

# Infrastructure Ontario TRACK RECORD 2015 REPORT

Hanscomb

40 Holly Street, Suite 900  
Toronto, ON M4S 3C3  
T. 416-487-3811  
[www.hanscomb.com](http://www.hanscomb.com)



# CONTENTS

## EXECUTIVE SUMMARY

### A. INTRODUCTION AND BACKGROUND

A1 Introduction .....	3
A2 Background of Infrastructure Ontario.....	3
A3 Background of Third-Party Consultant - Hanscomb .....	4

### B. MODERN PROJECT DELIVERY - ALTERNATIVE FINANCING & PROCUREMENT (AFP)

B1 AFP: Scope and Approach .....	5
B2 AFP: Milestones for Monitoring Costs .....	6
B3 AFP: Analysis of On-Budget Performance .....	7
B4 AFP: Analysis of Total Project Cost Performance .....	8
B5 AFP: Post Contract Contingency (PCC) Utilization .....	9
B6 AFP: Non-Discretionary Changes by Substantial Completion.....	10
B7 AFP: Analysis of Results of Competitive Procurement.....	11
B8 AFP: Analysis of Winning Bid and Best Design-Technical Score .....	12
B9 AFP: Schedule Analysis of On-Time Performance.....	14
B10 AFP: Analysis of AFP Budget Accuracy .....	16
B11 AFP: Observations and Recommendations .....	18

### C. TRADITIONAL DELIVERY - DIRECT DELIVERY (DD)

C1 DD: Scope and Approach.....	20
C2 DD: Analysis of Project Cost On-Budget Performance .....	22
C3 DD: Schedule Analysis of On-Time Performance .....	23
C4 DD: Observations and Recommendations .....	25

## APPENDICES

Appendix A: Glossary of Terms and Acronyms .....	28
Appendix B: Project Lists .....	31
Appendix C: Data Verification & Validation .....	33
Appendix D: Data Sources.....	35

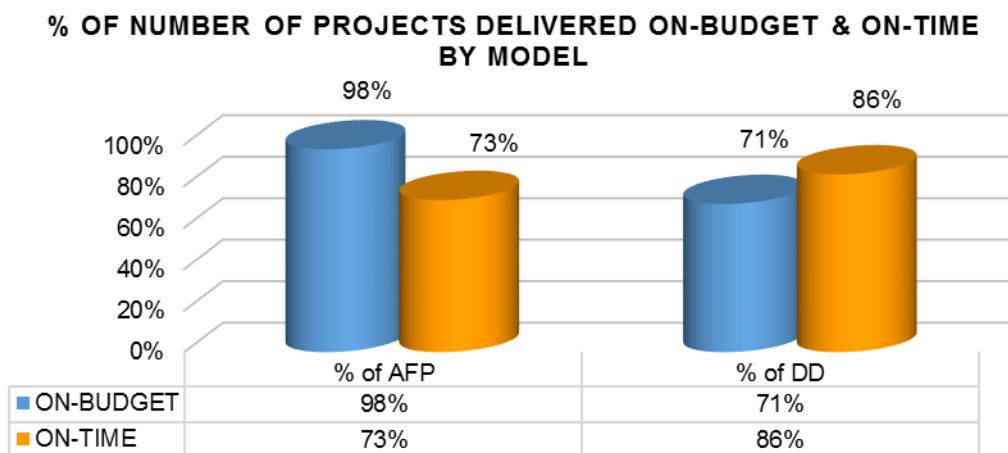
# EXECUTIVE SUMMARY

## HIGHLIGHTS

The 2015 Track Record Report (TR2015) is an analysis of Infrastructure Ontario’s On-Budget and On-Time performance for 45 Alternative Financing and Procurement (AFP) projects that have reached Substantial Completion as at March 31, 2015, and seven traditional Direct Delivery (DD) projects that were completed during the 2013-14 and 2014-15 fiscal years.

Hanscomb assessed information provided by and validated with Infrastructure Ontario to produce TR2015 which is a comprehensive report regarding a significant number of large and complex public infrastructure projects using AFP and a small number of lower-risk and moderate-sized public infrastructure projects implemented using traditional Direct Delivery.

It is our professional opinion, based on this analysis, that Infrastructure Ontario’s On-Budget and On-Time performance exceeds generally accepted industry standards for AFP infrastructure projects and traditional Direct Delivery projects.



## ON-BUDGET PERFORMANCE

Being On-Budget means that a project’s Final Project Costs (Awarded Contract Amount + Utilized Post Contract Contingency (PCC)) was delivered at Substantial Completion (SC) for less than or equal to the Awarded Contract Amount + Budgeted PCC set at Financial Close (FC).

AFP            98% (44 of 45 projects) were delivered On-Budget.

DD            71% (5 of 7 projects) were delivered On-Budget.

## ON-TIME PERFORMANCE

AFP            73% (33 of 45 projects) were On-Time or within one month of Substantial Completion, which is a result consistent with the 2014 Track Record Report.

DD            86% (6 of 7 projects) were On-Time or within one month of Substantial Completion. This is within industry standards and a solid performance for a small portfolio.

## A. INTRODUCTION AND BACKGROUND

### A1 INTRODUCTION

Each year, since 2013, Infrastructure Ontario has engaged an independent third party consultant to conduct an objective review of the results of AFP projects completed by Infrastructure Ontario. Previous editions in 2013 and 2014 focused on projects delivered through AFP to provide a transparent analysis of Infrastructure Ontario's strong track record on large and complex infrastructure projects.

There are three main types of procurement models currently being used for AFP delivery.

#### **Build Finance (BF):**

A type of AFP project delivery model for which the private sector is responsible for construction and short-term financing during the construction period. The capital cost of the project is paid for by the public sector in a lump sum at the completion of construction and the public sector sponsor is responsible for developing a detailed design and providing ongoing maintenance after completion of construction.

#### **Design Build Finance (DBF):**

A type of AFP project delivery model in which the private sector is generally responsible for design, construction, and short-term financing. The capital cost of the project is paid for by the public sector owner/authority by lump sum payment at completion of construction. The public sector sponsor is responsible for providing ongoing maintenance after completion of construction.

#### **Design Build Finance Maintain (DBFM):**

A type of AFP project delivery model in which the private sector is generally responsible for design, construction, maintenance, capital rehabilitation (lifecycle) and financing (both short-term and long-term). The capital cost of the project is paid for by the public sector owner/authority, in part, by lump sum payment at completion of construction and through blended capital and service payment instalments over the fixed maintenance period, usually 25 to 30 years.

This year's report is expanded from those in the past to include seven projects completed in 2013-14 and 2014-15 under Infrastructure Ontario's traditional Direct Delivery model.

In sum, the TR2015 reinforces Infrastructure Ontario's recognition as a leader in AFP infrastructure projects and traditional Direct Delivery projects.

### A2 BACKGROUND OF INFRASTRUCTURE ONTARIO

In support of the Ontario government's initiatives to modernize and maximize the value of public infrastructure, Infrastructure Ontario, a Crown corporation owned by the Province of Ontario, provides a wide range of services. Infrastructure Ontario reports to the Minister of Economic Development, Employment and Infrastructure and is governed by a Board of Directors. Infrastructure Ontario is responsible for the delivery of public infrastructure renewal, oversight of the Province's real estate portfolio, administering Infrastructure Ontario's Loan Program, and other government asset modernization initiatives.

Annually, Infrastructure Ontario releases a market update that outlines the Government of Ontario's plan to invest in AFP infrastructure renewal and other projects using traditional methods.

The 2015 Market Update confirmed a robust pipeline of social and civil infrastructure projects using AFP. In addition, the update demonstrated the government's intention to invest in new traditional projects that improve public infrastructure as well as the real estate assets.

## A. INTRODUCTION AND BACKGROUND

### A3 BACKGROUND OF THIRD-PARTY CONSULTANT - HANSCOMB

Hanscomb was retained by Infrastructure Ontario through a competitive process to provide a third party independent analysis of Infrastructure Ontario's On-Budget and On-Time performance.

Since 1957, Hanscomb's team of experts has been providing cost planning and control services to clients to help ensure the successful completion of a wide variety of projects and studies throughout North America, the Middle East, and around the world.

Staffed with qualified cost consultants, quantity surveyors, engineers, schedulers, and value specialists, we maintain an integrated in-house costing staff covering all client groups including healthcare, research, education, transportation, all levels and branches of Government, and collaborate with a growing list of leading architects and engineers.

The data and insight that we collect from our broad portfolio of work across the country has been the foundation of a number of cost publications. Chief among them are Hanscomb's *Yardsticks for Costing*, an annual publication that has been running for almost forty years, plus the *Rough Guide to Building Costs* and the *Advanced Rough Guide to Construction* for the Toronto Real Estate Board. As a result of our ongoing research, cost modeling and data analysis, some of our clients include Statistics Canada, Indian and Northern Affairs Canada, and the Municipal Property Assessment Corporation.

## B. MODERN PROJECT DELIVERY - AFP PROJECTS

### B1 AFP: SCOPE AND APPROACH

Infrastructure Ontario partners with provincial ministries, Crown corporations, municipalities and not-for-profit organizations to deliver the Province’s public infrastructure renewal projects. Infrastructure Ontario delivers large and complex public infrastructure projects through the AFP model which uses private sector financing and industry expertise to maximize project success.

