

ASSESSMENT OF CONTROLLED INSURANCE PROGRAMS
FOR CONSTRUCTION PROJECTS

By

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By

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The objective of this study was to perform a cost/benefit analysis on controlled insurance programs in comparison with traditional insurance policies as used in the construction industry. The decision to choose a particular insurance approach, whether an owner controlled insurance program (OCIP), a contractor controlled insurance program (CCIP), or a traditional insurance policy, is generally based upon the perceived costs and benefits associated with the options. This study examines, summarizes, and quantifies the advantages and disadvantages of OCIPs and CCIPs when compared to each other and to traditional insurance policies. Information was obtained through a comprehensive literature review and through interviews conducted with large construction project owners, prime contractors, and construction insurance carriers. The purpose of the interviews was to gain a better understanding of how construction industry participants felt about owner controlled insurance programs (OCIPs) and contractor controlled insurance programs (CCIPs). It was hypothesized that the cost of insurance on

large construction projects is lower for projects using controlled insurance programs than on projects using traditional insurance policies. The results of the literature review and the results of the interviews tend to support this hypothesis. However, a project must be of sufficient size in order to achieve the cost savings. It was also hypothesized that construction projects that are insured by controlled insurance programs have lower injury frequency rates and lower injury costs than construction projects that are insured by traditional insurance policies. The results of the literature review and the results of the interviews tend to support this hypothesis. However, an effective safety management plan must be implemented and maintained in order to achieve the lower injury frequency rates and costs. It was also hypothesized that construction projects that are insured by CCIPs have lower injury frequency rates and lower injury costs than construction projects that are insured by OCIPs. The results of the literature review and the results of the interviews tend to support this hypothesis.

CHAPTER 1 INTRODUCTION

Whenever the construction of a new facility takes place, there are risks assumed by the various parties involved in the construction process. To address these risks, at least to a considerable extent, insurance is generally purchased. Traditionally, this insurance coverage has been acquired individually by each of the parties involved. There are now viable alternatives to this method of acquiring insurance, namely the insurance coverage for an entire project can be purchased by the facility owner or the prime contractor. But what are the advantages or disadvantages of these alternatives?

The objective of this research is to compare the cost effectiveness and safety benefits of these alternative methods of acquiring insurance. Traditionally each contracting party in the construction industry typically obtains their own insurance coverage, herein referred to as the traditional method of obtaining insurance. Each party is responsible for obtaining their own workers' compensation insurance, builder's risk insurance, and liability insurance policies. However, under the alternative approach, insurance for construction projects is purchased by the facility owner or prime contractor. This alternative is known as a controlled insurance program.

Controlled insurance programs are used to provide insurance coverage for the entire construction project through a single insurance policy. Instead of each contracting party providing their own insurance, as is the case in the traditional method of obtaining insurance, the insurance is provided for all contracting parties under one consolidated insurance program provided by one insurance carrier. The controlled insurance program

may be acquired by the owner of the construction project or by the prime contractor in charge of the construction project. When the owner acquires the controlled insurance program (CIP), the insurance program is referred to as an owner controlled insurance program (OCIP). When the prime contractor acquires the CIP, it is referred to as a contractor controlled insurance program (CCIP). Controlled insurance programs (CIPs) are interchangeably referred to as consolidated insurance programs (CIPs), coordinated insurance programs (CIPs), and wrap-up insurance programs (wrap-ups).

As stated previously, the objective of this study is to perform a cost/benefit analysis on controlled insurance programs in comparison with traditional insurance policies as used in the construction industry. The decision of which type of insurance to choose, an owner controlled insurance program (OCIP), a contractor controlled insurance program (CCIP), or traditional insurance policies, is generally based upon the perceived costs and benefits associated with each type of insurance coverage. This study will examine, summarize, and quantify the advantages and disadvantages of OCIPs and CCIPs when compared to each other and to traditional insurance policies.

CHAPTER 2 LITERATURE REVIEW

Introduction

The purpose of this literature review is to investigate and report on the available information on the topic of controlled insurance programs. This chapter will give an overview of controlled insurance programs and traditional insurance policies, followed by the advantages and disadvantages of controlled insurance programs as compared to traditional insurance policies. The cost implications of controlled insurance programs will also be discussed. Finally, controlled insurance programs will be described in relation to safety performance.

Overview

Controlled insurance programs have recently become more common in the construction industry and are expected to be used more frequently in the future. Typical insurance coverage objectives for owners and contractors are to reduce accident rates, reduce the number of injuries, prevent property damage, and maintain the timely completion of construction projects. In the traditional insurance arrangement, the procurement of insurance policies is a fragmented process in which each contractor is required to acquire their own insurance coverage. The insurance coverage usually includes general liability, statutory workers' compensation, and employers' liability insurance. When all contractors acquire traditional insurance coverage and include the costs in their bids, there will be considerable duplication of coverage and excess costs will be incurred. A new type of insurance program has been developed over the past

decades that seeks to distribute, share, and manage risk at construction sites. This type of managed program is referred to as a controlled insurance program (CIP) and is known by various names including a consolidated insurance program (CIP), a coordinated insurance program (CIP), a wrap-up insurance program, an owner controlled insurance program (OCIP), a contractor controlled insurance program (CCIP), and a partner controlled insurance program (PCIP). CIPs differ from the traditional, fragmented insurance arrangement in that an injury or accident is reported to a single insurance carrier that is responsible for insuring all entities involved on the project. The fundamental principle of the CIP is that the owner or the prime contractor will furnish insurance coverage as stipulated in the contract documents for the entire construction project. CIPs are specifically designed for each construction project in order to protect the owner, the prime contractor, and all tiers of subcontractors. Depending on the structure of the CIP, the owner or the prime contractor is responsible for making insurance payments directly to the insurance carrier providing the coverage (Lew and Overholt 1999, USDOT 2003). Bids are obtained from contractors on an ex-insurance basis, which means that the bidders are instructed not to include the cost of insurance in their bids because the insurance coverage is being provided for them (Lew and Overholt 1999, Hinze 2001).

Under the traditional method of obtaining insurance policies for a construction project, the owner contracts with a construction manager or general contractor to build the project. The construction manager or general contractor then subcontracts the construction work to individual subcontracting companies. Each level of contract requires the lower level to secure its own workers' compensation, general liability, and

builder's risk insurance. The owner typically specifies minimum acceptable insurance coverages, terms, and limits. The owner then monitors compliance through the contract process. Under this arrangement, project participants separately negotiate individual insurance policies to mitigate risks associated with specific project roles (Federal Transit Administration 2003, Houweling 1999, Johnson and Tonseth 2003, Wheeler 2004).

The traditional approach for obtaining insurance coverage may not be cost effective because of possible overlapping coverage, gaps in coverage, contractor cost markups, unrealized economies of scale, claims disputes, and cross litigation by various insurance companies over claim payments. The cost of these disparities is ultimately borne by the owner in the form of higher project costs (Federal Transit Administration 2003, Johnson and Tonseth 2003). Premiums and losses are handled by the individual insurers of each party (Johnson and Tonseth 2003). If any contractor has a loss, their insurance company would respond accordingly. If limits are inadequate to cover the loss, liability would be passed up through the levels of responsibility all the way to the owner, under the deep-pocket theory. In most cases, several insurance companies would be involved in large losses, which often leads to claims adjustment problems as each insurer attempts to pass off liability to another insurer (Houweling 1999, Ron Rakich and Associates 2000).

Table 2-1 presents a comparison of traditional insurance coverage to OCIP coverage.

Table 2-1 Traditional Insurance Coverage in Comparison with OCIP Coverage

Traditional insurance	Wrap-up insurance
The project owner purchases policies to cover the following: workers' compensation, general liability, automotive liability, excess liability, and builders' risk insurance.	The project owner purchases insurance policies that cover the owner, the general contractor, and the subcontractors for the following: workers' compensation, general liability, excess liability, and builders' risk insurance.
The general contractor purchases policies to cover the following: workers' compensation, general liability, automotive liability, excess liability, and builders' risk insurance.	
The subcontractors purchase policies from multiple insurance companies to cover the following: workers' compensation, general liability, automotive liability, excess liability, and builders' risk insurance.	

(USGAO 1999)

A consolidated insurance program (CIP) is an integrated insurance program designed to address a construction project's insurance, claims services, and risk management needs (Collier 1998). A CIP is obtained by the owner or the prime contractor and is used to provide insurance coverage for the owner, prime contractor, and all tiers of subcontractors working on the construction project (Collier 1994, Davis 2004, Grenier 2004, Katzman 2002, Hinze 2001, Royer 1981, Tenah 1985). CIPs typically provide workers' compensation, general liability, employers' liability, excess umbrella liability, property insurance, and builder's risk insurance. The CIP may also be expanded to include professional liability, design team errors and omissions, owner's protected liability, asbestos abatement, and environmental liability insurance. Automobile liability, contractor's equipment coverage, supplier and vendor coverage, and bond insurance are

typically not included in the CIP (Davis 2004, Donovan 1999a, Collier 1994, Palmer et al. 1996, Parry 1999).

Under a CIP, the owner or the prime contractor obtains the desired insurance from one insurance company instead of each individual contractor obtaining their own insurance coverage, as is the case under the traditional insurance arrangement (Hinze 2001, Riley 1999, USDOT 2003). Instead of contractors and subcontractors purchasing separate policies and adding the expense in their bids, participants can be covered through the CIP at a lower cost (Collier 1998). The owner or the prime contractor purchases the CIP based on a number of factors including the contractors' safety records and the number of workers on the project. These factors are then used to help determine the insurance rates for the CIP (Riley 1999). CIPs are typically not based on guaranteed insurance costs, such as a premium at policy inception. Instead CIPs are typically retrospectively rated, which in effect is similar to a cost-plus contract whereby the premium paid is a function of the loss experience on the project (Palmer et al. 1996).

While the CIP concept has been around for over 40 years, it has only come into widespread use during the last 10 years (AON 2004, Davis 2004). CIPs using comprehensive master insurance policies arose from the increasing complexity of construction and construction insurance, the increasing competitiveness of the construction industry, and from the simple fact that an owner always pays, either directly or indirectly, for the cost of all insurance required for the performance of the construction work (Collier 1994, Davis 2004). By directly purchasing all of the necessary insurance for a construction project under one master policy to protect and indemnify all of the persons involved in that project, the owner and the prime contractor can eliminate much

of the complexity, doubt, confusion, and risk of having too little or too much insurance coverage (Collier 1994). Construction insurance is inherently complicated. On a project of any magnitude the insurance program requires extremely careful management. Especially on large projects, the owner can best coordinate this management through a CIP (Ron Rakich and Associates 2000).

The objectives of a CIP are to ensure that proper and adequate insurance coverage exists for all those involved and to reduce the total cost of insurance for a construction project (Collier 1994). Because all of the insurance is provided by a single insurance carrier and purchased by the owner or the prime contractor in charge of the CIP, contractors and subcontractors are asked to remove the cost of insurance from their individual bids (Donovan 1999b, Hinze 2001, Palmer et al. 1996, Parry 1999, Riley 1999, Wheeler 1999). Using the traditional method of obtaining construction insurance, each contracting party includes the cost of insurance coverage and bonding plus a markup in their bids. To lower bid costs and remove contractor markups, owners and prime contractors have been using CIPs. CIPs also help to reduce costs because they allow the owner or prime contractor to buy insurance coverage in bulk, rather than require each contractor and subcontractor to purchase individual insurance policies (Parry 1999, "The State" 2003). This allows owners to get volume discounts on insurance coverage through consolidation, keep the difference on any favorable loss experiences, prevent insurance coverage gaps or redundancies, and reduce underwriting and claims administration expenses (Donovan 1999b, Katzman 2002).

CIPs require the implementation of a consolidated safety management program and loss control program for the entire construction project. A well run safety program

can result in substantial cost savings for the workers' compensation insurance portion of the insurance premium when fewer injuries occur (Donovan 1999a, Katzman 2002, Riley 1999). Under a CIP, the owner or the prime contractor pays the total premium for all of the insured parties and receives the benefits of any return premiums for a favorable loss experience (Lew and Overholt 1999, Palmer et al. 1996, Parry 1999). Through the proper use of a CIP, the owner and prime contractor can expect lower overall construction costs, better insurance coverage, a safer work site with uniform standards and coordinated safety procedures, a reduction in cross litigation, less claims disputes, and proactive claims management to help injured workers return to work as soon as possible (Donovan 1999a, Federal Transit Administration 2003, Johnson and Tonseth 2003).

An owner controlled insurance program (OCIP) is an asset protection option designed for large construction projects that provides insurance coverage for all parties involved in the project (USDOT 2003). OCIPs are controlled by the project owner and are designed as a cost savings tool based on purchasing power and aggressive loss control ("Forum On OCIPS" 2002, USDOT 2003). Under an OCIP, the owner assumes responsibility for procuring the insurance coverage, making the insurance payments, managing the safety and loss control programs, managing claims, and administering the insurance program (Davis 2004). Project owners can benefit from considering the prime contractor's perspective before they decide to utilize an OCIP. Project owners should discuss the idea with the prime contractor and get the major project participants involved in the feasibility study phase. This cooperation provides a more accurate analysis of the potential effectiveness of an OCIP and maximizes the results of the program for all parties involved in the construction project ("Wrap-ups" 2003). Contractors need to

know that they will be held responsible for participating in the safety management program and that the construction project can be stopped for safety procedure violations. Responsible bid documents should inform contractors of an OCIP before asking the contractors for the submission of their bids (Ferraro 1996).

