bid for first job order
☐ Other: {explain}

A. Was this decision made as usual compared with other construction services contracts?

☐ Yes ☐ No

If not, explain why it is different:

6. Explain briefly how Job Orders under this contract were developed, priced and executed?

7. Which of the following pieces of information are required to be submitted in response to a typical RFQ/RFP/advertisement?

Do either the RFQ or the RFP require the following to be submitted as part of the Proposer's statement of qualifications or proposal?	**Required to this Job Order Contract?**		**Usually required to Job Order Contracts?**		**Usually required to construction services contracts?**	
	Yes	**No**	**Yes**	**No**	**Yes**	**No**
Organizational structure/chart	☐	☐	☐	☐	☐	☐
Past IDIQ project experience	☐	☐	☐	☐	☐	☐
Past related project experience (non-IDIQ)	☐	☐	☐	☐	☐	☐
References from past projects	☐	☐	☐	☐	☐	☐
Qualifications of the Proposer's Project Manager	☐	☐	☐	☐	☐	☐
Qualifications of the Proposer's general superintendent	☐	☐	☐	☐	☐	☐
Qualifications of the Proposer's estimator/scheduler	☐	☐	☐	☐	☐	☐
Qualifications of other key personnel (list below)	☐	☐	☐	☐	☐	☐
Construction quality management plan	☐	☐	☐	☐	☐	☐
Construction traffic control plan	☐	☐	☐	☐	☐	☐
Other key project plans (list below)	☐	☐	☐	☐	☐	☐
Subcontracting plan	☐	☐	☐	☐	☐	☐
DBE/TGB (or similar) plan (if similar explain below)	☐	☐	☐	☐	☐	☐
Price List	☐	☐	☐	☐	☐	☐

8. If list of prices were required from potential contractors, how were items in this list stated?

   ☐ Standard state price book (i.e bid tabs)
   ☐ Standard national price book (Means manual)
   ☐ Items related to the first Job Order stated in the RFO/RFQ/IFB
   ☐ Items expected to be required for all Job Order Contracts stated in the RFP/RFQ/IFB
   ☐ Items identified by the contractor stated in the proposal
   ☐ Price list is not required
   ☐ Other: {explain}

9. Have you ever had a protest of your IDIQ selection process? On this project?

   ☐ Yes ☐ No

If yes:

A. What was the basis of the protest?

B. How was the protest settled?

   ☐ Protest was sustained (in favor of the protestor)
   ☐ Protest was denied (in favor of the agency)

VII. Case Study - Payment Provisions

1. What type of compensation method did your agency use for this Job Order Contract?

   ☐ Lump sum ☐ Unit price ☐ Other: {explain}

   A. Was this decision made as usual compared with other construction services contracts?

      ☐ Yes ☐ No

      If not, explain why it is different:

2. Were mobilization and demobilization expenses reimbursed to the contractor(s)?

   ☐ Yes ☐ No

   A. Was this decision made as usual compared with other construction services contracts?

      ☐ Yes ☐ No

      If not, explain why it is different:

   If yes to question 2

   B. How were those expenses calculated? (explain briefly)

3. Was cost escalation considered for this project?

☐ Yes ☐ No

A. Was this decision made as usual compared with other construction services contracts?

☐ Yes ☐ No

If not, explain why it is different:

If yes to question 3:

A. How was this issue addressed? (explain briefly)

VIII. Case Study - Quality Assurance

1. Is the QA system that you use for IDIQ contracts different than the one used on regular construction projects? If yes, describe the differences
2. Please rate the following factors for their impact on the quality of the IDIQ project.

Factor	Very High Impact	High Impact	Some Impact	Slight Impact	No Impact
Qualifications of the Contractor's staff	☐	☐	☐	☐	☐
Contractor's past project experience	☐	☐	☐	☐	☐
Quality management plans	☐	☐	☐	☐	☐
Use of agency specifications	☐	☐	☐	☐	☐
Number of Contractors involved	☐	☐	☐	☐	☐
Use of incentive/disincentive provisions	☐	☐	☐	☐	☐
Warranty provisions	☐	☐	☐	☐	☐

IX. Case Study – Complementary Information

1. In your opinion, has IDIQ contracting methods impacted positively contracting procedures in your agency?

☐ Yes ☐ No

If yes, explain how:

2. Is there anything else about IDIQ contracting that you consider relevant for this research?

3. Is there any other IDIQ contract awarded by your agency that in your opinion could provide value knowledge for this research?

Appendix H

Case Studies Not Included in Task 2: Minnesota Department of Transportation and Missouri Department of Transportation

Case Study Minnesota Department of Transportation

I. Agency and Interviewee General Information

Date:	May 29th, 2013
Agency:	Minnesota Department of Transportation
Location:	Detroit Lakes, Minnesota
Interviewee:	Trudy Kordosky
Interviewers:	Jorge Andres Rueda - Graduate Research Assistance Kate Hunter - Graduate Research Assistance

Delivery methods and construction approaches used by the agency	Indefinite Delivery/Indefinite Quantity Design-Bid-Build Design-Build Construction Manager-at-Risk A + B Best Values Contracting Incentive – No Excuse Bonus Incentive – Early Completion Lane Rental Pay for Performance Construction Warranties

X. Agency IDIQ Contracting – General Information

Name used to refer to IDIQ contracts	IDIQ Contracts
Name used to the orders issued under an IDIQ contract	Task ORder Order

XI. Case Study – General Information

Project title	District Wide Culvert Improvements Indefinite Delivery/Indefinite Quantity Single-Award Contract
Scope	The Contract scope is District Wide Culvert Replacements. The Contract also includes pipe culver lining and ditch cleaning. The Contract will be awarded to the lowest responsible bidder according to the items listed in the Bid Schedule included in this Proposal. This will obligate the Contractor to perform all work necessary to complete any Task Order by the deadlines specified, for the prices bid in the Bid Schedule and carried forward to the Task Order). New items may be added to a Task Order in accordance with 1402. Task Orders under this Contract will be located in District 4. This includes the following Minnesota Counties: Becker, Big Stone, Clay,

	Douglas, Grant, Mahnomen, Otter Tail, Pope, Stevens, Swift, Traverse and Wilkin. Task Orders under this Contract generally consist of pipe culvert replacement, pipe culvert treatments, jacking and lining. Additional major responsibilities to the Contractor are quality and safety.
Expected duration	1.5 years
Actual duration	It is still ongoing
Minimum guaranteed amount	$1,150,000
Maximum amount	$2,150,000
Task Order limits	At least 50,000 per Task Order
DBE goals	No DBE or similar goals
Extension Options	2 1-year periods
Contract funding	State funds
Classification by Location(s)	District-wide
Bonding	One performance bond is required for the entire contract for a 100% of the expected amount.

XII. Case Study – Procurement Process

Number of awards	The contract was awarded to 1 contractor (as usual).
Procurement process	Invitation for Bids
Shortlist	No short list is developed
Pre-proposal meeting	Conduct per-bid meeting
Contractors selection method	Lowest Price List (Bid Schedule)
Task Order development, pricing and execution	This process is better illustrated in the MnDOT IDIQ Implementation Guide.
Information and documents required to be submitted in response to RFP	Bid Schedule

XIII. Case Study – Payment Provisions

Compensation method	Unit Price
Mobilization	The Bid Schedule includes an item for Mobilization to be pay per Culvert Treatment Type.
Price escalation	Annual 2% adjustment on all item in the Bid Schedule

XIV. Case Study – Complementary Information

Interviewee personal opinion about IDIQ contracting	The interviewee considers IDIQ is a good alternative, but it requires a lot of paper work

Figure 1. Task Order No. 1 Culvert Improvement.

Figure 2. Task Order No. 1 Culvert Improvement.

Case study: Missouri Department of Transportation

I. Agency and Interviewee General Information

Date:	May 29th, 2013
Agency:	Missouri Department of Transportation – District 7
Location:	Jefferson City, Missouri
Interviewee:	Natalie Roark – Bidding and Contract Service Engineer
Interviewers:	Jorge Andres Rueda - Graduate Research Assistance Edward O'Connor's - Graduate Research Assistance

Delivery methods and construction approaches used by the agency	Indefinite Delivery/Indefinite Quantity Design-Bid-Build Design-Build A + B Value Engineering Incentive/Disincentive Provisions

II. Agency IDIQ Contracting – Experience

IDIQ contracts awarded	More than 20 (18 contracts so far this year)
IDIQ contracts awarded annually	More than 4 (18 contracts so far this year)
Years of experience using IDIQ contracting	4 years
Average Task Order issue under a single contract	7-9 Task Orders
Monetary size of this contract	$550,000

III. Agency IDIQ Contracting – General Information

Name used to refer to IDIQ contracts	Job Order Contracts (On-Call contracts used before)
Name used to the orders issued under an IDIQ contract	Job Order

IV. Case Study – General Information

Project title	Job Order Contracting – Asphalt Pavement Repair. Job No. J2I2165T. Route I-55/I-57

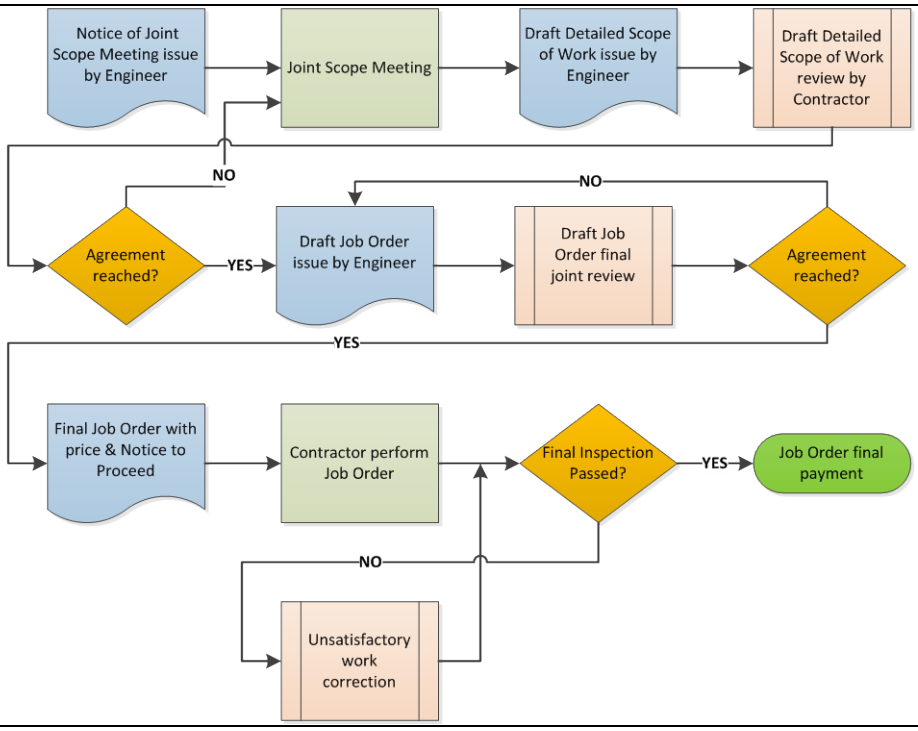
Scope	"The scope of work for this project is to provide asphalt pavement repair on an as needed basis in response to sudden occurrences, such as physical damage by the elements, or as a result of wear and tear. The work will be prescribed through individual Job Orders issued to the contractor by the engineer for each work location." "A work location for this contract shall be limited to a 2-mile section of roadway. A 2-mile section shall be defined as 2 miles in one direction on a divided highway or 2 miles in both directions on an undivided highway." "The project limits for the work will be along the following Interstate Routes and Counties: l-55 in Ste. Genevieve, Perry, Cape Girardeau and Scott Counties l-57 in Mississippi County "Job Orders will only be issued for work to be performed from April 1 to November 30, unless otherwise mutually agreed upon between the contractor and the engineer." "Award of contract does not guarantee any Job Orders during the duration of the contract."
Expected duration	13 months (April 28, 2013 – June 5, 2014)
Average duration	1 year
Actual duration	It is still ongoing
Contract Possible Extension	1 year extension
Minimum guaranteed amount	No minimum guaranteed amount amount
Maximum amount	Maximum expected amount is $125,000
Task Order limits	No Limits
DBE goals	No DBE or similar goals
Contract funding	This project was state funded. Before March 2013 all IDIQ contracts were federal funded by the SEP-14 program. Funds were secured before awarding the contract.
Contractor's key personnel	The Contractor is allowed to remove, change or add personnel at any moment during the contract.
Contract Composition	Road repair and maintenance
Bonding	One performance bond is required for the entire contract for a 100% of the expected amount.

V. Case Study – Delivery Method Selection

Reasons to use IDIQ contracting	Avoid unbalanced budgets.

VI. Case Study – Procurement Process

Number of awards	The contract was awarded to 1 contractor (as usual).
Procurement process	Invitation for Bids
Shortlist	No short list is developed
Pre-proposal meeting	They conduct some Prebid meetings to explain proposer how JOC works
Contractors selection method	The contractor must bid three different Adjustment factors; Norman Work, Nighttime work and Weekend Work. The lowest bid will be determined by multiplying each individual Adjustment Factor by the anticipated budget for each individual adjustment factor. For purposes of determining award of this contract, the estimated percentage of work performed during Normal Working Hours is 85%, the estimated percentage of Nighttime work is 10%, and the estimated percentage of Weekend work is 5%. The extended amount for each item will then be totaled, and the total sum will be used for bid comparison purposes. The initial contract value will be equal to the total sum. (Percentages vary for each contract)

Task Order development, pricing and execution	
Information and documents required to be submitted in response to RFP	Only the three adjustment factors.
Protest	There have been no protests related to their selection method

VII. Case Study – Payment Provisions

Compensation method	Usually Unit Price. However, it can also be Lump Sum in accordance with the Job Order
Mobilization	The Fix Unit Price List includes a number of items for Mobilization to be pay in accordance with each Job Order. This prices are estimated using industry information.
Price escalation	The contract allows the adjustment of some prices, using specific equations and a number of different indexes such as: - Asphalt Cement Price Index - Seal Coat Price Index - Polymer Modified Emulsion Membrane Price Index When signing the contract, contractor decides if this adjustment will be applied or not. Indexes are published by Poten & Partners on a weekly basis

VIII. Case Study – Quality Assurance

QA system	It is the same as the one used in regular construction projects.

Factors that affect project quality	High Impact - Qualifications of the Contractor's staff - Contractor's past project experience - Use of agency specifications Some Impact - Quality management plans - Use of incentives/disincentives provisions No Impact or N/A - Number of Contractors Involved - Warranty Provisions

IX. Case Study – Complementary Information

Interviewee personal opinion about IDIQ contracting	• IDIQ has impacted positively MoDOT's contracting procedures.

Appendix I

Outreach Survey Forms

Contractors Survey

1. The following types of contracts are different names for IDIQ contracting; please check those you knew before this survey or you are familiar with. If none; please go to question 9. (Check all that Apply)

   For purposes of this survey the term IDIQ will be used to refer to any type of contract mentioned below.

   ☐ Indefinite Delivery/Indefinite Quantity (IDIQ) Contract
   ☐ Task Order Contract
   ☐ Job Order Contract
   ☐ Delivery Order Contract
   ☐ On-Call Contract
   ☐ None

2. Does your company have any experience with IDIQ contracting (bid, work as subcontractor, etc.)? If not, please go to question 9.

   ☐ Yes ☐ No ☐ Don't know

3. Please fill out the following chart in accordance with your experience on IDIQ contracting and the agency in charge of the contract. (If any of these options is selected, please refer to questions 4, 5 or 6 respectively).

Agency	Awarded a Contract	Bid but not Awarded	Work as subcontractor	Other
MnDOT				
State agency in MN (other than MnDOT)				
Municipal agency in MN				
State DOT (Other than MnDOT)				
State agency in other state (other than DOT)				
Municipal agency in other state				
Federal Transportation Agency				
Other Federal Agency				

4. Please indicate the approximate number of contracts awarded (If known):

Agency	Number of contracts awarded
MnDOT	
State agency in MN (other than MnDOT)	
Municipal agency in MN	
State DOT (Other than MnDOT)	
State agency in other state (other than DOT)	
Municipal agency in other state	
Federal Transportation Agency	
Other Federal Agency	

5. Please indicate the approximate number of contracts bit but not awarded (If known):

Agency	Number of contracts bid but not awarded
MnDOT	
State agency in MN (other than MnDOT)	
Municipal agency in MN	
State DOT (Other than MnDOT)	
State agency in other state (other than DOT)	
Municipal agency in other state	
Federal Transportation Agency	
Other Federal Agency	

6. Please indicate the approximate number of contracts worked as subcontractor (If known):

Agency	Number of contracts worked as subcontractor
MnDOT	
State agency in MN (other than MnDOT)	
Municipal agency in MN	
State DOT (Other than MnDOT)	
State agency in other state (other than DOT)	
Municipal agency in other state	
Federal Transportation Agency	
Other Federal Agency	

7. Based on your experience with IDIQ; please rate the following factors **from the contractor's perspective** in relation to traditional low bid contracting methods.

	Better	No Change	Worse	No Opinion
Schedule risk				
Cost risk				
Overall risk				
Transparency				
Complexity				
Bargaining power of suppliers				
Subcontracting plan				
Insurance requirements				
Staff management				
Ability to obtain necessary financing				
Resource conflicts with other ongoing contracts				
Ability to reach DBE, TGB or similar goals				

8. If you were bidding an IDIQ contract, how would the price for the following categories change from traditional low bid contracting?

	Higher	No Change	Lower	No Opinion
Mill and overlay				
Seal coat				
Micro surfacing				
Culvert replacement				
Culvert lining				
LED relamping				
Noise wall repair				
Bridge epoxy deck seal				
Bit crack seal				

9. Is there any factor(s) that may prevent you from bidding for future MnDOT IDIQ contracts? If yes, please indicate what it is (Check all that apply).

☐ Yes ☐ No

☐ Lack of knowledge about IDIQ
☐ Complexity of contracting method
☐ Inherent risk in IDIQ contracts
☐ Other:_____
☐ Inadequate mobilization compensation
☐ Inadequate price adjustment over time
☐ Bonding limitations

10. In accordance with the Definitions included in this survey, and your knowledge and/or experience related to IDIQ contracting, please **rank** the following methods for compensating the contractor for mobilization from the most suitable for IDIQ contracting (1) to the least (4). Put 0 (zero) in those options that you consider not suitable at all, or repeat the number in options that you consider equally suitable.

____ Option 1. Fixed percentage of the construction cost stated by MnDOT and applied to each Task Orders.
____ Option 2. Fixed percentage bid by contractors to be applied to each Task Order and factored into the selection of the low bid.
____ Option 3. Fixed price bid by contractors to be used on each Task Order.
____ Option 4. No separate mobilization pay item. Mobilization expenses are included in the bid items.

11. Please **rate** the following methods (from contractor's perspective) for compensating the contractor for mobilization (same options as previous question) **in relation to the RISK from recouping the actual mobilization cost** and in comparison with traditional low bid contracting methods. Scale 0 – 3:

(0) No opinion
(1) Lower than traditional contracting methods
(2) Same as traditional contracting methods
(3) Higher than traditional contracting methods.

____ Option 1. Fixed percentage of the construction cost stated by MnDOT and applied to each Task Orders.
____ Option 2. Fixed percentage bid by contractors to be applied to each Task Order and factored into the selection of the low bid.
____ Option 3. Fixed price bid by contractors to be used on each Task Order.
____ Option 4. No separate mobilization pay item. Mobilization expenses are included in the bid items.

12. Would you bid on an IDIQ contract with NO escalation clauses?

☐ Yes ☐ No ☐ Don't Know

13. In your opinion, what would the impact be on bid prices if there were NO escalation clause in an IDIQ contract?

☐ Higher bids ☐ No impact on bids ☐ Lower Bids ☐ No opinion

14. In accordance with the Definitions included in this survey, and your knowledge and/or experience related to IDIQ contracting, please **rank** the following escalation methods to adjust unit prices over time from the most suitable for IDIQ contracting (1) to the least (7). Put 0 (zero) in those options that you consider not suitable at all, or repeat the number in options that you consider equally suitable.

____ Option 1. Fixed annual percentage stated by MnDOT to adjust all bid items.
____ Option 2. Fixed annual adjustment rate (%) bid by contractors to be applied to each Task Order and factored into the selection of the low bid.
____ Option 3. Using a national or local existing index (ENR, BLS, RSMeans, SDDOT CCI).
____ Option 4. Using a regional index (by district or similar) developed and kept by using MnDOT past bids.
____ Option 5. Using a state index by category developed and kept by using MnDOT past bids (asphalt, concrete, structures, etc.)
____ Option 6. Using an index by pay item. Measure the change of a pay item by using MnDOT past bids for that or similar pay items.
____ Option 7. No escalation. Bid prices are used along the base contract period and kept during potential contract extensions.

15. Please **rate** the following escalation methods to adjust unit prices over time (same options as previous question) **in relation to the RISK from obtaining fair unit prices for future contracting periods** and in comparison with traditional low bid contracting methods. Scale 0 – 3:

(0) No opinion
(1) Lower than traditional contracting methods
(2) Same as traditional contracting methods
(3) Higher than traditional contracting methods.

____ Option 1. Fixed annual percentage stated by MnDOT to adjust all bid items.
____ Option 2. Fixed annual adjustment rate (%) bid by contractors to be applied to each Task Order and factored into the selection of the low bid.
____ Option 3. Using a national or local existing index (ENR, BLS, RSMeans, SDDOT CCI).
____ Option 4. Using a regional index (by district or similar) developed and kept by using MnDOT past bids.
____ Option 5. Using a state index by category developed and kept by using MnDOT past bids (asphalt, concrete, structures, etc.)
____ Option 6. Using an index by pay item. Measure the change of a pay item by using MnDOT past bids for that or similar pay items.
____ Option 7. No escalation. Bid prices are used along the base contract period and kept during potential contract extensions.

16. If a multiple-year IDIQ contract uses a fixed rate to annually adjust unit prices, what rate would you consider appropriate to cover the material pricing risk. It would be the rate below which your company would not bid on contract.

17. Regardless of the delivery method used to execute a given contract, for how long is your company willing to maintain bid unit prices without a contract escalation clause? Answer in months.

18. Which of the below performance bond schemes would make it unlikely that your company would bid for an IDIQ contract. (Check all that apply).

____ Contract bond at award covering the maximum amount to be ordered under the contract.

____ Contract bond at award covering the minimum guaranteed amount and subsequent bonds (once covered the minimum guaranteed amount) on a Task Order basis.

____ Contract bond at award covering the contract Bid Schedule (list of bid unit prices and quantities) and subsequent bonds (once covered the initial bond) on a Task Order basis.

____ None

19. If bonding for the maximum amount to be ordered under the contract; how would it impact your ability to bid for other contracts?

☐ Very high impact ☐ High impact ☐ Some impact ☐ Slight impact ☐ No impact

20. If MnDOT would offer informative and discussion sessions about IDIQ contracting practices, would you be willing to participate?