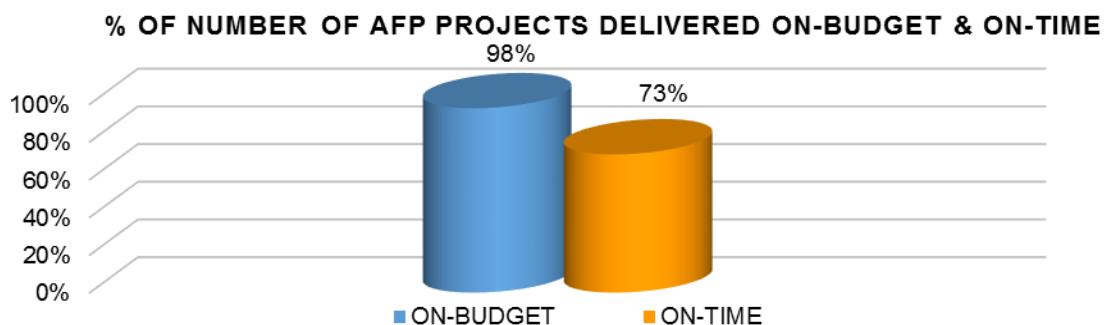
AFP is a modern project delivery technique that makes the best use of private-sector resources and expertise to provide On-Budget and On-Time project delivery. Projects are designed to meet client specifications. Risk transfer is central to ensuring that the private sector delivers projects and that the public interest is protected. Financing and payments are structured to drive performance through construction; and in the case of Design Build Finance and Maintain (DBFM) projects through lifecycle and maintenance periods.

As of spring 2015, a \$100M threshold is being used by ministries and Infrastructure Ontario to assess new large and complex infrastructure projects not yet assigned for AFP delivery, although the government will maintain flexibility to assess complex projects under \$100M on a case-by-case basis.

TR2015 includes analysis of On-Budget and On-Time performance for the 45 projects that have reached Substantial Completion as of March 31, 2015.

Statistics were generated to compare the On-Budget and On-Time performance of AFP projects, provide an overview of trends based on the data in aggregate and organized by stated parameters, and make observations and provide recommendations for future consideration.

### HIGHLIGHTS



#### ON-BUDGET PERFORMANCE

AFP 98% (44 of 45) projects were delivered On-Budget.

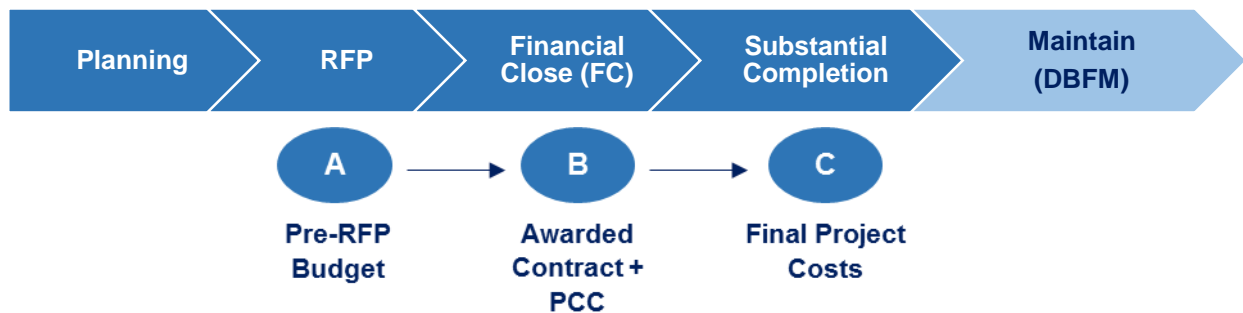
#### ON-TIME PERFORMANCE

AFP 73% (33 of 45) projects were On-Time or within one month of Substantial Completion, which is a result consistent with the 2014 Track Record Report.

## B. MODERN PROJECT DELIVERY - AFP PROJECTS

### B2 AFP: MILESTONES FOR MONITORING COSTS

Under AFP delivery, Infrastructure Ontario is assigned a project by Government following Treasury Board approval with a set budget and delivery date. Once an AFP project is assigned to Infrastructure Ontario, the following process is undertaken with checks at key milestones:



#### Initial Budget at Planning:

This represents the approved project budget typically based on an **Order of Magnitude Estimate (Class D)** prepared at a Functional Program/Concept Stage by an Independent Cost Consultant assuming a Traditionally Delivered project including construction costs, professional fees and other project related costs. Infrastructure Ontario will make adjustments to this baseline to ensure the budget is complete and comprehensive. Adjustments might include adding items (i.e. retail or parking) that might not be funded by a Sponsoring Ministry; including additional contingency; and including AFP costs not generally carried in traditionally delivered projects such as land, financing, lifecycle and facilities management costs.

#### Pre-RFP Budget:

This represents the final cost check prepared by an Independent Cost Consultant during the Planning Stages prior to the release of a Request for Proposals (RFP) to proponents bidding the project, to ensure the scope of work to be released to market can be achieved On-Budget as approved by Government.

For Build Finance (BF), this estimate is a **Pre-Tender Estimate (Class A)** similar to Traditional Delivery based on a set of completed contract documents including drawings and specifications that define the scope of work on which the proponents will bid.

For Design Build Finance (DBF) and Design Build Finance Maintain (DBFM), this estimate is a **Pre-RFP Estimate (Class C)** based on Schematic Design Documentation and Project Specific Output Specifications that are indicative of the proposed scope of work on which the proponents will bid. This estimate is intended to provide flexibility for proponents to develop independent solutions that meet performance requirements.

#### Awarded Contract (at Financial Close):

This represents the budget for the project comprised of the Awarded Contract amount as executed in the Project Agreement with the successful bidder at Financial Close and an updated Post Contract Contingency (PCC) for unknowns during construction which is typically 5% of construction.

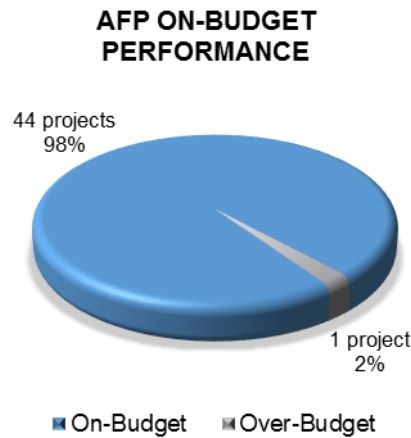
#### Final Project Costs:

This represents the actual costs for delivering the project at completion and is comprised of the Awarded Contract amount from the successful bidder at Financial Close and the final value of non-discretionary changes for unknowns during construction.

## B. MODERN PROJECT DELIVERY - AFP PROJECTS

### B3 AFP: ANALYSIS OF ON-BUDGET PERFORMANCE (Awarded Contract vs Substantial Completion)

On-Budget performance is the fundamental measure Infrastructure Ontario utilizes to track financial success. All AFP projects have costs managed directly by Infrastructure Ontario and costs managed by the Client. On-Budget performance considers only those costs directly managed by Infrastructure Ontario.



With 98% of projects coming in On-Budget, it appears that the additional due diligence that Infrastructure Ontario applies to its projects at planning prior to RFP release, the rigorous project management practices employed for the duration of the project, and the transfer of risk to the consortium to manage change orders, contribute to favourable outcomes.

Being On-Budget means that an AFP Project was delivered at Substantial Completion (SC) for less than or equal to the budget set at Financial Close (FC). In other words a project is On-Budget if:

Final Project Cost (Awarded Contract Amount + utilized PCC) at SC is less than or equal to the Awarded Contract Amount + budgeted PCC at FC

The determining factor in this analysis is the utilization of PCC. PCC is budgeted at Award to mitigate risk for potential unknowns during construction. If this contingency is not fully utilized by Substantial Completion, then Infrastructure Ontario has demonstrated the ability to manage changes during construction while achieving the original project scope. Overall, projects were delivered 1.6% under budget on \$19.2B of awarded contracts on a portfolio basis. As was reported in previous Track Record reports, there was one healthcare project that was \$9,500 or 0.01% over the Awarded amount of \$117.5M.

*Reducing Financing Costs While Maintaining Risk Transfer*

*Infrastructure Ontario is adjusting the size of progress and substantial completion payments in order to reduce long-term financing costs without reducing the transfer of risks to the private sector, and is making changes to some projects' payment structures. The substantial completion payment is designed to reduce long-term financing costs over the life of the project, while ensuring that the Province retains sufficient leverage with the service provider to guarantee high-quality service through the life of the asset.*

*Based on a review of past projects, Infrastructure Ontario will increase the amount of substantial completion payments from 50% to 60% of the total construction cost on "social" projects (hospitals, courthouses, colleges, etc.). IO will also maintain a policy of up to 85% for substantial completion payment on civil infrastructure projects, allowing for some discretion on a project-by-project basis.*



## B. MODERN PROJECT DELIVERY - AFP PROJECTS

### **B4 AFP: ANALYSIS OF TOTAL PROJECT COST PERFORMANCE (Award vs Substantial Completion)**

Total Project Cost is the sum of all costs relevant to a project that extend beyond the Awarded Contract plus the PCC. The Awarded Contract will include construction, ancillaries (soft costs for the proponent), construction financing and in the case of DBFM, long term financing, life cycle and facilities management costs. To complete a project there are other costs that contribute to a project such as land acquisition, abandoned costs, Infrastructure Ontario Transaction costs, Client ancillaries (consultants, project management, functional programming, etc.) and Furniture, Furnishings and Equipment.

The inclusion of Total Project Cost Performance as a separate analysis is beneficial for tracking how well AFP projects are performing in terms of overall costs compared to the budgeted Total Project Costs at Financial Close based on the Awarded Contract.