Owners should not try to use an OCIP without a clear understanding of the concept and the management obligations it imposes (Ferraro 1996). OCIPs require additional administrative management, coordinated safety management, loss control management, and claims management programs. Because many owners do not have the expertise to run such programs, administration of the OCIP and management of project safety can be subcontracted. Alternatively, where an owner may not want to be responsible for administering an OCIP and running a coordinated safety management program, a contractor controlled insurance program (CCIP) can be used in place of an OCIP (Katzman 2002). The prime contractor may be best suited to design, procure, implement, and manage a CIP. The prime contractor typically bears the majority of the project risks, has experience in project insurance, and is generally equipped to address the needs of the other major project participants (“Wrap-ups” 2003).

The increasing costs of insurance and construction have led many contractors to seek innovative ways to handle the associated risk exposures. An increasing number of prime contractors are beginning to take advantage of CCIPs to control construction risk, reduce costs, and increase safety management. Under a CCIP, the prime contractor procures the insurance coverage on behalf of the subcontractors working on the construction project (Davis 2004, Palmer et al. 1996). However, the contractor controls

the program and may expand or restrict the program as desired (Grenier 2004, Palmer et al. 1996, USDOT 2003).

CCIPs provide an added incentive for the prime contractor in charge of the insurance program to reduce the number of injuries and accidents because monitoring and enforcement of project safety remains with the prime contractor and the resulting cost savings directly benefit the prime contractor. Prime contractors may also be able to use a rolling wrap-up to insure several of their construction projects with different owners and still realize for each owner a substantial cost savings (Katzman 2002).

A partner controlled insurance program (PCIP) is a coordinated master insurance, safety, and claims management program controlled by both the owner and the prime contractor. Cost savings are typically shared by the owner and the prime contractor. Which party is entitled to what percentage of the cost savings is an issue that needs careful consideration. PCIPs differ from OCIPs in that the prime contractor and subcontractors have input in the development and operation of the PCIP (“Partner Controlled Insurance Program” 2001, USDOT 2003). The issue of control can pose potential problems if the PCIP is not structured with partnering and collaboration in mind (Grenier 2004).

A rolling wrap-up is an insurance program that covers a number of medium to small construction projects at several different sites (Coniceros 1999, O’Gara 2001, Palmer et al. 1996). Rolling wrap-ups typically insure multiple projects under one program where the threshold of eligibility for a CIP is usually not met by projects on an individual basis. Using a rolling wrap-up, the insurance coverage rolls from one construction project to the next (Brigance 1998, USDOT 2003). Rolling wrap-ups are

widely used by large companies managing multiple projects because they provide owners and contractors the flexibility of blanket coverage without the limitations of specific construction insurance (Coniceros 1999, O’Gara 2001). Rolling wrap-ups are often referred to as rolling owner controlled insurance programs (ROCIP) (“The State” 2003). A gatekeeper wrap-up is an insurance program that covers ongoing maintenance projects where contractors are continually onsite, expanding, maintaining, and repairing property (Donovan 1999a).

The concept of CIP protection should be considered carefully and established early in the project’s planning and development stage (Federal Transit Administration 2003, Grenier 2004). The keys to success for a CIP are to involve contractors early, to communicate effectively, to provide adequate coverage and limits that protect both the owner and the contractors, to invest in skilled and proactive CIP administrative support and loss control services, to allow enough time to revise contract language before bidding the project, to create a team environment, to provide incentives for contractors to participate in the success of the CIP, to bid the broker and insurers, and to be flexible (Grenier 2004, “Owner Controlled Insurance Program” 2002). For a CIP to be successful, the involvement of the owner and the contractor is needed in all aspects of the project (Lew and Overholt 1999). The location of the project and the scope of loss prevention and safety management will have a direct impact on the potential for success of a CIP. Projects located in favorable claim climates have a greater chance for success than those located in less favorable claim climates (Ostermiller 1998).

CIPs have been used to insure both private and public construction projects including airports, stadiums, convention centers, hotels, condominiums, office buildings,

schools, hospitals, prisons, power plants, industrial facilities, manufacturing facilities, rail systems, highways, and bridges (USDOT 2003). CIPs are typically best suited for large construction projects, but in recent years the use of CIPs has been extended to smaller projects (Hinze 2001). While the use of CIPs remains steady among public agencies, the greatest growth in CIPs is occurring in the private sector (Coniceros 1999). As of 1998, there were more than fifteen insurers underwriting CIPs as compared to only five underwriters in 1993 (Ostermiller 1998). OCIPs comprise about 90% of all CIPs currently being underwritten in the U.S. (Grenier 2004). Public entities and private companies involved in major construction projects, companies involved in ongoing construction projects at numerous sites, and companies with large property maintenance programs can all benefit from the use of a CIP (Donovan 1999a).

Advantages and Disadvantages

The major advantages of CIPs are cost savings from buying insurance in bulk, cost savings from eliminating contractor markups, obtaining broader insurance coverage and higher coverage limits, eliminating duplication and gaps in coverage, increasing small and minority subcontractor participation, handling claims more efficiently, reducing potential litigation, eliminating disputes between insurance companies, enhancing workplace safety, and earning premium returns for favorable loss experiences (“Airport Construction” 1998, Bowring 1999, Bradley and Stuckey 2001, Bukowski 1996, Collier 1998, Davis 2004, Ferraro 1996, “Forum On OCIPS” 2002, Hinze 2001, Houweling 1999, Johnson and Tonseth 2003, Lew and Overholt 1999, Parry 1999, “Partner Controlled Insurance Program” 2001, Ron Rakich and Associates 2000, Schexnayder et al. 2004, Swendiman 1997, USGAO 1999, Wheeler 2004).

Because a CIP is purchased as a whole, the sponsor is able to achieve an economy of scale which allows for greater negotiating leverage with insurance carriers. This volume purchase of insurance gives the owner or the prime contractor tremendous buying power resulting in lower insurance premiums than the contractors could obtain on an individual basis (Bukowski 1996, Collier 1994, “Don’t Overlook” 1995, Houweling 1999, O’Gara 2001, USDOT 2003). CIPs also eliminate contractor markups on insurance costs because all contractors and subcontractors are required to remove the cost of insurance from their bids (“Airport Construction” 1998, Bukowski 1996, USDOT 2003).

Broader insurance coverage and higher coverage limits can be obtained with a CIP (Bukowski 1996, Johnson and Tonseth 2003, Nilsson 2003, O’Gara 2001, Parry 1999). Additional coverage enhancements not available to individual contractors can also be obtained with a CIP. Perhaps the most important of these are adequate policy limits for liability coverage (Ron Rakich and Associates 2000). The typical contractor or subcontractor typically only has liability coverage in the \$1 million to \$2 million range. CIP liability limits can be \$5 million or more for primary coverage, with additional excess coverage available (Nilsson 2003). Limits of several hundreds of millions of dollars are available today. Because CIP coverage is project dedicated, liability limits are not diluted by losses occurring outside the project, as would be the case with traditional insurance coverage. In addition to higher limits, CIP coverage can be tailored to the specific needs of the project (Ron Rakich and Associates 2000).

CIPs provide the greatest guarantee that the insurance coverage is adequate. Because the owner or the prime contractor negotiates the insurance coverage directly

with the insurance carrier for all parties, the owner knows with greater certainty exactly what the policy covers or excludes (Davis 2004, Ron Rakich and Associates 2000).

Using a CIP, the owner and the prime contractor can ensure that there are no gaps or duplication in the insurance coverage (Collier 1994, "Don't Overlook" 1995, Lunch 1999).

CIPs facilitate the inclusion of small and minority subcontractors by eliminating insurance barriers ("Airport Construction" 1997, "Don't Overlook" 1995, USDOT 2003).

A typical construction project can normally expect about 25% small and minority subcontractor involvement. Small and minority subcontractors typically find the insurance requirements for large construction projects prohibitively expensive. However, with the owner providing all of the insurance under a CIP, small and minority subcontractors find it easier to compete and obtain construction contracts. Through the use of a CIP, the capital development project at the Washington Metropolitan Airports Authority had a 38% level of participation by small and minority subcontractors. ("Airport Construction" 1997).

Because one party is responsible for managing claims under a CIP, the use of a CIP allows for a more centralized and efficient method of managing claims ("Airport Construction" 1998, Johnson 2002). CIPs enable a centralized and more sophisticated method for data collection, insurance credit tracking, claims reporting, and financial reporting (Lew and Overholt 1999, O'Gara 2001). A consolidated claims management program allows for proactive claims management, the development of early return to work programs, treatment at preferred provider facilities at reduced rates, and single insurer claims and reserve reviews (Houweling 1999, Johnson and Tonseth 2003).

Under the traditional method of obtaining insurance, there are often disputes between contractors, the owners, and the insurance carriers as to who is responsible for a loss. A CIP alleviates those disputes and reduces the amount of litigation because a single insurance carrier writes the policy for the entire construction project. The benefit of one insurance carrier results in the elimination of lawsuits, cross suits, subrogation, delays, and insurer finger pointing (“Airport Construction” 1998, Houweling 1999, Lew and Overholt 1999, Parry 1999, Swendiman 1997, USDOT 2003). The cost of settling claims is greatly reduced because the injured party only has to prove that the loss has occurred instead of having to prove which party is at fault (Davis 2004). On large construction sites without CIPs, lawsuits typically result in legal fee costs of approximately 75% of all claims costs, or about 75 cents for every \$1 paid (Lew and Overholt 1999).

A CIP gives the owner and the prime contractor more leverage to impose stringent safety requirements because the owner and the prime contractor are required to create and control a consolidated safety management program for the entire construction project (“Airport Construction” 1998, “Don’t Overlook” 1995, Houweling 1999, Lunch 1999, Ron Rakich and Associates 2000, “The State” 2003). The CIP provides a single point of focus for safety and claims management offering a coordinated approach specifically tailored to each project (USDOT 2003). The safety program typically required by most CIPs covers the entire workforce and improves safety through increased safety awareness, better safety training, and more detailed inspections. A well developed and administered safety program reduces the number of accidents, reduces risk, and allows insurance carriers to lower premiums (Donovan 1999b, Johnson and Tonseth

2003, Lew and Overholt 1999, Ron Rakich and Associates 2000, “The State” 2003). A strong safety program reduces the bottom line cost dramatically, reduces claims paid for injuries, reduces lost work time, and reduces overall payroll costs. Any time the risk exposure and the number of insurance claims are reduced the cost of insurance goes down (“Airport Construction” 1998).

While there have been CIPs with poor loss results, the majority of CIPs have shown favorable loss results. The results of a CIP are ultimately in the hands of the owner. Some projects that were experiencing poor loss results recognized the problem and improved the safety effort, resulting in complete turnarounds. Examples include the Denver Airport Expansion Program and the Portland Airport Expansion Program. The ability of the owner to reverse unacceptable loss results is testimony to the control that the owner can exert and the results obtainable under a CIP (Ron Rakich and Associates 2000).

By utilizing loss sensitive rating plans based on an anticipated reduction in claims, CIPs can lower insurance costs. Favorable loss experiences can result in premium returns and cost savings (Bukowski 1996, Houweling 1999, Parry 1999). The owner may choose to share these safety cost savings with the contractors and subcontractors (“Partner Controlled Insurance Program” 2001). In practice, sharing the safety cost savings can increase safety awareness and reduce accidents because all parties, including the owner, have a vested interest in keeping injury claims down (“The State” 2003). This in turn enhances the owner’s ability to establish and effectively manage the coordinated safety and claims management programs (Bukowski 1996).

In order to realize all of the benefits of a CIP, the owner or the prime contractor must effectively manage the program. Effective CIP management requires careful attention to planning, marketing, contractor bidding, safety management, and administration (Bukowski 1996). A cost-benefit analysis of this insurance option should be a part of every feasibility study when considering a CIP (Ron Rakich and Associates 2000). There are many ways to structure a CIP, but its success lies in the capabilities of the people who are responsible for the program design, implementation, and administration. CIPs should be carefully structured, with the help of a professional, and with the early involvement of all parties. When implementing an OCIP, owners should consider allowing the contractors to share in any cost savings as an added incentive to work safely (Davis 2004). Typically CIPs save money for the owner and the contractors. The exact amount of cost savings is subject to numerous variables (Ron Rakich and Associates 2000). A growing number of owners are utilizing OCIPs even when the potential cost savings are minimal. They still prefer OCIPs because they control the insurance program, coverage limits, coverage enhancements, claims process, and project safety (Resnick 2000).

As insurance rates increase, the use of CIPs is becoming increasingly more popular on large construction projects. While owners may save money and gain efficiencies through such programs, some experts warn that CIPs can be risky for both owners and contractors (Johnson 2002). The major disadvantages of CIPs are increased administrative costs and burdens, vague savings, a more complicated bidding process, the possibility of a contractor with a good safety record losing the bid to a less safety conscious contractor if the workers' compensation experience modifier is not taken into

consideration as a part of the bid process, possible exclusions and limits of insurance coverage, a reduction in the subcontractor's exposure base resulting in a reduced ability to procure favorable insurance rates, and perceived insufficient contractor loss control and safety incentives (Grenier 2004, Nilsson 2003, Ron Rakich and Associates 2000).

A CIP does generate additional costs including administrative costs, broker fees, required financing for the coordination of safety management and claims management programs, enforcement cost for maintaining the minimum requirements for contractor site specific safety and health programs, and the employment of a dedicated project safety coordinator ("Forum On OCIPS" 2002, USGAO 1999). However, CIP cost savings through volume purchasing and favorable loss experiences should be more than enough to cover these additional costs (Schliesman 2001). Owners and contractors need to understand how a CIP works in order to avoid conflicts and misunderstandings ("Airport Construction" 1997). Because the details of a CIP are complex, CIPs typically require the experience and assistance of an experienced insurance consultant who is knowledgeable about comprehensive insurance designed for individual construction projects (Collier 1994).

