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Case Studies of Handback Experience with Public-Private Partnerships

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16. Abstract Public-Private Partnership (P3) handback experience is very limited the U.S. and internationally. This paper analyzes the handback experience in three highway P3 projects: East-Link Bridge in Dublin, Ireland, Highway 4 (VT4 Järvenpää-Lahti) in Finland and M4 Tollway in New South Wales, Australia. Two of the projects did not have any material handback clauses in their P3 contracts. Still, the handback processes and outcomes of all three projects are considered successful. The projects experienced a relatively smooth handback process, mainly due to very good working relationships between the contracting authority and the P3 concessionaire. There have not been significant technical quality concerns or problems in the years immediately following the handback. Other drivers for successful P3 handback include clear definition of handback requirements, sufficient incentives and protections, clear procedures and joint inspection processes, a collaborative approach, and workforce sustainment. These contractual requirements and financial incentives and protections are very beneficial as working relationships between P3 agencies and concessionaires will not always be excellent, which could lead to less smooth handback processes.			
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Preface

On July 17, 2014, the Build America Investment Initiative was implemented as a government-wide effort to increase infrastructure investment and economic growth. As part of that effort, the U.S. Department of Transportation (USDOT) established the Build America Transportation Investment Center (BATIC). The BATIC helped public and private project sponsors better understand and utilize public-private partnerships (P3s) and provided assistance to sponsors seeking to navigate the regulatory and credit processes and programs within the Department. In December 2015, the Fixing America's Surface Transportation Act (FAST Act) was enacted, which directed USDOT to establish a National Surface Transportation Infrastructure Finance Bureau, which was renamed the Build America Bureau (the Bureau).

Building upon the work of the BATIC, the Bureau was established in July 2016 as USDOT's go-to organization to help project sponsors who are seeking to use Federal financing tools to develop, finance and deliver transportation infrastructure projects. The Bureau serves as the single point of contact to help navigate the often complex process of project development, identify and secure financing, and obtain technical assistance for project sponsors, including assistance in P3s. The Bureau replaces the BATIC and is now home to DOT's credit programs, including Transportation Infrastructure Finance and Innovation Act (TIFIA), the Railroad Rehabilitation and Improvement Financing (RRIF) and Private Activity Bonds (PAB). The Bureau also houses the newly-established INFRA grant program and offers technical expertise in areas such as P3s, transit oriented development and environmental review and permitting. The Bureau is also tasked with streamlining the credit and grant funding processes and providing enhanced technical assistance and encouraging innovative best practices in project planning, financing, P3s, project delivery, and monitoring.

Working through the Bureau, USDOT has made significant progress in its work to assist project sponsors in evaluating the feasibility of P3s, and helping simplify their implementation. In response to requirements under the Moving Ahead for Progress in the 21st Century Act (MAP-21) and the Fixing America's Surface Transportation Act (FAST Act) to develop best practices and tools for P3s, the Bureau, jointly with FHWA, is publishing this discussion paper on Case Studies of Handback Experience with Public-Private Partnerships.

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Executive Summary

There is very little experience with the handback process in Public-Private Partnership (P3) projects in the U.S. and internationally. This presents significant knowledge gaps that are worth researching. In this paper, three highway P3 projects that experienced handback have been analyzed: East-Link Bridge in Dublin, Ireland, Highway 4 (VT4 Järvenpää-Lahti) in Finland and M4 Tollway in New South Wales, Australia.

Two of the above listed projects did not have any material handback clauses in their P3 contracts. Still, the handback processes of all three projects are considered successful. The projects experienced a relatively smooth handback process, mainly due to very good working relationships between the contracting authority and the P3 concessionaire. There have not been significant technical quality concerns or problems in the years immediately following the handback. Project representatives however indicated that they would have benefitted from more specific contractual guidance on handback requirements, inspections and financial securities. Also, working relationships between P3 agencies and concessionaires will not always be excellent which could lead to less smooth handback processes.

Project representatives believe that the experiences with these projects are covered in the latest generation of P3 contracts. These successful practices have been included in the FHWA P3 Model Contract Guide, which provides a reference for further information.



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1 Introduction

The U.S. public-private partnership (P3) experience is relatively recent in comparison to various other countries around the world. In the U.S., there have been no P3 highway projects which have reached the end of their contract term. This presents a gap in knowledge and experience regarding handback. Although there are few experiences internationally either, there are P3 projects which have reached this milestone.

This study was developed in response to this knowledge gap. The report begins with a review of handback studies to date. Then, the second section reviews criteria for selection of case studies followed by an evaluation of the P3 handback practices in each case. Next, the following section outlines drivers for successful handback that were developed as a result of these evaluations, which is finally followed by recommendations for successful practices in the U.S.