Some clients that work with Infrastructure Ontario offer full disclosure for the costs that they manage independent of Infrastructure Ontario. For this analysis, where Client managed costs were not available, Infrastructure Ontario has made conservative assumptions without full insight into how Clients have managed these costs and any discretionary changes.

Discretionary changes are typically changes to the contract at award that are Client initiated and beyond the ability of the successful proponent (Project Co.) to have anticipated in their bid. Generally changes are related to scope as Clients begin to see their projects take shape during construction. They may also be due to unexpected additional funding from a new source. While discretionary changes are in the Total Project Cost, they are not captured in the AFP Budget at Substantial Completion.

Of the 45 projects that have reached Substantial Completion, 42 (93%) are below, or within two percent of the budgeted Total Project Cost at Financial Close. On a Total Project Cost basis, this indicates a high level of overall project cost control and performance.

For any project, discretionary changes should be tracked for historical data purposes. As well, if Infrastructure Ontario is to accurately report on Total Project Cost, this information should be provided to Infrastructure Ontario.

This comparison reflects the Total On-Budget performance as it measures Infrastructure Ontario's ability to ensure that the entire project achieves the original scope while managing changes. Based on this analysis, 93% of AFP projects were delivered on budget for Total Project Cost.

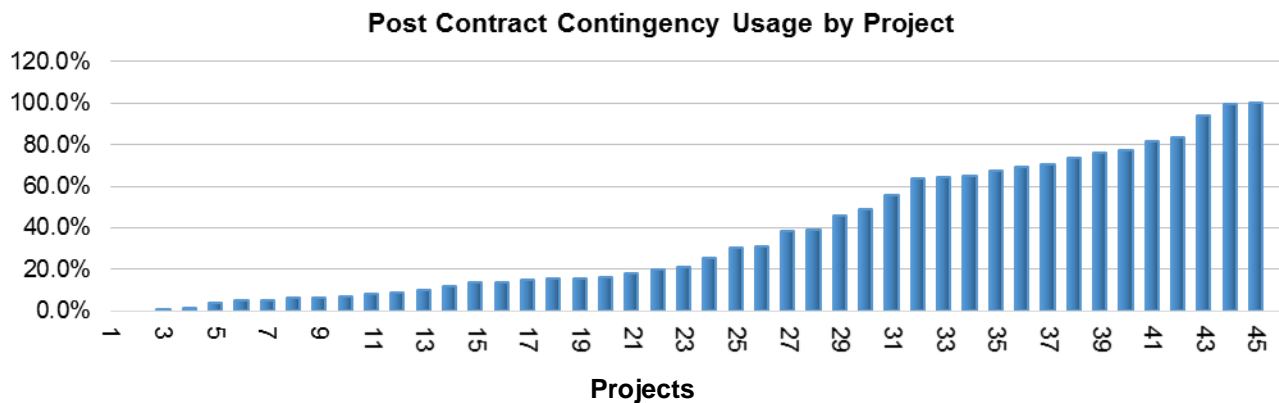
## B. MODERN PROJECT DELIVERY - AFP PROJECTS

### B5 AFP: POST CONTRACT CONTINGENCY (PCC) UTILIZATION

The purpose of Post Contract Contingency (PCC) is to include sufficient funding within the project budget for non-discretionary changes resulting from, for example, regulatory interpretations and amendments, and unforeseen site conditions. Post Contract Contingency is also used to manage changes stemming from risks retained by the Province, such as design risk in BF contracts and force majeure.

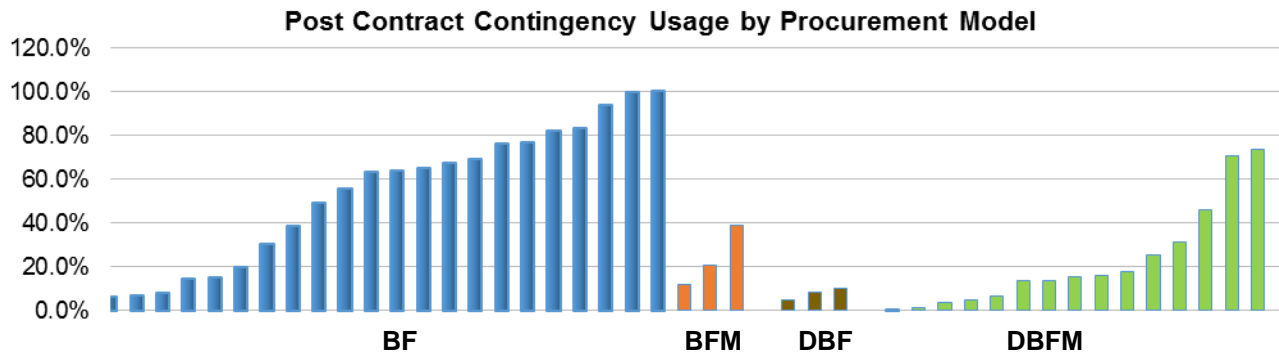
A change management process employed on all AFP projects ensures that agreement between the parties on the scope, cost and schedule implications of the change is formally and consistently tracked.

PCC is not intended to be used to address Client initiated changes to scope (discretionary changes).



The majority of projects (67% or 30 of 45 projects) utilized less than 50% of the budgeted PCC, with a single project exceeding the allocation by a mere 0.2% and another utilizing 99.5%. Both projects were contracted using the BF procurement model, wherein design risk is retained by the Province.

An analysis of PCC utilization by procurement model, results in the following:



Of the 45 projects, the highest utilization of PCC occurs with BF projects. Typically, BF projects are most like Traditional Delivery and so it is not surprising to see this trend. Reduced PCC utilization is observed when the procurement model used includes a Design component (DBF and DBFM), thereby providing the most protection from changes stemming from Design issues by transferring the risk to the Project Co.

## B. MODERN PROJECT DELIVERY - AFP PROJECTS

### B6 AFP: NON-DISCRETIONARY CHANGES BY SUBSTANTIAL COMPLETION

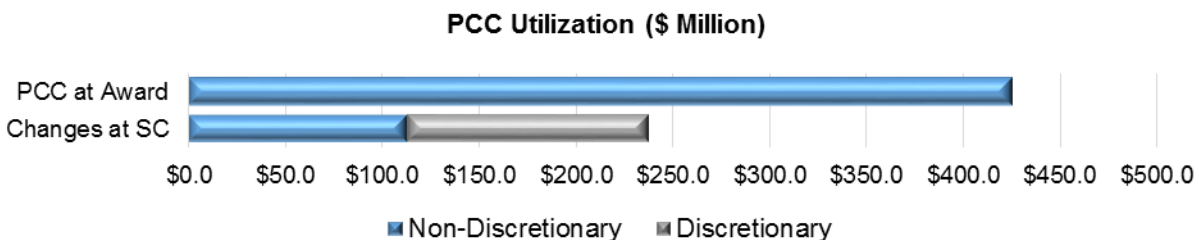
Infrastructure Ontario is responsible for managing Non-Discretionary Changes. The Post Contract Contingency is an allowance intended to cover Non-Discretionary Changes typically associated with unknowns when all other options for mitigating costs have been exhausted.

Infrastructure Ontario's process for developing PCC budgets for AFP Projects is consistent with industry standards for traditionally delivered projects where an allowance is carried as a percentage of construction. This allowance may range from 3-15% on Social Projects depending on complexity and whether the work is for new construction or renovation. Civil Projects tend to carry higher allowances (+15%). For AFP Projects Infrastructure Ontario carries 5-10% on construction costs for Non-Discretionary Changes during construction.

The best strategy for managing the risk of unknowns is to do as much planning, coordination and investigation as possible prior to releasing the project for RFP to minimize unknowns after the project is awarded. However, unknowns will invariably occur during construction and Infrastructure Ontario is responsible for working with Project Co and the Client to ensure that the approach and associated costs for implementing the Non-Discretionary Change are fair and reasonable.

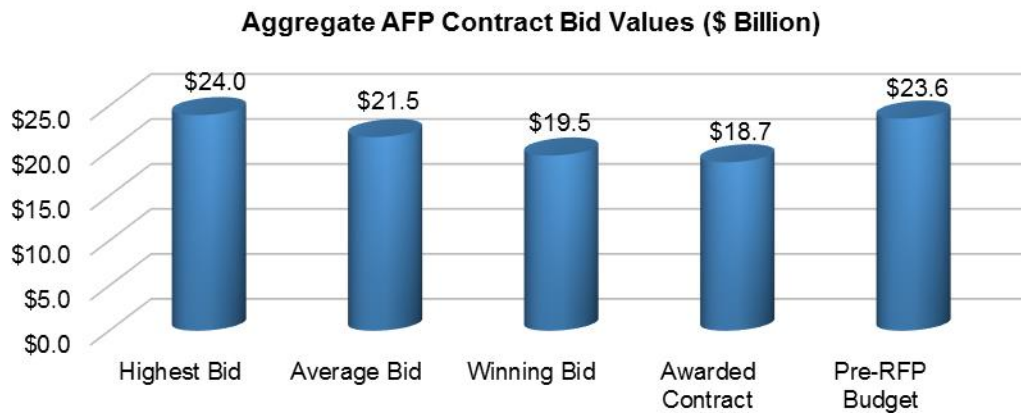
Based on our review, the total value of Non-Discretionary Changes as of March 31, 2015 was reported to be \$124.5M with \$425.7M budgeted for PCC. The amount of budgeted PCC in aggregate utilized for non-discretionary changes is 29.2%; down from last year's reported 36%.