The down side of a CIP is that an insurance policy covering every contractor on a project can be administratively challenging ("Airport Construction" 1997, Houweling 1999, Ron Rakich and Associates 2000). Owners and contractors need to be aware of the increased administrative burden and the increased administrative costs that are incurred with a CIP (Federal Transit Administration 2003, Nilsson 2003, Schexnayder et al. 2004, USGAO 1999). To realize the maximum benefits of an OCIP, an owner must be willing to make a substantial commitment of resources. Project staff, office space, and time must

be dedicated to developing the program and putting processes in place for administration, claims handling, and loss control (“Forum On OCIPS” 2002, “The State” 2003). Project owners may need to hire additional personnel or award a contract for the management of the OCIP (Grenier 2004, USGAO 1999). The sponsor of a CIP must carefully examine the ability of both the broker and the insurance carrier to supply safety, loss control, claims management, and administrative services (Houweling 1999). Those responsible for construction activities must actively support the program and be willing to make the administrative and safety requirements a top priority (“Forum On OCIPS” 2002).

CIPs require additional administrative burdens, a significant level of effort and expertise, additional accounting efforts requiring the extraction of insurance costs from contractor bids and change orders, an additional monitoring effort requiring the CIP administrator to ensure that claims from a contractor’s employees who are injured on other projects are not charged to the CIP, and increased owner responsibility for implementing effective safety and loss control programs (Grenier 2004, Nilsson 2003, “The State” 2003). A properly managed CIP should produce enough savings to justify the cost of these additional administrative expenses (Palmer et al. 1996).

Because the cost of administering an OCIP can be expensive, the contractor should ask the owner and the broker in advance of the bid deadlines to clearly identify any administrative functions that the contractor will be expected to perform (AGC 2001, Palmer et al. 1996). The contractor should ask who will be responsible for setting up meetings between the OCIP administrators and subcontractors, who will be responsible for ensuring that all subcontractors enroll in the program, who will ensure subcontractors provide the required documentation, who will furnish certificates of insurance, and who

will ensure that subcontractors provide timely payroll reports (AGC 2001, Ron Rakich and Associates 2000). Contractors should also find out if any operations are excluded from the OCIP, inquire about how the premium deductions are calculated, determine how the OCIP will be administered, and find out how the OCIP will affect existing insurance coverage (Johnson 2002). If the contractor is expected to take responsibility for administrative functions, the contractor should ask the owner how it proposes to compensate or reimburse the contractor for performing such functions (AGC 2001).

The CIP documents must be carefully reviewed and evaluated for each project. The prudent contractor must do more than review the CIP manual for a summary of the coverage provided. The contractor should request copies of the CIP policies and have the policies reviewed by a broker or attorney to evaluate the proposed insurance coverage. This is especially true for general liability and builder's risk policies, which can vary considerably. Critical liability insurance issues include whether the policy provides broad form coverage, how long the completed operations coverage continues, and what exclusions exist in the policy (Nilsson 2003). Poorly structured CIPs can place contractors and owners in risky positions. Involvement in early discussions regarding CIP structure is critical to achieving success (Bowring 1999).

An important issue when using CIPs relates to contractors and subcontractors trying to bid with and without insurance (Lew and Overholt 1999). A disadvantage of a CIP to participating contractors is that it involves a more complicated bidding process requiring the delineation of bid credits because the bids must be provided with and without insurance (Grenier 2004). Potential bidders may have concerns about unfair calculations of credits for insurance costs during the bid deduct process, about

uncompensated overhead resulting from new administrative responsibilities, and about a loss of markups on insurance costs. If all discounts and credits are not reflected, the CIP deduct could exceed the true cost of the insurance (Nilsson 2003). Contractors typically only remove 75% of their insurance costs from their bids (Ron Rakich and Associates 2000). Contractors should ask the CIP administrator for a complete breakdown of CIP deducts and they should be prepared to challenge any excessive deductions (Nilsson 2003). Depending on how the CIP is structured, contractors with good safety records may not be able to use their experience as a bidding advantage (Hinze 2001). Many contractors and subcontractors may be hesitant to bid on a CIP project because they are unfamiliar with CIPs (Nilsson 2003).

Contractors and subcontractors need to be cautious when participating in a CIP. One important concern with a CIP is that there will typically be only one set of policy limits covering the entire project. This policy limit could potentially be reached with one catastrophic accident. If the CIP policy limit is exceeded, contractors may be held responsible and their own liability policies may apply (Davis 2004, Malecki 2002, Nilsson 2003). Contractors must ensure that the coverage offered by the CIP is sufficient to protect their own interests (Collier 1994, Nilsson 2003).

Contractors have certain basic insurance costs that are included in the costs of every project. Even when the owner provides insurance for risks arising out of a particular project, the contractor must still maintain an insurance program for risks not related to the project or not covered by the project's insurance. CIPs may have exclusions that could leave the contractor legally responsible for incidents that occur well after the project is completed (Johnson 2002, Ron Rakich and Associates 2000). CIPs

usually do not extend to offsite exposures, therefore contractors should make sure employees are covered when not on the project premises (Lew and Overholt 1999, Malecki 2002). The contractor also needs to assess the potential of professional liability for any errors or omissions in the administration of the CIP and find out whether the CIP covers this risk. If the CIP does not cover this risk, the contractor should try to persuade the owner or their broker to modify the CIP. The contractor may alternatively have to purchase additional coverage for any such errors or omissions (AGC 2001). Depending on how the CIP is arranged, architectural and engineering firms may or may not be covered under the CIP. Suppliers providing materials under a purchase order are typically not covered under the CIP (Lew and Overholt 1999). Automobile liability coverage and contractor's equipment coverage are also typically not covered under a CIP (Grenier 2004).

A single EMR rating will be established for the entire project using a CIP. This EMR rating will typically be determined by the insurance carrier that is writing the policy (Lew and Overholt 1999). Workers' compensation loss experience on a CIP project typically follows each contractor to other projects for experience modifier calculation purposes (Ron Rakich and Associates 2000). One complaint about CIPs is that they reduce the subcontractor's ability to procure favorable insurance rates because the subcontractor's exposure base is reduced (Hofmann 2002).

Although there have been many successes with the use of CIPs, there have also been failures. Unless the project has an effective safety management program in place, the CIP will not produce the projected cost savings ("Forum On OCIPS" 2002, Nilsson 2003). Some contractors may experience a diminished incentive to work safely because

the bulk of the risk is transferred to the sponsor of the CIP. The sponsor may be exposed to the risk of premium increases if labor costs and loss experiences exceed estimates.

These concerns can be alleviated with the implementation of aggressive safety management programs, loss control programs, and contractor safety incentives (Nilsson 2003, Palmer et al. 1996). The owner must pay careful attention to project safety when using an OCIP because reduced losses can result in greater returns in the form of dividends or retrospective premium adjustments (Nilsson 2003, Ron Rakich and Associates 2000).

OCIPs have been criticized for not providing strong incentives for contractor safety performance. The Washington DC Metro Rail Construction Project's safety awareness program was able to overcome this limitation by sharing reduced insurance costs and safety cost savings with contractors based on their safety performances (Federal Transit Administration 2003, Lew and Overholt 1999). Thus, contractors had a monetary incentive to maintain project safety (Federal Transit Administration 2003). In addition, a negative incentive should exist in the form of payment deductions if safety goals are not met. Construction projects that involve the sharing of premium savings tended to result in success, while those that did not were not as successful (Lew and Overholt 1999).

Table 2-2 lists the perceived advantages and disadvantages of a CCIP.

Table 2-2 Perceived Advantages and Disadvantages of a CCIP

ADVANTAGES	PERCEIVED CONTRACTOR DISADVANTAGES	PERCEIVED SUBCONTRACTOR DISADVANTAGES
Uniformity of Coverage Insurance	Assumption of Safety	Loss of Competitive Edge
Economies of Scale	Separate Premium Payouts	Multiple Audits
Savings through Loss--Sensitive Programs	Duration of Rating	Incentive for Safety Diminishes
Elimination of Gaps, Responsibilities & Overlays	Poor Experience	
Community Relations Minority Contractor Participation	Administrative Burden	
Elimination of Coverage Disputes		
Reduced Subrogation		
Improved Safety Program		
Effective Claims and Medical Cost Administration		
Centralized Insurance		
Unification of Interest		
Control of Coverage		

(Palmer et al. 1996)

Cost Effectiveness

According to insurance industry officials, CIPs can save the sponsor up to 50% of the cost of traditional insurance policies, or from 1% to 3% of a project's total construction cost, if administered correctly and losses are controlled (AON 2004, Bell 1998, Davis 2004, Donovan 1999a, Donovan 1999b, Donovan 1999c, Grenier 2004, Johnson and Tonseth 2003, KPMG 2004, Lunch 1999, Schliesman 2001, USGAO 1999, Wheeler 2004). CIP cost savings of up to 6% of the construction project's total hard construction costs have been reported (Lew and Overholt 1999). The range of savings that can be expected from an OCIP is 0.5% to 4% of all construction costs, with 2% widely considered typical (Nilsson 2003, Strayhorn 2003, "The State" 2003). Owners

typically save 20% to 40% over the cost of traditional insurance policies by properly implementing an OCIP (Bradley and Stuckey 2001, Davis 2004, Johnson 2002, Ostermiller 1998, Swendiman 1997). Sponsors of CCIPs typically save 20% to 40% over the cost of traditional insurance policies (Palmer et al. 1996). The cost savings of CIPs are contingent upon the type of project, size, location, and legal environment (Davis 2004, Palmer et al. 1996).

CIP cost savings are derived from an emphasis on safety and loss control, reduced disputes between contractors over who is responsible for a particular loss, a reduction in litigation between insurers, and by combining smaller insurance programs into one larger package which creates economies of scale and generates volume discounts and greater leverage (Davis 2004, Strayhorn 2003). By combining all of the contractors' insurance coverages into an OCIP, an owner can create substantial leverage in the insurance marketplace resulting in the owner being able to purchase insurance at a lower rate than the individual contractors (Bell 1998, Bradley and Stuckey 2001, Donovan 1999c, Grenier 2004, Ostermiller 1998, Wheeler 2004). Moreover, OCIPs eliminate contractor markups on insurance costs because the cost of insurance is removed from the contractors' bids (Nilsson 2003).

CIPs also prevent coverage gaps and redundancies resulting in reduced underwriting and claims administration expenses. With a CIP, the financial responsibility for a loss is immediately known and there is no question about insurance coverage or limits. This results in claims being resolved faster and with fewer appeals (Donovan 1999a, Donovan 1999c). Much of the cost savings realized through the use of CIPs stem from significantly reduced attorney fees and reduced litigation costs as a result

of one insurance carrier providing all of the insurance coverage (Lew and Overholt 1999, Riley 1999, Swendiman 1997).

CIP cost savings can be realized if the project's loss experience is better than the actuarial loss experience factors contained in the insurer's guaranteed cost rates (Donovan 1999c, Grenier 2004). Because work related injuries are the most predictable and controllable of all construction losses, the opportunity to reduce insurance costs is greatest for workers' compensation coverage. Other risk financing considerations, such as cash flow implications of periodic payments of premiums, may further enhance the economic value of a CIP (Lew and Overholt 1999).

Public and private owners first began to use OCIPs on large-scale construction projects of \$100 million or more (Bell 1998, Coniceros 1999, Grenier 2004, Houweling 1999, Lew and Overholt 1999, Nilsson 2003, O'Gara 2001, O'Gara 2002, Ostermiller 1998, Resnick 2000, Riley 1999, "Wrap-ups" 2003). However, the use of CIPs on smaller construction projects of \$50 million or more is increasing as owners, contractors, brokers, and insurers gain experience and expertise with the use of CIPs ("Airport Construction" 1997, Brigance 1998, Bukowski 1996, Donovan 1999a, Donovan 1999b, Johnson and Tonseth 2003, Lew and Overholt 1999, Nilsson 2003, Ostermiller 1998, Schexnayder et al. 2004, Swendiman 1997). On smaller projects, the additional administrative costs generally make CIPs less cost effective; however, there are exceptions. Owners and developers have begun to use CIPs for the construction of condominiums and other multi-residential projects, even those costing less than \$50 million (Coniceros 1999, Grenier 2004, Nilsson 2003, Riley 1999). The threshold may vary depending on which types of coverage are included in the CIP, the nature and scope

of the project, insurance market conditions, and whether more than one project will be insured under the CIP. In addition, certain state compensation systems have specific rules governing the use of CIPs (USDOT 2003).

A recent CIP study for the Florida Department of Transportation suggests that a single project with hard construction costs of \$75 million or more, multiple projects at a single site expected to generate \$100 million or more of hard construction costs over 2-3 years, multiple projects at contiguous sites generating \$100 million or more of hard construction costs, and ongoing restoration and repair work expected to generate at least \$30 million to \$40 million per year of costs are good candidates for the use of CIPs (Schexnayder et al. 2004, USDOT 2003). The general baseline for determining the feasibility of entering into a CIP for a construction project is a minimum construction cost range of \$75 million to \$100 million (Dalbey 2001, Parry 1999). The most successful CIPs are those with labor costs of at least 25% to 30% of the total project costs, and with a total of at least 8 to 10 specialty contractors (Lew and Overholt 1999, "Wrap-ups" 2003). CIPs are particularly well suited for labor intensive projects that generate over \$2 million in workers' compensation premiums (Bukowski 1996).