☐ Yes ☐ No

If yes; how would you prefer to carry out these sessions? (Check all that apply)

☐ Regional industry outreach meeting
☐ Statewide industry outreach meeting (MnDOT headquarters, St. Paul, Minnesota)
☐ Conference Call
☐ Webinar
☐ Other:_____

21. Please provide any comment or question you may have about IDIQ contracting.

MnDOT Internal Survey

1. The following types of contracts are different names for IDIQ contracting; please check those you knew before this survey or you are familiar with. If none; please go to question 4. (Check all that apply)

   For purposes of this survey the term IDIQ will be used to refer to any type of contract mentioned below.

   ☐ Indefinite Delivery/Indefinite Quantity (IDIQ) Contract
   ☐ Task Order Contract
   ☐ Job Order Contract
   ☐ Delivery Order Contract
   ☐ On-Call Contract
   ☐ None

2. Are you related in any way to the planning, execution or closure of MnDOT IDIQ contracts?

   ☐ Yes ☐ No ☐ Don't know

3. Have you ever participated in the planning, execution and/or closure of IDIQ contracts awarded by others agencies (other than MnDOT). (Check all that apply)

   ☐ Yes (as owner) ☐ Yes (as contractor) ☐ No

   If yes:

   In how many IDIQ contracts have you been involved?

   ☐ 1 ☐ 2 ☐ 3 ☐ 4 ☐ >4 ☐ Don't know

4. In accordance with the Definitions included in this survey, and your knowledge and/or experience related to IDIQ contracting, please **rank** the following methods for compensating the contractor for mobilization from the most suitable for IDIQ contracting (1) to the least (4). Put 0 (zero) in those options that you consider not suitable at all, or repeat the number in options that you consider equally suitable.

   ____ Option 1. Fixed percentage of the construction cost stated by MnDOT and applied to each Task Orders.
   ____ Option 2. Fixed percentage bid by contractors to be applied to each Task Order and factored into the selection of the low bid.
   ____ Option 3. Fixed price bid by contractors to be used on each Task Order.
   ____ Option 4. No mobilization. Mobilization expenses are included in the bid items.

5. Please **rate** the following methods (from owner perspective) for compensating the contractor for mobilization (same options as previous question) **in relation to the PERCEIVED RISK from reimbursing to contractors the actual mobilization cost** and in comparison with traditional low bid contracting methods. Scale 0 – 3

   (0) No opinion
   (1) Lower than traditional contracting methods
   (2) Same as traditional contracting methods
   (3) Higher than traditional contracting methods.

____ Option 1. Fixed percentage of the construction cost stated by MnDOT and applied to each Task Orders.
____ Option 2. Fixed percentage bid by contractors to be applied to each Task Order and factored into the selection of the low bid.
____ Option 3. Fixed price bid by contractors to be used on each Task Order.
____ Option 4. No separate mobilization pay item. Mobilization expenses are included in the bid items.

6. In accordance with the Definitions included in this survey, and your knowledge and/or experience related to IDIQ contracting, please **rank** the following escalation methods to adjust unit prices over time from the most suitable for IDIQ contracting (1) to the least (7). Put 0 (zero) in those options that you consider not suitable at all, or repeat the number in options that you consider equally suitable.

____ Option 1. Fixed annual percentage stated by MnDOT to adjust all bid items.
____ Option 2. Fixed annual adjustment rate (%) bid by contractors to be applied to each Task Order and factored into the selection of the low bid.
____ Option 3. Using a national or local existing index (ENR, BLS, RSMeans, SDDOT CCI).
____ Option 4. Using a regional index (by district or similar) developed and kept by using MnDOT past bids.
____ Option 5. Using a state index by category developed and kept by using MnDOT past bids (asphalt, concrete, structures, etc.)
____ Option 6. Using an index by pay item. Measure the change of a pay item by using MnDOT past bids for that or similar pay items.
____ Option 7. No escalation. Bid prices are used along the base contract period and kept during potential contract extensions.

7. Please **rate** the following escalation methods to adjust unit prices over time (same options as previous question) **in relation to the PERCEIVED RISK from obtaining fair unit prices for future contracting periods** and in comparison with traditional low bid contracting methods. Scale 0 – 3:

(0) No opinion
(1) Lower than traditional contracting methods
(2) Same as traditional contracting methods
(3) Higher than traditional contracting methods.

____ Option 1. Fixed annual percentage stated by MnDOT to adjust all bid items.
____ Option 2. Fixed annual adjustment rate (%) bid by contractors to be applied to each Task Order and factored into the selection of the low bid.
____ Option 3. Using a national or local existing index (ENR, BLS, RSMeans, SDDOT CCI).
____ Option 4. Using a regional index (by district or similar) developed and kept by using MnDOT past bids.
____ Option 5. Using a state index by category developed and kept by using MnDOT past bids (asphalt, concrete, structures, etc.)
____ Option 6. Using an index by pay item. Measure the change of a pay item by using MnDOT past bids for that or similar pay items.
____ Option 7. No escalation. Bid prices are used along the base contract period and kept during potential contract extensions.

8. Based on the Definitions included in this survey, and your knowledge and experience related to IDIQ contracting; which of the below performance bond schemes would be the most suitable for IDIQ contracting. (Check all that apply)

____ Contract bond at award covering the maximum amount to be ordered under the contract.

____ Contract bond at award covering the minimum guaranteed amount and subsequent bonds (once covered the minimum guaranteed amount) on a Task Order basis.

____ Contract bond at award covering the contract Bid Schedule (list of bid unit prices and quantities) and subsequent bonds (once covered the initial bond) on a Task Order basis.

____ No Opinion

9. Please provide any comment or question you may have about IDIQ contracting.

Surety Companies Survey

1. The following types of contracts are different names for IDIQ contracting. Have you furnished bonds for any of the following types of contracts?

For purposes of this survey the term IDIQ will be used to refer to any type of contract mentioned below.

Indefinite Delivery/Indefinite Quantity (IDIQ) Contract
Task Order Contract
Job Order Contract
Delivery Order Contract
On-Call Contract
None

☐ Yes ☐ No ☐ Don't know

2. From the following performance bond schemes, please select those (more than one if applicable) that you consider the most suitable for IDIQ contracting from the surety's perspective. (Check all that apply)

____ Contract bond at award covering the maximum amount to be ordered under the contract.

____ Contract bond at award covering the minimum guaranteed amount and subsequent bonds (once covered the minimum guaranteed amount) on a Task Order basis.

____ Contract bond at award covering the contract Bid Schedule (list of bid unit prices and quantities) and subsequent bonds (once covered the initial bond) on a Task Order basis.

____ Other.

3. If bonding for the maximum amount to be ordered under the contract; how would it impact the contractor's ability to bid for other contracts?

☐ Very high impact ☐ High impact ☐ Some impact ☐ Slight impact ☐ No impact

4. How would the bond premium be different for IDIQ contracts as compared to a traditional low bid contract of the same value?

☐ Higher ☐ Similar ☐ Lower

5. Please indicate how the following factors are impacted in IDIQ contracts in comparison with traditional low bid contracting methods.

	Very High Impact	High Impact	Some Impact	Slight Impact	No Impact
Contractor Bonding Capacity					
Ability to small contractors to get a bond					
Ability to DBE or TGB firms to get a bond					

6. Please list any issues that impact contractors' ability to receive a bond on an IDIQ contract.

7. If MnDOT would offer informative and discussion sessions about IDIQ contracting practices, would you be willing to participate?

☐ Yes ☐ No

If yes; how would you prefer to carry out these sessions? (Check all that apply)

☐ Regional industry outreach meeting
☐ Statewide industry outreach meeting (MnDOT headquarters, St. Paul, Minnesota)
☐ Conference Call
☐ Webinar
☐ Other:_____

8. Please provide any comment or question you may have about IDIQ contracting.

Appendix J

Outreach Surveys Responses

CONTRACTORS SURVEY

1. INFORMED CONSENT DOCUMENT

Title of Study: Indefinite Quantity/Indefinite Delivery (IDIQ)
Principal Investigator: Dr. Douglas Gransberg

The purpose of this research is to develop effective Indefinite Delivery/Indefinite Quantity (IDIQ) contracting procedures for the Minnesota Department of Transportation (MnDOT) in order to make this innovative contracting method less risky and more attractive for all parties.

If you agree to participate in this study, you will be asked to complete a survey that will take approximately 15 minutes to complete, concerning your past and current experiences with Indefinite Delivery/Indefinite Quantity (IDIQ) contracts. You can withdraw from the study at any time.

It is hoped that the information gained in this study will benefit you by finding ways to improve Indefinite Delivery/Indefinite Quantity (IDIQ) contracting practices to make this type of contracts more attractive to potential bidders. There are no foreseeable risks from participating in this study.Your participation in this study is completely voluntary and you have the right to refuse to participate or leave the study at any time. You can also skip any question you do not feel comfortable answering.

Data collected in this study will be fully anonymous and will be kept confidential to the extent permitted by applicable laws and regulations. However, federal government regulatory agencies, auditing departments of Iowa State University, and the Institutional Review Board (a committee that reviews and approves human subject research studies) may inspect and/or copy study records for quality assurance and data analysis. These records may contain private information.

For further information about this study, please contact Dr. Douglas Gransberg, dgran@iastate.edu, (515) 294-4148, Town Engineering Building, Iowa State University. If you have any questions about the rights of research subjects, please contact the Office for Responsible Research, (515) 294-1516 orrweb@iastate.edu, 1138 Pearson Hall, Ames, IA 50011-2200

Do you agree to participate in this survey?

#	Answer		Response	%
1	Agree		53	95%
2	Disagree		3	5%
	Total		56	100%

2. The following types of contracts are different names for IDIQ contracting; please check those you knew before this survey or you are familiar with. (Check all that

apply) Note: For purposes of this survey the term IDIQ will be used to refer to any type of contract mentioned bellow.

Answer	Response	%
Indefinite Delivery/Indefinite Quantity (IDIQ) Contract	27	61%
Task Order Contract	18	41%
Job Order Contract	16	36%
Delivery Order Contract	7	16%
On-Call Contract	10	23%
None	9	20%

3. Does your company have any experience with IDIQ contracting (bid, work as subcontractor, etc.)?

#	Answer	Response	%
1	Yes-Experience with IDIQ	28	74%
2	No- NO Experience with IDIQ	7	18%
3	Don't Know if Have Experience	3	8%
	Total	38	100%

4. Please fill out the following chart in accordance with your experience on IDIQ contracting and the agency in charge of the contract. (Check all that apply)

Contractors' Experience Summary						
Type of Agency	Awarded a Contract	Bid but not Awarded	Work as Subcontractor	Other	Total Responses	
MnDOT	36%	40%	36%	0%	21	84%
State agency in MN (other than MnDOT)	20%	12%	20%	4%	8	32%
Municipal agency in MN	20%	8%	12%	4%	7	28%
State DOT (Other than MnDOT)	12%	8%	16%	4%	6	24%
State agency in other state (other than DOT)	8%	8%	12%	4%	4	16%
Municipal agency in other state	16%	12%	16%	4%	7	28%
MnDOT	12%	8%	12%	8%	6	24%
State agency in MN (other than MnDOT)	24%	16%	12%	8%	10	40%

5. Based on your experience with IDIQ; please rate the following factor from the contractor's perspective in relation to traditional low bid contracting methods.

#	Question	Better	No Change	Worse	No Opinion	Total Responses	Mean
1	Schedule risk	2	9	13	0	24	2.46
2	Cost risk	3	4	17	0	24	2.58
3	Overall risk	1	5	18	0	24	2.71
4	Transparency	4	9	11	0	24	2.29
5	Complexity	2	10	12	0	24	2.42
6	Bargaining power of suppliers	4	9	10	1	24	2.33
7	Subcontracting plan	0	11	13	0	24	2.54
8	Insurance requirements	0	19	5	0	24	2.21
9	Staff management	1	13	8	2	24	2.46
10	Ability to obtain necessary financing	0	22	1	1	24	2.13
11	Resource conflicts with other ongoing contracts	1	8	15	0	24	2.58
12	Ability to reach DBE, TGB or similar goals	0	11	10	3	24	2.67

6. If you were bidding an IDIQ contract, how would the price for the following categories change from traditional low bid contracting?

#	Question	Higher	No Change	Lower	No Opinion	Total Responses	Mean
1	Mill and overlay	11	1	2	8	22	2.32
2	Seal coat	9	1	1	11	22	2.64
3	Micro surfacing	8	1	1	12	22	2.77
4	Culvert replacement	8	4	1	8	21	2.43
5	Culvert lining	8	3	1	10	22	2.59
6	LED relamping	5	0	1	16	22	3.27
7	Noise wall repair	4	1	1	15	21	3.29
8	Bridge epoxy deck seal	6	0	1	15	22	3.14
9	Bit crack seal	8	1	1	12	22	2.77

7. Is there any factor(s) that may prevent you from bidding for future MnDOT IDIQ contracts?

#	Answer		Response	%
1	Yes- Factors Prevent from Bidding		16	37%
2	No- NO Factors Prevent from Bidding		22	51%
3	Don't Know		5	12%
	Total		43	100%

8. Please indicate all factors that may prevent you from bidding for future MnDOT IDIQ contracts. (Check all that apply)

#	Answer		Response	%
1	Lack of knowledge about IDIQ		1	7%
2	Complexity of contracting method		4	27%
3	Inherent risk in IDIQ contracts		12	80%
4	Inadequate mobilization compensation		10	67%
5	Inadequate price adjustment over time		11	73%
6	Bonding limitations		1	7%
7	Other		7	47%

Other
DBE Requirements
Potential Scheduling Conflicts and Resource Allocation
Commitment from oil suppliers to lock in long term pricing
false perception on what the project is and time frame
Poor Planning by the Agency in getting detailed task orders out
Work load
Lack of knowledge by engineers in each state district of project areas, roads to be constructed and order of such. Lack of uniformity on specifications state wide.

9. In accordance with the Definitions included in this survey, and your knowledge and/or experience related to IDIQ contracting, please rank the following methods for compensating the contractor for mobilization from the most suitable for IDIQ contracting (1) to the least (4). Put 0 (zero) in those options that you consider not suitable at all, or repeat the number in options that you consider equally suitable.

Contractors: Mobilization Compensation Approaches	Ranking (1=most suitable, 4=least suitable, 0=No suitable at all)					Total Responses	Mean
	1	2	3	4	0		
Option 1: Fixed percentage of the construction cost stated by MnDOT and applied to each Task Orders.	4	7	10	8	8	37	3.24
Option 2: Fixed percentage bid by contractors to be applied to each Task Order and factored into the selection of the low bid.	5	12	8	6	6	37	2.89
Option 3: Fixed price bid by contractors to be used on each Task Order.	19	5	6	5	2	37	2.08
Option 4: No separate mobilization pay item. Mobilization expenses are included in the bid items.	1	1	4	15	16	37	4.19

10. Please rate the following methods (from contractor's perspective) for compensating the contractor for mobilization (same options as previous question) in relation to the RISK from recouping the actual mobilization cost and in comparison with traditional low bid contracting methods. (1) Lower than traditional contracting methods (2) Same as traditional contracting methods (3) Higher than traditional contracting methods

#	Question	1	2	3	No Opinion	Total Responses	Mean
1	Option 1: Fixed percentage of the construction cost stated by MnDOT and applied to each Task Orders.	5	8	17	6	36	2.67
2	Option 2: Fixed percentage bid by contractors to be applied to each Task Order and factored into the selection of the low bid.	4	13	13	6	36	2.58
3	Option 3: Fixed price bid by contractors to be used on each Task Order.	8	13	12	3	36	2.28
4	Option 4: No separate mobilization pay item. Mobilization expenses are included in the bid items.	2	4	22	8	36	3.00

11. Would you bid on an IDIQ contract with NO escalation clauses?

Answer		Response	%
Yes		9	25%
No		16	44%
Don't Know		11	31%
Total		36	100%

12. In your opinion, what would the impact be on bid prices if there were NO escalation clause in an IDIQ contract?

Answer		Response	%
Higher bids		35	97%
No impact in bids		1	3%
Lower bids		0	0%
No opinion		0	0%
Total		36	100%

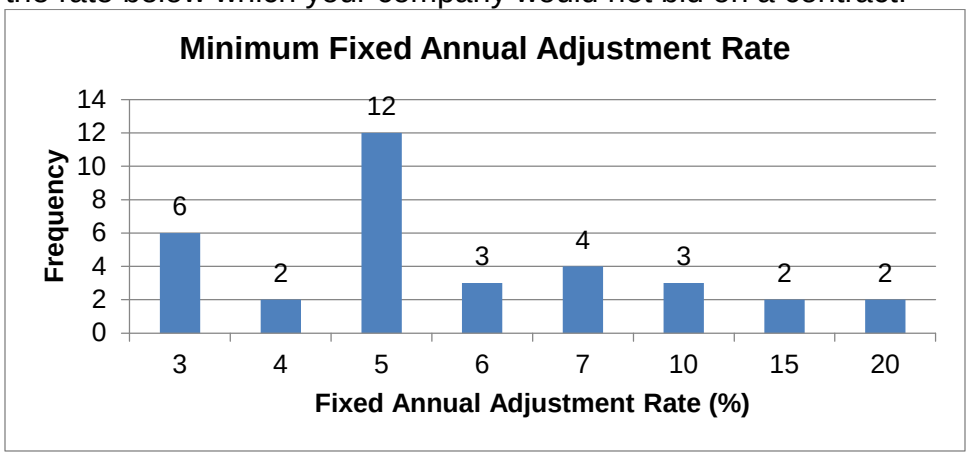
13. In accordance with the Definitions included in this survey, and your knowledge and/or experience related to IDIQ contracting, please rank the following escalation methods to adjust unit prices over time from the most suitable for IDIQ contracting (1) to the least (7). Put 0 (zero) in those options that you consider not suitable at all, or repeat the number in options that you consider equally suitable.

Contractors: Price Escalation Approaches	Ranking (1=most suitable, 4=least suitable, 0=No suitable at all)								Total Responses	Mean
	1	2	3	4	5	6	7	0		
Option 1. Fixed annual percentage stated by MnDOT to adjust all bid items.	4	3	4	9	1	6	6	3	36	4.58
Option 2. Fixed annual adjustment rate (%) bid by contractors to be applied to each Task Order and factored into the selection of the low bid.	9	6	6	5	3	2	2	3	36	3.44
Option 3. Using a national or local existing index (ENR, BLS, RSMeans, SDDOT CCI).	2	9	5	5	2	1	6	6	36	4.47
Option 4. Using a regional index (by district or similar) developed and kept by using MnDOT past bids.	0	5	4	7	2	3	9	6	36	5.25
Option 5. Using a state index by category developed and kept by using MnDOT past bids (asphalt, concrete, structures, etc.)	0	2	2	11	6	2	6	7	36	5.39
Option 6. Using an index by pay item. Measure the change of a pay item by using MnDOT past bids for that or similar pay items.	4	3	4	7	3	5	5	5	36	4.72
Option 7. No escalation. Bid prices are used along the base contract period and kept during potential contract extensions.	1	3	0	2	3	3	9	15	36	6.42

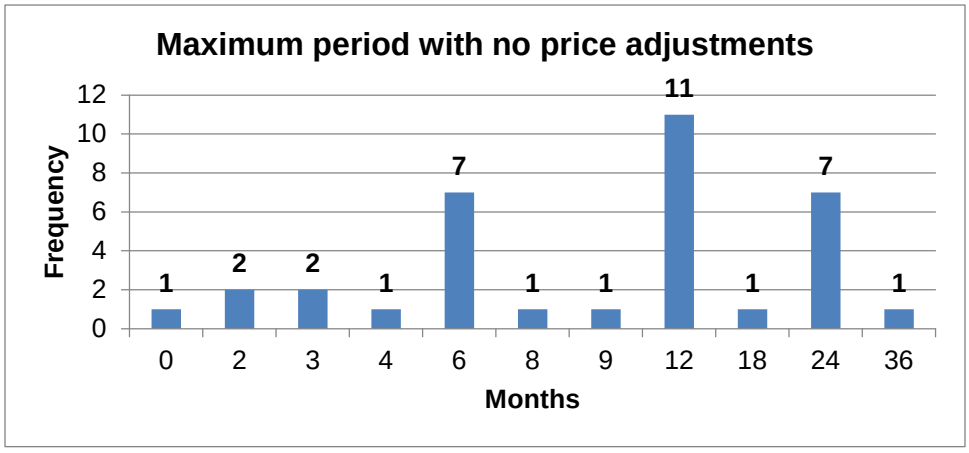
14. Please rate the following escalation methods to adjust unit prices over time (same options as previous question) in relation to the RISK from obtaining fair unit prices for future contracting periods and in comparison with traditional low bid contracting methods. Scale 0 – 3: (1) Lower than traditional contracting methods (2) Same as traditional contracting methods (3) Higher than traditional contracting methods.

#	Question	1	2	3	No Opinion	Total Responses	Mean
1	Option 1. Fixed annual percentage stated by MnDOT to adjust all bid items.	5	11	16	2	34	2.44
2	Option 2. Fixed annual adjustment rate (%) bid by contractors to be applied to each Task Order and factored into the selection of the low bid.	7	18	8	2	35	2.14
3	Option 3. Using a national or local existing index (ENR, BLS, RSMeans, SDDOT CCI).	8	5	17	5	35	2.54
4	Option 4. Using a regional index (by district or similar) developed and kept by using MnDOT past bids.	4	8	18	5	35	2.69
5	Option 5. Using a state index by category developed and kept by using MnDOT past bids (asphalt, concrete, structures, etc.)	5	7	17	5	34	2.65
6	Option 6. Using an index by pay item. Measure the change of a pay item by using MnDOT past bids for that or similar pay items.	4	7	20	3	34	2.65
7	Option 7. No escalation. Bid prices are used along the base contract period and kept during potential contract extensions.	1	3	25	5	34	3.00

15. If a multi-year IDIQ contract uses a fixed rate (%) to annually adjust unit prices, what rate would you consider appropriate to cover the material pricing risk. It would be the rate below which your company would not bid on a contract.



16. Regardless of the delivery method used to execute a given contract, for how long is your company willing to maintain bid unit prices without a contract escalation clause? Answer in months.



17. Which of the below performance bond schemes would make it unlikely that your company would bid for an IDIQ contract. (Check all that apply).

#	Answer		Response	%
1	Contract bond at award covering the maximum amount to be ordered under the contract.		12	34%
2	Contract bond at award covering the minimum guaranteed amount and subsequent bonds (once covered the minimum guaranteed amount) on a Task Order basis.		1	3%
3	Contract bond at award covering the contract Bid Schedule (list of bid unit prices and quantities) and subsequent bonds (once covered the initial bond) on a Task Order basis.		4	11%
4	None		19	54%

18. If bonding for the maximum amount to be ordered under the contract; how would it impact your ability to bid for other contracts?

#	Answer		Response	%
1	Very high impact		6	17%
2	High impact		7	20%
3	Some impact		9	26%
4	Slight impact		7	20%
5	No impact		6	17%
	Total		35	100%

19. If MnDOT would offer informative and discussion sessions about IDIQ contracting practices would you be willing to participate?