2 Review of Handback Studies

A review of existing documentation on the handback process both in the U.S. and internationally was conducted to determine the existing knowledge base and identify any gaps. The review showed that several countries and international organizations have created guidance documents and reference guides for public-private partnerships and the handback process specifically. The sections relating to handback in these documents are often brief, but lay out the key issues of the handback process. Additionally, research on current and best practices in handback specifications, as well as residual value risk were reviewed. The key elements identified in each document are shown in Table 2-1 below:

Table 2-1. Key Handback Reference Documents

Reference	Key Handback Issues
International Bank for Reconstruction and Development/The World Bank, Asian Development Bank, and Inter-American Development Bank (2014), <u>Public-Private Partnerships Reference Guide, Version 2.0</u>	<ul style="list-style-type: none"> States that the approach to transition at the end of term should be clearly defined Identifies key handback elements as defining asset quality, clearly specifying requirements and payment terms
HM Treasury (2012), <u>Standardisation of PF2 Contracts</u> , London	<ul style="list-style-type: none"> States that the contract should outline in detail the form of inspections, their timetable, consequences of failure and timing, procedure, and responsibility for acceptance
Australian Government, Department of Infrastructure and Regional Development (2008), <u>National Public Private Partnership Guidelines</u>	<ul style="list-style-type: none"> Identifies the definition of handover quality as a key aspect of the contract
South Africa, National Treasury (2004) <u>National Treasury PPP Manual Module 6: Managing the PPP Agreement</u> , Johannesburg	<ul style="list-style-type: none"> Defines key handback functions as implementing procedures and transition Acknowledges that handback procedures may involve the initiation of a new P3 agreement for post-handback operation and maintenance
United Nations (2011) <u>A Guidebook on Public- Private Partnership in Infrastructure</u> , Bangkok, Thailand: United Nations Economic and Social Commission for Asia and the Pacific	<ul style="list-style-type: none"> States that specifications should include asset condition at the time of handover Identifies key handover elements as the obligations of the concessionaire, handover timeline, defect liability, procedures, and rights of the agency
U.S. Department of Transportation, Federal Highway Administration (2014), <u>Model Public-Private Partnership Core Toll Concession Contract Guide</u>	<ul style="list-style-type: none"> States handback requirements should include valuation methodologies and inspection requirements based on asset condition/residual life Identifies common contract elements including the handback reserve account
Startin, Jonathan (2011), <u>Value from Public-Private Partnerships: Balancing Prescriptive and Performance Specifications from Design to Handback</u> , TR News, May-June 2011, 274.	<ul style="list-style-type: none"> Discusses current and best practice for handback provisions including distinguishing between elements with long and medium service life in inspection procedures, and residual life requirements



Reference	Key Handback Issues
	<ul style="list-style-type: none"> • Defines good handback requirements as appropriate and enforceable • States that additional research is needed on the successful application of handback reserve funds
<p>Yuan et al. (2015), <u>The Perception of Residual Value Risk in Public Private Partnership Projects: A Critical Review</u>, Journal of Management in Engineering, 31(3).</p>	<ul style="list-style-type: none"> • Identifies residual value risk as an important issue in relation to P3 projects through surveys of experts • Acknowledges that differences of opinion exist on the best method for managing residual value risk • Identifies six perspectives from which residual value risk should be managed including deterioration of maintainability and decline of operability

Although there are a range of documents internationally that attempt to identify key contract terms and elements of the handback process, there appears to be a significant knowledge gap in terms of practical knowledge and experience with the handback process; the World Bank Reference Guide specifically acknowledges the limited practical experience and guidance in handback requirements. Very little information was available; the majority of what could be found related to the projects chosen for this study. In most cases these documents included brief lessons learned and not in-depth analyses of the critical elements of the P3 handback process.

3 Analytical Framework

3.1 Critical Elements

Several critical elements of the P3 handback were identified through the above review of the existing knowledge base. These critical elements include:

- **Handback requirements** – clear identification and definition of handback requirements within the contract were identified as a critical step in most documentation. However, specific recommendation and best practices were not provided in most guidance.
- **Monitoring/inspection procedures** - the presence and clear definition of monitoring and inspection procedures are also critical to project handback. As with handback requirements, specifics related to the timing and focus of inspections were not provided in most guidance.
- **Financial incentives/securities** – financial incentives and security specifically related to the handback process will be critical in any study of the handback process. However, limited guidance was present in the reviewed documents

Consideration was given to these elements as they relate to the identified case studies. In addition to these key elements identified in the review of existing knowledge on the P3 handback process, more recent contracts contain detailed handback elements. Table 3-1 included below details key handback elements identified in these more recent handback clauses for reference; some of these elements were identified in the reviewed case studies as well. The handback elements identified in recent P3 contracts echo those found in the literature and generally fall into the three categories identified above; 1) handback requirements, 2) monitoring/inspection procedures, and 3) financial incentives/securities. However, the key handback elements identified in recent contracts provide more detail than was present in the literature review of existing knowledge on the P3 handback process. The elements identified in Table 3-1 are based on recent P3 contracts, i.e., contracts executed within the last four years. These contracts represent a range of project types, as well as a range of geographies and were selected to ensure coverage and representativeness of the market.

3.2 Evaluation Criteria

A handback clause can be evaluated as a success based on the outcome as well as the handback process.

3.2.1 Handback Outcome Criteria

The handback outcome is successful if the returned asset meets P3 Agreement requirements at no additional cost to the public agency. The following criterion will be used in this paper:

- The asset was returned meeting or exceeding requirements set forth in the P3 Agreement at no additional cost to the contracting agency.