Another method to make a CIP feasible is to use a rolling wrap-up, which involves using 3 or more projects to equal the \$50 million minimum threshold (Grenier 2004, Lew and Overholt 1999). The rolling wrap-up in capital improvement and maintenance programs allows the use of program benefits for projects as small as \$300,000 (Pasher 1996). Table 2-3 list projects which have experienced CIP cost savings.

Table 2-3 Cost Savings Realized on CIP Projects

Project Name	Program Type	Total Project Cost	Cost Savings	Comments
City of Memphis, Cook Convention Center (Scott 1999)	OCIP	\$68 million	\$300,000 +	Additional Safety Incentives.
City of Grand Rapids, Grand Center Convention Center (Czurak 2001)	CCIP	\$219.5 million	\$350,000 +	Increased Coverage Limits. \$900,000 Dedicated to Job Safety.
Iowa Events Center (Dalbey 2001)	OCIP	\$200 million	\$1.3 million	
City of Dallas Convention Center (Scott 1999)	OCIP		\$1 million	
Walt Disney Company	OCIPs		1% of Construction Costs	Loss Control Programs for All Contractors.
Pennsylvania School Board Association (PSBAIT 2004)	OCIPs	\$935 million	\$12 million	
Austin Independent School District (Bradley and Stuckey 2001, Strayhorn 2003)	Rolling OCIPs		3% of Construction Costs	Savings of \$3.6 million in 1996 Alone.
Fort Bend Independent School District (Strayhorn 2003)	OCIPs	\$265 million	\$3.1 million	
Sacramento DGS East End State Complex ("The State" 2003)	OCIP		\$3 million	
Fidelity's Boston Seaport Hotel and Convention Center (Lenkus 1997)	OCIP	\$100 million	\$3 million	

Table 2-3 Continued, Cost Savings Realized on CIP Projects

Project Name	Program Type	Total Project Cost	Cost Savings	Comments
Fidelity's Smithfield, Rhode Island Office Building Complex (Lenkus 1997)	OCIP	\$100 million	\$800,000	
Three Arizona State Prisons (Collier 1998)	OCIP		\$3.4 million	
Orlando Utilities Commission Coal Plant (Atkinson 2002)	OCIP	\$550 million	millions	Project Came in Safe, On Time, Under Budget.
Austin-Bergstrom International Airport in Texas ("Airport Construction" 1997)	OCIP	\$300 million	Significant Savings	2%-4% OCIP Cost Compared to 6%-12% Traditional Insurance Cost
Washington Metropolitan Airports Authority ("Airport Construction" 1997)	OCIP	\$2.1 billion	\$8 million	4% OCIP Cost Compared to 10%-12% Traditional Insurance Cost
San Francisco International Airport (Lew and Overholt 1999, Strayhorn 2003)	OCIP	\$2.4 billion	\$60 million	Increased Coverage Limits
California, Santa Clara Valley Transportation Authority (American Public Transportation Authority 2003)	OCIP		\$2.8 million	OCIPs Cost 30%-60% Less Than Traditional Insurance Policies
Dallas Rapid Area Transit Light Rail Project (Bell 1998, Scott 1999)	OCIP	\$870 million	\$11 million	

Table 2-3 Continued, Cost Savings Realized on CIP Projects

Project Name	Program Type	Total Project Cost	Cost Savings	Comments
Washington Metropolitan Area Transit Authority (Scott 1999)	OCIPs		33% on Insurance Costs	
New York Metropolitan Transportation Authority (Hofmann 2002)	OCIPs	\$8 billion	\$55 million	
Florida Suncoast Parkway (Schexnayder et al. 2004)	OCIP		2% of Total Construction Costs	

Table 2-4 list transportation projects which have experienced CIP cost savings.

Table 2-4 Transportation Project Cost Savings Using OCIPs (Dollars in Millions)

Project Name and Location	Total Project Cost	Traditional Insurance	OCIP Insurance	Savings	Savings as Percent of Project
Blue Water Bridge, Michigan	\$97.20	\$10.00	\$7.10	\$2.90	2.98%
Boston Central Artery Tunnel, Massachusetts	\$10,800.00	\$1,030.00	\$765.00	\$265.00	2.45%
I-15, Salt Lake City, Utah	\$1,600.00	\$52.20	\$22.30	\$29.90	1.87%
CTA Green Line Rehabilitation, Chicago, Illinois	\$408.70	\$32.50	\$21.00	\$11.50	2.81%
Hudson-Bergen Light Rail (Initial Segment)	\$992.00	\$20.00	\$11.00	\$9.00	0.91%
Tri-Met, Westside Light Rail, Portland, Oregon	\$952.00	\$27.10	\$17.20	\$9.90	1.04%

(Strayhorn 2003)

From 1999 through 2000, Marsh USA performed two studies on 30 construction projects using CIPs of which 89% were OCIPs and 11% were CCIPs. The studies also revealed that 86% of the CIPs had a full time safety director. As a percentage of payroll, workers' compensation claims averaged 2.83%. Per worker hour, workers' compensation claims averaged \$0.679. Workers' compensation claims losses averaged \$7,140. Savings per worker hour averaged \$0.84. The total cost of a CIP as a percentage of hard costs averaged 1.96%. These two studies concluded that 27 out of 30 CIPs saved money, with average savings being \$4.2 million per project (Brady 2000).

Safety Benefits

Construction worker injuries are estimated to cost as much as 6.5% of all dollars spent annually on construction. Although insured or direct costs are significant, the majority of these costs are indirect or non-insured costs. Insurance premiums, deductibles, legal fees, citations, and fines are considered to be direct costs. Indirect costs are conservatively estimated to cost as much as six times the direct costs of accidents. Indirect costs can include lost paid wages, disrupted schedules, loss of productivity, investigation costs, reporting costs, training and personnel replacement costs, repairs, and damage to equipment. Other indirect costs can include lower employee morale, loss in overall quality, adverse public relations, negative perceptions, and lost opportunities for future work (Bifulco 2001, Spernak 1997). Owners and contractors need to realize that they can successfully lower costs through increased safety initiatives on construction projects. Owners have an economic incentive to help reduce the number of accidents that occur on their projects as they ultimately pay the price (Bifulco 2001).

When owners or contractors assume responsibility for a construction site, they are also taking responsibility for the safety of that site (Donovan 1999a, Donovan 1999c). Attention to safety is a key element to the success of a CIP. Without a strong safety and loss control program, a CIP will most likely not result in substantial cost savings. In addition, insurers will subject owners to high per-loss retentions and total project loss aggregates (Lenckus 1997). CIPs usually feature loss responsive programs which ultimately dictate the potential for cost savings. In a loss responsive program, a large portion of the premium paid is directly related to the amount of losses the insurance company has to pay (Spernak 1997). The potential for reducing a project's risk management costs is ultimately determined by the safety performance of the contractors and not by creative manipulation of premiums, cash flows, and risk sharing (Carpenter and Keeter 2001).

The CIP sponsor has overall responsibility for administering the CIP, administering the safety program, administering the loss control program, and managing claims. This centralized management can result in cost savings from improved safety, improved loss control, and more efficient claims handling (Nilsson 2003). There is a direct correlation between a good project safety record and a project that is done on time, under budget, profitable for the contractor, and of good quality to the owner (Spernak 1997). Under a CIP, the safety director on the project must be an experienced individual. This safety director should possess construction experience as well as insurance experience. With one safety director that manages the entire project, each contractor is required to follow the same safety requirements on the project (Lew and Overholt 1999). The owner and the prime contractor should also consider placing trained medical

personnel in first aid trailers at the project site. By having trained medical personnel onsite at all times, injuries can be treated as quickly as possible and total losses can be reduced (“Is There a Doctor” 1997).

A centralized comprehensive safety program is important to achieving cost savings with a CIP (Lew and Overholt 1999, Strayhorn 2003, USGAO 1999). A professionally developed safety program reduces risk to insurers and allows them to reduce the premiums for insurance. Such safety programs cover the entire workforce and improve safety through education, the promotion of safe working practices, increased awareness of factors that create dangerous situations, better use of safety equipment, monitoring for compliance with governmental and contractual safety regulations, and better inspections and enforcement actions (Collier 1998, Strayhorn 2003). Each successful bidding contractor and all tier subcontractors at the site are required by the CIP sponsor to participate in the comprehensive safety program, develop loss control programs, and develop accident reporting procedures. The comprehensive safety programs and loss control programs are typically monitored by the insurance company that is providing coverage for the construction project (Lew and Overholt 1999). CIPs can deliver more accurate risk assessments and can ensure uniform safety standards, coordinated safety programs, onsite safety monitoring, immediate attention to onsite injuries, and early return-to-work programs. This emphasis on safety reduces the risk of workers getting injured on the job, therefore reducing the total workers’ compensation and general liability premiums on a construction project (Bell 1998, “Don’t Overlook” 1995, Donovan 1999a, Donovan 1999b, Donovan 1999c).

The ability to prevent injuries is the cornerstone of an effective safety program and the one guaranteed way to keep costs low (Palmer et al. 1996). To minimize losses, the CIP sponsor must create and continually reinforce a proactive safety culture (Grenier 2004). Loss ratios with traditional insurance programs average between 60% and 65% (Palmer et al. 1996). Loss ratios on major construction projects using CIPs average between 21% to 35% (Lew and Overholt 1999). Loss ratios on a significant number of OCIPs have historically averaged less than 40% of standard insurance rates (Grenier 2004). When properly structured and engineered, CCIPs rarely exceed a 30% loss ratio (Palmer et al. 1996).

In California, the loss ratio for typical construction projects using traditional insurance programs is 68% of paid insurance premiums, while the loss ratio for construction projects using CIPs is 38% of paid insurance premiums. This 30% reduction in paid insurance premiums can be attributed to increased safety initiatives and an onsite safety manager typically required by the CIP. Because a CIP is loss sensitive, the opportunity to obtain insurance refunds exists when the loss ratio is reduced. All parties must be sold on safety or no benefits can be obtained with a CIP (Lew and Overholt 1999).

The Polk County Iowa Events Center established a comprehensive safety plan under its OCIP requiring safety inspectors representing the two general contractors, subcontractors, the insurance broker and carrier, the Iowa Occupational Safety and Health Administration, and Polk County to be onsite at all times. Polk County expects insurance claims to be around \$800,000. If this claims number is realized, Polk County expects to save an additional \$600,000 (Dalbey 2001).

Grand Casino is a \$400 million construction project in Mississippi which was insured under a CIP. The CIP was used to provide risk management and comprehensive insurance coverage for about 100 contractors. As of September 1997, workers logged 3.5 million work hours with a workers' compensation loss rate of 13 cents per work hour. This loss rate is a fraction of the estimated industry average workers' compensation loss rate of 99 cents per work hour. The workers' compensation loss ratio was 6% of the standard premium. This loss ratio is well below the Mississippi industry's expected workers' compensation loss ratio of 59%. There have been only 11 general liability claims for the project, all of which were settled with an average payment of less than \$1,760 each (Collier 1998).

Fidelity's Boston hotel and convention center project and Fidelity's Rhode Island office project both required safety representatives to be onsite at all times to ensure contractor compliance with the safety programs implemented under the OCIP. Fidelity reviewed all of the safety plans with a safety representative from each contractor. Fidelity often held the contractors to stricter safety standards than those required by the Occupational Safety and Health Administration. All workers were required to complete an orientation program to familiarize them with the site and attend regularly scheduled toolbox meetings. Only two lost time injuries have been filed at the Boston site and no lost time injuries have been filed at the Rhode Island site (Lenckus 1997).

Exempla is a \$133 million hospital construction project in Colorado insured under an OCIP. The OCIP was developed to combine insurance coverage, safety coordination, and claims reporting into one package. After one million work hours of construction at Exempla, no lost time incidents from worker injuries have been recorded. Using an

OCIP, the hospital estimates that it will save about 32 cents per work hour on insurance coverage. The national average for insurance coverage is about 43 cents per work hour for injury losses on construction projects of \$100 million or more (“Exempla Site” 2004).

The Tampa Electric Company (TECO) recently constructed a \$240 million cogeneration power plant in Florida using an OCIP to provide insurance coverage for the entire project. About 1,500 employees logged 3.4 million work hours and the per work hour loss rate of 20 cents was 83% less than the industry’s expected per work hour loss rate of \$1.20. The project’s actual workers’ compensation loss ratio was 7% of the standard premium. This workers’ compensation loss ratio was well below the initial projection and the industry expected loss ratio of 55% (Collier 1998).

Through the use of an OCIP, the Orlando Utilities Commission was able to create a safe working environment on its \$550 million coal plant construction project. Many of the construction workers stated that this was one of the safest projects that they had ever worked on and that they appreciated the safe working environment where they knew that their fellow workers were as committed to safety as they were and that in all likelihood they would go home safely at the end of the day (Atkinson 2002).

Many airport managers are now using OCIPs to impose stringent safety requirements on their projects. Contractors caught violating these standards run the risk of not being covered in the event of an accident. Any time the risk exposure is reduced and fewer claims are paid than expected, the cost of insurance goes down. The \$300 million construction project at the Austin-Bergstrom International Airport in Texas has already exceeded 1 million work hours without a lost time work injury. For a

construction project of this magnitude, industry analysts would have expected about 25 injuries resulting in lost work hours (“Airport Construction” 1997).