#	Answer		Response	%
1	Yes- Would Participate		27	77%
2	No- Would NOT Participate		8	23%
	Total		35	100%

20. How would you prefer to carry out these sessions? (Check all that apply).

#	Answer		Response	%
1	Regional industry outreach meeting		12	44%
2	Statewide industry outreach meeting (MnDOT headquarters, St. Paul, Minnesota)		11	41%
3	Conference call		6	22%
4	Webinar		14	52%
5	Other		2	7%

Other
physical meeting
depends on schedule

21. Please provide any comment or question you may have about IDIQ contracting.

Text Response
We need to know where the work will take place. We've received requests for pricing where we didn't know where the work would even occur. When everything is trucked in our business we need to know location. In another instance 1 mobilization was allowed but the plan presented 2 task orders. One task order was a minimum and the second was probable. The project required the use of a portable asphalt plant. We were forced to include moving the asphalt plant twice to the project site thus increasing our bid price. Asphalt price have been known to swing wildly from one year to the next so some industries could have a tough time hanging onto a contract for more than a years time.
In my oponion a mobilization work item for each task order is approriate. The value of the mobilization work item should be taken into consideration when evaluating the total bid price. For example if there are going to be three seperate tasks orders, they should be viewed as three seperate contracts and should have three seperate mobilizations. When mobilization costs are included within work item prices, when there is a reduction in work item quantitities mobilization costs are not recouped and the contractor is financially impacted.
i am not sure how the IDIQ method of contracting works. We have not participated in this form of contracting. To establish a unit price, I assume sufficient information is given. For example, for major grading items the haul distance and material source have a significant bearing on the unit price. These must be accounted for in determining IDIQ prices with detailed plans and specs.
We have found the enginering for MnDOT IDIQ projects to be lacking that done by other agencies. We have been to informational meetings by MnDot regions and they did not really address our concerns that were raised. The payment for bid items were somewhat sketchy ans well as lumping to broad of a spectrum into some items. This resulted in our submittal of a higher bid. After bidding and working under IDIQ MnDOT contracts we are better educated now and perhaps could better voice our concerns at this time.
I hope the process is revised to make it more attractive for us to bid on work that is tagged as IDIQ
This can be a very useful tool when used on the proper items. Items with inconsistant material costs can make pricing vary greatly and encourage some contractors to make leveraged bets on projects that they normally wouldn't. We found that including regional mobilization pricing is beneficial (i.e. maybe by MnDOT district). Industry is able to hold material pricing up to a year from bid date. Most suppliers add escalation contingency when projects are out more than 12 months. This should be considered when letting projects.
The IDIQ project we have, has seemed to go very well.
As a subcontractor I found in all projects I bid on, what I was bidding on, and the work that I did, was different in many ways. For Example, MnDot came out with a project on TH 47, a very Large Project in terms of work, something like 27 sites. I was to bid on each site. Well when you have that many sites you can lower you mobilization cost. in the Proposal they said they might do work on TH 27 and TH 71, Thats all, No discribtion or Quanity of sites. The first work order came out for TH 27, 4 Sites. Need less to say I lost my ass. At the percon I informed MNDOT and the Prime Contractor I was not doing

the work. The Prime said he would pick up the equipment from me and do the work, I agreed. Prior to all this I explained to the contactor and MNDOT that the first task order they came out with had Nothing to do with what was in the Plans or Proposal, and as a sub contractor I didn't have a crystalball to tell me what their intention where. They said they would work with me, LIE!!, MNDOT told me flat out at the Percon, "TO BAD!! your stuck with it." Normall MNDOT response. I will NOT work on a IDIQ project, or BID on one in the future. Because what I found was that if MNDOT come out with a Proposal saying this preject will take 10 Days, then that how I base my Price, then they come out with a Task Order for 10 Days, my equipment may be out there longer but I have to figure that in, Then when the project is completed I find out I'm only getting paid for 4, 5 or 6 Days. and Again say wait a minute you told me 10 Days (Twice)?? " TO BAD your stuck with it!! Bull Shit
Really like the idea. The only downfall I can see is the aspect of spreading work out amongst contractors.
The IDIQ Contracting bids released in 2013 were premature without much, if any, contractor input. The bids that were let were written differently drastically from district to district, and often times the engineers were lax, or unable to answer questions. We believe this led to biased and unequal bidding platforms, which resulted in only a couple successful contractors state wide.

MnDOT INTERNAL SURVEY

1. INFORMED CONSENT DOCUMENT

Title of Study: Indefinite Quantity/Indefinite Delivery (IDIQ)
Principal Investigator: Dr. Douglas Gransberg

The purpose of this research is to develop effective Indefinite Delivery/Indefinite Quantity (IDIQ) contracting procedures for the Minnesota Department of Transportation (MnDOT) in order to make this innovative contracting method less risky and more attractive for all parties.

If you agree to participate in this study, you will be asked to complete a survey that will take approximately 15 minutes to complete, concerning your past and current experiences with Indefinite Delivery/Indefinite Quantity (IDIQ) contracts. You can withdraw from the study at any time.

It is hoped that the information gained in this study will benefit you by finding ways to improve Indefinite Delivery/Indefinite Quantity (IDIQ) contracting practices to make this type of contracts more attractive to potential bidders. There are no foreseeable risks from participating in this study. Your participation in this study is completely voluntary and you have the right to refuse to participate or leave the study at any time. You can also skip any question you do not feel comfortable answering.

Data collected in this study will be fully anonymous and will be kept confidential to the extent permitted by applicable laws and regulations. However, federal government regulatory agencies, auditing departments of Iowa State University, and the Institutional Review Board (a committee that reviews and approves human subject research studies) may inspect and/or copy study records for quality assurance and data analysis. These records may contain private information.

For further information about this study, please contact Dr. Douglas Gransberg, dgran@iastate.edu, (515) 294-4148, Town Engineering Building, Iowa State University. If you have any questions about the rights of research subjects, please contact the Office for Responsible Research, (515) 294-1516 orrweb@iastate.edu, 1138 Pearson Hall, Ames, IA 50011-2200

Do you agree to participate in this survey?

#	Answer		Response	%
1	Agree		52	96%
2	Disagree		2	4%
	Total		54	100%

2. The following types of contracts are different names for IDIQ contracting; please check those you knew before this survey or you are familiar with. (Check all that apply)

Note: For purposes of this survey the term IDIQ will be used to refer to any type of contract mentioned bellow.

Answer	Response	%
Indefinite Delivery/Indefinite Quantity (IDIQ) Contract	36	88%
Task Order Contract	20	49%
Job Order Contract	7	17%
Delivery Order Contract	5	12%
On-Call Contract	11	27%
None	3	7%

3. Are you related in any way to the planning, execution or closure of MnDOT IDIQ contracts?

Answer	Response	%
Yes-Related	38	95%
No-Unrelated	2	5%
Click to write Choice 3	0	0%
Total	40	100%

4. Have you ever participated in the planning, execution and/or closure of IDIQ contracts awarded by others agencies (other than MnDOT). (Check all that apply)

#	Answer	Response	%
1	Yes (as owner)-Participated	4	10%
2	Yes (as contractor)-Participated	1	3%
3	No-Haven't Participated	35	88%

5. How many IDIQ contracts have you been involved in?

Answer	Response	%
1	2	40%
2	0	0%
3	1	20%
4	0	0%
>4	1	20%
Don't Know	1	20%
Total	5	100%

6. In accordance with the Definitions included in this survey, and your knowledge and/or experience related to IDIQ contracting, please rank the following methods for compensating the contractor for mobilization from the most suitable for IDIQ contracting (1) to the least (4). Put 0 (zero) in those options that you consider not suitable at all, or repeat the number in options that you consider equally suitable.

Staff: Mobilization Compensation Approaches	Ranking (1=most suitable, 4=least suitable, 0=No suitable at all)					Total Responses	Mean
	1	2	3	4	0		
Option 1. Fixed percentage of the construction cost stated by MnDOT and applied to each Task Orders.	5	8	8	3	4	28	2.75
Option 2. Fixed percentage bid by contractors to be applied to each Task Order and factored into the selection of the low bid.	6	7	9	5	2	29	2.66
Option 3. Fixed price bid by contractors to be used on each Task Order.	12	8	8	3	0	31	2.06
Option 4. No mobilization. Mobilization expenses are included in the bid items.	7	5	1	17	5	35	3.23

7. Please rate the following methods (from owner perspective) for compensating the contractor for mobilization (same options as previous question) in relation to the PERCEIVED RISK from reimbursing to contractors the actual mobilization cost and in comparison with traditional low bid contracting methods. Scale 0 – 3 (1) Lower than traditional contracting methods (2) Same as traditional contracting methods (3) Higher than traditional contracting methods.

#	Question	1	2	3	No Opinion	Total Responses	Mean
1	Option 1. Fixed percentage of the construction cost stated by MnDOT and applied to each Task Orders.	3	12	13	6	34	2.65
2	Option 2. Fixed percentage bid by contractors to be applied to each Task Order and factored into the selection of the low bid.	8	11	9	5	33	2.33
3	Option 3. Fixed price bid by contractors to be used on each Task Order.	8	9	11	5	33	2.39
4	Option 4. No separate mobilization pay item. Mobilization expenses are included in the bid items.	7	2	17	6	32	2.69

8. In accordance with the Definitions included in this survey, and your knowledge and/or experience related to IDIQ contracting, please rank the following escalation methods to adjust unit prices over time from the most suitable for IDIQ contracting (1) to the least (7). Put 0 (zero) in those options that you consider not suitable at all, or repeat the number in options that you consider equally suitable.

Staff: Price Escalation Approaches	Ranking (1=most suitable, 4=least suitable, 0=No suitable at all)								Total Responses	Mean
	1	2	3	4	5	6	7	0		
Option 1. Fixed annual percentage stated by MnDOT to adjust all bid items.	10	5	3	4	2	2	0	2	28	2.96
Option 2. Fixed annual adjustment rate (%) bid by contractors to be applied to each Task Order and factored into the selection of the low bid.	1	9	4	3	2	0	4	4	27	4.19
Option 3. Using a national or local existing index (ENR, BLS, RSMeans, SDDOT CCI).	3	3	5	2	2	7	2	3	27	4.52
Option 4. Using a regional index (by district or similar) developed and kept by using MnDOT past bids.	1	6	8	3	3	1	2	3	27	4.00
Option 5. Using a state index by category developed and kept by using MnDOT past bids (asphalt, concrete, structures, etc.)	0	4	8	6	3	2	1	3	27	4.22
Option 6. Using an index by pay item. Measure the change of a pay item by using MnDOT past bids for that or similar pay items.	1	3	1	4	9	2	3	4	27	5.04
Option 7. No escalation. Bid prices are used along the base contract period and kept during potential contract extensions.	5	1	2	2	0	4	9	5	28	5.29

9. Please rate the following escalation methods to adjust unit prices over time (same options as previous question) in relation to the PERCEIVED RISK from obtaining fair unit prices for future contracting periods and in comparison with traditional low bid contracting methods. Scale 0 – 3: (1) Lower than traditional contracting methods (2) Same as traditional contracting methods (3) Higher than traditional contracting methods.

#	Question	1	2	3	No Opinion	Total Responses	Mean
1	Option 1. Fixed annual percentage stated by MnDOT to adjust all bid items.	6	8	11	3	28	2.39
2	Option 2. Fixed annual adjustment rate (%) bid by contractors to be applied to each Task Order and factored into the selection of the low bid.	4	7	12	5	28	2.64
3	Option 3. Using a national or local existing index (ENR, BLS, RSMeans, SDDOT CCI).	4	12	6	6	28	2.50
4	Option 4. Using a regional index (by district or similar) developed and kept by using MnDOT past bids.	4	11	6	7	28	2.57
5	Option 5. Using a state index by category developed and kept by using MnDOT past bids (asphalt, concrete, structures, etc.)	3	11	9	5	28	2.57
6	Option 6. Using an index by pay item. Measure the change of a pay item by using MnDOT past bids for that or similar pay items.	4	9	9	6	28	2.61
7	Option 7. No escalation. Bid prices are used along the base contract period and kept during potential contract extensions.	7	4	14	3	28	2.46

10. Based on the Definitions included in this survey, and your knowledge and experience related to IDIQ contracting; which of the below performance bond schemes would be the most suitable for IDIQ contracting. (Check all that apply).

#	Answer		Response	%
1	Contract bond at award covering the maximum amount to be ordered under the contract.		14	45%
2	Contract bond at award covering the minimum guaranteed amount and subsequent bonds (once covered the minimum guaranteed amount) on a Task Order basis.		10	32%
3	Contract bond at award covering the contract Bid Schedule (list of bid unit prices and quantities) and subsequent bonds (once covered the initial bond) on a Task Order basis.		6	19%
4	No Opinion		4	13%

11. Please provide any comment or question you may have about IDIQ contracting.

Text Response
District 8 had success with IDIQ contractors that have historically lower mobilization costs. We struggled with high mob cost contracting. For example, our IDIQ seal coat was seen as successful, however, our bituminous IDIQ was much more expensive than expectations
I am currently responsible for administering 3 separate multi-year IDIQ contracts totaling approx. $20M for MnDOT. IDIQ contract needs to reduce the Contractors risk as much as possible. Contract must have a minimum and maximum. The scope of work must be narrow. Task orders must have guaranteed minimum value - that minimum value should be relatively high to absorb mobilization risk/cost. Work area should be limited to a geographic area. Task orders must be issued several months prior to commencing work. If the owner issues a task order not meeting the above criteria, contractor is not obligated to perform at bid price. If this criteria is followed, then mobilization can be incidental to the IDIQ bid items.
Works very well and will get even better with time as the contractors get more comfortable with the format.
This whole concept is a WIP (work in progress) Sso why would adjustment be made to enhance the payment to the low bid vendor when we're already paying more than ever to get done what we want quicker & with less BS. They've compensated the costs and risks of the jobs we've let for bidding. Leave the bidding of to them. Why do we constantly try to compensate these knowledgable professionals how to bid/run their price quotes they PROVIDE to US? If it 's not rocket science were trying to complete ..... why do we want to try to make it that complicated with multipliers and % modifiers etc etc?
In lieu of writing multiple task orders for the same location/work that overruns, it would be nice to be able to encumber additional funds as MnDOT does for design/bid/build projects.
How are issues with environmental permitting to be handled - ie is the contractor responsibile for obtaining all necessary COE, DNR, MPCA and watershed permits?

It does not seem to be working very well
eliminate multiyear IDIQ, the escalation is where the risk/problems start.
Also on the State Funded Projects there is Veteran Participation as well along with TGB. This was not included in the beginning explanation when DBE and TGB was explained.

SURETY'S SURVEY

1. INFORMED CONSENT DOCUMENT

Title of Study: Indefinite Quantity/Indefinite Delivery (IDIQ)
Principal Investigator: Dr. Douglas Gransberg
The purpose of this research is to develop effective Indefinite Delivery/Indefinite Quantity (IDIQ) contracting procedures for the Minnesota Department of Transportation (MnDOT) in order to make this innovative contracting method less risky and more attractive for all parties.
If you agree to participate in this study, you will be asked to complete a survey that will take approximately 15 minutes to complete, concerning your past and current experiences with Indefinite Delivery/Indefinite Quantity (IDIQ) contracts. You can withdraw from the study at any time.
It is hoped that the information gained in this study will benefit you by finding ways to improve Indefinite Delivery/Indefinite Quantity (IDIQ) contracting practices to make this type of contracts more attractive to potential bidders. There are no foreseeable risks from participating in this study.
Your participation in this study is completely voluntary and you have the right to refuse to participate or leave the study at any time. You can also skip any question you do not feel comfortable answering.
Data collected in this study will be fully anonymous and will be kept confidential to the extent permitted by applicable laws and regulations. However, federal government regulatory agencies, auditing departments of Iowa State University, and the Institutional Review Board (a committee that reviews and approves human subject research studies) may inspect and/or copy study records for quality assurance and data analysis. These records may contain private information.
For further information about this study, please contact Dr. Douglas Gransberg, dgran@iastate.edu, (515) 294-4148, Town Engineering Building, Iowa State University. If you have any questions about the rights of research subjects, please contact the Office for Responsible Research, (515) 294-1516 orrweb@iastate.edu, 1138 Pearson Hall, Ames, IA 50011-2200
Do you agree to participate in this survey?

#	Answer		Response	%
1	Agree		39	100%
2	Disagree		0	0%
	Total		39	100%

2. The following types of contracts are different names for IDIQ contracting; Have you furnished bonds for any of the following types of contracts?
Note: For purposes of this survey the term IDIQ will be used to refer to any type of contract mentioned bellow.
Indefinite Delivery/Indefinite Quantity (IDIQ) Contract
Task Order Contract
Job Order Contract Delivery Order Contract
On-Call Contract None

Answer		Response	%
Yes		32	94%
No		1	3%
Don't Know		1	3%
Total		34	100%

3. From the following performance bond schemes, please select those (more than one if applicable) that you consider the most suitable for IDIQ contracting from the surety's perspective. (Check all that apply)

#	Answer		Response	%
1	Contract bond at award covering the maximum amount to be ordered under the contract.		7	22%
2	Contract bond at award covering the minimum guaranteed amount and subsequent bonds (once covered the minimum guaranteed amount) on a Task Order basis.		15	47%
3	Contract bond at award covering the contract Bid Schedule (list of bid unit prices and quantities) and subsequent bonds (once covered the initial bond) on a Task Order basis.		8	25%
4	Other.		7	22%

4. If bonding for the maximum amount to be ordered under the contract; how would it impact the contractor's ability to bid for other contracts?

#	Answer		Response	%
1	Very high impact		12	38%
2	High impact		14	44%
3	Some impact		6	19%
4	Slight impact		0	0%
5	No impact		0	0%
	Total		32	100%

5. How would the bond premium be different for IDIQ contracts as compared to a traditional low bid contract of the same value?

#	Answer		Response	%
1	Higher		6	19%
2	Similar		24	75%
3	Lower		2	6%
	Total		32	100%

6. Please indicate how the following factors are impacted in IDIQ contracts in comparison with traditional low bid contracting methods.

#	Question	Very High Impact	High Impact	Some Impact	Slight Impact	No Impact	Total Responses	Mean
1	Contractor Bonding Capacity	11	12	5	1	3	32	2.16
2	Ability to small contractors to get a bond	17	9	3	0	3	32	1.84
3	Ability to DBE or TGB firms to get a bond	15	9	3	0	5	32	2.09

7. Please list any issues that impact contractors' ability to receive a bond on an IDIQ contract.

Text Response
Setting the bonding at a level totalling all work under the IDIQ contract makes it difficult for smaller contractors to geet bonding. Underwriting has to be set based on the maximum amount of work the contractor will have at any one time, plus some impact on the total annual amount. Many IDIQ's go more than 1 year which makes bonding very difficult.
-The bonding company often does not know the maximum amount of work that could be awarded by different task orders. This can effect the contractor's bonding capacity. -In many cases, Bonding companies like to see these written annually instead of multiple years since a contractor's financial position or other areas of their business can change greatly over the course of any given year. The bond companies willingness to support at the same levels or support an account at all can also change from year to year with these changes.
Surety wants the ability to not bond new Task Orders should the contractors financial conditions change for the negative. Also concern over the length of the IDIQ in terms time-- is it for one year or 3 years or more. What penalty, if any, will the contractor face if they choose to not bid. IDIQ's are fine for the few prequalified contractors but it is anti-competitive.
The fact that the surety company will not know what their liability really is until the contract is completed. The surety will most likely count the maximum as the total backlog until the project is closed out. No control over the amount of construction work that is placed with the contractor. This could be a total administration nightmare given the fact that the MnDOT can't close out a project in less than 12 months after project completion and can't complete quantities or release retainage in a timely manner under the present setup.

The time period of the overall IDIQ contract is also very important as the duration of the potential surety obligation plays a role in the decision making process. Fortunately most IDIQ contracts cover only a 1 or 2 year period. To lessen the impact on the contractors surety program and provide the most extensive bid list to the Obligee the best delivery methods are: 1. Require a bid bond for the original proposal and then provide separate performance and payment bond for each task order/contract as they arise. 2. Require a bid bond and then a performance and payment bond for the the minimum guaranteed amount of the IDIQ contract and then audit the total amount at the end of each IDIQ period and charge the additional surety premium based on the actual amount of work completed.

Duration of the contract, both the base contract and the possible extensions. Ability of the three parties (MN DOT, Contractor and the Surety) to end or get out of the contract. For small to medium contractors, surety company's want to bond one to two year contracts, too often IDIQ are for 2 or 3 years base with an additional 2 - 3 years optional awards. That can be a significant shifting of the risk and the surety underwriting changes. Ok for the large firms doing, but not for the average firm. Too often the minimum is very low, but the contract maximum is very large vs. what the smaller contractors normally take on. The individual tasks fit small contractors, but the aggregation under the IDIQ puts the total contract value well outside what they would qualify for. These types of contracts might be cheaper for the state to administer, but they will eliminate competition by smaller contracting firms. So in the long run, they could actually cost the state more money for the completion of the work.

If you require a bond on the maximum amount, the contractor's surety credit backlog will be impacted negatively as the contractor uses up a portion of their backlog to provide a bond for something that may not provide any revenue for them. Also it is more difficult for small contractors to bond larger amounts.

IDIQ contracts would adversely impact small and medium size contractors by "consuming" their available bonding program for work which may or may not be awarded. Bonding each task order would minimize this impact to some extent. Remember that small and medium size firm's get into trouble because of too much work, not from too little.

Amount not fully known. Also, early versions of MN/DOT's IDIQ called for multi-year projects. These unknowns would only allow us to consider IDIQ projects for our strongest and most-established contractors.

The bond will be underwritten based on maximum the contract could be and the longest the time the contract could run for. Actually, the time frame may present more issues than the dollar exposure (the surety must feel comfortable that the contactor will stay in business for the full term.) Larger maximum contract amounts and longer contract periods could lead to some contractors not meeting underwriting criteria.

Contractor strength potential maximum price. Scope of work for the contract and the contractors normal scope. Contract duration. 1 or 2 years probably ok longer can be a problem for the little contractors.