As many early P3 Agreements do not define handback requirements, the handback outcome must be evaluated through other subjective criteria, which for the purpose of this paper are defined as follows:

- The asset was returned in equal or better condition as compared to an asset of similar nature, age, and geographic location.
- The public authority was not required to make capital expenditures on repairs or upgrades to ensure the asset is in working condition going forward.

Table 3-1. Summary of Key Handback Elements

Key Element	Description
Inspection Requirements	A minimum number of inspections are required, on or by a date that is specified in the contract. Often these are required to be joint inspections between the public and private sector, or involve a third party.
Minimum Residual Life Requirements	Minimum criteria outlined in a requirements table that must be met for each element or asset included in a project. This list is typically comprehensive.
Handback Plan	This plan is developed by the concessionaire and submitted for approval prior to the handback process. It details all required renewal work, inspections, key steps in the transition and proposed training. This plan is typically required to be updated on a yearly basis.
O&M Training Session	The concessionaire is required to provide public-sector employees with training on the operations and maintenance of the facility. This training must be completed by some previously defined time prior to the end of the project term. In addition to this, the concessionaire must make personnel available for public-sector consultation on O&M and repair work for some period after the project term expires.
Handback Reserve Account	The concessionaire is required to establish and fund a Handback Reserve Account. Deposits into this account are required quarterly.
Spare Parts & Tools	The concessionaire is required to provide the public-sector with all spare parts and tools necessary for operations and maintenance of the facility.
Residual Life Calculation Methods	The concessionaire is required to propose methods for calculating Residual Life. This helps to avoid the use of outdated standards and practices.
Final Handback Acceptance	A certification that releases the concessionaire from the P3 contract and final payment if applicable.

3.2.2 Handback Process Criteria

To be considered a success, the handback process should be evaluated by the extent to which it followed the procedures defined in the P3 Agreement. The following criterion that will be used in this paper:

- The handback procedures were implemented as defined in the P3 Agreement including the following procedures for inspection, handover, financial guarantees, and warranty provisions.

As many early P3 Agreements do not define handback procedures, the handback process must be evaluated through other subjective criteria, which for the purpose of this paper are defined as follows:

- The handback process resulted in no added transactions cost to the public agency, including costs related to delays, inspections, litigation, and other material expenses beyond what is reasonably expected.
- The returned asset was made available for use throughout the handback process without limiting service or performance.
- The handback process avoided conflict between public agency and concessionaire, and resulted in no litigation or need for mediation between parties.

Particularly in cases where handback procedures are not clearly defined, an external audit may be helpful in documenting lessons learned, and ensuring that outcomes are in the public interest. One reviewed case study, the M4 Tollway in NSW, Australia incorporated an external audit of the handback process; however it was not utilized in other cases.



4 P3 Handback Case Studies

4.1 Case Study Research Methods and Processes

Various methods were utilized to identify qualified case studies for this research including web-searches, outreach, and the existing knowledge of the project team. Outreach was conducted to various P3 offices and organizations worldwide to identify candidate case studies that have completed handback or are currently undergoing the handback process. In most cases, P3 projects, particularly highway projects, had either not yet reached handback, were terminated prior to the contract end date or in cases where handback would have been reached the concessionaires' contracts were extended. These factors increased the difficulty of identifying qualified candidates for this study. Once qualified case studies were identified, all available project documentation and existing publications on the project were collected for review. After documentation was reviewed, project contacts and other potential interviewees were identified and contacted to set up interviews. These interviews were to fill the gaps in available knowledge and provide additional context.

4.2 Case Study Selection

Although projects were identified worldwide, the priority was placed on highway projects from English-speaking countries for ease of data collection. Two projects with superior data availability were identified in English-speaking countries. These projects are the M4 Tollway in New South Wales, Australia, and the East-Link Bridge in Dublin, Ireland. However, no other projects were identified that met the primary selection criteria, completed handback, and had data available in an English-speaking country. Therefore, the Highway 4 (VT4 Järvenpää-Lahti) project in Finland was selected, even though the official languages of Finland are Finnish and Swedish. Project documentation for this project, including the original contract, as well as case studies conducted after the fact, was available in English. English speaking interviewees were identified for this project as well.

The remainder of this section discusses the three selected projects and their handback processes and evaluates the quality of their handback processes and outcomes. A high-level evaluation of these project is provided in Table 4-1.

Table 4-1 Summary of Handback Evaluation

Project	East-Link Bridge	Highway 4	M4 Tollway
Clear handback requirements in P3 Agreement:	No	Yes	No
Handback Outcome Met Criteria for Success	Yes - bridge was returned in satisfactory condition at no additional cost to the City of Dublin.	Yes - highway met all criteria at no additional cost to the Finnish Transport Agency.	Yes - The tollway met conditions of a similar asset. The only added capex was to repair a pre-concession bridge defect.
Clear handback procedures in P3 Agreement:	No	Yes	No
Handback Process Met Criteria for Success	Yes - no conflict, cost, or performance impact.	Yes - process followed handback timeline and requirements	Yes - The process was free from conflict, material cost, or performance impact.