In 1991, the William B. Hartsfield Atlanta International Airport began a three year construction project on a new \$275 million international concourse. The construction project involved 30 different general contractors and more than 350 subcontractors. Control of the site, coordination of a single safety program, and reduced insurance claims were the major objectives of the OCIP. Safety is the most important aspect of any OCIP. Centralizing the multitude of independent safety programs of contractors and subcontractors into a single system with central accountability dramatically reduced both the potential for injury and the overall program cost. By procuring liability insurance centrally, the airport was able to obtain substantially higher liability limits and eliminate barriers to entry for minority subcontractors. Furthermore, by centralizing the insurance purchase through a single carrier, the airport was able to become more involved in the management of any sizable claim. After three years of operation, the airport’s OCIP provided savings of more than \$2 million in workers’ compensation and general liability premiums (Muse 1995).

The San Francisco International Airport Extension Project expects to recover \$10 million in rebates from the \$30 million in workers’ compensation premiums it is paying under its OCIP, if the project safety goals are met. The project has been insured under an OCIP program for three years and is experiencing a loss ratio of only 30%. The average loss ratio for projects in the California area is 60% to 65%. By maintaining a fulltime safety director at the project site, the owner, insurance carrier, and contractors have been

able to manage safety, reduce the accident rate, and achieve the 30% loss ratio (Lew and Overholt 1999).

The \$952 million Tri-Met Westside Light Rail Line Extension Project initially had a target loss ratio of 40% and was able to finish the project with a loss ratio of 36.7% through the use of its OCIP safety program (USGAO 1999). The \$992 million New Jersey Transit Corporation Hudson-Bergen Rail Line Project received numerous safety awards from its insurance carrier as a result of the safety program implemented under its OCIP (USGAO 1999). Dallas Rapid Area Transit realized fewer on-the-job injuries and cut their loss ratio in half as a result of the comprehensive safety program instituted under their OCIP. Ten large contractors went a full year without a lost time injury and eight of those contractors went on to complete a second year without a lost time injury. Because Dallas Rapid Area Transit dealt solely with one insurance carrier, the insurance claims that did occur were settled quickly with no cross litigation problems (Bell 1998).

CIPs can result in safer jobsites. Through the use of an OCIP and a comprehensive safety management plan and after 2.5 million work hours, the Fort Washington Way Road Project in Cincinnati, Ohio realized a lost workday injury incident rate of 0.17 as compared to the national average lost workday injury incident rate of 4.7 (Schexnayder et al. 2004). Through the use of an OCIP, the Suncoast Parkway Project in Florida was able to complete 3.3 million work hours without a fatality (Schexnayder et al. 2004). The Utah Department of Transportation's \$1.6 billion Interstate 15 Reconstruction Project utilized a wrap-up insurance program with a comprehensive safety plan that resulted in a loss time accident rate of 0.8 which was well below the national average of 5.0 for that year (USGAO 1999).

New York's Metropolitan Transportation Authority (MTA) requires that bidding contractors must agree to cooperate with MTA's onsite insurance administrator, participate fully in MTA's safety program, prepare written safety plans, develop safety training programs for their employees, and report any accidents that occur at the job site. MTA insists that the success of their OCIPs is directly related to the increased safety management on their projects, which includes inserting strict safety specifications in the contracts that exceed OSHA standards. MTA states that their projects routinely achieve loss ratios of less than 40% (Hofmann 2002).

Through the use of an OCIP and a site specific safety plan, the Michigan Department of Transportation's \$97.2 million Blue Water Bridge Project resulted in less than 10% workers' compensation premiums paid out in claims. Workers' compensation is the largest component of insurance cost. The industry average for premiums paid out for claims in Michigan is typically 50% to 65%. The national average of workers' compensation premiums paid out in claims for projects using CIPs is 35% (USGAO 1999).

CHAPTER 3 METHODOLOGY

Description of Research Methodology

The topic of this research was developed as a personal area of interest. With an advanced degree in business administration, this researcher was interested in performing a cost/benefit analysis on controlled insurance programs (CIPs) in comparison with traditional insurance policies as used in the construction industry. The topic was discussed with Professor Hinze who expressed interest in the topic of this research. The topic was then discussed with a representative of an insurance company that insures a large number of construction companies and construction projects. The representative of the insurance company also expressed interest in the topic of this research. The representative stated that the insurance company was willing to release data on the topic of this research for analysis. The next step was to perform a comprehensive literature review on the topic of this research. The library, the Internet, textbooks, and journal articles were all used as sources of information for the literature review.

The data for this research were regarded as having considerable significance. While the initial discussions for obtaining the data from the insurance company began in October 2004, the efforts were ongoing. Multiple attempts were made to collect the data from the representative of the insurance company. By the end of February, the data were still not released. As a result, an alternative approach was employed. Since hard data were not available, it was decided to obtain more general information about owner controlled insurance programs (OCIPs), contractor controlled insurance programs

(CCIPs), and traditional insurance programs. This information was obtained through a number of interviews conducted with large construction project owners, prime contractors, and construction insurance carriers. The purpose of these interviews was to gain a better understanding of how construction industry participants felt about owner controlled insurance programs (OCIPs) and contractor controlled insurance programs (CCIPs).

A series of interview questions was developed and reviewed with professor Hinze. The next step was to develop a list of contacts to interview. As the list of possible contacts was being developed, the interview process began. Telephone interviews were used to collect the desired information. Representatives from eight construction companies were interviewed. Interviews were also conducted with seven representatives of owners with large construction projects. In addition, interviews were conducted with seven representatives of insurance companies and insurance consulting companies. Given the time constraints, as many interviews as possible were conducted. The qualitative data collected from these interviews were analyzed and reported. Since the data were often of a subjective nature and since the sample size was limited, no extensive statistical analyses could be performed. Nevertheless, the responses to the interviews were contrasted and compared to each other and to the literature review. The data gained from these interviews were used to report the cost effectiveness, safety performance effectiveness, advantages, disadvantages, common mistakes, keys to success, and details of OCIPs and CCIPs when compared to each other and to the traditional method of insurance coverage in the construction industry.

Interview Questions

The interview questions were designed and developed to gain a better understanding of how construction industry participants felt about owner controlled insurance programs (OCIPs) and contractor controlled insurance programs (CCIPs). The interviews were divided into three sets of questions. The first set of questions sought descriptive information about the responding company including company name, construction annual volume, percentage of self-performed work, number of field employees, type of projects constructed, number of construction projects completed in the last three years, number of construction projects using OCIPs in the past three years, and number of projects using CCIPs in the past three years. The second set of questions sought interviewee perceptions about the use of OCIPs and CCIPs. This set of questions included questions about the cost effectiveness of OCIPs, the safety performance realized under OCIPs, the advantages of OCIPs, the disadvantages of OCIPs, the common mistakes made with the use of OCIPs, the keys to success with the use of OCIPs, the cost effectiveness of CCIPs, the safety performance realized under CCIPs, the advantages of CCIPs, the disadvantages of CCIPs, the common mistakes made with the use of CCIPs, the keys to success with the use of CCIPs, and the appropriate size of a project in order for it to be successful under an OCIP or CCIP. The third set of questions sought interviewee perceptions about OCIPs when compared to CCIPs. This set of questions included questions about which is more cost effective: OCIPs or CCIPs, which has the better safety performance: OCIPs or CCIPs, how is safety promoted differently on an OCIP versus a CCIP, and what is done differently on a project with an OCIP versus a CCIP.

CHAPTER 4 DATA ANALYSIS AND RESULTS

Introduction

This chapter will present information that was obtained through the interviews. Not all of the interviewees answered every question. However, the information that was given will be reported. This chapter is divided into three sections. The first section reports the information given by the representatives of eight construction companies. The second section reports the information given by the representatives of seven owners with large construction projects. The third section reports the information given by the representatives of four insurance companies and three insurance consulting companies. A total of twenty-two interviews were conducted.

Results of the Construction Company Interviews

The eight representatives of construction companies represented construction companies with annual volumes greater than \$500 million. Two of the companies constructed predominantly commercial projects. Two of the companies constructed industrial and commercial projects and the remaining four companies constructed commercial, industrial, and transportation projects. The amount of self-performed work ranged from 15% to 95%. The number of field employees ranged from 300 to 50,000. The positions represented in the construction companies are shown below:

- Corporate Safety Director (3 representatives)
- Vice President of Safety
- Vice President
- Financial Services Administrator
- Director of Business Development and Public Affairs
- Workers' Compensation Director

The number of projects completed in the past 3 years ranged from 80 to 400, with the average being 200. The number of projects using OCIPs completed in the past 3 years ranged from 6 to 160, with the average being 55. The number of projects using CCIPs completed in the past 3 years ranged from 0 to 160, with the average being 67.

The construction company representatives were asked about the cost effectiveness of OCIPs. This question yielded the following responses:

- OCIPs are cost effective for the owner. However, the contractor loses a source of revenue.
- OCIPs are cost effective for the owner, if they are experienced with the use of OCIPs. OCIPs are not cost effective for the contractor.
- OCIPs are cost effective for the owner. However, OCIPs are not cost effective for the contractor because the contractor loses insurance markups and loss sensitive savings.
- OCIPs are cost effective for the owner when they screen the contractors by examining their past safety records and when the owner promotes a safe working environment. However, contractors lose money under an OCIP because they lose contractor insurance markups and safety savings.
- OCIPs can reduce costs for the owner through the consolidation of insurance. However, if OCIPs are not administered correctly, they could add more costs than they reduce. OCIPs are not cost effective for the contractor.
- OCIPs are cost effective for the owner. This cost savings is achieved through mass purchasing, negotiation, and reduced rates. OCIPs are not cost effective for the contractor.
- OCIPs can be cost effective for owners but the cost effectiveness depends on project value and location. Some states have more favorable claim climates than other states. OCIPs are not cost effective for the contractor.
- OCIPs can save the owner 1% to 3% of total construction costs.

All eight of the construction company representatives believed that OCIPs are cost effective for the owner. However, the majority of the construction company representatives believed that OCIPs are not cost effective for the contractor because the contractor losses insurance cost markups and loss sensitive savings. See Figure 4-1.

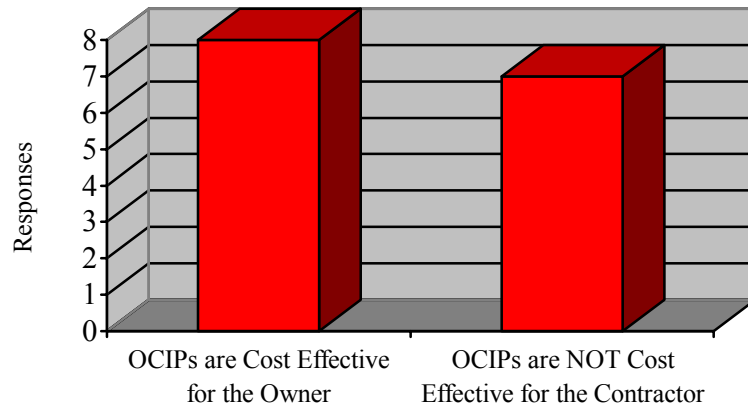


Figure 4-1 Cost Effectiveness of OCIPs as Perceived by Construction Company Representatives

The construction company representatives were asked about the safety performance of OCIPs. This question yielded the following responses:

- Better safety performance.
- OCIPs have about a 30% loss ratio which is much better than traditional insurance policies.
- Good, but focus on safety management is key.
- Good, but differs depending on location and owner.
- Getting better, but up to the sponsor.
- About the same as the traditional method.
- No more or less safe than effective safety programs used with the traditional method.
- No difference.

Three of the construction company representatives believed that the safety performance of OCIP projects was the same as projects using the traditional insurance method. Two of the representatives believed that the safety performance of OCIP projects was good and two believed that the safety performance of OCIP projects was better than projects using the traditional insurance method. Because the administration of an OCIP is controlled by the owner, the owner is responsible for managing the safety program. Therefore the experience the owner has and the emphasis the owner places on safety is paramount to the safety performance of an OCIP. See Figure 4-2.

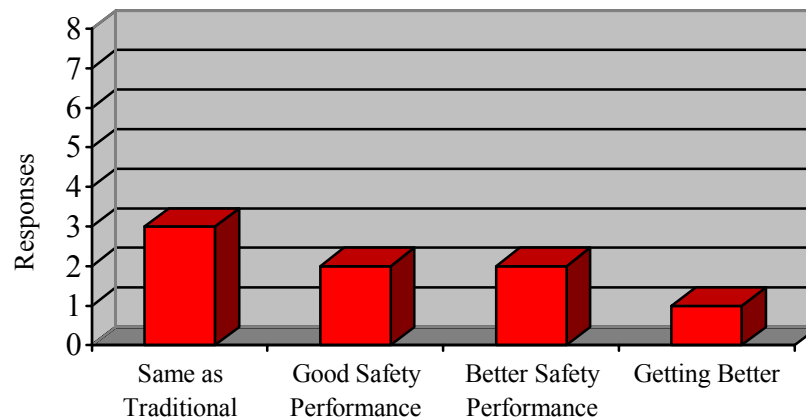


Figure 4-2 Safety Performance of OCIPs as Perceived by Construction Company Representatives

The construction company representatives were asked about the advantages of OCIPs.

This question yielded the following responses:

- Cost effectiveness, ease of administration, reduced cross litigation, and ability to enforce strict safety.
- Cost savings for the owner. Active safety management gives better control and better results.
- Greater coverage, less gaps in coverage, lower premium rates for the owner, cost savings for the owner, easier administration, control, and centralized safety management and loss control services.