Current financial conditions, terms of contract (length, warranty provisions, Liquidated Damages, hold harmless, payment provisions), current and estimated short-term backlog

Contractor may have room in bonding capacity for single contract, but not for additional

work. Makes it very hard to get approval from the surety company when the total amount is a relative unknown.
The unknow quanity (or high max amount) may keep some smaller contractors for recieving surety credit. If they maximum amount that can be awarded under the IDIQ is kept to a realistic amount for the project, they bidders who would normally get a bond under Design-bid-build should still be able to get a bond
The term of the contract can hinder small and emerging contractors if that term is beyond one year. The total potential amount of the IDIQ is applied to the contractor's bonding capacity or aggregate which can limit or prevent them from qualifying for additional bonding. Not just with small and emerging contractors but with all contractors the largest potential amount that could be issued under an IDIQ is counted toward the contractors' backlog & bonded aggregate. As a result the contractor may not be able to bid on additional work. If there is a long term applied with these bonds the impact is that much greater.
only major issue is if the maximum bond amount is required upfront. depending on the contractor and their overall backlog, it could tie up a lot of thier bonding capacity with work that might not be awarded.
By definition IDIQ carries a certian level of uncertianty regarding the amount of work to be done and the tirme frame to do so. This is a tough thing to handle for sureties and their agents. Bonding agents and sureties are in touch with their clients and analyzing backlog "uncompleted work on hand" on a monthly, weekly and often times even a daily basis. For the super large and super strong accounts with huge financial strenght and vritually no bonding limitation, it's not a problem. However, most contractors out there do have bonding limits and the uncertianty aspects of this type of deliverty system can either hamper or prevent them from bidding these types of contracts altogether. Sureties like certainty and knowing where there contractors are with jobs in progress and what the sureties exposue is for any given client at any time. The unknowns of IDIQ by definition create issues for contractors and their sureties especially as the completion times extend further and further into the future. The longer the time frame for the work to be done, the more it can hamper a contractors ability to get other bonds. That opportunity cost can drive up your price for the work you need done. If you can save on the administration of continually bidding out these jobs then maybe you come out in the end.
Maximum award amount may limit contractor ability to bid job due to insufficient bonding capacity. Getting Surety to rate the bond contiguously and therefore having a lower rate overall on the entire contract.
Due to the indefinite construction period and indefiinte bond amount it could impact whether or not a smaller contractor is able to provide a bond. It would impact both large and smaller contractors by utilizing their line of authority for an indefinite period of time. It is difficult to get approval to issue bonds with contract periods over 24 months and maintence terms over 24 months. If the contract term exceeds 24 months there is a time surcharge which may potentially increase the premium. Although if there are several task orders to be completed under 24 months it would save MN DOT premium

dollars. There are definitely pros and cons to the IDIQ.
Duration Risk. Commodity Price Escalation Risk. Unilateral (MN-DOT) decision to continue vs. mutual agreement by both parties.
Same analysis would be done either way.
- Uncertain duration and undefined escalation protection. - Inability of Surety to accept or decline future TOs. - Surety currently needs to quantify IDIQs on a maximum amount; which could limit capacity available for other projects.
The unknown as to amount of work is a real challenge. Also the uncertainty about the amount makes it difficult, especailly for smaller contractors to determine necessary equipment and man power needs.
The bond amount covers the contract amount. The IDIQ contract amount is indefinite other than a min and max so the surety underwriter has to assume the max contract. The impact the contractors amount of bonding available to them or may cause them not to be able to bid the job due to lack of bonding power
One large issue is the duration of the IDIQ contract. Smaller firms may encounter difficulty in obtaining bonding for longer-duration IDIQ agreements, such as periods over two years. This could be compounded if bonds are provided at max potential award amount. If bonding at the maximum potential award value for a multiple-year agreement, a smaller contractor's bonding capacity could be highly impacted. These problems would still apply to large contractors, though the impact may be smaller.
Do they have the balance sheet strength and aggregate capacity to handle the max. amount of the IDIQ?

8. If MnDOT would offer additional informative and discussion sessions about IDIQ contracting practices would you be willing to participate?

#	Answer		Response	%
1	Yes-Participate		26	84%
2	No-Don't Participate		5	16%
	Total		31	100%

9. How would you prefer to carry out these sessions? (Check all that apply)

#	Answer		Response	%
1	Regional industry outreach meeting		8	33%
2	Statewide industry outreach meeting (MnDOT headquarters, St. Paul, Minnesota)		11	46%
3	Conference Call		11	46%
4	Webinar		14	58%
5	Other		4	17%

10. Please provide any comment or question you may have about IDIQ contracting.

Text Response
Don't like it because it just allows for possible favoritism within MnDOT without any formal checks and balances. The marketplace is the best way to stop this with public bidding where all pricing is on the table for everyone to see. Design/Build projects are similar in that it can be purely a beauty contest is open for lawsuits because of how these projects can be awarded with private openings and interviews.
The keys for most sureties are: > Limit the contract period to 1 year (2 at the most) or allow the surety to file an annual bond. Long terms scare sureties and make it hard for smaller contractots to get bonds. >Include in the contract the maximum total amount of work that will be awarded in the year, and also the maximum probable amount of task orders given to the contractor at any one time. The uncertain possibility that the state will award the maximum total for the year all at once or all under one task order is detrimental. > Set a bond amount that covers the exposure at any one time, not at the total for the whole contract period. For example, if the total for the year would be $1,000,000 and the largest task order would be $100,000, and tasks orders wouldn't overlap, then set a flat bond amount...say $200,000.
Please look at the long-term costs of completing the work vs. the possible short-term cost savings from having fewer contracts to administer and fewer bid lettings. I would guess that in the short-term, this looks like a good way to save money, but long-term the cost of the work and the possible elimination of competition will far out way a small percentage of savings today.
The Federal government has been using this method for years. Blank bonds on the maximum amount are rare.
The US Dept of Interior has had similar contracts for maintenance and small remodel work at its facilities in the state. If I recall correctly, the bond amount is a nominal amount, and the government has the right to cancel the contract at any time fi it is not happy with the contactor. I believe the bid is for three years, but the contact is for only one, and the contractor and surety must sign off on yearly extensions. (That mitigates the surety's concerns about the long term.) I think that system has worked well, and it may be wise ot emulate that.
I believe it is difficult to underwrite as a surety professional since we have no idea how much will be awarded under the contract and the multiple years make it very difficult to write.
The more risk factors (ie, cost exposures, duration of projects, etc) that can be defined and better understood, will help both contractors and sureties with being more confident in pursing this work. We are uncomfortable with unilateral additions to contract scope and duration. If you could move to a bonding by task order basis, it would increase surety interest and participation. The potential stacking of the liability for a contractor that has multiple IDIQ contracts is of great concern to a surety. We feel IDIQ does limit the ability of some smaller contractors being able to compete for the work. These are collective responses on behalf of the local Travelers Bond branch.
Prefer to have each task order bonded so we can monitor outstanding liability and impact to contractor.

Appendix K

Technical Advisory Panel Meeting No. 1

ID/IQ TAP Review
September 19, 2012

Attendees: Bruce Holdhusen, Jay Hietpas, Jim Cownie, Jorge Rueda-Benavides (Iowa State), Val Svensson, Koryn Zewers, Gupthan Namboodiripad, Trudy Kordosky, Trudy Elsner, Kevin Kosobud, Doug Gransberg (Iowa State)
Absent: Bev Farraher, Joel Williams, Kevin Kliethermes

Due to a late contract start and the desire to utilize this procurement method on MnDOT projects, the scope of work for this research has been slightly altered. On September 19, 2012, Doug Gransberg made a presentation to our TAP. He handed out a potential Request for Proposal (RFP) and some potential contract language. He utilized a Powerpoint presentation to illustrate some decisions that the department will need to make as we move forward. These notes are meant to capture that discussion and identify the issues both resolved and yet to be determined. Resolving this information will help us develop and determine our path as we move forward.

Definitions:

1. Job Order: The document and authorization issued by the Project Engineer to the Contractor giving permission for additional work.

Issues in no particular order:

1. Funding Sources
    a. It is anticipated that these types of projects may be funded from multiple funding sources. The entire project may not be funded when authorized. Due to the nature and type of work this will create a different funding trail than traditional.

    Action Item: TAP should discuss how many and types of funding that will be allowed. Simple funding strategies will be easier to work with as this procurement gets started.
2. Documentation and Trail
    a. A specific document will need to be developed to track both the money and the timing of a job order.

    Action Item: Kevin Kosobud to work with Capital Programs and Finance to develop adequate support documentation to track funding and timing.
3. Check book
    a. Two types of fiscal authorization appear to be most likely.
        i. The first would be a project that is fully funded at the maximum authorized by the contract.
        ii. The second type would be a project only funded for the initial amount of the job order and will need to obtain additional funding for any subsequent job orders.

4. Duration of Contracts
    a. The initial thought was to have a specified duration (i.e. two years max).
    b. Doug brought up that many of these contracts have the ability to add one year extensions (i.e. two year contract with three one year extensions).

c. Contractor can not refuse a Job Order.

Action Item:

1. Kevin Kosobud to confirm with Jim Cownie that this is an allowable variation to our contracts.

2.Add clause to contract that states Contractor can not refuse a Job Order.

5. Permits
    a. All permits will need to be executed prior to any job orders being processed.
6. Agreements
    a. All agreements will need to be executed prior to job orders being processed.
7. Utilities
    a. Due to the flexibility allowed with this procurement method, the method in which utilities are relocated needs to be discussed.

    Action Item: Kevin Kosobud needs to follow up with Marilyn Remer to discuss how this procurement method will blend with our utility manual and process.
8. Invitation for Bid (traditional) vs. Request for Proposal (RFP)
    a. Doug presented this information as a RFP.
    b. The general consensus prior to this meeting was to utilize the more traditional Invitation for Bid.

    Action Item: Doug Gransberg will continue to generate both forms of contract language. This will allow the Department the most flexibility in the future.
9. DBE/VET/TGB
    a. It is anticipated that these programs will very likely be part of future contracts.

    Action Item: OCIC needs to meet with the Civil Rights Office to discuss what will work best for goals for this procurement process.
10. Escalation Index
    a. It was agreed that some sort of escalation clause within the contract will help reduce risk on both parties (Contractor and the State). It was discussed the ENR may have a potential published cost index.

    Action Item: Doug Gransberg to research language and "index" that may be useful to incorporate into future contracts.
11. Contingency
    a. This item needs more discussion. Most of our traditional contracts do not have a contingency fund, however they are usually let by our Districts that have a set aside account that contract changes and overruns can utilize.

    Action Item: TAP needs to determine if this will be a requirement of these contracts. This item will be placed on a future agenda.

12. Amount of Design Work given to Bidder
    a. More discussion will be required. Experience from other States may be benefical to help us decide how we want to proceed.

    Action Item: TAP needs to set guide lines for contracts. This item will be placed on a future agenda.
13. Amount of time given to successful bidder for each job order
    a. In order to keep the work timely the contract time will need to be modified for each contract and each work order.

Action Item: Doug Gransberg to provide examples of how other states have handled this contract requirement.

14. Measurement and Payment
    a. More discussion necessary to determine how our list of quantities will be utilized.
        i. Are they just for bidding purposes?
        ii. Are they Job Order #1?
    b. The discussion provided two methods for measurement and payment.
        i. The first would be of a traditional method where the Contract Administrator would measure and pay for the work using pay items based on each job order.
        ii. The second method would have the job order convert to a lump sum payment once the work items and quantities are agreed upon.

    Action Item:

    1. **TAP needs to determine how the quantities will be used.**
    2. **TAP needs to decide what method will work best for the Department.**

15. Bonding
    a. Our meeting generated a lot of discussion regarding bonding of the project.
    b. One method would be to require the bond equal to the maximum of the contract. This would probably not be seen as favorable to our smaller Contractors. Ties up their bonding capacity.
    c. A second method would be to bond at the maximum of each job order.

    Action Items: Joel Williams and Jim Cownie will contact some of our Surety Companies to determine the best course of action.

16. Contractor's Personnel
    a. Discussion regarding the need to determine if specific Contractor personnel will be tied to the project. An example maybe the same Project Manager and Estimator for the duration of the contract.

    Action item: TAP will review best practices of other states that are utilizing IDIQ. Decision could be made by districts as they develop contract language. To be placed on future agenda.

17. Changes Clause
    a. The discussion was based on the thought that the contract would be utilizing our Standard Specifications and that contract changes are very explicit in this document.

    Action Item: Contract should utilize Standard Specifications means and methods for addressing any necessary or disputed contract changes.

18. Future vetting of language
    a. Trudy Elsner of the Metro District (Noise wall repair) and Trudy Kordosky of District 4 (District wide culvert repair) are both interested on utilizing ID/IQ as the procurement method for an upcoming project.

    Action Item: Both Districts will take the RFP language and using their existing project, will try and determine what information they think would benefit their respective projects. They will submit this information to Kevin Kosobud who will review and share with Doug Gransberg.

Appendix L

Technical Advisory Panel Meeting No. 2

IDIQ TAP Meeting #2 September 26, 2013

Attendees: Bruce Holdhusen, Jim Cownie, Jorge Rueda-Benavides (Iowa State), Doug Gransberg (Iowa State), Bev Farraher, Joel Williams, Sheila Cornelius, Nelson Cruz, Kevin Kosobud

This was the second meeting of the TAP. The goal was to review and comment on deliverables (2-4) and to ensure the direction of the research is meeting the needs of MnDOT.

Issues Discussed:

1. Deliverable # 5 is outreach and guide revision. The outreach is going to start with a survey of both internal and industry customers. The survey will be prepared by Iowa State with the Department sending the survey to the potential customers. Those included in the survey for external stakeholders will be : AGC (Association of General Contractors), planholders of previously awarded projects and Sureties doing business with MnDOT.
2. Discussed the three models of IDIQ. All three will be included in final report, while the strawman guide will only include the current model being used in MnDOT.
3. Couple terminology questions were discussed. The use of the term: IDIQ Contract will be used to define MnDOT's contracts. The second term discussed was Invitation for Bids: which will be the term used when MnDOT advertises a contract for work to be performed.
4. The following topics will be explored in the survey:
    a. More investigation into Contract Bond and the amount required at award and future Task Orders.
    b. Escalation Options: several were discussed
        i. National index
        ii. Straight % - this is the method currently being used on most of our current projects
        iii. Regional index (districts?) – would be tied to our past bids
        iv. Index by category…for example: asphalt, concrete, structural
        v. By pay item – use historical data to forecast price changes
        vi. Competitive cost escalation - use method similar to A+B bidding where contractor would bid a cost escalation % and it would be factored into the selection of the low bid
    c. Mobilization: three methods will be discussed
        i. Fixed %
        ii. No mobilization – part of the bid items
        iii. Use method similar to A+B bidding where contractor would bid a mob % and it would be factored into the selection of the low bid.
5. Review deliverables with comments delivered to both Doug Gransberg (dgran@iastate.edu) and Kevin Kosobud (kevin.kosobud@state.mn.us) by **October 11, 2013**.

Next steps in Process:

1. Revise strawman in accordance with TAP recommendations

2. Incorporate chosen mobilization, bonding and escalation methods into process and report
3. Perform internal and external outreach
4. Revise IDIQ process based on feedback from outreach
5. Submission of final draft
6. Incorporate TAP comments on draft
7. Submit final guide and research report.

Appendix M

MnDOT Contract Amendment Change Request

Mn/DOT Contract Amendment/Change Request

Process of Requesting a Mn/DOT – Other University or Consultant Amendment

The attached letter must written and signed for any of the cases listed below and submitted to the Research Services Section's Financial Services Manager (address noted on letter)

For items 1-3:
Official Contract Amendments will be executed upon receipt of a signed letter.

1) **Time Extension** – When the expiration date of the contracts needs to be extended. Please budget time realistically and use this option sparingly. Time extensions affect future funding availability for new projects.
2) **Total Contract Dollar Amount Change** – If the total amount of dollars for the contract is increasing or decreasing an amendment is needed.
3) **Change of Scope** – If the scope of the contract is changing significantly from the original contract an amendment is needed.

For items 4-7:
An official Contract Amendment will NOT be executed. However, an Amendment Request Form is still required to be completed and returned. This signed Amendment Request will serve as a 'Letter to the File'.

4) **Key Personnel Changes** – ie. Principal Investigator
5) **Date Changes** - Due dates/Deliverable dates change, but the changes will not affect the expiration date of the Contract.
6) **Lump Sum Contract** - If it is a Lump Sum Contract, and the breakdown of costs are being adjusted, but the actual Lump Sum amounts are staying the same.
7) **Cost Plus/Hourly Rate/Unit Rate Contract** - If it is a Cost Plus/Hourly Rate/Unit Rate Contract, and there are MINOR adjustments between labor and expenses, but the bottom line, Total Contract Amount, remains the same.

Please Note:

- Contract Change requests **are due 6 weeks before the contract expires**.
- Use attached template addressed to the Financial Services Manager, Research Services Section, with a copy to the Administrative Liaison (AL), Technical Liaison (TL)
- The letter must be signed by authorized designee from the University or firm.
- If the request is approved, MnDOT will generate an amendment to the work order contract in cases 1-3. In cases 4-7 above, MnDOT will return a signed/approved copy of the Amendment Request – designated as a 'Letter to the File'.

October 25, 2013

Tina Folch
Financial Services Manager
Research Services Section
Minnesota Department of Transportation
395 John Ireland Blvd., M.S. 330
St. Paul, MN 55155-1899
Ann.McLellan@state.mn.us

RE: Indefinite Quantity/Indefinite Delivery
Contract Number: 99004 Work Order Number: 1

Dear Ms. McLellan,
Please consider my request for a change to the contract work order referenced above. Detailed information related to this request is as follows:

Please check all boxes that apply for this request. Add text for each box that you have checked. Please submit this at least 6 weeks prior to the contract expiration date. Refer to the current signed contract when filling out this request.

☐ 1. TIME EXTENSION
Original end date: _____
Requested end date:__ _____
(Reminder: add 4 months to the end date for final report publishing)
Project schedule amended as follows (include remaining tasks, % complete for each task to date, with revised task start & end dates – attaching gantt chart works well): _
_____
_____
Justification for schedule change and/or reason the project could not be completed by original end date:
_____
_____

☐ 2. TOTAL CONTRACT DOLLAR AMOUNT CHANGE (increase or decrease) Specify how the scope has changed and detail additional Tasks along with a Revised Budget and Revised Budget by Task in the same format as in Attachment B of the original contract.)
_____
_____

☒ 3. CHANGE OF SCOPE (no budget change) Specify what section of the work plan will be amended, the scope or contract language change you are requesting, and what effect it has on the project schedule.
Task 5 deliverable included Industry Outreach. Currently this deadline is during an extremely busy period of time for the industry. It is felt if we can delay this deadline we

will obtain better response. The new due date will become February 15, 2014.

☐ 4. OTHER: e.g. Principal Investigator Change, Contract Termination

_____
_____

☐ 5. REBUDGET ONLY. – Total contract value will remain as originally stated. (Specify what part of the budget will be changing and why along with a Revised Budget and Revised Budget by Task if needed in the same format as in Attachment B of the original contract.)

_____
_____

Thank you for your consideration of this request.

Sincerely,

Your Name	Authorized Representative
Principal Investigator	University or Firm

cc. Kevin Kosobud, Technical Liason, Mn/DOT
Nelson Cruz, Administrative Liason, Mn/DOT

The request outlined above is hereby approved.

_____

Director, Research Services Section Date

Appendix N

Summary of MnDOT Historical Bid Data

MINNESOTA DEPARTMENT OF TRANSPORTATION HISTORICAL BID DATA

The historical bid data collected from MnDOT website and used in this study corresponds to all contracts awarded between January 25th, 2008 (first contract award in 2008), to August 23th, 2013 (last contract published on September 30th, 2013). There was a total of 1,361 contracts awarded throughout that period of time, and were distributed as presented below in Table C.1 and Table C.2.

TABLE C.1 Contract Distribution by Year

NUMBER OF CONTRACTS = 1361							
	Annual	**1st Half**	**2nd Half**	**Quarter 1**	**Quarter 2**	**Quarter 3**	**Quarter 4**
2008	163	126	37	45	81	24	13
2009	287	208	79	88	120	45	34
2010	224	167	57	66	101	34	23
2011	219	167	52	71	96	29	23
2012	238	185	53	74	111	26	27
2013	230	220	10	75	145	10	-

TABLE C.2 Contract Distribution by District

District	No. of Contracts
1	145
2	99
3	165
4	111
6	179
7	117
8	94
Metro	451
Total	**1361**

Appendix O

IDIQ Sample Projects

INDEFINITE DELIVERY/INDEFINITE QUANTITY SAMPLE PROJECTS

This appendix presents the sample projects used in Chapter 6 and the original MnDOT contracts used to form these sample projects. A further explanation about how these sample projects were selected and form is presented in Chapter 6. This appendix also contains the actual unit price for each sample project calculated from MnDOT historical bid data. The four sample projects are presented as shown below:

1. Asphalt Pavement Project
2. Concrete Pavement Project
3. Traffic Barriers Project
4. Drainage Project

1. Asphalt Pavement Project

TABLE 1.1 Asphalt Pavement - Original Contract

Original Contract	
Description	Bituminous Surfacing, Aggregate Shouldering, Guardrail
Contract ID	80117
S.P. Number	1213-10
Letting Date	06/06/2008
District	8

TABLE 1.2 Asphalt Pavement - Original Contract Pay Items

Item Number	Item ID	Description	Units	% of Total Cost
1	2021501/00010	MOBILIZATION	LS	2.08%
2	2051501/00010	MAINT AND RESTORATION OF HAUL ROADS	LS	Removed
3	2104509/00055	REMOVE TWISTED END TREATMENT	EACH	0.09%
4	2104521/00220	SALVAGE GUARD RAIL-PLATE BEAM	L F	0.08%
5	2104601/01011	HAUL SALVAGED MATERIAL	LS	0.05%
6	2105501/00010	COMMON EXCAVATION	C Y	0.07%
7	2221501/00010	AGGREGATE SHOULDERING CLASS 1	TON	3.20%
8	2221604/00010	AGGREGATE SHOULDERING	S Y	0.17%
9	2232501/00040	MILL BITUMINOUS SURFACE (1.5")	S Y	0.38%
10	2232602/00010	MILLED RUMBLE STRIPS	EACH	0.44%
11	2357606/00010	BITUMINOUS MATERIAL FOR SHOULDER TACK	GAL	0.07%
12	2360501/22200	TYPE SP 12.5 WEARING COURSE MIXTURE (2,B)	TON	87.15%
13	2411507/00060	CONCRETE END POST	EACH	Removed
14	2540602/00150	MAIL BOX SUPPORT	EACH	Removed
15	2554501/00001	TRAFFIC BARRIER DESIGN SPECIAL	L F	0.69%
16	2554501/02007	TRAFFIC BARRIER DESIGN B8307	L F	0.33%
17	2554501/02038	TRAFFIC BARRIER DESIGN B8338	L F	0.58%
18	2554521/00020	ANCHORAGE ASSEMBLY-PLATE BEAM	EACH	0.12%
19	2554523/00028	END TREATMENT-TANGENT TERMINAL	EACH	0.25%
20	2563601/00010	TRAFFIC CONTROL	LS	1.01%
21	2580603/00010	INTERIM PAVEMENT MARKING	L F	0.39%
22	2582501/03008	PAVEMENT MESSAGE (STOP AHEAD) EPOXY	EACH	0.15%
23	2582502/41104	4" SOLID LINE WHITE-EPOXY	L F	2.17%
24	2582502/41524	24" STOP LINE WHITE-EPOXY	L F	0.03%
25	2582502/42104	4" SOLID LINE YELLOW-EPOXY	L F	0.25%
26	2582502/42204	4" BROKEN LINE YELLOW-EPOXY	L F	0.23%