The low utilization of PCC budgets on AFP projects is reflective of the upfront due diligence, project management controls exerted by Infrastructure Ontario, and risk transferred to the bidders.



## B. MODERN PROJECT DELIVERY - AFP PROJECTS

### B7 AFP: ANALYSIS OF RESULTS OF COMPETITIVE PROCUREMENT



The Pre-RFP Budget is the approved budget that is set prior to releasing the project out to tender against which the bids will be compared. Overall, the Pre-RFP Budget amounts compare to the bids received as shown below:

- 1.6% lower than the highest bid
- 9.6% higher than the average bid
- 21.1% higher than the winning bid
- 25.9% higher than the Awarded Contract.

Of the Budgeted Awarded Contracts, DBF and DBFM projects make up 71% of the value. Budgets prepared for DBF and DBFM projects are based on conceptual documentation and are typically prepared at the Class C or D level. When comparing Budget to Tender, industry standards anticipate that projects will tender within 15-20% of the budget for a Class C Estimate and 20-30% for a Class D Estimate.

Overall, the Awarded Contract value at Financial Close compares to the bids received as follows:

- 3.9 % lower than the winning bid
- 13.0% lower than the average bid
- 21.9 % lower than the highest bid

The difference between winning bid and Awarded Contract value is a result of changes that occur between the RFP submission and Financial Close. This is typically a result of finalizing financing costs as well as any savings resulting from proposed innovations or value engineering between the Client and Project Co.

## B. MODERN PROJECT DELIVERY - AFP PROJECTS

### B8 AFP: ANALYSIS OF WINNING BID AND BEST DESIGN-TECHNICAL SCORE

For AFP projects, proponent teams are pre-qualified in a Request for Qualification (RFQ) process. The submissions are reviewed to pre-qualify project teams that have the necessary construction capability, experience and financial capacity to undertake projects of such size and complexity. From this process, typically three (for DBF and DBFM projects) and five (for BF projects) proponent teams are shortlisted and invited to respond to a Request for Proposal (RFP) that sets out the conditions and specifications required to undertake the project. Once the submissions are received from the proponents, Infrastructure Ontario evaluates the bids based on Financial and Design-Technical criteria. Infrastructure Ontario believes that both Design-Technical merit and price are important to successful AFP projects.

Infrastructure Ontario's process requires a minimum design-technical threshold of a high standard. As such, all AFP procurements take into account a best value approach that balances both design-technical merit and pricing.

All bids must meet these high design-technical standards prior to being evaluated on price to ensure that the government or other public sector client ultimately receives a high-quality, cost-efficient project. Following evaluations, the highest ranking bidder is identified as the "Preferred Proponent." Infrastructure Ontario and the client then proceed to negotiate a final contract with this proponent. The chart on the following page shows the results of the ranking for all DBF and DBFM projects.

#### *Focus on Quality*

*While delivering On-Budget is critical to Infrastructure Ontario's success, so is maintaining quality. With Civil Infrastructure renewal increasing, Infrastructure Ontario has taken steps to upgrade quality control to ensure that the projects delivered are of the highest quality. Infrastructure Ontario has introduced a requirement that developers, designers, and contractors certify that the design and construction of a project is in accordance with all applicable Ontario laws and regulations and adheres to the conditions of the contract.*

*In particular, designers and Project Co. are now required to certify that a project is designed to meet the project output specifications and must certify the project has been constructed in accordance with their design. Designers therefore must monitor construction in order to provide this certification and be involved in all design modifications to remedy deficiencies and address non-conforming work. The design process for Civil Infrastructure projects must involve engineers certified by the Ontario Ministry of Transportation. Infrastructure Ontario has also improved inspection and testing requirements during construction that meet or exceed the ministry's own Inspection and Field Monitoring Standards.*

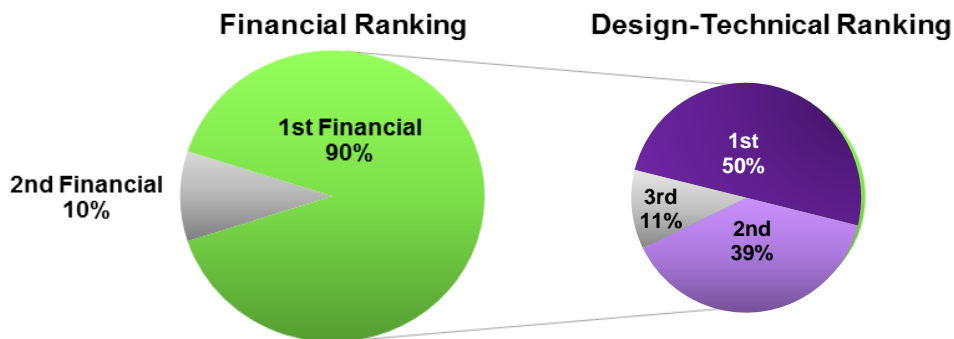
## B. MODERN PROJECT DELIVERY - AFP PROJECTS

### B8 AFP: ANALYSIS OF WINNING BID AND BEST DESIGN-TECHNICAL SCORE

Included in this year’s Track Record is an analysis and data validation of the selection of the Preferred Proponent in terms of Winning Bid versus Best Design-Technical Score. This analysis is intended to confirm if there is a positive correlation between financial score and design-technical score in the evaluation process for DBF and DBFM projects. Only DBF and DBFM projects were considered for this analysis because these projects are structured to encourage different design solutions that can be scored on various components. For BF projects, the design is fixed leaving cost and schedule as the main parameters for evaluation.

The winning bidder in 90% of the projects was the Proponent with the highest ranking financial submission. Of this 90% that were ranked highest (1<sup>st</sup>) financially, 50% placed 1<sup>st</sup> and 39% placed 2<sup>nd</sup> for a total of 89% in the top two for design-technical score.

Based on these results, 80% of the time the winning bid had the highest financial score and one of the top two design-technical scores. This confirms that there is a positive correlation between competitive pricing and quality design under AFP.



For the two projects (one DBF and one DBFM) where the lowest bid was not the successful proponent, the contract was awarded to the bidder receiving the highest design-technical rank and second lowest bid amount, still resulting in the best value. Infrastructure Ontario should continue to maintain this approach to both design-technical and financial elements that help drive high quality and innovative design and contribute to competitive pricing.

*Local Knowledge and Project Success.*

*Infrastructure Ontario delivers some of Ontario’s largest, most complex infrastructure projects. For these projects to succeed, the firms delivering them must have a sound understanding of Ontario’s business and regulatory landscape. Since 2012, Infrastructure Ontario has required that companies bidding on all AFP project procurements demonstrate familiarity with local building code requirements, health and safety regulations, and other regulatory measures applicable to a given procurement.*

*Developed in consultation with industry and government stakeholders, these local knowledge requirements have been implemented on more than 20 AFP projects.*

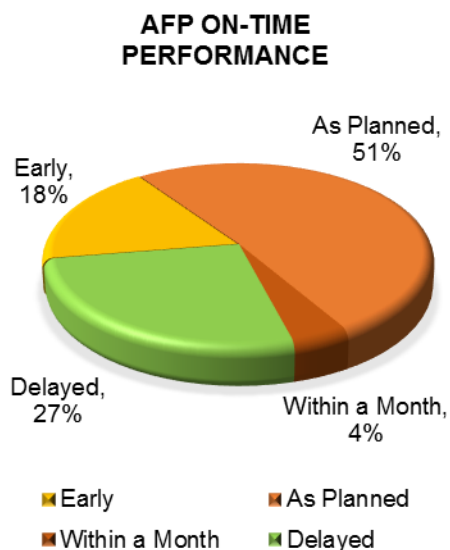
## B. MODERN PROJECT DELIVERY - AFP PROJECTS

### B9 AFP: SCHEDULE ANALYSIS OF ON-TIME PERFORMANCE

On-Time performance was measured based on four criteria, consistent with the previous Track Record reports which looked at the variance between the planned Substantial Completion date at the time of Financial Close and the actual Substantial Completion date achieved. The measures are as follows:

- Early (more than one month ahead of the scheduled Substantial Completion date)
- As Planned (within the month prior to, or no later than five business days after the scheduled Substantial Completion date)
- Within one Month of scheduled Substantial Completion date
- Delayed (after one month of scheduled Substantial Completion)

Overall, 73% (33 of 45) of AFP projects were completed On-Time or within one month of Substantial Completion, which is a result consistent with the 2014 Track Record Report.



Of the 45 projects having reached SC as of March 31<sup>st</sup>, 2015, Infrastructure Ontario has delivered 69% within five business days compared to last year's 65%.

A further two were completed within one month of their scheduled date, and by many within the construction industry would still be considered On-Time.

When On-Time is considered within five business days of the scheduled Substantial Completion date, this imposes a strict performance measure for projects averaging a three-year construction period. For projects that average three years in duration, this is a less than one percent variance from the schedule.

Based on our findings, this is a strong track record on a portfolio of 45 major projects. Our review found that in 12 of the 14 projects that experienced schedule delays (more than five business days over schedule), risk was transferred or shared with the private sector. Please refer to the table on page 15 for details related to delays.

## B. MODERN PROJECT DELIVERY - AFP PROJECTS

### B9 AFP: SCHEDULE ANALYSIS OF ON-TIME PERFORMANCE

#### CAUSES OF AFP PROJECT SCHEDULE DELAYS

There have been 14 projects that have experienced delays greater than five business days. Eight of the delayed projects were BF, the other six were DBFM projects. The factors causing the delays have been assessed along with the party that bore the associated risks.