- Greater umbrella coverage, volume discounts for the owner, one point of contact, one point of management, safety management, no cross litigation, cost savings for the owner, and contractor safety incentive rewards.
- Consolidated safety program, increased insurance coverage and limits, a single insurance provider, minimized gaps in coverage, reduced duplication of coverage, owner cost savings, and increased minority contractor participation.
- Report to one entity for claims management, single source of responsibility, broader coverage, less gaps in coverage, uniform policy limits and coverage, volume discounts for the owner, less paperwork, cost savings for the owner, owner control over safety, and more contractors are eligible to participate in the project.
- None, if you have a good safety program.
- No advantage to the contractor.

The majority of the construction company representatives interviewed believed that the main advantages for using an OCIP are owner cost savings, improved safety, and owner management control over the project. Four of the representatives believed that OCIPs provide better insurance coverage. Two of the representatives stated that OCIPs reduce cross litigation and increase contractor participation. The representatives stressed that the performance of an OCIP is largely dependent upon the experience and ability of the owner in charge of the OCIP. Two of the representatives stated that OCIPs offer no advantages to the contractor because the owners typically do not share the cost savings with the contractor and the contractor loses insurance cost markups. See Figure 4-3 for a summary of the responses.

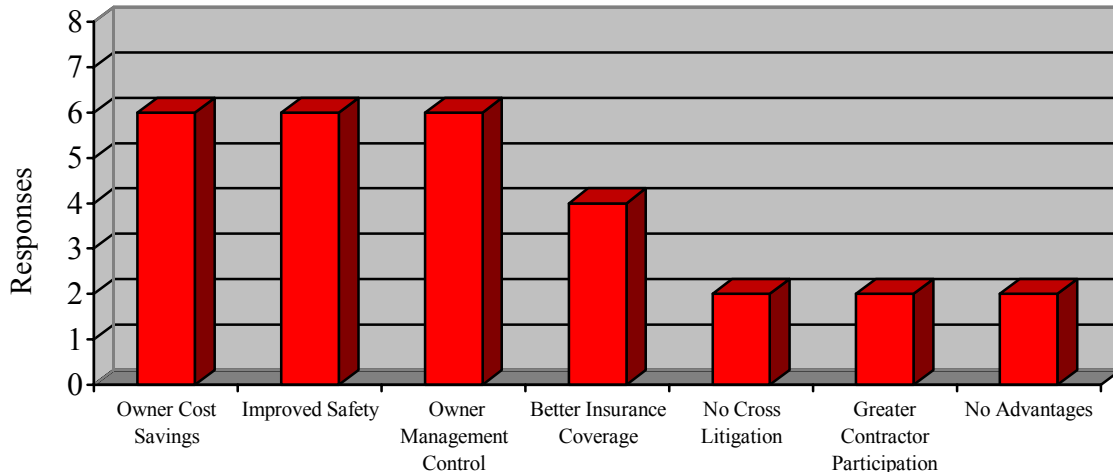


Figure 4-3 Advantages of OCIPs as Perceived by Construction Company Representatives

The construction company representatives were asked about the disadvantages of OCIPs.

This question yielded the following responses:

- The contractor does not get the benefit of safety performance. The contractor loses insurance safety incentive returns from the insurance carrier.
- Poor management, subcontractor enrollment issues, and poor management of safety. Under an OCIP, the contractor loses control over safety management. Loss of contractor markups and loss sensitive savings.
- Complicated add alternate and bid deduct procedure. Increased administrative burdens, lack of contractor safety incentives, reduced or no contractor cost savings, and the owner is in control of safety.
- Not cost effective for the contractor. More administration and coordination responsibilities.
- The contractor loses safety services from the insurance carrier such as safety materials and support. Insurance company lack of experience with OCIPs. Administrative burdens. Owners fail to place value on relationships. Contractor may not have a good relationship with an insurance carrier that they do not typically deal with. Lack of effective owner administration. Contractors lose insurance volume. Failure of insurance carrier to properly investigate bogus injuries. Contractor loses insurance mark-ups and safety incentives.
- Gaps in coverage excluding the contractor from certain coverages. Owner inexperience with OCIPs. Lack of contractor safety incentives.

- Can add costs and administrative requirements. Owner is responsible for safety. Large deductibles, not legal in every state, loss of contractor mark-up, material suppliers not covered, EMR not a competitive advantage, and a lack of leverage with the contractor's existing insurance carrier.
- The owner may not be experienced with controlling safety.

The majority of the construction company representatives interviewed believed that the main disadvantages of OCIPs, are that the prime contractors lose control over safety, contractors lose insurance cost markups, contractors lose loss sensitive savings, and OCIPs create increased administrative responsibilities. Two of the representatives believed that OCIPs create coverage gaps for the contractors, reduce contractor leverage with the insurance carrier, and increase bidding complexities. See Figure 4-4 for a summary of the responses.

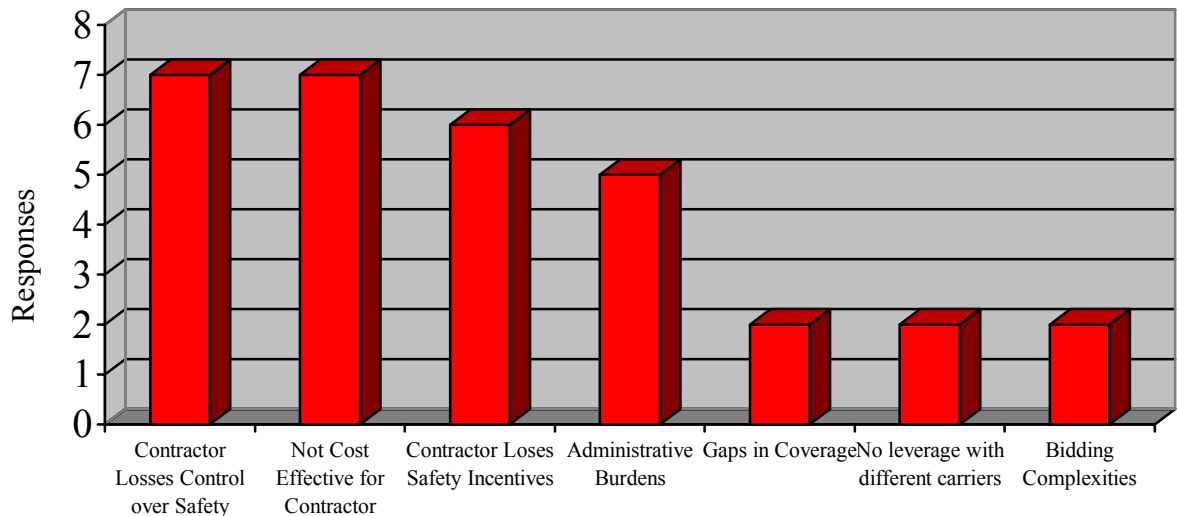


Figure 4-4 Disadvantages of OCIPs as Perceived by Construction Company Representatives

When asked about the common mistakes made with the use of OCIPs, the following responses were provided:

- Failure to understand administrative burdens and lack of focus on safety.
- Poor safety management and failure to understand administrative responsibilities.

- Administrative hurdles and lack of experience. Failure to identify coverage gaps and obtain proper insurance coverage.
- Not having knowledgeable people administer them.
- Poor understanding of administrative responsibilities. Poor risk analysis.
- Poor safety management, failure to participate in the process, poor subcontractor participation, failure to institute management systems, and owner failure to understand requirements of success.
- Failure to properly pre-qualify contractors by not evaluating their past safety performances.
- OCIPs are not providing value added services for the contractor. Insurance carriers fail to provide services expected. No training support. Cost savings not always realized. Owner and insurance carrier only concerned with costs but they do not take the time to control costs.

The majority of the construction company representatives interviewed believed that the common mistake made with the use of OCIPs is that some owners having a poor understanding of the administrative responsibilities an OCIP imposes. Four of the representatives believed that a common mistake is poor safety management by the owner.

See Figure 4-5.

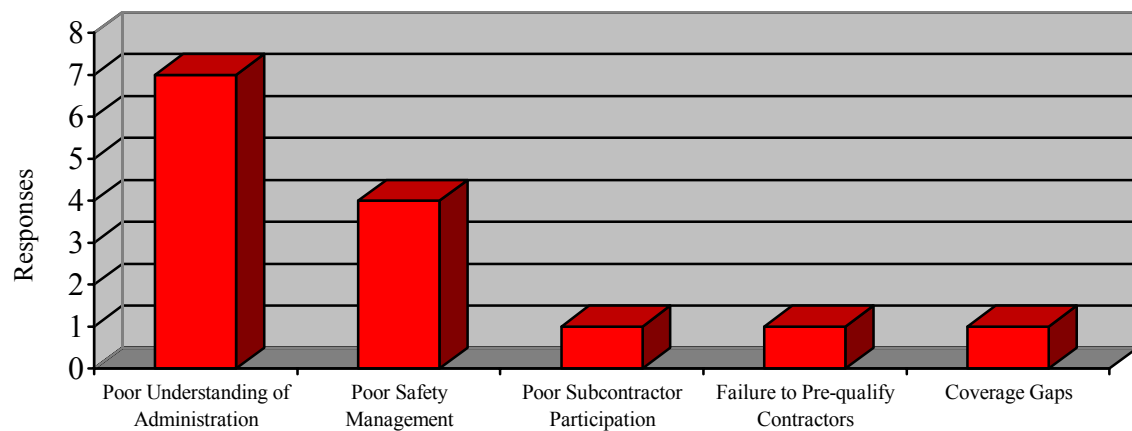


Figure 4-5 Common Mistakes When Using OCIPs as Perceived by Construction Company Representatives

The construction company representatives were asked about the keys to success with the use of OCIPs. This question yielded the following responses:

- Ability to manage safety.
- A consolidated single safety program and proper administration.
- Safety focus, cost management focus, and project schedule control.
- A consistent safety program managing all contractors onsite. Holding all contractors and subcontractors accountable for meeting all program requirements. Audits.
- Achieving project critical mass for success. Other keys to success are contractor buy-in, a mandated safety program, experienced administrators, and to hold people accountable.
- Review of program, proper administration and management of the program, cooperation between the owner and the contractor, communication, and contractor safety incentives.
- A detailed prequalification of contractors based on their past safety records.
- Ignore OCIP carrier and promote safety. Obtain a firm understanding of the support that will be received from the insurance carrier.

The majority of the construction company representatives interviewed believed that the keys to success with the use of OCIPs are effective safety management and effective administration of the OCIPs by the owners. Two of the representatives believed that the keys to success are the owner providing the contractors with safety incentives and the owner holding the contractors accountable for meeting all of the program requirements, especially in the area of safety. See Figure 4-6 for a summary of the responses.

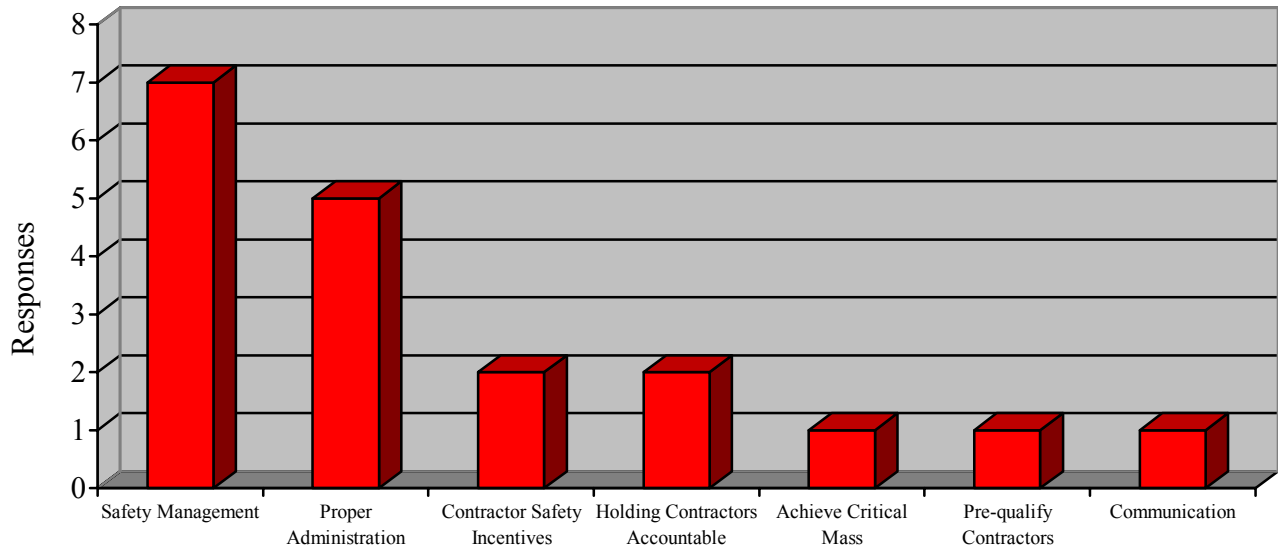


Figure 4-6 Keys to Success When Using OCIPs as Perceived by Construction Company Representatives

Similar questions were asked about CCIPs. For example, the construction company representatives were asked about the cost effectiveness of CCIPs. This question yielded the following responses:

- CCIPs are cost effective for the contractor (4 responses).
- CCIPs can save the contractor 1% to 3% of total construction costs.
- Contractors can enjoy greater cost savings with the use of a CCIP, but the cost savings depend on the project value and location. Some states have more favorable claim climates than other states.
- Two contractors had no experience with the use of CCIPs.

All of the construction company representatives experienced with the use of a CCIP believed that CCIPs are cost effective for the prime contractor in charge of the CCIP.

See Figure 4-7.