TABLE 1.3 Asphalt Pavement – Sample Project

Item ID	Description	Units	% of Total Cost	Items Represented
2021501/00010	MOBILIZATION	LS	2.08%	1
2104501/00042	REMOVE GUARD RAIL-PLATE BEAM	L F	0.09%	3
2104521/00220	SALVAGE GUARD RAIL-PLATE BEAM	L F	0.13%	4-5
2105501/00010	COMMON EXCAVATION	C Y	0.07%	6
2211503/00050	AGGREGATE BASE (CV) CLASS 5	C Y	3.37%	7-8
2232501/00040	MILL BITUMINOUS SURFACE (1.5")	S Y	0.38%	9
2232603/00025	MILLED RUMBLE STRIPS	L F	0.44%	10
2356505/00010	BITUMINOUS MATERIAL FOR SEAL COAT	GAL	0.00%	0
2360501/23200	TYPE SP 12.5 WEARING COURSE MIXTURE (3,B)	TON	87.23%	11-12
2554501/02038	TRAFFIC BARRIER DESIGN B8338	L F	1.97%	15-19
2563601/00010	TRAFFIC CONTROL	LS	1.01%	20
2582502/11104	4" SOLID LINE WHITE-PAINT	L F	0.39%	21
2582502/41104	4" SOLID LINE WHITE-EPOXY	L F	2.34%	22-24
2582502/42104	4" SOLID LINE YELLOW-EPOXY	L F	0.25%	25
2582502/42204	4" BROKEN LINE YELLOW-EPOXY	L F	0.23%	26

TABLE 1.4 Asphalt Pavement – Actual Unit Prices

Item Number			2021501/00010	2104501/00042	2104521/00220	2105501/00010	2211503/00050	2232501/00040	2232603/00025	2360501/23200	2554501/02038	2563601/00010	2582502/11104	2582502/41104	2582502/42104	2582502/42204	TOTAL
Units			LS	LF	LF	CY	CY	SY	LF	TON	LF	LS	LF	LF	LF	LF	
Year	Period	Quantity	1	385	364	63	2533	1518	74905	31410	1467	1	101038	177221	14059	16914	
2008	Q2-Q3	Unit price	$ 31,231.25	$ 3.65	$ 5.37	$ 17.47	$ 19.97	$ 3.76	$ 0.09	$ 41.66	$ 20.19	$ 15,104.01	$ 0.06	$ 0.20	$ 0.27	$ 0.21	
		Extension	$ 31,231.25	$ 1,402.90	$ 1,954.57	$ 1,102.91	$ 50,599.18	$ 5,704.64	$ 6,554.20	$1,308,392.26	$ 29,614.42	$ 15,104.01	$ 5,917.92	$ 35,127.76	$ 3,802.86	$ 3,491.12	**$1,500,000.00**
	Q4-Q1	Unit price	$ 38,408.07	$ 3.47	$ 5.77	$ 17.68	$ 18.34	$ 4.14	$ 0.09	$ 52.46	$ 18.20	$ 18,574.85	$ 0.09	$ 0.19	$ 0.19	$ 0.23	
		Extension	$ 38,408.07	$ 1,333.93	$ 2,101.36	$ 1,115.89	$ 46,469.39	$ 6,280.66	$ 6,939.09	$1,647,868.63	$ 26,695.56	$ 18,574.85	$ 9,001.51	$ 33,254.66	$ 2,688.38	$ 3,962.04	**$1,844,694.02**
2009	Q2-Q3	Unit price	$ 31,765.85	$ 3.50	$ 6.94	$ 16.90	$ 21.31	$ 3.49	$ 0.12	$ 43.59	$ 18.41	$ 15,362.55	$ 0.08	$ 0.23	$ 0.25	$ 0.23	
		Extension	$ 31,765.85	$ 1,347.62	$ 2,526.91	$ 1,066.73	$ 53,974.78	$ 5,295.46	$ 8,911.31	$1,369,002.33	$ 27,004.79	$ 15,362.55	$ 8,224.76	$ 40,924.84	$ 3,448.61	$ 3,947.80	**$1,525,675.93**
	Q4-Q1	Unit price	$ 38,149.35	$ 3.23	$ 6.44	$ 21.71	$ 20.84	$ 4.40	$ 0.10	$ 53.49	$ 17.50	$ 18,449.73	$ 0.07	$ 0.22	$ 0.26	$ 0.27	
		Extension	$ 38,149.35	$ 1,241.01	$ 2,343.75	$ 1,370.45	$ 52,805.59	$ 6,677.05	$ 7,441.59	$1,679,966.14	$ 25,672.84	$ 18,449.73	$ 7,033.92	$ 39,565.49	$ 3,590.38	$ 4,559.87	**$1,832,268.10**
2010	Q2-Q3	Unit price	$ 38,869.51	$ 3.25	$ 11.58	$ 20.93	$ 20.26	$ 4.83	$ 0.07	$ 54.56	$ 17.65	$ 18,798.01	$ 0.09	$ 0.22	$ 0.30	$ 0.24	
		Extension	$ 38,869.51	$ 1,250.36	$ 4,215.27	$ 1,321.28	$ 51,323.63	$ 7,323.10	$ 5,561.61	$1,713,804.36	$ 25,889.18	$ 18,798.01	$ 8,790.54	$ 39,181.53	$ 4,214.11	$ 3,981.63	**$1,866,856.58**
	Q4-Q1	Unit price	$ 36,959.62	$ 3.49	$ 10.28	$ 16.40	$ 21.83	$ 5.19	$ 0.09	$ 51.06	$ 18.24	$ 17,874.35	$ 0.10	$ 0.27	$ 0.31	$ 0.31	
		Extension	$ 36,959.62	$ 1,343.87	$ 3,742.66	$ 1,035.26	$ 55,299.24	$ 7,883.71	$ 7,069.07	$1,603,704.77	$ 26,748.44	$ 17,874.35	$ 10,486.81	$ 48,084.47	$ 4,428.34	$ 5,300.21	**$1,775,126.85**
2011	Q2-Q3	Unit price	$ 39,789.12	$ 3.78	$ 11.88	$ 23.04	$ 23.10	$ 5.78	$ 0.09	$ 55.16	$ 19.94	$ 19,242.75	$ 0.13	$ 0.26	$ 0.33	$ 0.28	
		Extension	$ 39,789.12	$ 1,452.92	$ 4,322.63	$ 1,454.45	$ 58,532.11	$ 8,775.40	$ 6,628.95	$1,732,710.35	$ 29,253.63	$ 19,242.75	$ 12,874.89	$ 45,604.86	$ 4,607.48	$ 4,806.66	**$1,911,024.34**
	Q4-Q1	Unit price	$ 40,418.65	$ 3.02	$ 12.41	$ 33.41	$ 22.27	$ 7.39	$ 0.09	$ 55.58	$ 18.05	$ 19,547.20	$ 0.17	$ 0.32	$ 0.48	$ 0.38	
		Extension	$ 40,418.65	$ 1,160.83	$ 4,518.24	$ 2,109.24	$ 56,423.92	$ 11,215.88	$ 6,948.50	$1,745,841.34	$ 26,471.68	$ 19,547.20	$ 17,480.08	$ 55,891.73	$ 6,792.08	$ 6,406.34	**$1,941,259.87**
2012	Q2-Q3	Unit price	$ 46,993.15	$ 3.82	$ 15.78	$ 28.15	$ 23.22	$ 6.67	$ 0.15	$ 64.72	$ 19.09	$ 22,726.75	$ 0.26	$ 0.38	$ 0.52	$ 0.35	
		Extension	$ 46,993.15	$ 1,470.58	$ 5,742.04	$ 1,776.95	$ 58,818.52	$ 10,127.43	$ 11,566.59	$2,032,823.84	$ 28,008.87	$ 22,726.75	$ 26,042.63	$ 67,446.91	$ 7,309.29	$ 5,891.78	**$2,257,025.43**
	Q4-Q1	Unit price	$ 45,508.79	$ 3.25	$ 12.37	$ 25.42	$ 25.84	$ 7.21	$ 0.18	$ 62.35	$ 18.18	$ 22,008.89	$ 0.23	$ 0.37	$ 0.45	$ 0.41	
		Extension	$ 45,508.79	$ 1,249.16	$ 4,501.98	$ 1,604.60	$ 65,472.99	$ 10,947.40	$ 13,527.24	$1,958,341.18	$ 26,668.63	$ 22,008.89	$ 23,724.74	$ 66,444.47	$ 6,374.59	$ 6,876.39	**$2,185,733.38**
2013	Q2-Q3	Unit price	$ 48,501.11	$ 3.11	$ 13.59	$ 26.18	$ 28.05	$ 7.63	$ 0.14	$ 65.66	$ 18.83	$ 23,456.03	$ 0.40	$ 0.43	$ 0.91	$ 0.57	
		Extension	$ 48,501.11	$ 1,198.09	$ 4,946.95	$ 1,652.93	$ 71,050.11	$ 11,578.05	$ 10,637.09	$2,062,343.74	$ 27,616.95	$ 23,456.03	$ 40,277.84	$ 75,607.61	$ 12,832.91	$ 9,708.27	**$2,329,450.54**

2. Concrete Pavement Project

TABLE 2.1 Concrete Pavement - Original Contract

Original Contract	
Description	Concrete Pavement
Contract ID	120038
S.P. Number	2770-01
Letting Date	03/23/2012
District	Metro

TABLE 2.2 Concrete Pavement – Original Contract Unit Prices

Item Number	Item ID	Description	Units	% of Total Cost
1	2021501/00010	MOBILIZATION	LS	10.79%
2	2104501/00022	REMOVE CURB AND GUTTER	L F	6.23%
3	2104505/00120	REMOVE BITUMINOUS PAVEMENT	S Y	3.74%
4	2104513/00011	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	L F	1.91%
5	2104523/00004	SALVAGE CASTING	EACH	0.76%
6	2105501/00010	COMMON EXCAVATION	C Y	3.09%
7	2105525/00030	TOPSOIL BORROW (CV)	C Y	1.36%
8	2301511/00010	STRUCTURAL CONCRETE	C Y	30.83%
9	2301538/00010	DOWEL BAR	EACH	5.53%
10	2301541/00404	INTEGRANT CURB DESIGN D4	L F	5.66%
11	2301604/03080	PLACE CONCRETE PAVEMENT 8.0"	S Y	24.87%
12	2506503/00010	RECONSTRUCT DRAINAGE STRUCTURE	L F	Removed
13	2506516/00010	CASTING ASSEMBLY	EACH	Removed
14	2506521/00010	INSTALL CASTING	EACH	Removed
15	2531501/02000	CONCRETE CURB & GUTTER DESIGN SPECIAL	L F	Removed
16	2563601/00010	TRAFFIC CONTROL	LS	2.61%
17	2563602/00002	RAISED PAVEMENT MARKER TEMPORARY	EACH	0.05%
18	2573530/00010	STORM DRAIN INLET PROTECTION	EACH	Removed
19	2575555/00010	TURF ESTABLISHMENT	LS	Removed
20	2581501/00010	REMOVABLE PREFORMED PLASTIC MARKING	L F	1.15%
21	2581603/00020	REMOVABLE PREFORMED PLASTIC MASK (BLACK)	L F	0.54%
22	2582502/41104	4" SOLID LINE WHITE-EPOXY	L F	0.88%

TABLE 2.3 Concrete Pavement – Sample Contract

Item ID	Description	Units	% of Total Cost	Items Represented
2021501/00010	MOBILIZATION	LS	10.79%	1
2104501/00022	REMOVE CURB AND GUTTER	L F	6.23%	2
2104505/00120	REMOVE BITUMINOUS PAVEMENT	S Y	3.74%	3
2104513/00011	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	L F	1.91%	4
2104521/00220	SALVAGE GUARD RAIL-PLATE BEAM	L F	0.76%	5
2105501/00010	COMMON EXCAVATION	C Y	3.09%	6
2105522/00030	SELECT GRANULAR BORROW (CV)	C Y	1.36%	7
2301511/00010	STRUCTURAL CONCRETE	C Y	61.36%	8,10-11
2401541/00011	REINFORCEMENT BARS (EPOXY COATED)	LB	5.53%	9
2563601/00010	TRAFFIC CONTROL	LS	2.66%	16-17
2582502/31104	4" SOLID LINE WHITE-POLY PREFORM (GROUND IN)	L F	1.69%	20-21
2582502/41104	4" SOLID LINE WHITE-EPOXY	L F	0.88%	22

TABLE 2.4 Concrete Pavement – Actual Unit Prices

Item Number			2021501/00010	2104501/00022	2104505/00120	2104513/00011	2104521/00220	2105501/00010	2105522/00030	2301511/00010	2401541/00011	2563601/00010	2582502/31104	2582502/41104	TOTAL
Units			LS	LF	SY	LF	LF	CY	CY	CY	LB	LS	LF	LF	
Year	Period	Quantity	1	31543	23950	14634	1923	4399	1187	10582	44512	1	7401	46297	
2008	Q2-Q3	Unit price	$ 161,833.97	$ 2.96	$ 2.34	$ 1.96	$ 5.91	$ 10.54	$ 17.19	$ 86.98	$ 1.86	$ 39,895.16	$ 3.43	$ 0.28	
		Extension	$ 161,833.97	$ 93,510.90	$ 56,079.25	$ 28,677.90	$ 11,363.27	$ 46,359.63	$ 20,405.60	$ 920,470.54	$ 82,897.13	$ 39,895.16	$ 25,369.96	$ 13,136.69	**$ 1,500,000.00**
	Q4-Q1	Unit price	$ 179,400.08	$ 2.19	$ 2.18	$ 2.10	$ 6.35	$ 10.66	$ 16.98	$ 103.98	$ 1.57	$ 44,225.54	$ 3.41	$ 0.27	
2009		Extension	$ 179,400.08	$ 69,082.11	$ 52,239.87	$ 30,736.31	$ 12,216.66	$ 46,905.07	$ 20,157.78	$ 1,100,375.04	$ 69,827.79	$ 44,225.54	$ 25,213.57	$ 12,436.21	**$ 1,662,816.01**
	Q2-Q3	Unit price	$ 190,950.55	$ 2.41	$ 2.24	$ 1.94	$ 7.64	$ 10.19	$ 18.94	$ 111.60	$ 1.46	$ 47,072.95	$ 4.14	$ 0.33	
		Extension	$ 190,950.55	$ 75,932.58	$ 53,687.70	$ 28,340.57	$ 14,690.70	$ 44,838.74	$ 22,479.54	$ 1,180,945.22	$ 64,952.82	$ 47,072.95	$ 30,678.54	$ 15,304.62	**$ 1,769,874.54**
	Q4-Q1	Unit price	$ 180,934.32	$ 2.98	$ 2.65	$ 2.15	$ 7.09	$ 13.10	$ 19.00	$ 100.78	$ 1.35	$ 44,603.76	$ 3.71	$ 0.32	
2010		Extension	$ 180,934.32	$ 93,975.22	$ 63,420.11	$ 31,391.87	$ 13,625.86	$ 57,605.38	$ 22,550.55	$ 1,066,416.88	$ 60,222.20	$ 44,603.76	$ 27,494.10	$ 14,796.26	**$ 1,677,036.50**
	Q2-Q3	Unit price	$ 167,611.26	$ 2.78	$ 3.03	$ 2.02	$ 12.75	$ 12.63	$ 21.43	$ 88.84	$ 1.49	$ 41,319.37	$ 3.82	$ 0.32	
		Extension	$ 167,611.26	$ 87,584.36	$ 72,613.64	$ 29,562.29	$ 24,506.32	$ 55,538.42	$ 25,443.26	$ 940,162.14	$ 66,270.29	$ 41,319.37	$ 28,284.30	$ 14,652.68	**$ 1,553,548.33**
	Q4-Q1	Unit price	$ 174,275.12	$ 3.04	$ 2.89	$ 2.26	$ 11.32	$ 9.89	$ 19.76	$ 94.25	$ 1.53	$ 42,962.14	$ 3.76	$ 0.39	
2011		Extension	$ 174,275.12	$ 95,820.26	$ 69,100.44	$ 33,003.22	$ 21,758.72	$ 43,515.91	$ 23,458.41	$ 997,398.24	$ 68,231.14	$ 42,962.14	$ 27,808.27	$ 17,982.10	**$ 1,615,313.96**
	Q2-Q3	Unit price	$ 176,394.32	$ 3.79	$ 3.28	$ 2.32	$ 13.07	$ 13.90	$ 20.70	$ 90.48	$ 1.57	$ 43,484.56	$ 3.77	$ 0.37	
		Extension	$ 176,394.32	$ 119,413.72	$ 78,645.90	$ 33,879.91	$ 25,130.48	$ 61,136.26	$ 24,574.91	$ 957,499.18	$ 69,853.48	$ 43,484.56	$ 27,888.79	$ 17,054.80	**$ 1,634,956.31**
	Q4-Q1	Unit price	$ 208,408.73	$ 3.68	$ 4.07	$ 2.22	$ 13.66	$ 20.16	$ 18.24	$ 110.14	$ 1.75	$ 51,376.72	$ 3.39	$ 0.45	
2012		Extension	$ 208,408.73	$ 116,120.75	$ 97,570.59	$ 32,441.77	$ 26,267.71	$ 88,659.37	$ 21,651.70	$ 1,165,475.83	$ 77,741.77	$ 51,376.72	$ 25,073.51	$ 20,901.77	**$ 1,931,690.23**
	Q2-Q3	Unit price	$ 197,870.35	$ 3.51	$ 4.08	$ 2.23	$ 17.36	$ 16.98	$ 21.88	$ 102.65	$ 1.68	$ 48,778.81	$ 3.48	$ 0.54	
		Extension	$ 197,870.35	$ 110,835.69	$ 97,623.18	$ 32,699.78	$ 33,382.47	$ 74,692.10	$ 25,977.93	$ 1,086,218.30	$ 74,987.07	$ 48,778.81	$ 25,723.77	$ 25,223.05	**$ 1,834,012.49**
	Q4-Q1	Unit price	$ 205,170.61	$ 3.44	$ 4.14	$ 2.45	$ 13.61	$ 15.33	$ 20.11	$ 109.57	$ 1.69	$ 50,578.46	$ 3.43	$ 0.54	
2013		Extension	$ 205,170.61	$ 108,446.98	$ 99,196.53	$ 35,799.95	$ 26,173.17	$ 67,447.68	$ 23,873.47	$ 1,159,441.25	$ 75,297.80	$ 50,578.46	$ 25,402.77	$ 24,848.17	**$ 1,901,676.84**
	Q2-Q3	Unit price	$ 221,792.98	$ 3.93	$ 4.11	$ 2.34	$ 14.96	$ 15.80	$ 25.09	$ 120.06	$ 1.55	$ 54,676.19	$ 3.63	$ 0.61	
		Extension	$ 221,792.98	$ 124,039.43	$ 98,442.86	$ 34,233.47	$ 28,760.08	$ 69,479.19	$ 29,788.05	$ 1,270,482.92	$ 68,912.10	$ 54,676.19	$ 26,863.39	$ 28,274.90	**$ 2,055,745.57**

3. Traffic Barriers Projects

TABLE 3.1 Traffic Barriers - Original Contract

Original Contract	
Description	Tension Cable Guardrail
Contract ID	80115
S.P. Number	0282-28
Letting Date	06/06/2008
District	Metro

TABLE 3.2 Traffic Barriers – Original Contract Unit Prices

Item Number	Item ID	Description	Units	% of Total Cost
1	2021501/00010	MOBILIZATION	LS	2.96%
2	2104501/00018	REMOVE PIPE SEWERS	L F	0.03%
3	2104501/00042	REMOVE GUARD RAIL-PLATE BEAM	L F	0.77%
4	2104509/00106	REMOVE CATCH BASIN GRATE CASTING	EACH	0.02%
5	2105523/00010	COMMON BORROW (LV)	C Y	0.08%
6	2105603/00010	MINOR GRADING	L F	0.29%
7	2211501/00050	AGGREGATE BASE CLASS 5	TON	0.13%
8	2501569/02912	12" RC SAFETY APRON	EACH	0.05%
9	2503541/90122	12" RC PIPE SEWER DESIGN 3006	L F	0.11%
10	2506522/00011	ADJUST FRAME & RING CASTING	EACH	0.03%
11	2506602/00024	CONNECT INTO EXISTING CATCH BASIN	EACH	0.03%
12	2506602/00034	GRATE CASTING NO 716	EACH	0.07%
13	2533507/00010	PORTABLE PRECAST CONCRETE BARRIER DESIGN 8337	L F	0.58%
14	2554501/00001	TRAFFIC BARRIER DESIGN SPECIAL	L F	0.54%
15	2554501/00040	TRAFFIC BARRIER DESIGN BULLNOSE	L F	3.52%
16	2554501/02038	TRAFFIC BARRIER DESIGN B8338	L F	13.72%
17	2554521/00020	ANCHORAGE ASSEMBLY-PLATE BEAM	EACH	0.37%
18	2554523/00028	END TREATMENT-TANGENT TERMINAL	EACH	2.92%
19	2554602/00005	IMPACT ATTENUATOR BARRELS	EACH	0.39%
20	2554602/00040	T-BARRIER BRIDGE CONN DES 8318	EACH	0.05%
21	2554603/00080	TENSION CABLE GUARDRAIL	L F	69.87%
22	2563601/00010	TRAFFIC CONTROL	LS	3.47%

TABLE 3.3 Traffic Barriers – Sample Contract

Item ID	Description	Units	% of Total Cost	Items Represented
2021501/00010	MOBILIZATION	LS	2.96%	1
2104501/00016	REMOVE SEWER PIPE (STORM)	L F	0.03%	2
2104501/00042	REMOVE GUARD RAIL-PLATE BEAM	L F	0.77%	3-4
2105522/00030	SELECT GRANULAR BORROW (CV)	C Y	0.08%	5-6
2211503/00050	AGGREGATE BASE (CV) CLASS 5	C Y	0.13%	7
2501511/20180	18" CS PIPE CULVERT	L F	0.05%	8
2503541/90122	12" RC PIPE SEWER DESIGN 3006	L F	0.11%	9-12
2554501/02038	TRAFFIC BARRIER DESIGN B8338	L F	22.09%	13-20
2554603/00080	TENSION CABLE GUARDRAIL	L F	69.87%	21
2563601/00010	TRAFFIC CONTROL	LS	3.47%	22