Project Type	Year Completed	Procurement Method	Delay in Days	Primary Cause	Owner Risk	Shared Risk	Project Co Risk
Healthcare	2010	BF	11	Schedule Management		✓	
Justice	2013	DBFM	30	Provincial Trade Strike: Elevators / Project Co. Management		✓	
Healthcare	2012	DBFM	31	Unknown Site Conditions	✓		
Healthcare	2009	BF	32	Strike		✓	
Social	2009	BF	52	Schedule Management/Winter Conditions			✓
Justice	2013	DBFM	60	Provincial Trade Strike: Elevators / Project Co. Management		✓	
Justice	2014	DBFM	70	Provincial Trade Strike: Elevators		✓	
Healthcare	2009	BF	70	Design Errors by Province	✓		
Social	2013	DBFM	74	Site Conditions		✓	
Social	2015	BF	84	Structural steel fabricators were late in the delivery and installation of major structural elements. This created a cascading impact on schedule, resulting in unanticipated winter (cold weather) work.		✓	
Justice	2014	DBFM	158	Provincial Trade Strike: Elevators/Terrazzo/Roofer		✓	
Healthcare	2013	BF	174	Schedule Management/Errors & Omissions		✓	
Healthcare	2011	BF	183	Resourcing/Technical Deficiencies			✓
Healthcare	2012	BF	427	Schedule Management/Scope Change		✓	

Of the 14 delayed projects, Project Co. retained full or shared responsibility for the delay on 12 projects.



## B. MODERN PROJECT DELIVERY - AFP PROJECTS

### B10 AFP: ANALYSIS OF AFP BUDGET ACCURACY (Approved Pre-RFP Budget to Awarded Contract Budget)

The most referenced document in the construction industry when it comes to cost performance is the Guide to Cost Predictability in Construction prepared by the Joint Federal Government / Industry Cost Predictability Taskforce for which Hanscomb was a key participant. This report studied industry outcomes and trends at key milestones establishing the following guidelines:

Guide to Cost Predictability in Construction		Industry Standard for Variance
Estimate	Level of Detail	
Class D	Functional program and broad concept	20% - 30%
Class C	Schematic design estimate (~33% design), program set	15% - 20%
Class B	Working drawings at 50%, 66% or 95% complete	10% - 15%
Class A	Construction documents 100% complete	5% - 10%

Infrastructure Ontario Initial Budgets are typically prepared at the Class D level, similar to Traditional Delivery, when there is little or no design detail available, and the best information comes from benchmarks and the experience of the Project Team at this early concept stage. Industry standards anticipate that projects will tender within 20-30% of the budget.

Based on the key milestones for AFP delivery, the level of estimate and cost predictability are as follows:

Infrastructure Ontario Potential Budget Milestone	Estimate Type	Industry Standard for Variance
Government Approved Initial Budget at Planning	Class D	20% - 30%
Pre-RFP Estimate or Authority at Financial Close (DBF & DBFM)	Class C	15% - 20%
Pre-RFP / Pre-Tender Estimate (BF)	Class A	5% - 10%

### CLASSES OF ESTIMATES

When a project is ready to be released for tender, a Request for Proposal (RFP) is released to the market based on Pre-RFP documentation. Prior to release, a final cost check is prepared to ensure that the scope of work can be achieved for the Budget that has been approved by Government. The estimate for a BF project will have a cost predictability of 5-10% according to industry standards and 15-20% for DBF and DBFM projects.

The total value of the 45 projects at the Pre-RFP Stage was estimated to be \$23.6 B. These projects tendered at \$18.7 B, or \$4.9 B (21%) under the Pre-RFP Budget. The variance is marginally over industry standards but coming in under budget is always preferable than over budget.

The greatest contributors to the variance from Pre-RFP to Award are the DBFM projects. The variance amongst this procurement model is attributable to longer term financing and lifecycle and facilities management costs. These costs are the most difficult to estimate at the concept stage. Financing in particular is susceptible to swings in the economy that are beyond anyone's control. In addition, bids received are based on a solution that may be entirely different than the illustrative design on which budgets are based. This impacts budgeting for construction through to facilities management.

## B. MODERN PROJECT DELIVERY - AFP PROJECTS

### **B10 AFP: ANALYSIS OF AFP BUDGET ACCURACY (Approved Pre-RFP Budget to Awarded Contract Budget)**

#### **CLASSES OF ESTIMATES**

Infrastructure Ontario executes extensive due diligence prior to RFP Release in order to improve the cost predictability of a project. For BF projects that have a well-defined design and specification, additional surveys or investigations may be performed if there is concern for risk of unknowns. For DBF and DBFM projects that do not prescribe the design like the BF project but rather outline the required performance, Infrastructure Ontario may also conduct additional surveys, seek additional professional consultation and review existing benchmarks to improve confidence that the budget and scope are aligned.

It is important to note that Pre-RFP Budgets are intended to provide a realistic allocation of direct and indirect construction costs and are a determination of fair market value for the delivery of a project. Pre-RFP Budgets are not a prediction of low bid.

TR2015 analyzed the variance between Pre-RFP Budgets (Pre-Tender) and Awarded Contracts at Financial Close as a measure of Infrastructure Ontario's ability to develop project budgets reflective of market conditions/performance based on Class A Estimates for BF Projects and Class C Estimates for DBF and DBFM Projects. For this analysis, a project was deemed to have achieved Budget Accuracy if the Awarded Contract at Financial Close was less than or equal to the Pre-RFP Budget. Based on this measure, 73% (33 of the 45 projects) were tendered on budget for Awarded Contracts at Financial Close.

The Final Pre-tender Estimate prepared prior to release for RFP may vary from the Pre-RFP Budget as a result of further scope refinement, updated cost estimates, and revised financing, lifecycle and facilities management assumptions. If the Final Pre-tender Estimate remains below the Pre-RFP Approved Budget, the condition is seen as favourable and there is no risk for approval impediment to the release of the RFP. But, if the Final Pre-tender Estimate exceeds the Pre-RFP Approved Budget, then either cost reductions must be found or a new formal approval is required prior to the release of the RFP. This is a risk to the viability of the project.

While there are concerns that opportunities may be lost if the full extent of Budgets are not realized, it can be as concerning to have projects consistently come in over budget. For this reason Infrastructure Ontario continues to evaluate the results of their projects to better inform future budgets.

#### *2015 Improvements to Value for Money Guide*

*Since the establishment of the provincial government's Building a Better Tomorrow Framework in 2006, all AFP projects must demonstrate positive value for money (VFM) at every stage of the procurement process. Since Infrastructure Ontario introduced its VFM methodology, it has developed substantial contractual experience and data on actual AFP performance, and has moved into new infrastructure sectors. In spring 2015, Infrastructure Ontario refreshed its VFM framework to align with its experience and feedback received from clients and sponsors. Key changes to the VFM framework include simplified risk matrices, introduction of an innovation factor, life-cycle cost adjustment for traditional delivery, and enhancements to the risk assessment process.*

## B. MODERN PROJECT DELIVERY - AFP PROJECTS

### B11 AFP: OBSERVATIONS AND RECOMMENDATIONS

Overall, it would appear that the process Infrastructure Ontario is implementing for AFP projects is working and resulting in excellent On-Budget performance from Award to Substantial Completion. On-Time performance is strong but could benefit from continued monitoring of projects and lessons learned. As Infrastructure Ontario's portfolio ventures into the delivery of more civil AFP projects, complexity will increase and new strategies may be required to manage these types of projects.

#### ON-BUDGET - AFP

AFP projects completed by March 31, 2015 were delivered well above industry standard benchmarks with 98% of the 45 projects coming in On-Budget.

AFP projects are coming in On-Budget 98% of the time with the variance between Awarded Contract plus PCC Budgeted and Awarded Contract plus PCC utilized at Substantial Completion ranging from 0% to 7%.

To be On-Budget requires that the amount at Substantial Completion be less than or equal to the amount at Award + Post Contract Contingency.

This requirement of zero tolerance for going over budget is a strict measure. With 98% of projects coming in On-Budget, it would seem that the additional due diligence that Infrastructure Ontario applies to its projects at planning prior to RFP release, the rigorous project management practices employed for the duration of the project, and the transfer of risk to the consortium to manage change orders contribute to these favourable outcomes.

#### ON-TIME - AFP

In terms of meeting schedule, Infrastructure Ontario's On-Time performance has improved from last year across the AFP portfolio. When the definition of On-Time performance is within one month of Substantial Completion date, performance is 73%. If On-Time is considered within five business days of scheduled Substantial Completion, then IO has improved to 69% of projects On-Time this year compared to last year's 65%.

It is noted that Project Co. retained full or shared responsibility for the delay on 12 of the 14 delayed projects.

## B. MODERN PROJECT DELIVERY - AFP PROJECTS

### B11 AFP: OBSERVATIONS AND RECOMMENDATIONS

#### POST CONSTRUCTION CONTINGENCY - AFP

For the 45 AFP projects, 29.2% of the PCC was utilized, down from 36% reported last year. With AFP projects typically including a five percent allowance for PCC, Non-Discretionary changes are averaging below two percent on construction which is better than industry standards. Reduced PCC utilization on AFP projects is anticipated given that DBF and DBFM projects in particular transfer more risk to the consortium. That being said, this contingency is important for providing flexibility for very complex projects and it is recommended that Infrastructure Ontario continue to refine its budgeting methods for PCC to tailor them to each project.