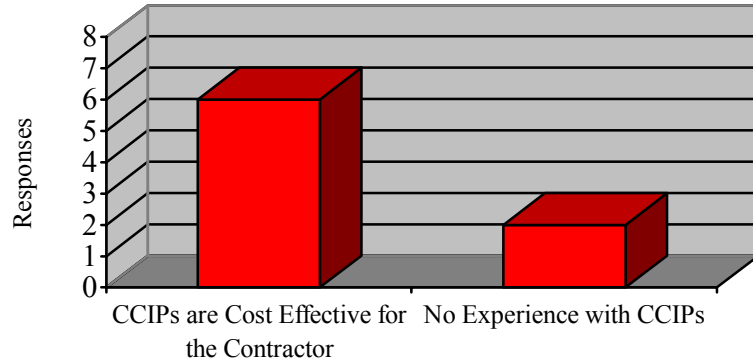


Figure 4-7 Cost Effectiveness of CCIPs as Perceived by Construction Company Representatives

The construction company representatives were asked about the safety performance of CCIPs. This question yielded the following responses:

- Better safety performance.
- CCIPs have about a 30% loss ratio which is much better than traditional insurance policies.
- Good, but focus on safety management is key.
- Good, but differs depending on location because some states have more favorable claim climates than other states.
- CCIPs have good safety performance.
- No difference.
- Two contractors had no experience with the use of CCIPs.

Three of the construction company representatives interviewed believed that the safety performances of CCIP projects were good and two believed that the safety performances of CCIP projects were better than with the traditional insurance method. One representative did not believe that there was a difference in the safety performance of CCIP projects versus the traditional insurance method. See Figure 4-8.

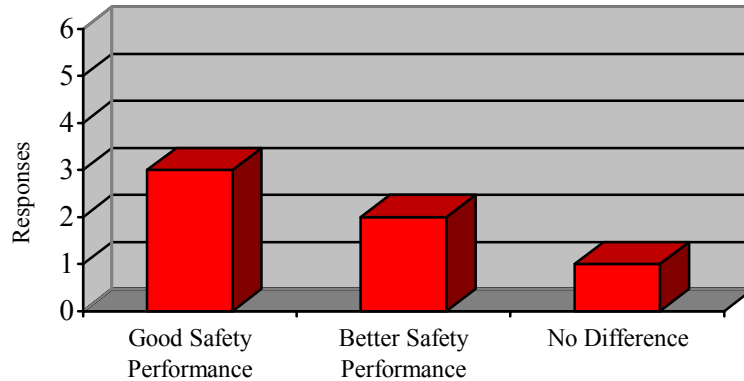


Figure 4-8 Safety Performance of CCIPs as Perceived by Construction Company Representatives

The construction company representatives were asked about the advantages of CCIPs.

This question yielded the following responses:

- CCIPs have the same advantages as OCIPs except that the contractor is in control of administration and safety and the contractor benefits from the cost savings and loss incentives (6 responses).
- Two contractors had no experience with the use of CCIPs.

The construction company representatives were asked about the disadvantages of CCIPs.

This question yielded the following responses:

- No disadvantages (3 responses).
- More administrative and coordination responsibilities.
- Increased administrative burdens and a more complicated subcontractor bidding process.
- Difficulties in subcontractor enrollment and bidding process.
- Two contractors had no experience with the use of CCIPs.

Three of the construction company representatives interviewed believed that there are no disadvantages with the use of CCIPs to the prime contractor in charge of the CCIP. Two of the representatives believed that the disadvantages are increased administrative

responsibilities and a more complicated subcontractor bidding process. See Figure 4-9 for a summary of the responses.

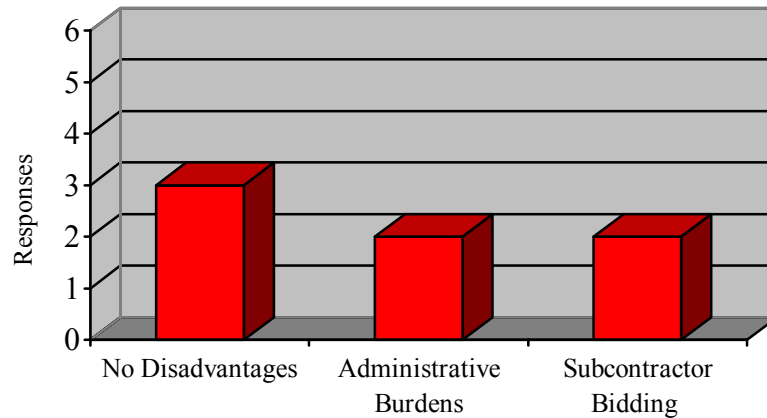


Figure 4-9 Disadvantages of CCIPs as Perceived by Construction Company Representatives

When asked about the common mistakes made with the use of CCIPs, the following responses were provided:

- Poor understanding of administrative responsibilities. Poor risk analysis.
- Administrative hurdles and lack of experience.
- Failure to understand administrative burdens and a lack of focus on safety.
- Poor safety management. Failure to institute management systems. Poor subcontractor participation.
- Not having knowledgeable people administer them.
- Failure to properly pre-qualify subcontractors based on their past safety records.
- Two contractors had no experience with the use of CCIPs.

Most of the construction company representatives interviewed believed that the common mistake with the use of CCIPs was the prime contractor in charge of the program had a poor understanding of the administrative responsibilities a CCIP imposes. Two of the representatives believed that a common mistake is poor safety management. See Figure 4-10 for a summary of the responses.

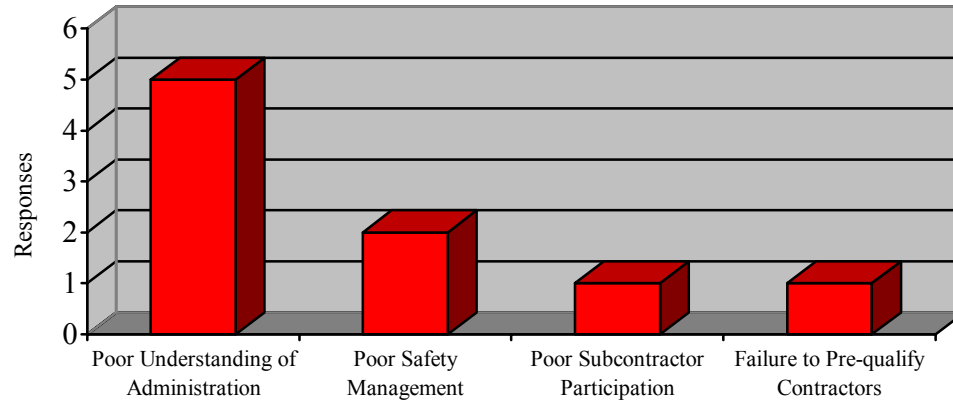


Figure 4-10 Common Mistakes When Using CCIPs as Perceived by Construction Company Representatives

The construction company representatives were asked about the keys to success with the use of CCIPs. This question yielded the following responses:

- Proper administration and a single consolidated safety program.
- Proper administration and management of the program. Communication. Subcontractor cooperation and participation. Subcontractor safety incentives.
- Safety and cost management focus.
- Consistent safety program management. Holding all subcontractors onsite accountable for meeting requirements of the program. Audits.
- Ability to manage safety.
- Pre-qualify subcontractors based on past safety records.
- Two contractors had no experience with the use of CCIPs.

The majority of the construction company representatives interviewed experienced with the use of CCIPs believed that the key to success with CCIPs was effective safety management. Three of the representatives believed that the key to success is effective administration of the CCIP by the prime contractor in charge of the program. See Figure 4-11.

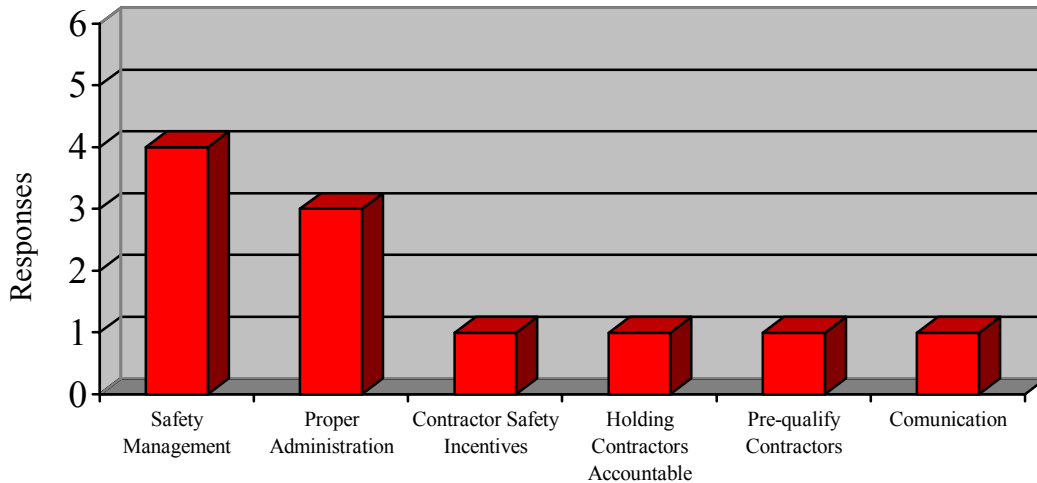


Figure 4-11 Keys to Success When Using CCIPs as Perceived by Construction Company Representatives

The construction company representatives were asked about the appropriate size of a project in order for it to be successful under an OCIP or CCIP. This question yielded the following responses:

- At least \$100 million (3 responses).
- At least \$20 million in payroll (2 responses).
- At least \$50 million.
- At least \$30 million or 150 workers.
- At least 500 workers.

Three of the construction company representatives believed that the minimum size of a project for an OCIP or CCIP to be successful was \$100 million. Two of the representatives believed that the minimum size was \$20 million in payroll. See Figure 4-12.

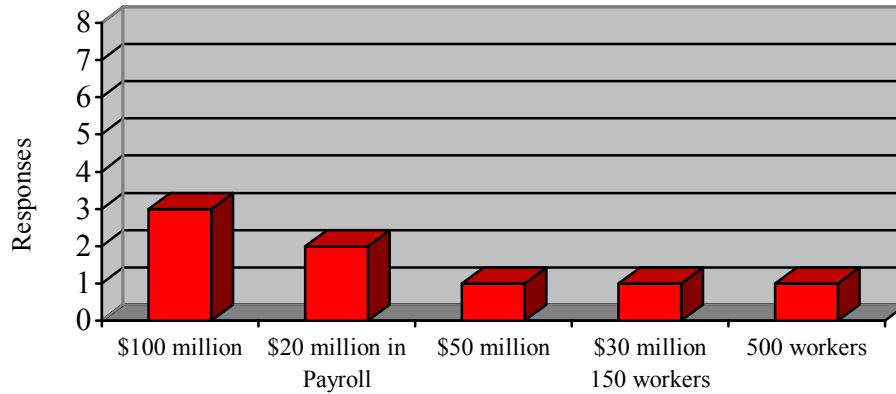


Figure 4-12 Minimum Size of a Successful CIP Project as Perceived by Construction Company Representatives

The construction company representatives were asked about which is more cost effective: OCIPs or CCIPs. All eight representatives stated that CCIPs are more cost effective for the prime contractor in charge of the program (see Figure 4-13).

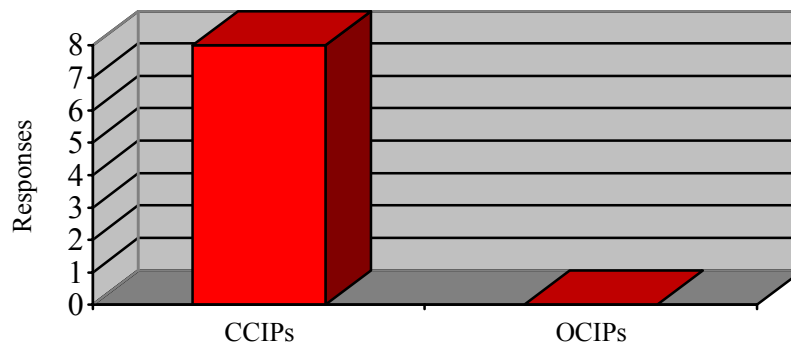


Figure 4-13 Construction Company Representative Perceptions About the Cost Effectiveness of CCIPs and OCIPs

The construction company representatives were asked about which has the better safety performance: OCIPs or CCIPs. This question yielded the following responses:

- About the same (3 responses).
- CCIPs have better safety performance.
- CCIPs have better safety performance because the contractor can provide better safety management.

- CCIPs are 30% to 40% safer than OCIPs.
- OCIPs because they are more established and used more often on industrial projects which have been historically safer than commercial projects.
- The representative did not know.

Three of the construction company representatives believed that CCIP projects had better safety performances than OCIP projects. Three of the representatives believed that the safety performance of CCIP projects was the same as OCIP projects. One representative believed that OCIP projects had the better safety performances, stating that OCIPs are safer because they are more commonly used and are used more often on industrial projects which have been historically safer than commercial projects. See Figure 4-14.