TABLE 3.4 Traffic Barriers – Actual Unit Prices

Item Number			2021501/00010	2104501/00016	2104501/00042	2105522/00030	2211503/00050	2501511/20180	2503541/90122	2554501/02038	2554603/00080	2563601/00010	TOTAL
Units			LS	LF	LF	CY	CY	LF	LF	LF	LF	LS	
Year	Period	Quantity	1	42	3998	318	75	12	86	16410	49374	1	
2008	Q2-Q3	Unit price	$ 44,426.36	$ 10.69	$ 2.98	$ 17.19	$ 26.39	$ 63.43	$ 42.18	$ 20.19	$ 21.23	$ 52,055.02	
		Extension	$ 44,426.36	$ 444.91	$ 11,913.53	$ 5,471.15	$ 1,990.18	$ 773.17	$ 3,642.78	$ 331,300.44	$1,047,982.45	$ 52,055.02	**$ 1,500,000.00**
	Q4-Q1	Unit price	$ 44,863.43	$ 12.03	$ 2.83	$ 16.98	$ 24.23	$ 49.95	$ 36.96	$ 18.20	$ 22.19	$ 52,567.14	
2009		Extension	$ 44,863.43	$ 501.06	$ 11,327.88	$ 5,404.70	$ 1,827.75	$ 608.87	$ 3,191.90	$ 298,646.87	$1,095,817.39	$ 52,567.14	**$ 1,514,756.98**
	Q2-Q3	Unit price	$ 42,168.70	$ 10.98	$ 2.86	$ 18.94	$ 28.15	$ 65.58	$ 32.46	$ 18.41	$ 20.38	$ 49,409.68	
		Extension	$ 42,168.70	$ 456.97	$ 11,444.07	$ 6,027.21	$ 2,122.95	$ 799.43	$ 2,803.09	$ 302,106.18	$1,006,434.45	$ 49,409.68	**$ 1,423,772.73**
	Q4-Q1	Unit price	$ 40,776.77	$ 10.06	$ 2.64	$ 19.00	$ 27.54	$ 47.80	$ 42.17	$ 17.50	$ 19.80	$ 47,778.74	
2010		Extension	$ 40,776.77	$ 418.79	$ 10,538.78	$ 6,046.25	$ 2,076.96	$ 582.74	$ 3,641.97	$ 287,205.49	$ 977,709.57	$ 47,778.74	**$ 1,376,776.07**
	Q2-Q3	Unit price	$ 44,443.19	$ 10.77	$ 2.66	$ 21.43	$ 26.77	$ 55.08	$ 43.37	$ 17.65	$ 22.08	$ 52,074.74	
		Extension	$ 44,443.19	$ 448.31	$ 10,618.17	$ 6,821.85	$ 2,018.67	$ 671.44	$ 3,745.17	$ 289,625.68	$1,090,100.93	$ 52,074.74	**$ 1,500,568.15**
	Q4-Q1	Unit price	$ 42,582.64	$ 11.84	$ 2.85	$ 19.76	$ 28.84	$ 50.95	$ 43.01	$ 18.24	$ 20.69	$ 49,894.71	
2011		Extension	$ 42,582.64	$ 492.93	$ 11,412.22	$ 6,289.67	$ 2,175.04	$ 621.14	$ 3,714.51	$ 299,238.42	$1,021,327.74	$ 49,894.71	**$ 1,437,749.02**
	Q2-Q3	Unit price	$ 52,371.28	$ 10.88	$ 3.09	$ 20.70	$ 30.53	$ 49.80	$ 36.70	$ 19.94	$ 26.37	$ 61,364.20	
		Extension	$ 52,371.28	$ 453.21	$ 12,338.29	$ 6,589.02	$ 2,302.20	$ 607.13	$ 3,169.69	$ 327,264.26	$1,301,790.82	$ 61,364.20	**$ 1,768,250.10**
	Q4-Q1	Unit price	$ 51,587.47	$ 12.46	$ 2.47	$ 18.24	$ 29.43	$ 63.81	$ 45.56	$ 18.05	$ 26.54	$ 60,445.79	
2012		Extension	$ 51,587.47	$ 518.73	$ 9,857.90	$ 5,805.25	$ 2,219.28	$ 777.82	$ 3,934.22	$ 296,142.28	$1,310,496.85	$ 60,445.79	**$ 1,741,785.58**
	Q2-Q3	Unit price	$ 52,548.93	$ 13.44	$ 3.12	$ 21.88	$ 30.67	$ 67.31	$ 51.40	$ 19.09	$ 26.72	$ 61,572.36	
		Extension	$ 52,548.93	$ 559.40	$ 12,488.32	$ 6,965.20	$ 2,313.46	$ 820.50	$ 4,438.31	$ 313,338.94	$1,319,202.88	$ 61,572.36	**$ 1,774,248.32**
	Q4-Q1	Unit price	$ 41,228.35	$ 13.54	$ 2.65	$ 20.11	$ 34.15	$ 64.46	$ 39.33	$ 18.18	$ 19.84	$ 48,307.87	
2013		Extension	$ 41,228.35	$ 563.62	$ 10,607.97	$ 6,400.95	$ 2,575.20	$ 785.74	$ 3,395.98	$ 298,345.60	$ 979,811.89	$ 48,307.87	**$ 1,392,023.17**
	Q2-Q3	Unit price	$ 40,723.06	$ 15.54	$ 2.54	$ 25.09	$ 37.05	$ 85.02	$ 45.68	$ 18.83	$ 19.26	$ 47,715.81	
		Extension	$ 40,723.06	$ 647.08	$ 10,174.26	$ 7,986.77	$ 2,794.56	$ 1,036.46	$ 3,944.87	$ 308,954.55	$ 950,985.28	$ 47,715.81	**$ 1,374,962.70**

4. Drainage Project

TABLE 4.1 Drainage - Original Contract

Original Contract	
Description	Drainage Structures and Pipe Culverts
Contract ID	100129
S.P. Number	0303-62
Letting Date	06/04/2010
District	4

TABLE 4.2 Drainage – Original Contract Unit Prices

Item Number	Item ID	Description	Units	% of Total Cost
1	2021501/00010	MOBILIZATION	LS	5.65%
2	2051501/00010	MAINT AND RESTORATION OF HAUL ROADS	LS	Removed
3	2104501/00022	REMOVE CURB AND GUTTER	L F	0.05%
4	2104505/00120	REMOVE BITUMINOUS PAVEMENT	S Y	0.06%
5	2104509/00013	REMOVE PIPE APRON	EACH	0.86%
6	2104509/00102	REMOVE CATCH BASIN	EACH	0.10%
7	2104509/00105	REMOVE CASTING	EACH	0.04%
8	2104513/00011	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	L F	0.09%
9	2105522/00010	SELECT GRANULAR BORROW (LV)	C Y	0.14%
10	2105601/00010	DEWATERING	LS	12.01%
11	2360501/23200	TYPE SP 12.5 WEARING COURSE MIXTURE (3,B)	TON	0.41%
12	2501511/90249	24" RC PIPE CULVERT CLASS V-JACKED	L F	41.64%
13	2501511/90309	30" RC PIPE CULVERT CLASS V-JACKED	L F	22.43%
14	2501515/90240	24" RC PIPE APRON	EACH	0.88%
15	2501515/90300	30" RC PIPE APRON	EACH	0.58%
16	2501569/01024	24" CS SAFETY APRON	EACH	1.26%
17	2501569/02924	24" RC SAFETY APRON	EACH	0.44%
18	2501602/00011	PLUG & ABANDON PIPE CULVERT	EACH	3.76%
19	2501603/00124	LINING CULVERT PIPE (24")	L F	6.82%
20	2506501/00070	CONSTRUCT DRAINAGE STRUCTURE DESIGN G	L F	0.44%
21	2506516/00010	CASTING ASSEMBLY	EACH	0.19%
22	2519607/00010	CLSM LOW DENSITY	C Y	Removed
23	2531501/02320	CONCRETE CURB & GUTTER DESIGN B624	L F	Removed
24	2563601/00010	TRAFFIC CONTROL	LS	2.15%
25	2573502/00040	SILT FENCE, TYPE MACHINE SLICED	L F	Removed
26	2575555/00010	TURF ESTABLISHMENT	LS	Removed

TABLE 4.3 Drainage – Sample Contract

Item ID	Description	Units	% of Total Cost	Items Represented
2021501/00010	MOBILIZATION	LS	5.65%	1
2104501/00022	REMOVE CURB AND GUTTER	L F	2.46%	3, (1/5 of 10)
2104505/00120	REMOVE BITUMINOUS PAVEMENT	S Y	2.47%	4, (1/5 of 10)
2104501/00042	REMOVE GUARD RAIL-PLATE BEAM	L F	3.40%	5-7, (1/5 of 10)
2104513/00011	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	L F	2.49%	8, (1/5 of 10)
2105522/00030	SELECT GRANULAR BORROW (CV)	C Y	2.54%	9, (1/5 of 10)
2360501/23200	TYPE SP 12.5 WEARING COURSE MIXTURE (3,B)	TON	0.41%	11
2501511/90242	24" RC PIPE CULVERT	L F	42.96%	12,14,17
2501511/90302	30" RC PIPE CULVERT	L F	23.01%	13,15
2501511/20180	18" CS PIPE CULVERT	L F	1.26%	16
2501603/00124	LINING CULVERT PIPE (24")	L F	11.21%	18-21
2563601/00010	TRAFFIC CONTROL	LS	2.15%	24

TABLE 4.4 Drainage – Actual Unit Prices

Item Number			2021501/00010	2104501/00022	2104505/00120	2104501/00042	2104513/00011	2105522/00030	2360501/23200	2501511/90242	2501511/90302	2501511/20180	2501603/00124	2563601/00010	TOTAL
Units			LS	LF	SY	LF	LF	CY	TON	LF	LF	LF	LF	LS	
Year	Period	Quantity	1	12422	15793	20468	19049	2215	73	10496	3404	299	2479	1	
2008	Q2-Q3	Unit price	$ 84,778.44	$ 2.96	$ 2.34	$ 2.49	$ 1.96	$ 17.19	$ 84.00	$ 61.40	$ 101.38	$ 63.43	$ 67.85	$ 32,184.32	
		Extension	$ 84,778.44	$ 36,825.24	$ 36,980.46	$ 51,016.54	$ 37,329.18	$ 38,072.97	$ 6,158.13	$ 644,407.94	$ 345,114.47	$ 18,968.00	$ 168,164.32	$ 32,184.32	$ 1,500,000.00
	Q4-Q1	Unit price	$ 78,458.32	$ 2.19	$ 2.18	$ 2.37	$ 2.10	$ 16.98	$ 105.79	$ 60.32	$ 63.84	$ 49.95	$ 88.35	$ 29,785.02	
2009		Extension	$ 78,458.32	$ 27,205.01	$ 34,448.65	$ 48,508.65	$ 40,008.55	$ 37,610.57	$ 7,755.92	$ 633,132.06	$ 217,332.75	$ 14,937.23	$ 218,994.29	$ 29,785.02	$ 1,388,177.02
	Q2-Q3	Unit price	$ 82,868.23	$ 2.41	$ 2.24	$ 2.39	$ 1.94	$ 18.94	$ 87.89	$ 64.86	$ 58.20	$ 65.58	$ 102.40	$ 31,459.15	
		Extension	$ 82,868.23	$ 29,902.77	$ 35,403.39	$ 49,006.22	$ 36,890.08	$ 41,942.55	$ 6,443.40	$ 680,748.59	$ 198,128.49	$ 19,612.12	$ 253,797.29	$ 31,459.15	$ 1,466,202.28
	Q4-Q1	Unit price	$ 73,797.42	$ 2.98	$ 2.65	$ 2.20	$ 2.15	$ 19.00	$ 107.86	$ 54.23	$ 49.55	$ 47.80	$ 95.59	$ 28,015.61	
2010		Extension	$ 73,797.42	$ 37,008.09	$ 41,821.26	$ 45,129.56	$ 40,861.87	$ 42,075.03	$ 7,906.99	$ 569,205.58	$ 168,673.41	$ 14,296.22	$ 236,919.83	$ 28,015.61	$ 1,305,710.87
	Q2-Q3	Unit price	$ 91,939.85	$ 2.78	$ 3.03	$ 2.22	$ 2.02	$ 21.43	$ 110.03	$ 71.90	$ 73.15	$ 55.08	$ 104.02	$ 34,903.00	
		Extension	$ 91,939.85	$ 34,491.32	$ 47,883.77	$ 45,469.51	$ 38,480.37	$ 47,472.29	$ 8,066.26	$ 754,692.01	$ 249,023.61	$ 16,472.24	$ 257,813.86	$ 34,903.00	$ 1,626,708.07
	Q4-Q1	Unit price	$ 86,016.61	$ 3.04	$ 2.89	$ 2.39	$ 2.26	$ 19.76	$ 102.96	$ 59.21	$ 66.03	$ 50.95	$ 127.23	$ 32,654.37	
2011		Extension	$ 86,016.61	$ 37,734.68	$ 45,567.05	$ 48,869.82	$ 42,959.32	$ 43,768.93	$ 7,548.06	$ 621,412.85	$ 224,775.27	$ 15,238.07	$ 315,362.10	$ 32,654.37	$ 1,521,907.11
	Q2-Q3	Unit price	$ 108,542.86	$ 3.79	$ 3.28	$ 2.58	$ 2.32	$ 20.70	$ 111.24	$ 95.45	$ 57.70	$ 49.80	$ 124.16	$ 41,205.98	
		Extension	$ 108,542.86	$ 47,025.94	$ 51,861.64	$ 52,835.45	$ 44,100.49	$ 45,852.10	$ 8,155.24	$ 1,001,803.67	$ 196,441.90	$ 14,894.59	$ 307,748.30	$ 41,205.98	$ 1,920,468.15
	Q4-Q1	Unit price	$ 95,675.84	$ 3.68	$ 4.07	$ 2.06	$ 2.22	$ 18.24	$ 112.08	$ 68.75	$ 67.98	$ 63.81	$ 139.42	$ 36,321.29	
2012		Extension	$ 95,675.84	$ 45,729.15	$ 64,341.19	$ 42,213.84	$ 42,228.50	$ 40,397.95	$ 8,217.04	$ 721,599.23	$ 231,433.32	$ 19,081.85	$ 345,570.43	$ 36,321.29	$ 1,692,809.63
	Q2-Q3	Unit price	$ 111,218.25	$ 3.51	$ 4.08	$ 2.61	$ 2.23	$ 21.88	$ 130.51	$ 83.63	$ 76.54	$ 67.31	$ 158.89	$ 42,221.63	
		Extension	$ 111,218.25	$ 43,647.86	$ 64,375.86	$ 53,477.94	$ 42,564.34	$ 48,469.87	$ 9,567.77	$ 877,719.48	$ 260,577.77	$ 20,129.02	$ 393,834.38	$ 42,221.63	$ 1,967,804.16
	Q4-Q1	Unit price	$ 94,634.00	$ 3.44	$ 4.14	$ 2.22	$ 2.45	$ 20.11	$ 125.73	$ 68.36	$ 63.49	$ 64.46	$ 135.95	$ 35,925.77	
2013		Extension	$ 94,634.00	$ 42,707.16	$ 65,413.38	$ 45,425.84	$ 46,599.74	$ 44,543.35	$ 9,217.20	$ 717,523.23	$ 216,131.19	$ 19,276.36	$ 336,978.92	$ 35,925.77	$ 1,674,376.15
	Q2-Q3	Unit price	$ 111,574.23	$ 3.93	$ 4.11	$ 2.13	$ 2.34	$ 25.09	$ 132.40	$ 84.79	$ 72.91	$ 85.02	$ 157.12	$ 42,356.77	
		Extension	$ 111,574.23	$ 48,847.58	$ 64,916.38	$ 43,568.58	$ 44,560.71	$ 55,578.84	$ 9,706.70	$ 889,917.11	$ 248,215.31	$ 25,427.09	$ 389,433.38	$ 42,356.77	$ 1,974,102.70

Appendix P

Existing Construction Cost Indexes

COST INDEXES AND ADJUSTED PRICES FOR SAMPLE PROJECTS

This appendix contains the twelve cost indexes analyzed in Chapter 6. Indexes presented below correspond to the last known index on July 1st each year from 2008 to 2013. The Producer Price Indexes (PPIs) Highway and Street Construction (BHWY) and Other Non-residential Construction (BONS) are used as a single index in Chapter 6 since the BHWY was discontinued in 2010 and combined with other indexes into the BONS. The RSMeans 20-city average index and National Highway Construction Cost Index (NHCCI) were not published or available at the moment of this study.

TABLE E.1 Cost Indexes

Adjustment Dates		Jul-08	Jul-09	Jul-10	Jul-11	Jul-12	Jul-13
RSMeans	20-City Average	180.4	180.1	183.5	191.2	194.6	-
	Minneapolis	190.6	203.1	203.8	208.1	214.7	216.3
PPI	BHWY	234.4	208.7	217.1	-	-	-
	BONS	-	-	100.0	110.4	110.1	111.3
NHCCI		1.2938	1.0901	1.0671	1.0691	1.1468	-
CCI	20-City Average	8185	8578	8805	9053	9291	9542
	Minneapolis	9662.41	9745.02	10081.54	10177	10561.49	10852.11
BCI	20-City Average	4640	4771	4888	5059	5170	5286
	Minneapolis	4850.69	4885.99	5113.2	5213.9	5296.68	5415.65
Caltrans Quarterly		95.4	74.5	79.3	85.2	84.6	129.8
Caltrans 12-month		90.7	92	79.1	78.9	81.3	110.3
SDDOT		268.045	276.101	286.363	289.484	307.761	332.369
MnDOT Annual		212.88	234.22	225.32	229.17	245.95	257.36

BCI = Building Cost Index – Engineering News-Record; BHWY = Highway and Street Construction Index – Bureau of Labor Statistics; BONS = Other Non-residential Construction Index – Bureau of Labor Statistics; Caltrans = California Department of Transportation; CCI = Construction Cost Index – Engineering News-Record; MnDOT = Minnesota Department of Transportation; NHCCI = National Highway Construction Cost Index – Federal Highway Administration; PPI = Producer Price Index – Bureau of Labor Statistics; SDDOT = South Dakota Department of Transportation

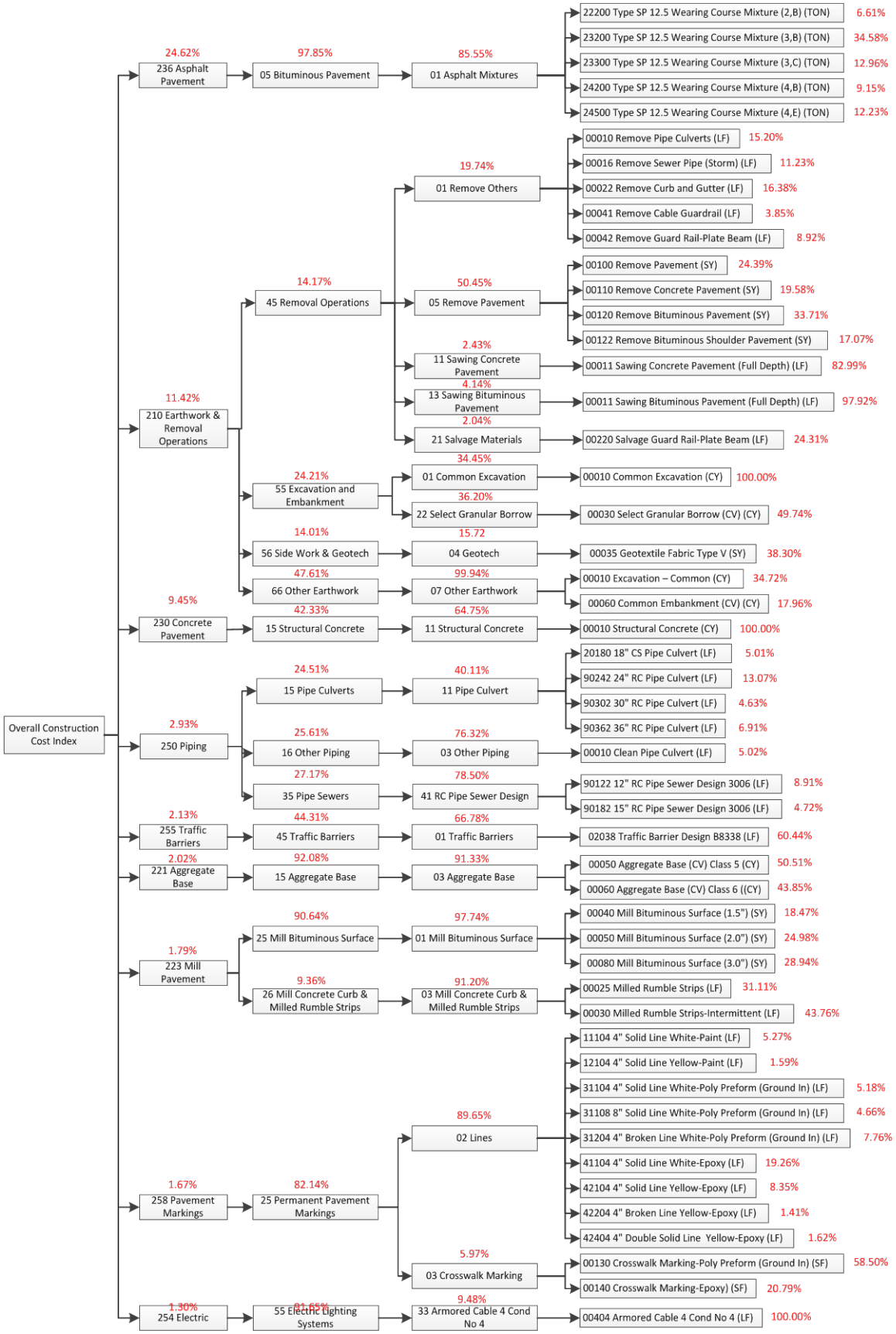
This appendix also contains the adjusted cost of the sample projects in July 1st each year, since 2008 until 2013. Given the base price for all sample project was the same ($1,500,000.00) and since these indexes are equally applied to all contracts, adjusted prices for each period are the same for all sample projects.