4.3 East-Link Bridge – Ireland

4.3.1 Project Description

The East-Link Toll Bridge (The Bridge) spans the River Liffey in Dublin, Ireland connecting North Wall to Ringsend. The Bridge was completed in 1984 and replaced ferry service which had been carrying passengers across the river since 1665. As of 2016, the bridge averaged 16,000 vehicles per day and charges tolls for all trucks (2.6-5.2 Euro) or cars (1.75 Euro) using cash and electronic transponders. The East-Link Bridge was one of the first P3 projects procured in Ireland. Currently, there are fourteen P3 projects in the transport sector, and many more in various other sectors.

The concession was awarded through a Design-Build-Finance-Operate-Maintain (DBFOM) contract to National Toll Roads (NTR), an Irish limited company who designs, builds, finances, and operates toll roads in Ireland. NTR built and operated the Bridge through an SPV named Eastlink LTD. The concession was a toll based revenue contract, with proceeds from the fares allocated to the City Council (17%), Dublin Port Company (25%) and NTR (58%).¹ While the Dublin Port Company did not directly invest, in exchange for the disposal of land and limited berthage, they were given the right to profits from the toll scheme until contract end, or the date on which the building costs were finally discharged.² Due to this profit sharing mechanism, revenue risk is proportionally shared among the three parties.

In 2010, NTR sold the East-Link Bridge to the Dutch Investment Fund (DIF) as part of a package of assets for EUR 50 mil, with O&M transferred to Egis Road Operations.

4.3.2 Handback Process Experience

The contract expired on December 31, 2015 and on January 1, 2016, East-Link transferred tolling and maintenance responsibilities to Ringsend Toll Bridge (RTB), which is wholly owned by the Dublin City Council (DCC). The original concession agreement had no handback requirements or procedures and the document adopted an approach that the handback should be viewed as the concession rights simply ending rather than returning an asset.

Throughout the process, the legal team advised the City Council on development of a handback agreement with detailed procedures and penalties. The only challenge in the handback process was the transfer of employees and staff of Eastlink from private employment to public employment. In general, the transfer of staff is a complex and sensitive issue, and should be viewed as a risk.

The success of the East-Link handback is attributed to the close relationship between Eastlink and DCC. Under terms of the original agreement, the Board of Eastlink was required to include one administrative official and two elected members of the DCC. Given this very unique arrangement, regular interaction between parties during the life of the agreement was guaranteed, allowing the DCC to confirm maintenance plans and be notified of any issue well in advance of handback. This strategy allowed members of the Board to review maintenance budgets, oversee specifications on maintenance, including inspections, and receive maintenance and inspection reports throughout the course of the concession. This access to information and knowledge of decisions regarding maintenance provided a sense of comfort to the DCC that material defects would not be found.

¹ RTÉ. "AA Critical of Keeping Toll on East-Link Bridge." RTÉ, 31 Dec. 2015. Web. 09 April 2017.

² Dublin Port Company Annual Report 2015. Dublin: Dublin Port., 2015. Dublin Port Company. Web. 9 April 2017



4.3.3 Evaluation of Handback

The East-Link Bridge was considered a success despite a lack of formal handback language in the concession agreement. The handback procedure more closely followed an end of a service agreement with a handshake agreement to meet performance conditions. At multiple stages lawyers recommended to formalize a handback process and procedure; however both parties felt it was not needed. In reflection, the Dublin City Council indicated that while successful, a contract with greater detail on the handback procedure and requirements would have been useful.³

Outcome: On January 1, 2016, responsibility for collecting tolls and operating the bridge was transferred from Eastlink to the Ringsend Toll Bridge (DCC). A post concession inspection revealed only minor issues consistent with what would be expected from a similar bridge.⁴

Process: The handback process occurred without incident with procedures in place to ensure operability was not impacted as the bridge was transferred to the DCC. Like the M4 Tollway, the success of the East-Link Bridge handback process was due to the relationship between Eastlink and the DCC. The DCC was part of the Eastlink board of directors, and therefore had a vested interest in the ongoing operations of Eastlink throughout the term of the contract. Throughout the life of the contract, and including handback, the DCC monitored maintenance regimes and was able to interact with Eastlink to ensure no issues arose at handback.

4.4 Highway 4 (VT4 Järvenpää-Lahti) – Finland

4.4.1 Project Description

The Highway 4 project in Finland (European highway designation E-75), was the first roadway project in the country to be procured as a public-private partnership using a DBFOM model, with a shadow toll as the payment mechanism, where the concessionaire was paid based on annual traffic volumes. The project included a 70-kilometer motorway, 88 new bridges, 8.5-kilometers of noise barriers and 130-kilometers of moose fence.⁵ Construction of the project lasted 2.5 years, less than the originally anticipated 3 years and significantly less than expected if procured using traditional methods. The total period of the concession was 15 years. The originally estimated cost of the project was 238 Million Euros; however, the actual project cost was only 234 Million Euros. The agreement between the Finnish Transport Agency (FTA) and the special purpose vehicle (SPV), Tieyhtiö Nelostie Oy, was signed on March 19, 1997.⁶

³ "East-Link Bridge Interview." Telephone interview. 21 November 2016.