#### WINNING BID AND BEST DESIGN-TECHNICAL SCORE - AFP

The AFP process clearly drives towards awarding the lowest cost qualified bid. Therefore, it is not surprising that 90% of the time the winner is also the lowest cost or the highest ranking financial submission. While budget is paramount for AFP projects, Infrastructure Ontario's process for evaluation considers quality of projects as much as cost of projects.

Of the 90% of projects with the top two design-technical scores, 10% placed second financially. This not only confirms that there is a positive correlation between competitive pricing and quality design under AFP. It also highlights that 80% of the time, the winning bid had the highest financial score and had one of the top two design-technical scores.

For the two projects (one DBF and one DBFM) where the lowest bid was not the successful proponent, the contract was awarded to the bidder receiving the highest design-technical rank and second lowest bid amount, yet still resulting in the best value. Infrastructure Ontario should continue to maintain this approach to both design-technical and financial elements that help drive high quality and innovative design and contribute to competitive pricing.

#### TOTAL PROJECT COST - AFP

When Total Project Cost is evaluated, the analysis goes beyond the Awarded Contract plus PCC and considers other project costs such as land acquisition, abandoned costs, Infrastructure Ontario Transaction costs, Client ancillaries (consultants, project management, functional programming, etc.) and Furniture, Furnishings and Equipment.

When Total Project Cost was analyzed, 93% of the projects were delivered on budget. The inclusion of Client managed costs as a separate analysis is beneficial for measuring overall total project success. If Infrastructure Ontario is to be an effective partner with government agencies, then Total Project Costs should be further monitored. Where these costs have not been fully disclosed, Infrastructure Ontario has made conservative assumptions without full insight into how Clients have managed discretionary changes. If Infrastructure Ontario is to accurately report on total project costs, this information should be provided to Infrastructure Ontario.

## C. TRADITIONAL DELIVERY - DIRECT DELIVERY

### C1 DD: SCOPE AND APPROACH

TR2015 for the first time includes performance analysis of On-Budget and On-Time and data validation of seven projects delivered by Infrastructure Ontario using traditional methods, described as Direct Delivery (DD). Of the seven projects that have achieved substantial completion in the last two fiscal years, five of the projects were delivered under Stipulated Sum contracts and the other two projects were delivered under Construction Management.

Overall, it would appear that the process Infrastructure Ontario is implementing for Direct Delivery is trending well and yielding solid On-Budget and On-Time performance.

Traditional delivery is the industry standard used for projects whereby a client retains a design professional to provide design services and separately retains a contractor to provide construction services. The project is financed and managed by the Client, Project Manager and/or Construction Manager.

For Direct Delivery, Infrastructure Ontario acts as Project Manager and is responsible for controlling budget, scope and schedule as well as procuring, awarding, overseeing construction, and financing the projects. Projects can vary in size and typically range from \$10M - \$50M.

In DD projects, it is common that the project not only includes the design and construction but also programming where required, due diligence, as well as requirements mandated by authorities having jurisdiction.

Generally speaking, these have been renovation projects delivered traditionally using a Construction Management (CM) or Stipulated Sum (SS) model:

- Stipulated Sum Contract (SS) - whereby the contractor agrees to competitively bid and construct the work for a fixed price based on detailed construction documents.
- Construction Management (CM) - whereby the design and construction process is integrated, with the contractor providing advisory services and performing the construction work on an actual cost basis, with a percentage or fixed fee added to the actual costs.

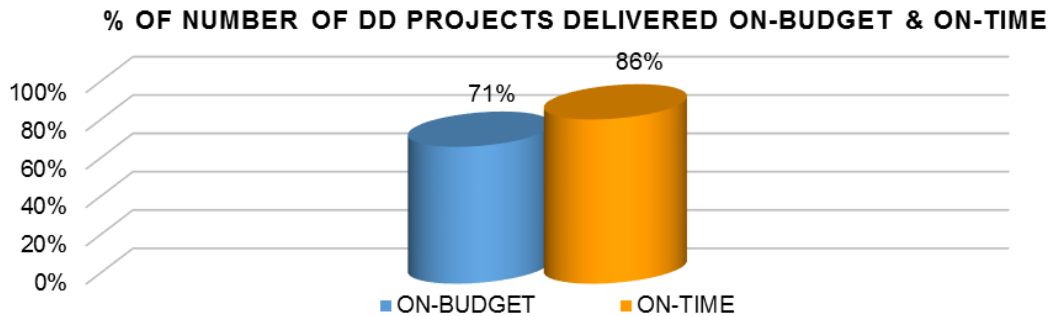
CM delivery is commonly used on existing assets where the base building requirements are better known but the client program is not fully developed at the time the project has commenced. When time is of the essence, CM allows the project construction to begin well before the completion of detailed design by issuing various independent trade packages as they are ready; whereas stipulated sum require 100% design completion prior to the solicitation of a price.

Risk is assumed by Infrastructure Ontario to deliver these projects On-Budget and On-Time.

## C. TRADITIONAL DELIVERY - DIRECT DELIVERY (DD)

### C1 DD: SCOPE AND APPROACH

#### HIGHLIGHTS



#### ON-BUDGET PERFORMANCE

DD 71% (5 of 7 projects) were delivered On-Budget.

#### ON-TIME PERFORMANCE

DD 86% (6 of 7 projects) were delivered On-Time or within one month of Substantial Completion. While this is a small sample of projects, it affirms performance that is consistent with industry standards.

#### DIRECT DELIVERY (DD) - 7 PROJECTS

There are distinct differences between AFP and DD project delivery streams to provide the optimum delivery methodology, based on the timing and complexity of the project requirements. The lower-risk and moderate-sized public infrastructure projects typically flow to the Direct Delivery stream. These projects are initiated by the government to fit within their annual ministry program capital allocations and, as such, have a limited degree of up-front program planning as compared to major projects that flow through the AFP delivery stream. In the absence of extensive program planning, the DD stream is intentionally designed to be flexible and nimble to adapt to the evolving needs of the client, thereby allowing the ministries to reprioritize within their annual funding envelope.

As part of the Direct Delivery program, DD often requires due diligence work (i.e. hazardous materials and contaminants removal, geo-technical, zoning, and planning approvals) as part of the project. The upfront due diligence work can have a significant impact on the initial budget and schedule, an impact unknown to a Ministry when preliminary project estimates and schedules are established. It is understandable that this model requires some flexibility with respect to the project scope (which impacts cost and schedule) to incorporate Ministry needs as they evolve during the initial stages of the project.

## C. TRADITIONAL DELIVERY - DIRECT DELIVERY (DD)

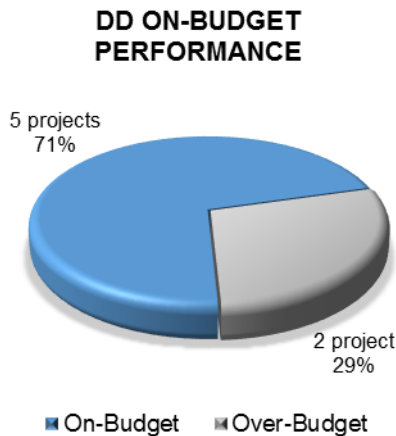
### C2 DD: ANALYSIS OF PROJECT COST ON-BUDGET PERFORMANCE

On-Budget performance of DD projects was measured as the cost variance between the budgeted amount as identified in the Project Charter issued immediately following award and the final cost at Substantial Completion.

Performance is based on a zero variance from award to Substantial Completion. Any variance in cost between the two milestones results in an over budget performance

Based on this measure, 71% (5 of 7) of the DD projects were delivered On-Budget. In addition, comparisons were run comparing budget to award and award to final project costs.

The generally accepted industry standard for being On-Budget for Traditional Delivery is completing a project within 5-10% of the Project Budget at Award which typically includes an allowance for Post Contract Contingency. Post Contract Contingency is an allowance to cover potential changes for unforeseen conditions during construction and averages 5-10% on construction but can be higher on complex infrastructure upgrades or civil works.



Overall, from a portfolio perspective, Direct Delivery projects were delivered 1.2% under budget on approximately \$68 M of awarded contracts.

Two projects closed at Substantial Completion over the amount at Award. For one project, the cost overrun was a result of client initiated scope changes and unknowns due to an existing site condition. For the other project, the overage was due to several factors including impacts due to site plan approval (authorities having jurisdiction), client initiated scope changes, and site remediation.

## C. TRADITIONAL DELIVERY - DIRECT DELIVERY (DD)

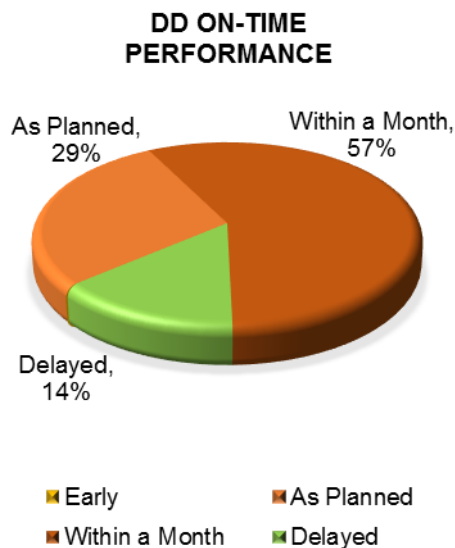
### C3 DD: SCHEDULE ANALYSIS OF ON-TIME PERFORMANCE

On-Time performance was measured based on three criteria:

- As planned (within the month prior to, or no later than five business days of Planned Completion date)
- Within one month of Planned Completion date
- Delayed (after one month of Planned Completion date)

On-Time was measured based on the variance between the date reported in Infrastructure Ontario's database as Planned Construction End, recorded immediately after contract award, and Actual Construction End.