TABLE E.2 Adjusted Contract Prices

Cost Indexes	Adjustment Dates					
	Jul-08	Jul-09	Jul-10	Jul-11	Jul-12	Jul-13
RsMeans National	$1,500,000.00	$1,497,505.54	$1,525,776.05	$1,589,800.44	$1,618,070.95	-
RsMeans Minneapolis	$1,500,000.00	$1,598,373.56	$1,603,882.48	$1,637,722.98	$1,689,664.22	$1,702,256.03
PPI	$1,500,000.00	$1,335,537.54	$1,389,291.81	$1,533,778.16	$1,529,610.28	$1,546,281.78
NHCCI	$1,500,000.00	$1,263,835.21	$1,237,169.58	$1,239,488.33	$1,329,571.80	-
CC National	$1,500,000.00	$1,572,021.99	$1,613,622.48	$1,659,071.47	$1,702,687.84	$1,748,686.62
CCI Minneapolis	$1,500,000.00	$1,512,824.44	$1,565,066.07	$1,579,885.35	$1,639,573.87	$1,684,689.95
BCI National	$1,500,000.00	$1,542,349.14	$1,580,172.41	$1,635,452.59	$1,671,336.21	$1,708,836.21
BCI Minneapolis	$1,500,000.00	$1,510,915.97	$1,581,177.11	$1,612,317.01	$1,637,915.43	$1,674,705.04
Caltrans Quarterly	$1,500,000.00	$1,171,383.65	$1,246,855.35	$1,339,622.64	$1,330,188.68	$2,040,880.50
Caltrans Last 12 months	$1,500,000.00	$1,521,499.45	$1,308,158.77	$1,304,851.16	$1,344,542.45	$1,824,145.53
SDDOT	$1,500,000.00	$1,545,081.98	$1,602,508.91	$1,619,974.26	$1,722,253.73	$1,859,961.95
MnDOT Annual	$1,500,000.00	$1,650,366.40	$1,587,655.02	$1,614,782.98	$1,733,018.60	$1,813,416.01

Appendix Q

Bid Items Structure


Overall Construction Cost Index
24.62%
236 Asphalt Pavement
97.85%
05 Bituminous Pavement
85.55%
01 Asphalt Mixtures
22200 Type SP 12.5 Wearing Course Mixture (2,B) (TON) 6.61%
23200 Type SP 12.5 Wearing Course Mixture (3,B) (TON) 34.58%
23300 Type SP 12.5 Wearing Course Mixture (3,C) (TON) 12.96%
24200 Type SP 12.5 Wearing Course Mixture (4,B) (TON) 9.15%
24500 Type SP 12.5 Wearing Course Mixture (4,E) (TON) 12.23%
11.42%
210 Earthwork & Removal Operations
14.17%
45 Removal Operations
19.74%
01 Remove Others
00010 Remove Pipe Culverts (LF) 15.20%
00016 Remove Sewer Pipe (Storm) (LF) 11.23%
00022 Remove Curb and Gutter (LF) 16.38%
00041 Remove Cable Guardrail (LF) 3.85%
00042 Remove Guard Rail-Plate Beam (LF) 8.92%
50.45%
05 Remove Pavement
00100 Remove Pavement (SY) 24.39%
00110 Remove Concrete Pavement (SY) 19.58%
00120 Remove Bituminous Pavement (SY) 33.71%
00122 Remove Bituminous Shoulder Pavement (SY) 17.07%
2.43%
11 Sawing Concrete Pavement
00011 Sawing Concrete Pavement (Full Depth) (LF) 82.99%
4.14%
13 Sawing Bituminous Pavement
00011 Sawing Bituminous Pavement (Full Depth) (LF) 97.92%
2.04%
21 Salvage Materials
00220 Salvage Guard Rail-Plate Beam (LF) 24.31%
24.21%
55 Excavation and Embankment
34.45%
01 Common Excavation
00010 Common Excavation (CY) 100.00%
36.20%
22 Select Granular Borrow
00030 Select Granular Borrow (CV) (CY) 49.74%
14.01%
56 Side Work & Geotech
15.72
04 Geotech
00035 Geotextile Fabric Type V (SY) 38.30%
47.61%
66 Other Earthwork
99.94%
07 Other Earthwork
00010 Excavation – Common (CY) 34.72%
00060 Common Embankment (CV) (CY) 17.96%
9.45%
230 Concrete Pavement
42.33%
15 Structural Concrete
64.75%
11 Structural Concrete
00010 Structural Concrete (CY) 100.00%
2.93%
250 Piping
24.51%
15 Pipe Culverts
40.11%
11 Pipe Culvert
20180 18" CS Pipe Culvert (LF) 5.01%
90242 24" RC Pipe Culvert (LF) 13.07%
90302 30" RC Pipe Culvert (LF) 4.63%
90362 36" RC Pipe Culvert (LF) 6.91%
25.61%
16 Other Piping
76.32%
03 Other Piping
00010 Clean Pipe Culvert (LF) 5.02%
27.17%
35 Pipe Sewers
78.50%
41 RC Pipe Sewer Design
90122 12" RC Pipe Sewer Design 3006 (LF) 8.91%
90182 15" RC Pipe Sewer Design 3006 (LF) 4.72%
2.13%
255 Traffic Barriers
44.31%
45 Traffic Barriers
66.78%
01 Traffic Barriers
02038 Traffic Barrier Design B8338 (LF) 60.44%
2.02%
221 Aggregate Base
92.08%
15 Aggregate Base
91.33%
03 Aggregate Base
00050 Aggregate Base (CV) Class 5 (CY) 50.51%
00060 Aggregate Base (CV) Class 6 ((CY) 43.85%
1.79%
223 Mill Pavement
90.64%
25 Mill Bituminous Surface
97.74%
01 Mill Bituminous Surface
00040 Mill Bituminous Surface (1.5") (SY) 18.47%
00050 Mill Bituminous Surface (2.0") (SY) 24.98%
00080 Mill Bituminous Surface (3.0") (SY) 28.94%
9.36%
26 Mill Concrete Curb & Milled Rumble Strips
91.20%
03 Mill Concrete Curb & Milled Rumble Strips
00025 Milled Rumble Strips (LF) 31.11%
00030 Milled Rumble Strips-Intermittent (LF) 43.76%
1.67%
258 Pavement Markings
82.14%
25 Permanent Pavement Markings
89.65%
02 Lines
11104 4" Solid Line White-Paint (LF) 5.27%
12104 4" Solid Line Yellow-Paint (LF) 1.59%
31104 4" Solid Line White-Poly Preform (Ground In) (LF) 5.18%
31108 8" Solid Line White-Poly Preform (Ground In) (LF) 4.66%
31204 4" Broken Line White-Poly Preform (Ground In) (LF) 7.76%
41104 4" Solid Line White-Epoxy (LF) 19.26%
42104 4" Solid Line Yellow-Epoxy (LF) 8.35%
42204 4" Broken Line Yellow-Epoxy (LF) 1.41%
42404 4" Double Solid Line Yellow-Epoxy (LF) 1.62%
5.97%
03 Crosswalk Marking
00130 Crosswalk Marking-Poly Preform (Ground In) (SF) 58.50%
00140 Crosswalk Marking-Epoxy) (SF) 20.79%
1.30%
254 Electric
91.65%
55 Electric Lighting Systems
9.48%
33 Armored Cable 4 Cond No 4
00404 Armored Cable 4 Cond No 4 (LF) 100.00%

Q-1

Appendix R

MnDOT Index Per Pay Item

MnDOT Index per Pay Item

Periods of time in the MnDOT Index per Pay Item are defined as following.

P1 = January 1st – June 30th

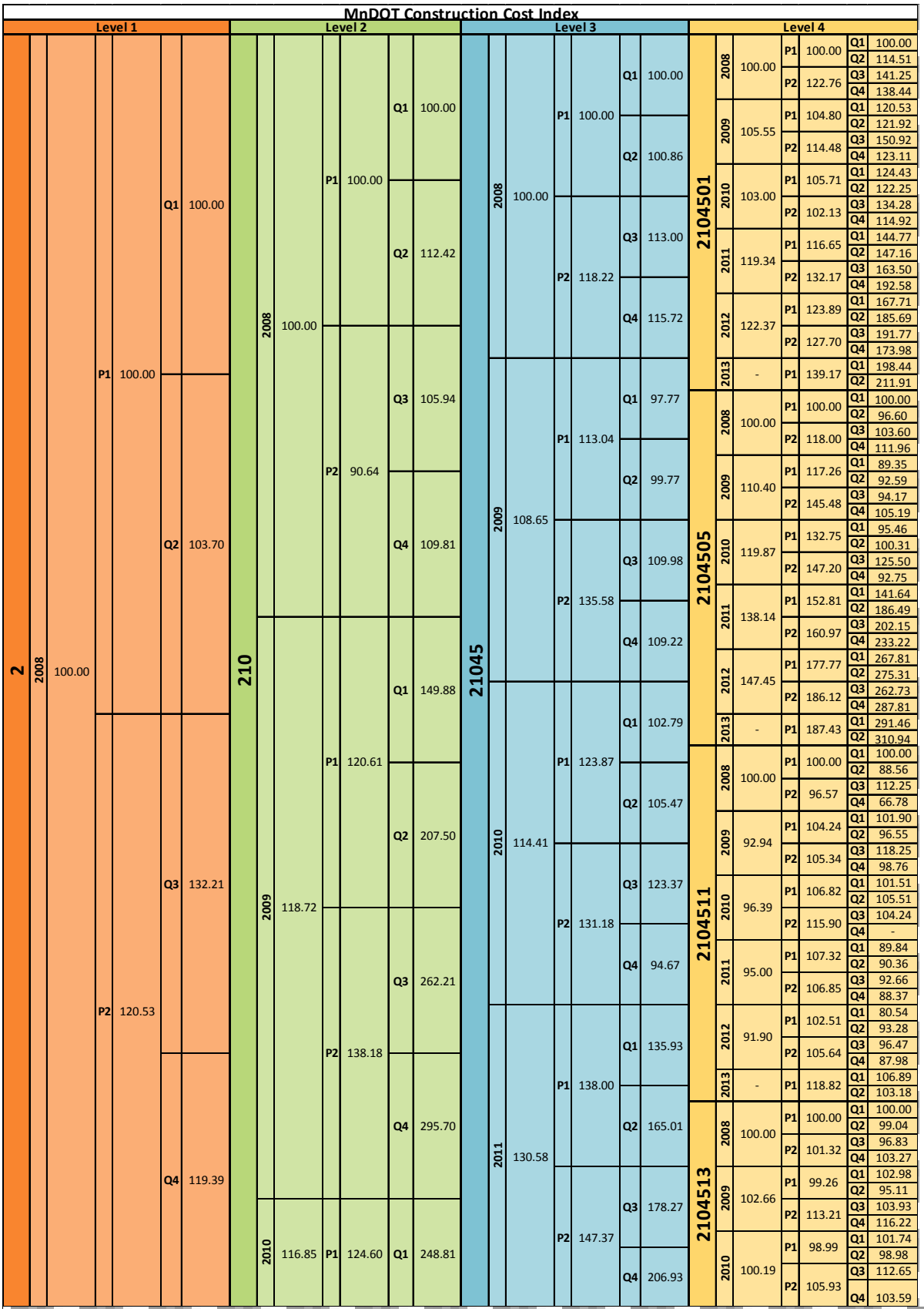
P2 = July 1st – December 31st

Q1 = January 1st – March 31st

Q2 = April 1st – June 30th

Q3 = July 1st – December 31st

Tables containing a quarterly, semi-annual, and annual index during the five-year period comprised in this study are presented in the following pages.


MnDOT Construction Cost Index
Level 1
Level 2
Level 3
Level 4
2
2008 100.00
P1 100.00
Q1 100.00
Q2 103.70
P2 120.53
Q3 132.21
Q4 119.39
210
2008 100.00
P1 100.00
Q1 100.00
Q2 112.42
P2 90.64
Q3 105.94
Q4 109.81
2009 118.72
P1 120.61
Q1 149.88
Q2 207.50
P2 138.18
Q3 262.21
Q4 295.70
2010 116.85
P1 124.60
Q1 248.81
Q2 206.93
21045
2008 100.00
P1 100.00
Q1 100.00
Q2 100.86
P2 118.22
Q3 113.00
Q4 115.72
2009 108.65
P1 113.04
Q1 97.77
Q2 99.77
P2 135.58
Q3 109.98
Q4 109.22
2010 114.41
P1 123.87
Q1 102.79
Q2 105.47
P2 131.18
Q3 123.37
Q4 94.67
2011 130.58
P1 138.00
Q1 135.93
Q2 165.01
P2 147.37
Q3 178.27
Q4 206.93
2104501
2008 100.00
P1 100.00
Q1 100.00
Q2 114.51
P2 122.76
Q3 141.25
Q4 138.44
2009 105.55
P1 104.80
Q1 120.53
Q2 121.92
P2 114.48
Q3 150.92
Q4 123.11
2010 103.00
P1 105.71
Q1 124.43
Q2 122.25
P2 102.13
Q3 134.28
Q4 114.92
2011 119.34
P1 116.65
Q1 144.77
Q2 147.16
P2 132.17
Q3 163.50
Q4 192.58
2012 122.37
P1 123.89
Q1 167.71
Q2 185.69
P2 127.70
Q3 191.77
Q4 173.98
2013 -
P1 139.17
Q1 198.44
Q2 211.91
2104505
2008 100.00
P1 100.00
Q1 100.00
Q2 96.60
P2 118.00
Q3 103.60
Q4 111.96
2009 110.40
P1 117.26
Q1 89.35
Q2 92.59
P2 145.48
Q3 94.17
Q4 105.19
2010 119.87
P1 132.75
Q1 95.46
Q2 100.31
P2 147.20
Q3 125.50
Q4 92.75
2011 138.14
P1 152.81
Q1 141.64
Q2 186.49
P2 160.97
Q3 202.15
Q4 233.22
2012 147.45
P1 177.77
Q1 267.81
Q2 275.31
P2 186.12
Q3 262.73
Q4 287.81
2013 -
P1 187.43
Q1 291.46
Q2 310.94
2104511
2008 100.00
P1 100.00
Q1 100.00
Q2 88.56
P2 96.57
Q3 112.25
Q4 66.78
2009 92.94
P1 104.24
Q1 101.90
Q2 96.55
P2 105.34
Q3 118.25
Q4 98.76
2010 96.39
P1 106.82
Q1 101.51
Q2 105.51
P2 115.90
Q3 104.24
Q4 -
2011 95.00
P1 107.32
Q1 89.84
Q2 90.36
P2 106.85
Q3 92.66
Q4 88.37
2012 91.90
P1 102.51
Q1 80.54
Q2 93.28
P2 105.64
Q3 96.47
Q4 87.98
2013 -
P1 118.82
Q1 106.89
Q2 103.18
2104513
2008 100.00
P1 100.00
Q1 100.00
Q2 99.04
P2 101.32
Q3 96.83
Q4 103.27
2009 102.66
P1 99.26
Q1 102.98
Q2 95.11
P2 113.21
Q3 103.93
Q4 116.22
2010 100.19
P1 98.99
Q1 101.74
Q2 98.98
P2 105.93
Q3 112.65
Q4 103.59

MnDOT Construction Cost Index

Level 1							Level 2							Level 3							Level 4						
2	2008	100 Cont.	P2	120.53 Cont.	Q4	119.39 Cont.	210	2011	127.20	P1	138.28	Q1	278.51	21055	2008	100.00	P1	100.00	Q1	100.00	2105501	2008	100.00	P1	100.00	Q1	100.00
																			Q2	98.98				P2	105.83	Q2	94.23
																	P2	103.46	Q3	105.00						Q3	115.34
																			Q4	109.61						Q4	99.68
												Q2	296.41				P1	94.40	Q1	92.20		2009	97.44	P1	86.43	Q1	78.10
																			Q2	92.33				P2	104.15	Q2	70.60
															2009	100.42	P2	104.56	Q3	102.26						Q3	106.96
																			Q4	125.00						Q4	130.48
	2009	108.60										Q3	332.41				P1	114.29	Q1	130.14		2010	107.91	P1	106.90	Q1	148.60
																			Q2	136.04				P2	104.63	Q2	131.79
										P2	157.09				2010	110.72	P2	116.54	Q3	189.97						Q3	226.87
																			Q4	118.55						Q4	121.77
												Q4	319.99				P1	113.94	Q1	132.76		2011	90.13	P1	100.06	Q1	122.92
																			Q2	146.12				P2	161.76	Q2	162.92
															2011	95.77	P2	137.50	Q3	170.10						Q3	234.22
																			Q4	192.85						Q4	264.27
			P2	122.64	Q3	148.59											P1	159.55	Q1	226.57		2012	135.09	P1	174.26	Q1	332.49
																			Q2	229.45				P2	204.45	Q2	312.52
															2012	120.41	P2	209.69	Q3	299.66						Q3	381.46
																			Q4	395.46						Q4	503.40
												Q1	301.77				P1	153.71	Q1	309.59		2013	-	P1	143.45	Q1	454.74
					Q4	157.89		2012	142.66	P1	161.96				2013	-			Q2	316.66						Q2	446.50
												Q2	380.31													Q1	100.00
																										Q2	103.50
																						2008	100.00	P2	101.22	Q3	95.16
																										Q4	119.06
																								P1	101.98	Q1	105.62
																						2009	103.26			Q2	113.01
																								P2	104.95	Q3	97.80
																										Q4	119.79
																								P1	121.33	Q1	112.57
																						2010	113.39			Q2	140.09
																								P2	127.87	Q3	154.86
																										Q4	115.49
																								P1	127.15	Q1	142.13
																						2011	101.13			Q2	130.13
																								P2	114.41	Q3	109.07
																										Q4	124.89
																								P1	145.55	Q1	125.78
																						2012	106.43			Q2	150.40
																								P2	214.68	Q3	221.82
																										Q4	-
																								P1	163.47	Q1	171.45
																						2013	-			Q2	193.10

MnDOT Construction Cost Index

Level 1			Level 2			Level 3			Level 4		
2	2009	108.60 Cont.	210	2012	142.66 Cont.	21056	2008	100.00	2105604	2008	100.00
							2009	102.40		2009	102.40
							2010	101.10		2010	101.10
							2011	112.23		2011	112.23
							2012	112.26		2012	112.26
							2013	-		2013	-
	2010	110.34	210	2013	-	21066	2008	100.00	2106607	2008	100.00
							2009	135.82		2009	135.82
							2010	125.32		2010	125.32
							2011	146.59		2011	146.59
							2012	164.42		2012	164.42
							2013	-		2013	-
			221	2008	100.00	22115	2008	100.00	2211503	2008	100.00
				2009	102.30		2009	102.30		2009	102.30
				2010	104.81		2010	104.81		2010	104.81
				2011	118.75		2011	118.75		2011	118.75
				2012	119.38		2012	119.38		2012	119.38
				2013	-		2013	-		2013	-
			223	2008	100.00	22325	2008	100.00	2232501	2008	100.00
				2009	106.32		2009	105.35		2009	105.35
							2010	124.54		2010	124.54

Level 1			Level 2			Level 3			Level 4		
2	2009	P2 122.64 Cont	210	2012	P1 161.96 Cont.	21056	2008	P1 100.00	2105604	2008	P1 100.00
								P2 73.69			P2 73.69
							2009	P1 85.68		2009	P1 85.68
								P2 75.80			P2 75.80
							2010	P1 78.87		2010	P1 78.87
								P2 88.83			P2 88.83
							2011	P1 88.11		2011	P1 88.11
								P2 117.42			P2 117.42
							2012	P1 100.75		2012	P1 100.75
								P2 95.90			P2 95.90
							2013	P1 109.22		2013	P1 109.22
		P1 116.14	210	2013	P1 166.90	21066	2008	P1 100.00	2106607	2008	P1 100.00
								P2 80.90			P2 80.90
							2009	P1 146.46		2009	P1 146.46
								P2 174.42			P2 174.42
							2010	P1 143.52		2010	P1 143.52
								P2 154.89			P2 154.89
							2011	P1 165.51		2011	P1 165.51
								P2 181.62			P2 181.62
							2012	P1 183.04		2012	P1 183.04
								P2 208.72			P2 208.72
							2013	P1 190.73		2013	P1 190.73
	2010		221	2008	P1 100.00	22115	2008	P1 100.00	2211503	2008	P1 100.00
					P2 105.13			P2 105.13			P2 105.13
				2009	P1 103.53		2009	P1 103.53		2009	P1 103.53
					P2 111.07			P2 111.07			P2 111.07
				2010	P1 111.36		2010	P1 111.36		2010	P1 111.36
					P2 111.53			P2 111.53			P2 111.53
				2011	P1 125.81		2011	P1 125.81		2011	P1 125.81
					P2 128.60			P2 128.60			P2 128.60
				2012	P1 123.99		2012	P1 123.99		2012	P1 123.99
					P2 134.30			P2 134.30			P2 134.30
				2013	P1 136.06		2013	P1 136.06		2013	P1 136.06
		P2 119.17	223	2008	P1 100.00	22325	2008	P1 100.00	2232501	2008	P1 100.00
					P2 87.89			P2 87.89			P2 87.89
				2009	P1 114.76		2009	P1 114.44		2009	P1 114.44
								P2 108.11			P2 108.11
							2010	P1 137.78		2010	P1 137.78

Level 1				Level 2				Level 3				Level 4			
2	2009	P2 122.64 Cont	Q4 157.89 Cont.	210	2012	P1 161.96 Cont.	Q2 380.31 Cont.	21056	2008	P1 100.00	Q1 100.00 Q2 111.01	2105604	2008	P1 100.00	Q1 100.00 Q2 111.01
										P2 73.69	Q3 - Q4 82.27			P2 73.69	Q3 - Q4 82.27
									2009	P1 85.68	Q1 90.15 Q2 102.43		2009	P1 85.68	Q1 90.15 Q2 102.43
										P2 75.80	Q3 106.36 Q4 81.51			P2 75.80	Q3 106.36 Q4 81.51
							Q3 361.57		2010	P1 78.87	Q1 81.98 Q2 88.53		2010	P1 78.87	Q1 81.98 Q2 88.53
						P2 186.62				P2 88.83	Q3 108.21 Q4 102.54			P2 88.83	Q3 108.21 Q4 102.54
									2011	P1 88.11	Q1 126.94 Q2 88.72		2011	P1 88.11	Q1 126.94 Q2 88.72
										P2 117.42	Q3 126.02 Q4 -			P2 117.42	Q3 126.02 Q4 -
									2012	P1 100.75	Q1 107.14 Q2 101.93		2012	P1 100.75	Q1 107.14 Q2 101.93
										P2 95.90	Q3 84.29 Q4 105.89			P2 95.90	Q3 84.29 Q4 105.89
							Q4 434.28		2013	P1 109.22	Q1 103.84 Q2 125.22		2013	P1 109.22	Q1 103.84 Q2 125.22
			Q1 149.83	210	2013	P1 166.90	Q1 375.62	21066	2008	P1 100.00	Q1 100.00 Q2 123.11	2106607	2008	P1 100.00	Q1 100.00 Q2 123.11
										P2 80.90	Q3 102.06 Q4 -			P2 80.90	Q3 102.06 Q4 -
									2009	P1 146.46	Q1 212.29 Q2 329.05		2009	P1 146.46	Q1 212.29 Q2 329.05
										P2 174.42	Q3 434.71 Q4 501.04			P2 174.42	Q3 434.71 Q4 501.04
									2010	P1 143.52	Q1 401.70 Q2 394.89		2010	P1 143.52	Q1 401.70 Q2 394.89
										P2 154.89	Q3 547.15 Q4 350.17			P2 154.89	Q3 547.15 Q4 350.17
		P1 116.14							2011	P1 165.51	Q1 439.67 Q2 473.05		2011	P1 165.51	Q1 439.67 Q2 473.05
										P2 181.62	Q3 521.56 Q4 425.92			P2 181.62	Q3 521.56 Q4 425.92
									2012	P1 183.04	Q1 421.12 Q2 583.17		2012	P1 183.04	Q1 421.12 Q2 583.17
							Q2 384.01			P2 208.72	Q3 514.99 Q4 610.46			P2 208.72	Q3 514.99 Q4 610.46
									2013	P1 190.73	Q1 527.80 Q2 530.70		2013	P1 190.73	Q1 527.80 Q2 530.70
	2010	110.34	Q2 144.09	221	2008	P1 100.00	Q1 100.00 Q2 101.31	22115	2008	P1 100.00	Q1 100.00 Q2 101.31	2211503	2008	P1 100.00	Q1 100.00 Q2 101.31
						P2 105.13	Q3 108.10 Q4 115.48			P2 105.13	Q3 108.10 Q4 115.48			P2 105.13	Q3 108.10 Q4 115.48
					2009	P1 103.53	Q1 104.68 Q2 113.91		2009	P1 103.53	Q1 104.68 Q2 113.91		2009	P1 103.53	Q1 104.68 Q2 113.91
						P2 111.07	Q3 109.61 Q4 129.83			P2 111.07	Q3 109.61 Q4 129.83			P2 111.07	Q3 109.61 Q4 129.83
					2010	P1 111.36	Q1 138.74 Q2 130.38		2010	P1 111.36	Q1 138.74 Q2 130.38		2010	P1 111.36	Q1 138.74 Q2 130.38
						P2 111.53	Q3 134.86 Q4 134.78			P2 111.53	Q3 134.86 Q4 134.78			P2 111.53	Q3 134.86 Q4 134.78
					2011	P1 125.81	Q1 145.08 Q2 148.77		2011	P1 125.81	Q1 145.08 Q2 148.77		2011	P1 125.81	Q1 145.08 Q2 148.77
						P2 128.60	Q3 144.41 Q4 158.72			P2 128.60	Q3 144.41 Q4 158.72			P2 128.60	Q3 144.41 Q4 158.72
					2012	P1 123.99	Q1 158.87 Q2 156.83		2012	P1 123.99	Q1 158.87 Q2 156.83		2012	P1 123.99	Q1 158.87 Q2 156.83
						P2 134.30	Q3 175.75 Q4 156.31			P2 134.30	Q3 175.75 Q4 156.31			P2 134.30	Q3 175.75 Q4 156.31
					2013	P1 136.06	Q1 140.88 Q2 162.85		2013	P1 136.06	Q1 140.88 Q2 162.85		2013	P1 136.06	Q1 140.88 Q2 162.85
		P2 119.17	Q3 160.39	223	2008	P1 100.00	Q1 100.00 Q2 104.45	22325	2008	P1 100.00	Q1 100.00 Q2 107.11	2232501	2008	P1 100.00	Q1 100.00 Q2 107.11
						P2 87.89	Q3 104.38 Q4 69.80			P2 87.89	Q3 107.03 Q4 71.57			P2 87.89	Q3 107.03 Q4 71.57
					2009	P1 114.76	Q1 133.81		2009	P1 114.44	Q1 135.39 Q2 144.34		2009	P1 114.44	Q1 135.39 Q2 144.34
										P2 108.11	Q3 147.63 Q4 110.64			P2 108.11	Q3 147.63 Q4 110.64
									2010	P1 137.78	Q1 141.54 Q2 153.27		2010	P1 137.78	Q1 141.54 Q2 153.27