⁴ "East-Link Bridge Interview." Telephone interview. 21 November 2016.

⁵ Makinen, Seppo, Pekka Petajaniemi, and Pekka Pakkala. Results of Finland's First Concluding Public-Private Partnership Road Project. Rep. Finnish Transport Agency, 2014. Web. 9 April 2017.

⁶ Makinen, Seppo, Pekka Petajaniemi, and Pekka Pakkala. Results of Finland's First Concluding Public-Private Partnership Road Project. Rep. Finnish Transport Agency, 2014. Web. 9 April 2017.



4.4.2 Handback Process Experience

Handover occurred at midnight on August 30, 2012, and was considered an overall success by both the public and private partners, as was the project as a whole. The handover process began 3 years prior to the end of the project term: the process began when the concessionaire submitted a request to the FTA, per contract requirements. Generally, the facility was required to be in the same condition as other motorways of similar age and class in Finland, per the original contractual requirements, with specific criteria at handback also included. These criteria included maximum rut depth, groundwater protection measurements, and requirements related to the functionality and cleanliness of the drainage systems among others. A preliminary handover inspection occurred 5 months prior to contract expiration, in the spring of 2012, with the final transfer occurring after this in two parts.

Additionally, the SPV was required to submit all information required for the public sector to estimate the year of next repair among other factors, per the original contract requirements. The contract required a two-year warranty period during which the SPV was responsible for any larger than expected, or extra high maintenance costs. However, this threshold was not specifically determined nor were there any issues during this period.⁷ Overall, the relationship between the parties remained good throughout the contract and handback periods.

4.4.3 Evaluation of Handback

The Highway 4 P3 Agreement included detailed requirements on the condition of the highway at transfer, as well as defining a 3-year timeline to execute the handback. The Finnish Transportation Agency reviewed the concession after maturity, and recommended the Highway 4 P3 serve as a guideline for future P3 handbacks.

The Highway 4 project in Finland (European highway designation E-75), was the first roadway project in the country to be procured as a P3. In addition to the Highway 4 project, Finland has pursued three other P3 projects, two of which have not reached handback. Procurement of the third P3 project was suspended in 2011 due to higher than expected bid prices.

Outcome: At handback the highway met all requirements as defined in the original P3 agreement. The agreement explicitly required the road to be in a similar condition to any other 15-year-old motorway in Finland.⁸ The road was also subject to requirements relating to maximum rut depth, functioning drainage system, groundwater protection measures, reflectivity of signage, road lighting, condition of noise barriers, as well as other technical requirements. The successful handback is also attributed to a relatively short concession term, given the fact that a typical design life of 40 years was used for highways in European countries.⁹

Process: The handback followed a 3-year handback timeline which was executed at Tiejhtiö Nelostie Oy's request. During the handback process, the FTA was able to perform their own inspections, and joint meetings were held routinely to ensure the handback process met timing and condition requirements. Following the

⁷ "Highway 4 Bridge Interview." Email correspondence. 22 February 2017.

⁸ Makinen, Seppo, Pekka Petajaniemi, and Pekka Pakkala. Results of Finland's First Concluding Public-Private Partnership Road Project. Rep. Finnish Transport Agency, 2014. Web. 9 April 2017.

⁹ Ibid.

transfer inspection, Tieyhtiö Nelostie Oy provided a 2-year warranty period ensuring there were no added extraordinary costs to the public agency.

4.5 M4 Tollway - NSW, Australia

4.5.1 Project Description

The M4 Tollway in New South Wales (NSW), Australia was one of the first public-private partnerships in any sector initiated by the NSW government, and was the first Australian road concession to reach handback. The project included construction of a missing section of the M4 Motorway from Mays Hill to Prospect and improvements to lane configurations in other sections; the original sections of the M4 Motorway were built in the 1970s and 1980s. The M4 Tollway was scheduled to open in 1993, but the project was 9 months ahead of schedule and was opened to the public in May of 1992; both the cost and schedule of the project were below original estimates. The total length of the M4 Motorway runs from Strathfield to Lapston and is one of Sydney's main arteries. The missing section and improvements were constructed through a 20-year, DBFOM toll concession with the concessionaire, who was Statewide Roads (SWR). The project owner is the NSW Roads and Traffic Authority (RTA), which is now part of the Roads and Maritime Services, a NSW transportation agency. The total capital cost of the project was A\$246 Million.¹⁰ Throughout the course of the concession, SWR underwent several ownership changes. In 2007, just before handback Transurban became majority shareholder. During the concession period, the M4 Motorway consisted of both tolled and non-tolled sections of the roadway, with the tolls paying for the privately built portions of roadway. During the concession period, the government changed hands from the Liberal Party, under which the project was initiated, to the Labor Party which campaigned on removing tolls on several roadways; the Labor Party government was elected in 1995. It was discovered that removing the tolls would require the government to compensate the concessionaire a large sum if this action was undertaken. Instead, the government of NSW instated a "Cashback Scheme" that allowed drivers of privately registered vehicles to claim a refund on tolls paid. Ultimately, this program repaid the users of the M4 A\$255 Million; a total of A\$1.2 Billion was paid by motorists over the course of the concession period¹¹. Ultimately, to fulfill their promise the Labor Party government removed all tolls on the M4 Tollway once the facility was handed back to the public sector.