Based on this approach, when the definition of On-Time performance is within one month of Substantial Completion, performance is 86%.



When On-Time is measured within five business days of the scheduled Substantial Completion, then 29% of DD projects reached Substantial Completion On-Time.

It is important to note that On Time performance defined as within 5 business days of Scheduled Substantial Completion is in excess of industry standards pertaining to Traditional Delivery.

Given the need for scope flexibility at the time when a project is assigned, the DD portfolio of On-Time performance, defined as within one month of scheduled Substantial Completion is well within industry standards.



## C. TRADITIONAL DELIVERY - DIRECT DELIVERY (DD)

### C3 DD: SCHEDULE ANALYSIS OF ON-TIME PERFORMANCE

#### CAUSES OF DIRECT DELIVERY PROJECT SCHEDULE DELAYS

Throughout the process of delivering these projects, Direct Delivery encounters changes in four main categories: unknown conditions, authorities having jurisdiction, client changes and coordination issues. Quite often, many of these changes will have an impact on budget and schedule and it is accepted practice by Ministries to have Project Charter Change Forms in place to accommodate variations to the original budget and schedule.

Of the seven projects that have achieved Substantial Completion in the last two fiscal years, two of the seven projects were late.

Project	Cause(s) of Delay
Specialty Purpose Operations Facility	<ul style="list-style-type: none"> <li>• Unusual cold weather and snow during the winter of 2013/14 restricted the pouring of foundations and the installation of structural steel</li> <li>• Late client owned requested changes to their equipment system resulting in additional time to design and implement</li> <li>• Authorities having jurisdiction: the late supply and installation of a transformer and power feed</li> </ul>
Tenant Improvement	<ul style="list-style-type: none"> <li>• Authorities having jurisdiction: inspections by the authorities having jurisdiction</li> <li>• Progress slow and commitments to complete work usually not met</li> </ul>

## C. TRADITIONAL DELIVERY - DIRECT DELIVERY (DD)

### C4 DD: OBSERVATIONS AND RECOMMENDATIONS

There are seven projects that were completed in the last two fiscal years under Direct Delivery. Projects range in value from \$300,000 to \$17 M and are a mix of tenant improvements and upgrades. Infrastructure Ontario delivered these projects for a variety of Ministry clients.

Overall, it would appear that the process Infrastructure Ontario is implementing for Direct Delivery is trending well and yielding solid On-Budget and On-Time performance.

#### ON-BUDGET

On a portfolio basis, the Total Project Costs at Award or the first reported Project Charter Change was \$68.8 million for all seven projects. The Total Project Costs at Substantial Completion was \$68.0 million for all seven projects.

Overall, projects were delivered 1.2% under Budget from Award to Substantial Completion on approximately \$68 M of Awarded Contracts. This is well within Infrastructure Ontario's measure of being within five percent of the Awarded Contracts, as well as within industry standards of 5-10%. Overall, Infrastructure Ontario is following standards and practices that are maintaining solid budget controls.

#### ON-TIME

On-Time was measured based on the variance between the date reported in Infrastructure Ontario's database as Planned Construction End and Actual Construction End. When the definition of On-Time performance is within one month of Substantial Completion, performance is 86%. If the variance was within five business days, then 29% of the DD projects were delivered On-Time.

Projects are varied in size and scope with construction durations ranging from 4 months to 2 years. Overall, these projects are being extended approximately 12% over their scheduled duration. For projects that are being delivered traditionally, this level of performance is considered to be within industry standards.

#### BUDGET PLANNING

Performance from the Preliminary Concept (Class D) Estimate to Award is acceptable and certainly better than industry standards, although there is room for improvement. When concept budgets are established on very preliminary information, industry standards anticipate that projects could tender 20-30% over the concept budget. Overall Direct Delivery projects were tendered 9.5% over the initial Concept budget.

It is apparent that there can be more rigour at the Project Initiation stage, which could assist in improving the initial Concept budget. For the most part, we observed that there is limited supporting information or basic quantities and unit rates within the system to support budgeted amounts. We also note that while there may be no change in cost from the Initial Charter to the first Charter Change, budgets are expanded in detail and amounts reallocated to include soft costs and contingency. We would recommend that this budget development occur at Project Initiation. Early total project budget development, rather than later, is always beneficial to any construction initiative.

## C. TRADITIONAL DELIVERY - DIRECT DELIVERY (DD)

### C4 DD: OBSERVATIONS AND RECOMMENDATIONS

#### BUDGET POST CONTRACT CONTINGENCY

We also note that for some projects, design and pricing contingency was as low as 5% at a Class D level of estimate. Industry standards would suggest 10-20%. Post Contract Contingency varies from project to project (5-10%) and is consistent with industry standards. We also noted that some projects included contingency for potential escalation, which is advisable for any project.

#### KNOWLEDGE MANAGEMENT

Tender results should be included within the database. A list of all bidders should be included with all tender/bids and other information, for example, the number of addendums, etc. This is important information and should be captured within the project's history report.

## APPENDICES

### APPENDIX A: GLOSSARY OF TERMS & ACRONYMS

- **Alternative Financing & Procurement (AFP):** AFP is an innovative way of financing and procuring large, complex infrastructure projects. It makes the best use of private-sector resources and expertise to provide on-budget and on-time project delivery. Under AFP, provincial ministries and/or project owners establish the scope and purpose of a project while design and construction work is financed and carried out by the private sector. In some cases, the private sector will also be responsible for the maintenance and/or operation of the asset for a specified term.
- **Ancillaries:** Costs that include but are not limited to fees relating to architects, engineers, project managers, programmers, cost consultants, other consultants, building permits, development charges, commissioning, testing and inspection, moving, taxes, etc. For AFP projects, some ancillary costs will be managed and paid by the Client/Authority and some will be assumed by Project Co. and billed to the Client/Authority on a pass-through basis. For Direct Delivery all ancillaries are paid directly by the public sector Client/Authority.
- **Awarded Contract:** This represents the budget for the project comprised of the Actual Awarded Contract amount as executed in the Project Agreement with the successful bidder at Financial Close.
- **Build Finance (BF):** A type of AFP project delivery model for which the private sector is responsible for construction and short-term financing during the construction period. The Capital Cost of the project is paid for by the public sector in a lump sum at the completion of construction and the public sector sponsor is responsible for developing detailed design and providing ongoing maintenance after completion of construction.
- **Build Finance Maintain (BFM):** A type of AFP project delivery model in which the private sector is generally responsible for construction, maintenance, capital rehabilitation (lifecycle costs) and financing (both short-term and long-term). The Capital Cost of the project is paid for by the public sector, in part, by partial lump sum payment at completion of construction and through blended capital and service payment installments over the fixed maintenance period, usually 25 to 30 years. The public sector owner/authority is responsible for developing the detailed design of the facility. This model was used to transition early projects and is no longer used by Infrastructure Ontario.
- **Capital Costs:** Include the construction, financing and other project costs associated with the implementation of the project. Capital Costs do not include costs associated with operations, or lifecycle activities.
- **Design Build Finance (DBF):** A type of AFP project delivery model in which the private sector is generally responsible for design, construction, and short-term financing. The Capital Cost of the project is paid for by the public sector owner/authority by lump sum payment at completion of construction. The public sector sponsor is responsible for providing ongoing maintenance after completion of construction.
- **Design Build Finance Maintain (DBFM):** A type of AFP project delivery model in which the private sector is generally responsible for design, construction, maintenance, capital rehabilitation (lifecycle) and financing (both short-term and long-term). The Capital Cost of the project is paid for by the public sector owner/authority, in part, by lump sum payment at completion of construction and through blended capital and service payment instalments over the fixed maintenance period, usually 25 to 30 years.

## APPENDICES

### APPENDIX A: GLOSSARY OF TERMS & ACRONYMS

- **Direct Delivery (DD):** IO acts as Project Manager and is responsible for controlling budget, scope and schedule as well as procuring, awarding, overseeing construction, and financing lower-risk and moderate-sized public infrastructure projects.
- **Discretionary Changes:** Changes or variations to the Project Agreement that are initiated by the public sector owner/authority. This type of change typically amends the scope of the project.
- **Final Pre-tender Estimate:** The estimate of total project costs developed by an external cost consultant reflecting the project scope based on a well-defined scope of work and Contract Documents.
- **Financial Close:** The time at which the Project Agreement is executed with the successful bidder.
- **Non-Discretionary Variations:** Changes or variations to the Project Agreement that arise when a change is required that is not a risk transferred to the private sector but borne by the public sector owner/authority under the Project Agreement. These changes are generally unforeseen and do not relate to functional scope changes of a project.
- **On Budget Performance:** When the Awarded Contract Amount and utilized Post Contract Contingency (PCC) for Non-Discretionary Changes are less than or equal to the Awarded Contract Amount plus the budgeted PCC.
- **On Time Performance:** When the actual Substantial Completion Date occurs within five business days of the Scheduled Substantial Completion Date at the time of Financial Close.
- **Post Contract Contingency (PCC):** The budgeted allowance established at Financial Close to fund Non-Discretionary Changes during construction.
- **Pre-RFP Approved Budget:** The approved total budget allocated in the annual Letter of Direction prior to the project's actual RFP release.
- **Project Agreement:** A contract between the public sector owner/authority and private sector consortium (Project Co) that sets out the requirements and obligations of both parties to complete the project.
- **Project Co:** The private sector partnership group or consortium that depending on the AFP model will together with its Lenders execute the Project Agreement and be responsible for completing the project.
- **Request for Proposals (RFP):** The second step of the two-stage AFP procurement process in which the public sector owner/authority solicits competitive bids for the completion of the defined project scope from prequalified bidders passing the RFQ stage.
- **Request for Qualifications (RFQ):** The first step of the two-stage AFP procurement process in which the public sector owner/authority solicits qualifications from private sector consortia for a potential project, resulting in the prequalification or "short-listing" of a selected number of consortia.