MnDOT Construction Cost Index

Level 1							Level 2							Level 3							Level 4						
2	2010	110.34 Cont.	P2	119.17 Cont.	Q3	160.39 Cont.	223	2009	106.32 Cont.	P1	114.76 Cont.	Q2	144.34	22325	2010	124.54 Cont.	P2	159.88	Q3	169.42	2232501	2010	124.54 Cont.	P2	159.88	Q3	169.42
																			Q4	167.96						Q4	167.96
										P2	107.97	Q3	148.25		2011	131.72	P1	148.64	Q1	167.02		2011	131.72	P1	148.64	Q1	167.02
																			Q2	153.24						Q2	153.24
												Q4	105.85				P2	177.74	Q3	204.81				P2	177.74	Q3	204.81
																			Q4	209.24						Q4	209.24
								2010	134.93	P1	149.85	Q1	154.55		2012	143.29	P1	183.41	Q1	251.41		2012	143.29	P1	183.41	Q1	251.41
												Q2	166.78				P2	224.73	Q2	208.78				P2	224.73	Q2	208.78
										P2	174.49	Q3	184.60						Q3	342.88						Q3	342.88
					Q4	148.34						Q4	187.67						Q4	282.40						Q4	282.40
															2013	-	P1	176.15	Q1	288.19		2013	-	P1	176.15	Q1	288.19
																			Q2	302.35						Q2	302.35
														22326	2008	100.00	P1	100.00	Q1	100.00	2232603	2008	100.00	P1	100.00	Q1	100.00
																			Q2	78.75						Q2	78.75
																	P2	-	Q3	-				P2	-	Q3	-
																			Q4	-						Q4	-
								2011	140.91	P1	163.60	Q1	183.60		2009	115.72	P1	117.85	Q1	118.54		2009	115.72	P1	117.85	Q1	118.54
												Q2	172.26						Q2	144.39						Q2	144.39
										P2	188.51	Q3	217.78				P2	106.63	Q3	154.33				P2	106.63	Q3	154.33
												Q4	219.06						Q4	59.40						Q4	59.40
															2010	235.56	P1	266.70	Q1	280.54		2010	235.56	P1	266.70	Q1	280.54
																			Q2	297.61						Q2	297.61
								2012	150.00	P1	191.41	Q1	249.99				P2	315.97	Q3	331.59				P2	315.97	Q3	331.59
												Q2	207.61						Q4	378.46						Q4	378.46
										P2	231.76	Q3	342.42		2011	229.85	P1	308.46	Q1	344.11		2011	229.85	P1	308.46	Q1	344.11
												Q4	286.24						Q2	356.42						Q2	356.42
																	P2	292.78	Q3	343.36				P2	292.78	Q3	343.36
																			Q4	314.12						Q4	314.12
															2012	214.95	P1	268.83	Q1	236.19		2012	214.95	P1	268.83	Q1	236.19
																			Q2	196.37						Q2	196.37
								2013	-	P1	187.16	Q1	295.08				P2	299.92	Q3	337.94				P2	299.92	Q3	337.94
					Q1	151.89						Q2	312.49						Q4	323.47						Q4	323.47
															2013	-	P1	293.77	Q1	361.83		2013	-	P1	293.77	Q1	361.83
																			Q2	410.60						Q2	410.60
							230	2008	100.00	P1	100.00	Q1	100.00	23015	2008	100.00	P1	100.00	Q1	100.00	2301511	2008	100.00	P1	100.00	Q1	100.00
												Q2	103.01						Q2	103.01						Q2	103.01
										P2	-	Q3	-				P2	-	Q3	-				P2	-	Q3	-
												Q4	-						Q4	-						Q4	-
								2009	109.33	P1	109.33	Q1	122.20		2009	109.33	P1	109.33	Q1	122.20		2009	109.33	P1	109.33	Q1	122.20
												Q2	131.15						Q2	131.15						Q2	131.15
										P2	-	Q3	-				P2	-	Q3	-				P2	-	Q3	-
												Q4	-						Q4	-						Q4	-
			P1	117.12				2010	100.00	P1	100.11	Q1	118.97		2010	100.00	P1	100.11	Q1	118.97		2010	100.00	P1	100.11	Q1	118.97
												Q2	104.89						Q2	104.89						Q2	104.89
										P2	98.24	Q3	-				P2	98.24	Q3	-				P2	98.24	Q3	-
												Q4	-						Q4	-						Q4	-
								2011	87.39	P1	72.43	Q1	98.14		2011	87.39	P1	72.43	Q1	98.14		2011	87.39	P1	72.43	Q1	98.14
												Q2	76.51						Q2	76.51						Q2	76.51
										P2	68.46	Q3	72.76				P2	68.46	Q3	72.76				P2	68.46	Q3	72.76
												Q4	80.74						Q4	80.74						Q4	80.74
								2012	72.76	P1	56.67	Q1	71.82		2012	72.76	P1	56.67	Q1	71.82		2012	72.76	P1	56.67	Q1	71.82
												Q2	80.17						Q2	80.17						Q2	80.17
					Q2	151.52				P2	65.60	Q3	142.12				P2	65.60	Q3	142.12				P2	65.60	Q3	142.12
												Q4	-						Q4	-						Q4	-
								2013	-	P1	49.78	Q1	-		2013	-	P1	49.78	Q1	-		2013	-	P1	49.78	Q1	-
												Q2	151.60						Q2	151.60						Q2	151.60
							236	2008	100.00	P1	100.00	Q1	100.00	23605	2008	100.00	P1	100.00	Q1	100.00	2360501	2008	100.00	P1	100.00	Q1	100.00
												Q2	94.99						Q2	94.99						Q2	94.99
										P2	137.82	Q3	141.93				P2	137.82	Q3	141.93				P2	137.82	Q3	141.93
												Q4	122.90						Q4	122.90						Q4	122.90
								2009	108.84	P1	107.08	Q1	116.98		2009	108.84	P1	107.08	Q1	116.98		2009	108.84	P1	107.08	Q1	116.98
												Q2	105.26						Q2	105.26						Q2	105.26
										P2	124.47	Q3	115.88				P2	124.47	Q3	115.88				P2	124.47	Q3	115.88
												Q4	122.30						Q4	122.30						Q4	122.30
								2010	114.41	P1	120.10	Q1	125.13		2010	114.41	P1	120.10	Q1	125.13		2010	114.41	P1	120.10	Q1	125.13
												Q2	117.70						Q2	117.70						Q2	117.70
										P2	122.58	Q3	122.67				P2	122.58	Q3	122.67				P2	122.58	Q3	122.67
												Q4	121.31						Q4	121.31						Q4	121.31
			P2	123.30	Q3	163.97		2011	114.48	P1	122.12	Q1	116.45		2011	114.48	P1	122.12	Q1	116.45		2011	114.48	P1	122.12	Q1	116.45
												Q2	116.74						Q2	116.74						Q2	116.74
										P2	123.57	Q3	118.49				P2	123.57	Q3	118.49				P2	123.57	Q3	118.49
												Q4	119.01						Q4	119.01						Q4	119.01
								2012	131.30	P1	138.04	Q1	122.90		2012	131.30	P1	138.04	Q1	122.90		2012	131.30	P1	138.04	Q1	122.90
												Q2	136.41						Q2	136.41						Q2	136.41
										P2	153.25	Q3	143.49				P2	153.25	Q3	143.49				P2	153.25	Q3	143.49
												Q4	153.67						Q4	153.67						Q4	153.67

MnDOT Construction Cost Index

Level 1						Level 2						Level 3						Level 4					
2	2011	112.26 Cont.	P2	123.30 Cont.	Q3	163.97 Cont.	236	2013		P1	136.45	Q1	146.77	23605	2013	-	P1	136.45	Q1	146.77	2360501	2013	-	P1	136.45	Q1	146.77
												Q2	145.06						Q2	145.06						Q2	145.06
							250	2008	100.00	P1	100.00	Q1	100.00	25015	2008	100.00	P1	100.00	Q1	100.00	2501511	2008	100.00	P1	100.00	Q1	100.00
												Q2	138.64						Q2	123.29						Q2	123.29
										P2	131.53	Q3	139.02				P2	124.51	Q3	-				P2	124.51	Q3	-
												Q4	108.81						Q4	-						Q4	-
					Q4	164.49		2009	95.39	P1	103.87	Q1	118.20		2009	111.95	P1	121.64	Q1	142.51		2009	111.95	P1	121.64	Q1	142.51
												Q2	104.16						Q2	147.54						Q2	147.54
										P2	95.30	Q3	103.94				P2	117.20	Q3	155.39				P2	117.20	Q3	155.39
												Q4	107.96						Q4	129.11						Q4	129.11
								2010	103.55	P1	111.32	Q1	124.50		2010	109.16	P1	116.08	Q1	120.36		2010	109.16	P1	116.08	Q1	120.36
												Q2	110.23						Q2	133.71						Q2	133.71
										P2	110.73	Q3	104.12				P2	117.59	Q3	145.17				P2	117.59	Q3	145.17
												Q4	122.55						Q4	116.19						Q4	116.19
					Q1	160.29		2011	111.40	P1	109.22	Q1	127.09		2011	124.07	P1	118.19	Q1	141.31		2011	124.07	P1	118.19	Q1	141.31
												Q2	111.28						Q2	132.45						Q2	132.45
										P2	136.81	Q3	159.41				P2	133.24	Q3	157.20				P2	133.24	Q3	157.20
												Q4	125.89						Q4	121.91						Q4	121.91
	2012	121.31	P1	127.75				2012	124.00	P1	121.43	Q1	133.63		2012	135.63	P1	138.67	Q1	172.62		2012	135.63	P1	138.67	Q1	172.62
												Q2	142.70						Q2	164.97						Q2	164.97
										P2	134.24	Q3	168.74				P2	130.48	Q3	180.65				P2	130.48	Q3	180.65
												Q4	153.91						Q4	187.44						Q4	187.44
					Q2	182.85		2013	-	P1	131.50	Q1	125.79		2013	-	P1	123.92	Q1	142.90		2013	-	P1	123.92	Q1	142.90
												Q2	137.46						Q2	166.55						Q2	166.55
							254	2008	100.00	P1	100.00	Q1	100.00	25016	2008	100.00	P1	100.00	Q1	100.00	2501603	2008	100.00	P1	100.00	Q1	100.00
												Q2	107.08						Q2	171.50						Q2	171.50
										P2	115.01	Q3	126.72				P2	175.44	Q3	179.83				P2	175.44	Q3	179.83
												Q4	-						Q4	-						Q4	-
			P2	143.32	Q3	199.30		2009	87.43	P1	88.77	Q1	107.54		2009	87.06	P1	105.01	Q1	123.44		2009	87.06	P1	105.01	Q1	123.44
												Q2	135.18						Q2	84.87						Q2	84.87
																	P2	79.30	Q3	62.76				P2	79.30	Q3	62.76
																			Q4	116.42						Q4	116.42
															2010	95.82	P1	109.07	Q1	145.31		2010	95.82	P1	109.07	Q1	145.31
																			Q2	106.40						Q2	106.40
																	P2	130.64	Q3	-				P2	130.64	Q3	-
																			Q4	165.31						Q4	165.31
															2011	110.62	P1	115.88	Q1	149.64		2011	110.62	P1	115.88	Q1	149.64
																			Q2	121.42						Q2	121.42
																	P2	129.29	Q3	181.57				P2	129.29	Q3	181.57
																			Q4	133.05						Q4	133.05
															2012	123.57	P1	120.22	Q1	130.25		2012	123.57	P1	120.22	Q1	130.25
																			Q2	171.61						Q2	171.61
																	P2	134.82	Q3	148.89				P2	134.82	Q3	148.89
																			Q4	179.27						Q4	179.27
															2013	-	P1	156.55	Q1	107.83		2013	-	P1	156.55	Q1	107.83
																			Q2	108.24						Q2	108.24
														25035	2008	100.00	P1	100.00	Q1	100.00	2503541	2008	100.00	P1	100.00	Q1	100.00
																			Q2	121.52						Q2	121.52
																	P2	96.48	Q3	116.60				P2	96.48	Q3	116.60
																			Q4	91.26						Q4	91.26
															2009	88.32	P1	86.77	Q1	91.33		2009	88.32	P1	86.77	Q1	91.33
																			Q2	83.22						Q2	83.22
																	P2	90.63	Q3	96.35				P2	90.63	Q3	96.35
																			Q4	80.91						Q4	80.91
															2010	105.79	P1	109.14	Q1	108.61		2010	105.79	P1	109.14	Q1	108.61
																			Q2	92.67						Q2	92.67
																	P2	85.79	Q3	75.72				P2	85.79	Q3	75.72
																			Q4	87.98						Q4	87.98
															2011	100.70	P1	94.85	Q1	93.02		2011	100.70	P1	94.85	Q1	93.02
																			Q2	82.63						Q2	82.63
																	P2	147.13	Q3	140.53				P2	147.13	Q3	140.53
																			Q4	122.74						Q4	122.74
															2012	113.93	P1	107.02	Q1	101.63		2012	113.93	P1	107.02	Q1	101.63
																			Q2	95.36						Q2	95.36
																	P2	137.09	Q3	176.70				P2	137.09	Q3	176.70
																			Q4	99.76						Q4	99.76
															2013	-	P1	114.72	Q1	127.29		2013	-	P1	114.72	Q1	127.29
																			Q2	138.76						Q2	138.76
														25455	2008	100.00	P1	100.00	Q1	100.00	2545533	2008	100.00	P1	100.00	Q1	100.00
																			Q2	107.08						Q2	107.08
																	P2	115.01	Q3	126.72				P2	115.01	Q3	126.72
																			Q4	-						Q4	-
															2009	87.43	P1	88.77	Q1	107.54		2009	87.43	P1	88.77	Q1	107.54
																			Q2	135.18						Q2	135.18

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Level 1							Level 2							Level 3							Level 4						
2	2012	121.31 Cont.	P2	143.32 Cont.	Q3	199.30 Cont.	254	2009	87.43 Cont.	P2	98.67	Q3	126.19	25455	2009	87.43 Cont.	P2	98.67	Q3	126.19	2545533	2009	87.43 Cont.	P2	98.67	Q3	126.19
												Q4	147.65						Q4	147.65						Q4	147.65
								2010	85.98	P1	90.68	Q1	134.49		2010	85.98	P1	90.68	Q1	134.49		2010	85.98	P1	90.68	Q1	134.49
												Q2	134.65						Q2	134.65						Q2	134.65
										P2	78.82	Q3	131.35				P2	78.82	Q3	131.35				P2	78.82	Q3	131.35
												Q4	-						Q4	-						Q4	-
								2011	105.18	P1	104.98	Q1	186.84		2011	105.18	P1	104.98	Q1	186.84		2011	105.18	P1	104.98	Q1	186.84
												Q2	205.35						Q2	205.35						Q2	205.35
										P2	110.36	Q3	221.28				P2	110.36	Q3	221.28				P2	110.36	Q3	221.28
												Q4	-						Q4	-						Q4	-
								2012	103.25	P1	101.46	Q1	204.08		2012	103.25	P1	101.46	Q1	204.08		2012	103.25	P1	101.46	Q1	204.08
												Q2	202.82						Q2	202.82						Q2	202.82
										P2	111.84	Q3	234.24				P2	111.84	Q3	234.24				P2	111.84	Q3	234.24
												Q4	-						Q4	-						Q4	-
								2013	-	P1	107.68	Q1	232.52		2013	-	P1	107.68	Q1	232.52		2013	-	P1	107.68	Q1	232.52
												Q2	228.64						Q2	228.64						Q2	228.64
					Q4	214.51	255	2008	100.00	P1	100.00	Q1	100.00	25545	2008	100.00	P1	100.00	Q1	100.00	2554501	2008	100.00	P1	100.00	Q1	100.00
												Q2	105.21						Q2	105.21						Q2	105.21
										P2	112.38	Q3	125.03				P2	112.38	Q3	125.03				P2	112.38	Q3	125.03
												Q4	103.27						Q4	103.27						Q4	103.27
								2009	91.39	P1	93.56	Q1	96.19		2009	91.39	P1	93.56	Q1	96.19		2009	91.39	P1	93.56	Q1	96.19
												Q2	96.46						Q2	96.46						Q2	96.46
										P2	97.66	Q3	105.26				P2	97.66	Q3	105.26				P2	97.66	Q3	105.26
												Q4	98.55						Q4	98.55						Q4	98.55
								2010	87.90	P1	91.12	Q1	92.42		2010	87.90	P1	91.12	Q1	92.42		2010	87.90	P1	91.12	Q1	92.42
												Q2	95.49						Q2	95.49						Q2	95.49
										P2	89.43	Q3	89.24				P2	89.43	Q3	89.24				P2	89.43	Q3	89.24
												Q4	94.51						Q4	94.51						Q4	94.51
								2011	92.53	P1	95.96	Q1	98.31		2011	92.53	P1	95.96	Q1	98.31		2011	92.53	P1	95.96	Q1	98.31
												Q2	100.37						Q2	100.37						Q2	100.37
										P2	95.13	Q3	98.84				P2	95.13	Q3	98.84				P2	95.13	Q3	98.84
												Q4	99.17						Q4	99.17						Q4	99.17
								2012	93.18	P1	96.60	Q1	99.68		2012	93.18	P1	96.60	Q1	99.68		2012	93.18	P1	96.60	Q1	99.68
												Q2	101.16						Q2	101.16						Q2	101.16
										P2	93.22	Q3	100.59				P2	93.22	Q3	100.59				P2	93.22	Q3	100.59
												Q4	100.22						Q4	100.22						Q4	100.22
								2013	-	P1	95.44	Q1	101.11		2013	-	P1	95.44	Q1	101.11		2013	-	P1	95.44	Q1	101.11
												Q2	103.92						Q2	103.92						Q2	103.92
	2013	-	P1	128.65	Q1	196.85	258	2008	100.00	P1	100.00	Q1	100.00	25825	2008	100.00	P1	100.00	Q1	100.00	2582502	2008	100.00	P1	100.00	Q1	100.00
												Q2	112.60						Q2	112.60						Q2	115.23
										P2	119.23	Q3	171.60				P2	119.23	Q3	171.60				P2	120.81	Q3	177.17
												Q4	154.02						Q4	154.02						Q4	159.11
								2009	103.33	P1	115.75	Q1	158.48		2009	103.33	P1	115.75	Q1	158.48		2009	102.97	P1	116.02	Q1	164.30
												Q2	160.34						Q2	160.34						Q2	165.11
										P2	121.19	Q3	152.03				P2	121.19	Q3	152.03				P2	121.34	Q3	155.87
												Q4	162.61						Q4	162.61						Q4	167.14
								2010	104.30	P1	120.22	Q1	149.65		2010	104.30	P1	120.22	Q1	149.65		2010	104.86	P1	121.51	Q1	153.91
												Q2	163.25						Q2	163.25						Q2	167.34
										P2	126.72	Q3	189.84				P2	126.72	Q3	189.84				P2	128.73	Q3	196.59
												Q4	190.52						Q4	190.52						Q4	196.32
								2011	111.55	P1	141.73	Q1	171.56		2011	111.55	P1	141.73	Q1	171.56		2011	111.49	P1	143.48	Q1	175.31
												Q2	173.09						Q2	173.09						Q2	175.72
										P2	144.52	Q3	211.30				P2	144.52	Q3	211.30				P2	144.58	Q3	214.52
												Q4	193.10						Q4	193.10						Q4	195.83
								2012	119.50	P1	151.93	Q1	240.12		2012	119.50	P1	151.93	Q1	240.12		2012	120.09	P1	153.29	Q1	246.62
												Q2	262.26						Q2	262.26						Q2	270.07
										P2	161.13	Q3	263.30				P2	161.13	Q3	263.30				P2	163.28	Q3	271.35
												Q4	309.93						Q4	309.93						Q4	319.40
					Q2	203.12																2013	-	P1	183.01	Q1	218.23
																										Q2	274.49
																					2582503	2008	100.00	P1	100.00	Q1	100.00
																										Q2	73.13
																								P2	95.43	Q3	87.90
																										Q4	77.57
																						2009	108.82	P1	111.67	Q1	71.01
																										Q2	88.60
																								P2	118.94	Q3	94.42
																										Q4	94.53
																						2010	95.93	P1	100.85	Q1	85.66
																										Q2	101.89
																								P2	96.63	Q3	88.36
																										Q4	103.41
																						2011	112.40	P1	115.47	Q1	115.18
																										Q2	133.56
																								P2	143.51	Q3	163.01
																										Q4	152.10
																						2012	110.65	P1	131.44	Q1	142.51
																										Q2	144.96

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Level 1							Level 2							Level 3							Level 4									
2	2013	-	P1	128.65 Cont.	Q2	203.12 Cont.	258	2013	-	P1	180.52	Q1	212.25	25825	2013	-	P1	180.52	Q1	212.25	2582503	2012	110.65 Cont.	P2	128.91	Q3	142.48
												Q2	266.95						Q2	266.95		2013	-	P1	143.15	Q4	113.06
																										Q1	122.42
																										Q2	153.77