4.5.2 Handback Process

Handback of the M4 Tollway occurred at midnight on February 15, 2010. The original project deed between SWR and RTA did not include a specific handback provision. Most significantly, it did not specify how to determine if the roadway was in satisfactory condition at handback, how to determine what repairs were needed, how to cover costs for repairs not made, and how maintenance requirements should change with

¹⁰ Chung, Demi, and David Hensher. Risk Management in Public-Private Partnerships. Rep. Australia Accounting Review, 25 Mar. 2012. Web. 9 April 2017.

¹¹ Chung, Demi, and David Hensher. Risk Management in Public-Private Partnerships. Rep. Australia Accounting Review, 25 Mar. 2012. Web. 9 April 2017.



evolving standards.¹² The maintenance requirements that were included in the contract were based on 1990 standards. Despite these challenges, an audit of the handback process conducted by the Auditor-General of New South Wales indicated that the facility was expected to be in satisfactory condition at handback, thanks in large part to good management by both RTA and SWR, and goodwill between the parties

The handback process began in November 2008 when a governance structure was set up to oversee contract closure. The governance structure included both parties, with members of the management of SWR and RTA. These parties governed all items related to handback, including the steering committee which dealt with all handback details. The steering committee overseeing all components of handback consisted of three subcommittees: commercial and legal; asset management; traffic and safety management. Each subcommittee had its own unique objectives related to handback. The outcomes of processes related to handback and final decisions that were made were formalized in a project closure deed to make the process official.¹³ Throughout the handback process bi-monthly meetings were held between handback teams at SWR and RTA to update RTA on progress and clarify any new or outstanding items. These handback teams, comprised of representatives from both SWR and RTA, over the two-year period defined all quality and standard requirements at handback, as well as other handback processes.

4.5.3 Evaluation of Handback

The P3 Agreement for the M4 Tollway did not clearly define the handback process, maintenance requirements, or minimum asset conditions. SWR was only required to return the tollway in “satisfactory condition.” The handback process was defined on an ad hoc basis outside the P3 agreement through the establishment of a steering committee. In “Risk Management in Public-Private Partnerships”, Chung and Hensher describe that the ability to invent a handback process during the course of the project helped lead to a successful handback.¹⁴ However, the Auditor-General of NSW recommended in a report on the M4 handback that future project deeds include appropriate testing and inspection programs to determine repairs needed for satisfactory asset condition at handback.

As mentioned, the M4 Tollway was one of the first public-private partnerships in any sector initiated by the NSW government, and was the first Australian road concession to reach handback. Since completion of the M4 Tollway, the NSW Roads & Maritime Services has awarded eight P3 contracts, as well as many others in various sectors. Achterstraat (2009) notes that the audit of the M4 Tollway project was conducted in part so that lessons learned from the project could be incorporated into future P3 projects and handback clauses.

Outcome: The tollway was returned in satisfactory condition with minimal financial burden to the authority. Post concession inspections found a defect in one of the bridges; however the defect was a result of components installed before the beginning of the concession, and was not the liability of SWR (Transurban).¹⁵

¹² Audit Office of NSW, *Auditor-General's Report Performance Audit: Handback of the M4 Tollway*. October 2009.

¹³ Chung, Demi. *Risks, Challenges and Value for Money of Public-Private Partnerships*. Financial Accountability & Management, 32(4), November 2016. Web. 21 April 2017.

¹⁴ Chung, Demi, and David Hensher. *Risk Management in Public-Private Partnerships*. Rep. Australia Accounting Review, 25 Mar. 2012. Web. 9 April 2017.

¹⁵ "M4 Hand Back Interview." Telephone interview. 13 February 2017.

Process: The steering committee was formed in 2008 to define and formalize the handback process and requirements. SWR and the New South Wales Government met on a bi-monthly basis to clarify roles and address any issues that occurred during handback. The relationship and goodwill between stakeholders was a key driver in the success of the M4 handback. Transurban, the majority owner of SWR, had multiple concessions with the Australian government, and was motivated to preserve the relationship and comply with any requirements to meet a “satisfactory condition.” The handback took place over a two-year period without incident, cost, or impact on performance of the tollway.