## APPENDICES

### APPENDIX A: GLOSSARY OF TERMS & ACRONYMS

- **Scheduled Substantial Completion Date:** The date provided by the successful proponent and as specified in the Project Agreement indicating when construction of the Project is scheduled to be completed.
- **Substantial Completion:** The time when construction is completed in accordance with the Project Agreement and certified by the Independent Certifier for DBF and DBFM projects or the Consultant for BF projects, and the time when maintenance of the facility begins either by Project Co for DBFM projects or the public sector owner/authority for BF and DBF projects.
- **Total Project Costs:** The sum of Awarded Contract plus the Post Contract Contingency or Utilized PCC as well as Transaction Costs associated with advisors (legal, financial, fairness and process), land costs, early works, Discretionary changes and other costs relating to the project managed by the public owner such as consulting fees, furniture, furnishing and equipment.

## APPENDICES

### APPENDIX B: PROJECT LISTS

PROJECT NAME: ALTERNATIVE FINANCING & PROCUREMENT	Type/ Sector	Delivery Model
1. Kingston General Hospital	Healthcare	BF
2. OPP Modernization Project	Justice	DBFM
3. Sunnybrook Health Sciences Ctr	Healthcare	BF
4. Hamilton Health Sciences - Henderson Site	Healthcare	BF
5. Lakeridge Health, Oshawa	Healthcare	BF
6. Bluewater Health, Sarnia	Healthcare	BF
7. Sault Area Hospital	Healthcare	BFM
8. Trillium Health Centre - Mississauga, CCU /Catheter Lab	Healthcare	BF
9. The Ottawa Hospital - Ottawa Regional Cancer Centre	Healthcare	BF
10. Rouge Valley Health System	Healthcare	BF
11. LHSC/SJHC - M2P2	Healthcare	BF
12. Runnymede Healthcare Centre	Healthcare	BF
13. Hamilton Health Sciences - General Site Redevelopment	Healthcare	BF
14. North Bay Regional Health Centre	Healthcare	BFM
15. Roy McMurtry Youth Centre	Social	BF
16. Durham Consolidated Courthouse	Justice	DBFM
17. Guelph Data Centre (aka MGS New Data Centre)	Social	DBFM
18. St. Joseph's Health Care, London - Grosvenor Restructuring (M2P1)	Healthcare	BF
19. Quinte HealthCare	Healthcare	BF
20. Forensic Services & Coroner's Complex	Social	DBFM
21. Waterloo Regional Consolidated Courthouse	Justice	DBFM
22. Niagara Health System	Healthcare	DBFM
23. Toronto Rehab Inst - Redevelopment	Healthcare	BF
24. Toronto South Detention Centre	Justice	DBFM
25. Centre for Addiction & Mental Health	Healthcare	DBFM
26. Windsor Regional Hospital	Healthcare	BF
27. Woodstock General Hospital	Healthcare	BFM
28. Trillium Health Partners (Former Credit Valley)	Healthcare	BF
29. L'Hopital Regional de Sudbury	Healthcare	BF
30. Bridgepoint Hospital	Healthcare	DBFM
31. Royal Victoria Regional Health Centre	Healthcare	BF
32. Thunder Bay Consolidated Courthouse	Justice	DBFM
33. St. Joseph's Health Care - West 5th Campus	Healthcare	DBFM
34. Quinte Consolidated Courthouse	Justice	DBFM
35. Waypoint Centre for Mental Health Care	Healthcare	DBFM
36. South West Detention Centre	Justice	DBFM
37. St. Thomas Consolidated Courthouse	Justice	DBFM
38. Regional Mental Health Care - London/St. Thomas	Healthcare	DBFM
39. Pan American Games: Markham Pool/Etobicoke Olympium/Field Hockey	Social	BF
40. Pan American Games: Aquatics Centre / CSIO / Fieldhouse	Social	DBF
41. Pan American Games: Athletes Village	Social	DBF
42. Markham Stouffville Hospital	Healthcare	BF
43. SJHC/LHSC - M2P3 (BP6), (UC4, VC4, UC5)	Healthcare	BF
44. Union Pearson Express Line	Transit	DBF
45. Humber College	Education	DBF

1. *Montfort Hospital was excluded from the analysis as it was initiated prior to the establishment of IO, and did not include private sector financing, a key consideration in AFP project delivery.*

## APPENDICES

## APPENDIX B: PROJECT LISTS

<b>PROJECT NAME: DIRECT DELIVERY</b>	<b>Client</b>
1. 77 Grenville	Ministry of Energy
2. 77 Grenville	Ministry of Infrastructure
3. 222 Jarvis	Ministry of Government & Consumer Services
4. 222 Jarvis	Ministry of Infrastructure
5. W.R. MacDonald School	Education
6. OPP Detachment	Ontario Provincial Police
7. Toronto Traffic Operations Centre	Ministry of Transportation



## APPENDICES

### APPENDIX C: DATA VERIFICATION & VALIDATION

#### ALTERNATIVE FINANCING AND PROCUREMENT

Hanscomb initially met with the Infrastructure Ontario AFP team to receive an overview of the content and format of the documentation to be provided for analysis. Infrastructure Ontario walked us through the process for reporting data and what information would be extracted for our report. We reviewed with Infrastructure Ontario the assumptions for the various categories of costs to ensure that the sources being used were consistent with the objective of this analysis. Challenges with historical data, sectors and the various procurement models were discussed in preparation for our data validation.

A master file of consolidated data for all 45 AFP projects was the key document provided and utilized. Where gaps were identified, requests were made of Infrastructure Ontario for supplemental data. Where inconsistencies were found, they were highlighted and a correction or rationale was requested of Infrastructure Ontario. This process of review and revision went through numerous iterations and multiple meetings and teleconferences were held to gather additional details / clarifications.

This data was compared and cross referenced against the master consolidated list. The progression of data from Awarded Contract Costs at Budget, Award and Substantial Completion to Total Project Costs at Budget, Award and Substantial Completion was reviewed for reasonableness.

If Total Project Costs < Awarded Contract Costs requests were made for review and revision as necessary.

Requests were also made for information on the main drivers for discretionary / non-discretionary Post Contract Contingency for select projects to analyze the utilization of Post Contract Contingency on the AFP Projects.

## APPENDICES

### APPENDIX C: DATA VERIFICATION & VALIDATION

#### DIRECT DELIVERY

A kick-off meeting was held at Infrastructure Ontario's offices to introduce Hanscomb to the Direct Delivery stream and walk us through the process for reporting data and the information that would be extracted for our report. We reviewed with Infrastructure Ontario the assumptions for the various categories of costs to ensure that the sources being used were consistent with the objective of this analysis.

A master file of consolidated data for the seven Direct Delivery projects was provided along with Project Charters and relevant Change Forms and Monthly Status Reports. Where gaps were identified, requests were made of Infrastructure Ontario for supplemental data. Where inconsistencies were found, they were highlighted and a correction or rationale was requested of Infrastructure Ontario. This process of review and revision went through numerous iterations and multiple meetings and teleconferences were held to gather additional details / clarifications.

This data was compared and cross referenced against the master consolidated list. The progression of data from Budget, Award and Substantial Completion costs was reviewed for reasonableness as well as the progression of data and reporting from Budget, Award and Substantial Completion in Project Charters.

# APPENDICES

## APPENDIX D: DATA SOURCE

<b>ALTERNATIVE FINANCING &amp; PROCUREMENT (AFP)</b>	
AFP Contract at Pre-tender [Pre-RFP]	Pre-RFP Release Presentation to IO Executive Group Track Record 2014 Results Results-based Planning Submissions Approval to proceed to preferred proponent negotiations (PPN)
Awarded AFP Contract	Data compiled and provided by IO from Financial Models
Budgeted Post Contract Contingency	Track Record 2014 Results Approval to proceed to preferred proponent negotiations (PPN) 5% of Construction from PPN Deck
Non-Discretionary Changes	Construction Reports for the eight new projects Data compiled and provided by IO for 45 projects
Discretionary Changes	Construction Reports for the eight new projects Data compiled and provided by IO for 45 projects
Winning Bid	Data compiled and provided by IO for 45 projects Approval to proceed to preferred proponent negotiations (PPN)
Average Bid	Data compiled and provided by IO for 45 projects
Highest Bid	Data compiled and provided by IO for 45 projects
Technical Score	Data compiled and provided by IO for 45 projects
Financial Score	Data compiled and provided by IO for 45 projects
RFP Release Date	IO Website Press Releases
Financial Close Date	IO Website
Substantial Completion Date	Substantial Completion Certificates for eight new projects Press Releases

<b>DIRECT DELIVERY (DD)</b>	
Class D Estimate	Original Project Charter Form
Final Cost Total	Final Project Charter Change Form Final Monthly Project Status Report (March 2015)
Planned Construction End	Original Project Charter Form (if no changes) Project Services Initiation Form
Actual Construction End	Project Charter Change Form (if there are changes) Monthly Project Status Report (March 2015)