5 Evaluation and Takeaways from Handback Experiences

All three case studies showed the handback process being executed without incident or added cost, and with the asset returned in satisfactory condition to the public authority. However, as highlighted by the M4 and East-Link projects, satisfactory outcomes were in part driven by strong relationships between stakeholders. In the East-Link and M4 case studies, incentives were aligned through strong relationships between the concessionaire and public agency. Further, the concessions offered no recourse for the public agency if assets were not returned in satisfactory condition. This placed significant financial risk on the public authority, who may have had to repair the asset so that it met performance standards. Based on the case studies and literature review, key takeaways are highlighted below for effectively mitigating handback risk and improving the chances of a successful transfer:

The P3 handback process exposes a public agency to a high degree of financial and operational risk if not mitigated correctly in the P3 agreement. Based on the case studies and literature review, the following drivers have effectively mitigated handback risk and improved the chances of a successful transfer:

- **As project representatives indicated, more specific contractual guidance on the handback process would have been helpful:** Vague requirements, such as a requirement that the asset be returned in “satisfactory condition,” can lead to conflicting interpretations on a satisfactory benchmark. Whereas the various case studies presented in this paper do not convincingly demonstrate that the outcome of the handback is optimal by objective standards, they do show that even without clear handback requirements, parties may consider the handback process successful.
- **Clear procedures and a (joint) inspection process are critical success factors:** Respondents confirmed that successful handback processes clearly define the roles and responsibilities of the inspection procedure. This includes establishing the timing of inspections, benchmarks for asset quality, and procedures for incorporating inspection findings into maintenance plans. To maximize the chances of success, inspections should be conducted jointly to ensure a transparent and common understanding of the results.
- **Financial incentive and protection mechanisms are beneficial:** Respondents representing the various case studies in this report indicated that they would have benefitted from financial incentive and protection mechanisms. Such mechanisms effectively limit the threat of perverse behavior and profit maximization by the concessionaire. Moreover, through establishing maintenance benchmarks supported by maintenance reserves, letters of credit, or surety bonds the public agency is protected financially, should the asset require capital investment or repairs.
- **Flexibility regarding handback requirements is needed:** Technical requirements and contract provisions tend to be incomplete due to changing environment. This is especially important for long term contracts where specifications of condition and performance criteria possibly become inadequate or impractical. As shown in all three projects cases, no agency worked with detailed handback requirements. Instead, flexible contract provision, effective organizational structure, and collaborative effort among stakeholders led to satisfactory handback.
- **Short contract durations reduce the challenges of changing requirements:** P3 contract terms generally are 30 years or more. Such long contract terms obviously increase the likelihood of significant changes in technical and performance standards. It is likely that the relatively short term of the P3 contract for the Highway 4 project contributed to the successful handback process. In general, shorter contract terms will reduce the challenges associated with the need to change handback requirements, as well as technical and performance standards in general. This however needs to be balanced with life cycle optimization considerations, generally requiring inclusion of one or more rehabilitation cycles.



- **A collaborative approach allows for necessary flexibility:** As the case studies have shown, a strong relationship between concessionaire and public agency enhances the chances of handback success, even in the absence of detailed requirements and procedures. In general, international P3 contracts seem to be less legalistic and focus more on collaboration than U.S. P3 contracts. Further research is needed to examine to what extent a more collaborative P3 approach would be applicable in the U.S.
- **Workforce transition upon handback can be complicated:** As shown in the East Link example, one often ignored aspect of the handback process is the transition of any employees from the private concessionaire to a new operator, be it the public agency or new private sector operator. A successful handback secures continuity in operations by integrating existing employees into the new operator's workforce, while at the same time maintaining operations and service quality of the asset for users. The public agency needs to capture and consolidate private sector knowledge for successful handback, and manage the transition to a new operator. However, it should be noted that in general the transfer of staff involves significant complexity and creates uncertainty for both the public agency and the concessionaire.



6 Recommendations for good practice

Based on the international case studies, as well as the evolution of P3 contracts, there are clearly identifiable successful international practices that could be incorporated in future U.S. P3 contracts. A review of several recent P3 contracts in the U.S. and internationally, shown in Table 4, demonstrates that these successful practices have been incorporated into the more recent generation of P3 contracts.

6.1 Handback Provisions and Specifications

In drafting P3 contracts and legal documents, public agencies and concessionaires ensure handback procedures and requirements are clearly defined. This includes establishing clear maintenance and inspection requirements as well as defining the handback process. Detailed maintenance requirements will ensure the concessionaire is maintaining the asset to an acceptable level of performance rather than maximizing profit. However, it is equally important to incorporate flexibility in the P3 contract by defining the requirements in functional, output-based terms rather than prescriptive, input-based terms and allowing for changes to the requirements so that the acceptable state of practice at a given time is applied, not one that is outdated and potentially detrimental to the public interest. This is relevant for all performance requirements, throughout the life of the contract, not just at handback. Recognizing this challenge, public agencies should balance the trade-off between strict contract provisions and flexibility for negotiation and inspection to ensure no requirements become impractical or inexecutable due to technological advancement or policy changes.

The P3 agreement also defines the handback process including when the process should begin, roles and responsibilities. Clearly establishing responsibilities will ensure handback occurs according to schedule and without conflict. An analysis of a selection of more recent and ongoing P3 projects, including the M4/M5 WestConnex project in Australia, and the I-4 Ultimate and I-77 Express Lanes projects in the U.S. all include clearly defined handback requirements, initiation dates for the handback process, and roles and responsibilities. This suggests that these recommended improvements have been incorporated into more recent P3 contracts. Additional successful practices, including requirements to turn over key materials, are often included in more recent handback provisions such as those mentioned above. These key handback elements are shown in Table 6-1.

6.2 Monitoring and Inspection Procedures

P3 contracts develop a Life-Cycle Maintenance Plan, defining requirements and inspection procedures throughout the life of the agreement. This insures the public agency and concessionaire are both aware of the asset condition and can take steps to mitigate issues, such as increasing the maintenance reserve, well in advance of handback.

The inspections take place in a joint fashion, with roles clearly defined, to ensure both parties are in agreement with any findings and understand the financial ramifications. By clearly identifying monitoring and inspection procedures and utilizing a joint approach, the financial risk from unexpected repairs at handback will be minimized. The M4/M5 WestConnex project in Australia, and the I-4 Ultimate and I-77 Express Lanes projects in the U.S. all include clearly defined inspection procedures, and requirements detailing their frequency. Additionally, the M4/M5 WestConnex and I-77 Express Lanes projects require joint inspections, or shared inspection responsibilities, demonstrating that these improvements have been incorporated into more recent projects.



6.3 Financial Incentives and Protection

Finally, should the asset be returned to the public agency in an unacceptable form or require extraordinary maintenance following handback, the public agency is protected financially. This is complicated, as the concession is typically run by an SPV who may dissolve after the concession matures and no longer has capital. Through financial incentives and protection including a Handback Reserve Account, surety bonds, and/or letters of credit that extend beyond maturity of the contract, a public agency can be guaranteed that their financial risk at handback is minimal. All recent projects detailed in Table 6-1 include some form of Escrow or Handback Reserve Account, and specific requirements regarding its sizing. This demonstrates that the suggested improvements have been incorporated into more recent P3 contracts.

Table 6-1 A Comparison of P3 Handback Provisions

P3 Project	Eastlink	M4 Tollway	Highway 4	WestConnex	I-4 Ultimate	I-77 Expressway	SH 183 Managed Lane
Country	Ireland	Australia	Finland	Australia	U.S.	U.S.	U.S.
Contract Date	1982	1990	1997	2015	2014	2014	2014
Handback Defined (Contract)	None	None	Not defined	Handback requirements defined	Handback requirements defined	Handback requirements defined	Handback requirements defined
Initiation of Handback Procedure	Termination of Contract	Not defined	Inspection up to 3 years before termination of contract	3 years prior to Expiry Date	4 years prior to the termination of the contract	5 years prior to the end of the contract term	5 years prior to the end of the contract term
Number of Inspection Rounds	One at handback	Not defined	One transfer inspection	Two (3 years prior and 18 months prior to expiry date)	Annually	Annually	3 (60 months prior, 18 months prior, and 30 days prior to end of the Term)
Responsibility for Inspections	Shared	Not defined	Shared	Shared	Florida Department of Transportation (FDOT)	North Carolina Department of Transportation (NCDOT) & Developer	Developer, with Texas Department of Transportation (TXDOT) able to witness as desired
Financial Mechanism - Type	Contingency fund provision was removed mid-contract	None	Maintenance cost collected from concessionaire	Escrow Account established after the initial inspection	Handback Requirement Reserve Account (or L/C) established 4 years before termination	Handback Requirement Reserve Account (or L/C) established 5 years before termination	None
Financial Mechanism - Sizing	None	None	Maintenance cost	40% of the total estimated cost of renewal work	Equal to the renewal amount as estimated following each inspection of the project	Equal to the renewal amount as estimated following each inspection of the project + 10% contingency	None
Handback Requirements vs. Regular Requirements	Same	Unknown	Unknown	Regular inspections	Handback requirements detailed in technical requirements	Handback requirements detailed in technical requirements	Handback requirements detailed in technical requirements



P3 Project	Eastlink	M4 Tollway	Highway 4	WestConnex	I-4 Ultimate	I-77 Expressway	SH 183 Managed Lane
Country	Ireland	Australia	Finland	Australia	U.S.	U.S.	U.S.
Post Handback Guarantee	None	None	Concessionaire guarantees that no significant maintenance beyond regular maintenance on similar roads would be necessary for a period of 2 years from transfer inspection. Concessionaire is responsible for any extra maintenance costs. Final receivables of the contract are paid out only after this period.	Within 60 business days of the expiry date Roads and Marine Services (RMS), an agency of the New South Wales (NSW) government, may identify assets which don't meet "residual life requirements" to be addressed by the Project Company	None	None	None
Residual Life (RL) Requirements	None	None	The road must be returned in a similar form of other facilities of the same class and age (15 years)	Detailed in the additional requirements	No RL requirements but with detailed conditional criteria at handback	Detailed RL requirements for every asset type	Detailed RL requirements for every asset type
Level of Detail of Handback Requirements	None	None	High	High	High	High	High

7 Conclusion

Analysis of international experiences to date identifies clear drivers of handback success and successful practices. Admittedly, the M4 and East-Link case studies relied significantly on strong relationships to achieve success; however, absent these traits, the P3s could have exposed the public agency to financial risk given a lack of recourse and clear performance standards in the legal documentation. Through focusing on the drivers of success and handback best practices, a public agency can safeguard itself from the financial risks associated with a returned asset while ensuring that the P3 is successful. There is evidence that some public agencies have begun this work already, demonstrating acceptance of these drivers of success and successful handback practices.