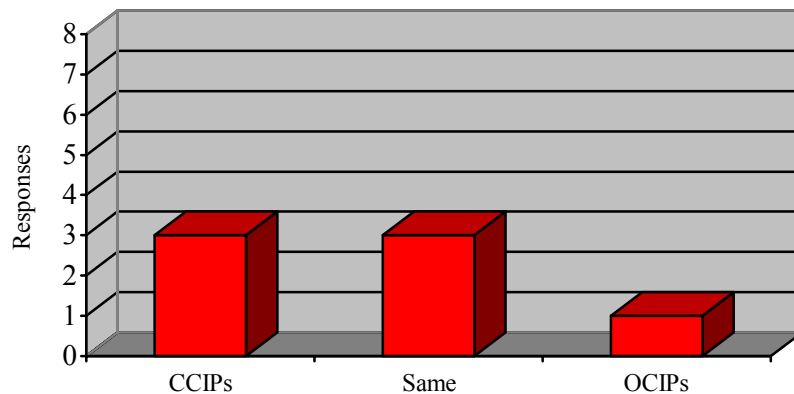


Figure 4-14 Construction Company Representative Perceptions About Differences in Safety Performances of CCIPs and OCIPs

The construction company representatives were asked about how safety is promoted differently on an OCIP versus a CCIP. This question yielded the following responses:

- With an OCIP, the contractor has to rely on the owner to be the champion of safety.
- With an OCIP, the owner is in charge of the safety program.
- With an OCIP, the contractor should ignore the insurance carrier and the owner and protect their own people.

- Safety should be promoted the same, but it depends on who is in control.
- Safety is promoted the same on both OCIPs and CCIPs.
- No difference, there should be high safety promotion in all areas of safety.
- With both OCIPs and CCIPs, the insurance carrier requires a stringent and effective safety program.
- With a CCIP, the contractor has more control over pre-qualifying subcontractors based on past safety performance.

Three of the construction company representatives believed that safety should be promoted the same when using an OCIP or CCIP. Two of the representatives believed that with an OCIP the contractor has to rely on the owner to promote safety because the owner is in charge of the safety management program. See Figure 4-15 for a summary of the responses.

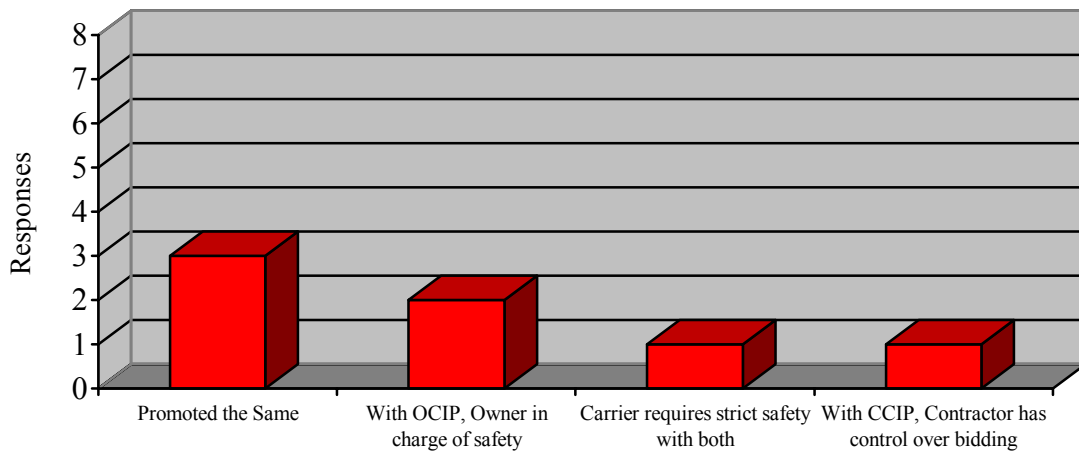


Figure 4-15 Type of CIP Project and Safety Promotion as Perceived by Construction Company Representatives

The construction company representatives were asked about what is done differently on a project with an OCIP versus a CCIP. This question yielded the following responses:

- With an OCIP, the owner is responsible for administering the insurance program and managing the safety program. With a CCIP, the contractor is responsible for administering the insurance program and managing the safety program (7 responses).

- With an OCIP, the contractor has to rely on the owner to promote safety. With a CCIP, the contractor has greater leverage to promote safety.

Results of the Owner Interviews

Representatives of seven owner companies with large construction projects were interviewed. Two of these represented government agencies with public works projects, two represented energy companies, one represented a pharmaceutical company, a petroleum company, and a telecommunications company. The majority of the representatives were unwilling to provide information about how many construction projects their company had completed in the past three years. The positions held by the individuals interviewed are shown below:

- Risk Manager (2 representatives)
- Senior Insurance Manager
- Manager of Loss Prevention
- Project Insurance Manager
- Safety Manager
- Construction Safety Coordinator

The types of facilities typically constructed are shown below:

- Industrial and Commercial (4 responses)
- Transportation and Public Works (2 responses)
- Telecommunications and Commercial

The owner representatives were asked about the cost effectiveness of OCIPs. This question yielded the following responses:

- If properly structured and managed, cost savings can be achieved. This cost savings is generated from the use of one insurance program covering workers' compensation and general liability rather than the owner and each contractor providing separate insurance coverage. This creates volume discounts and eliminates contractor markups.
- There is the potential for cost savings and insurance cost leveraging.
- When an OCIP is properly run, it can save a great deal of money.
- Cost savings of 1% to 3% of total construction costs.

- Considerable cost savings.
- Significant project savings by capitalizing on outstanding safety performance.
- Cost effective as long as there is good safety management and effective management of risk.

All of the owner representatives believed that OCIPs are cost effective for the owner (see Figure 4-16).

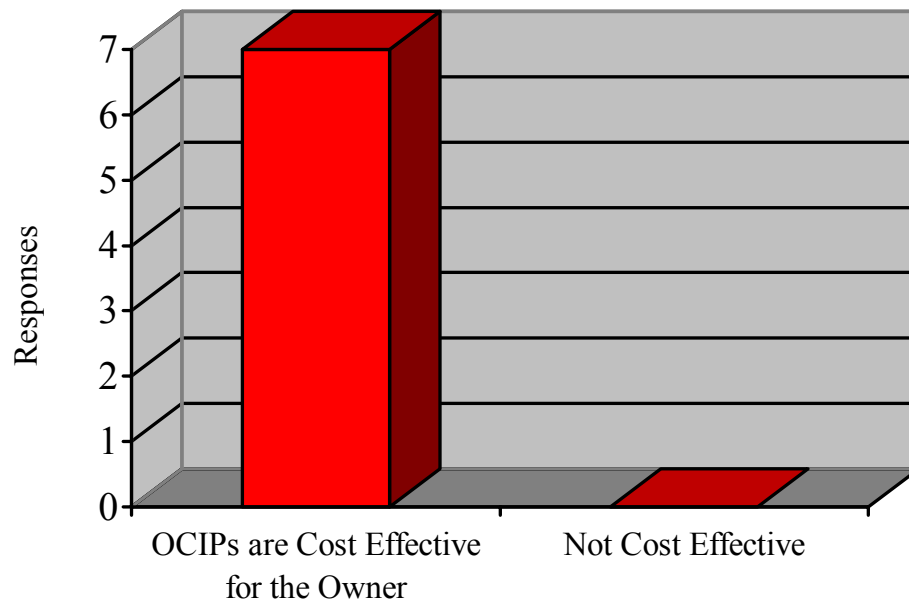


Figure 4-16 Cost Effectiveness of OCIPs as Perceived by Owner Representatives

The owner representatives were asked about the safety performance of OCIPs. This question yielded the following responses:

- When the owner has a vested interest and is more involved in project safety, the safety performance is improved.
- Outstanding safety records. Improved injury treatment.
- Very good.
- Good, results in potential cost savings
- Fewer on the job injuries and reduced loss ratios.

- Good, but must focus on safety.
- Effective incident management leads to better safety performance.

Four of the owner representatives believed that the safety performance of OCIP projects was good and three of the representatives believed that the safety performance of OCIP projects was better than under the traditional insurance method. See Figure 4-17.

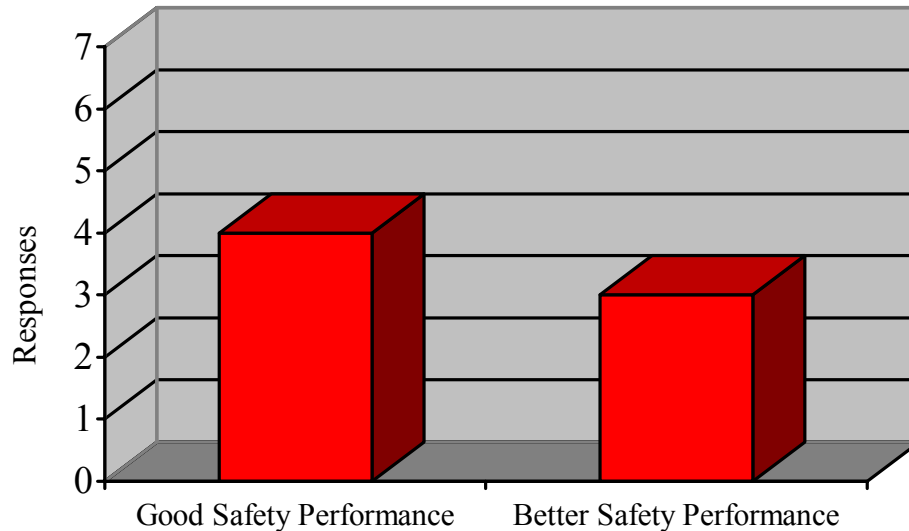


Figure 4-17 Safety Performance of OCIPs as Perceived by Owner Representatives

The owner representatives were asked about the advantages of OCIPs. This question yielded the following responses:

- Cost savings. OCIPs drive effective safety programs. Owner control over safety because of excellent health, safety, and environmental technology which can be used to help subcontractors control safety. Seamless management.
- Potential cost savings. More efficient. Cooperation of all parties to reduce claims. Loss prevention. Safety program is easier to implement and manage.
- Cost savings. Consistent approach to safety. Comprehensive safety standards. Control over claims handling process. Higher coverage limits. More contractors are eligible to participate in the project.
- Owner control over safety. Cost savings. Improved safety performance.

- Streamlines insurance contract language. Safety. Cost savings. Reduces complex litigation. Improved treatment of injuries. Can maintain and attract safe contractors.
- Higher coverage limits. Adequate coverage for all contractors with no gaps in coverage. Ability to control and guarantee coverages over an extended time period. Potential cost savings. Insurance leverage. Focus on safety. Enhanced opportunities for small and local subcontractors.
- More organization. More control. More information. More metrics. What gets measured, gets done and improved.

The majority of the owner representatives interviewed believed that the main advantages to using an OCIP are owner cost savings, improved safety, owner management control over the project, and better insurance coverage. Three of the representatives believed that an advantage is greater contractor participation because contractors do not have to obtain their own insurance under a CIP project. See Figure 4-18 for a summary of the responses.

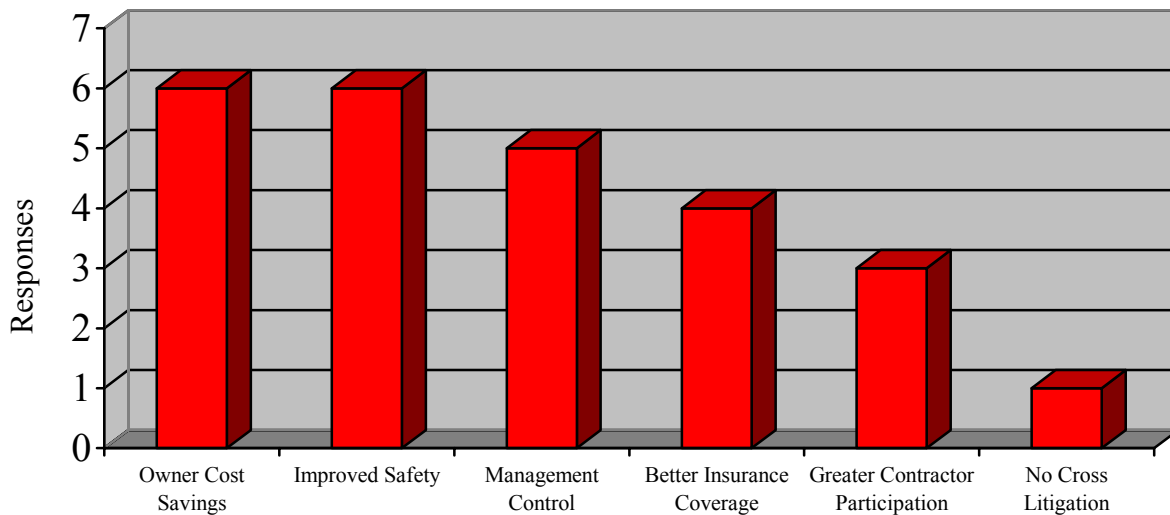


Figure 4-18 Advantages of OCIPs as Perceived by Owner Representatives

The owner representatives were asked about the disadvantages of OCIPs. This question yielded the following responses:

- Increased administrative burdens.

- Need additional personnel. Additional administration. Larger cash outlay at the beginning of the project.
- Challenge of aligning perspectives among different parties. A more complicated bidding process requiring contractors to submit their bids with and without insurance. Claims administration complexities. Administrative complexities and challenges. Managing the broker. Coordination challenges.
- Failure to understand administrative procedures. Potential for contractor lack of focus on safety.
- Failure to understand OCIP organization, administration, and implementation. Post implementation coordination and communication responsibilities. OCIPs are not legal in every state.
- Retaining long-term liability which can lead to high severe injury costs. Some states prohibit OCIPs. Administrative loading and documentation.
- Larger deductibles and claims costs. Have to continue to pay and manage claims long after the project is complete. Risk that significant losses can reduce or eliminate cost savings. Contractors may not care as much about safety because losses do not impact their own insurance policies.

The majority of the owner representatives interviewed believed that the main disadvantage to the use of OCIPs is increased administrative responsibilities. Two of the representatives believed that the disadvantages are owner retention of long-term liability, a contractor lack of focus on safety because the owner is responsible for the insurance coverage, and OCIPs are not legal in every state. See Figure 4-19 for a summary of the responses.

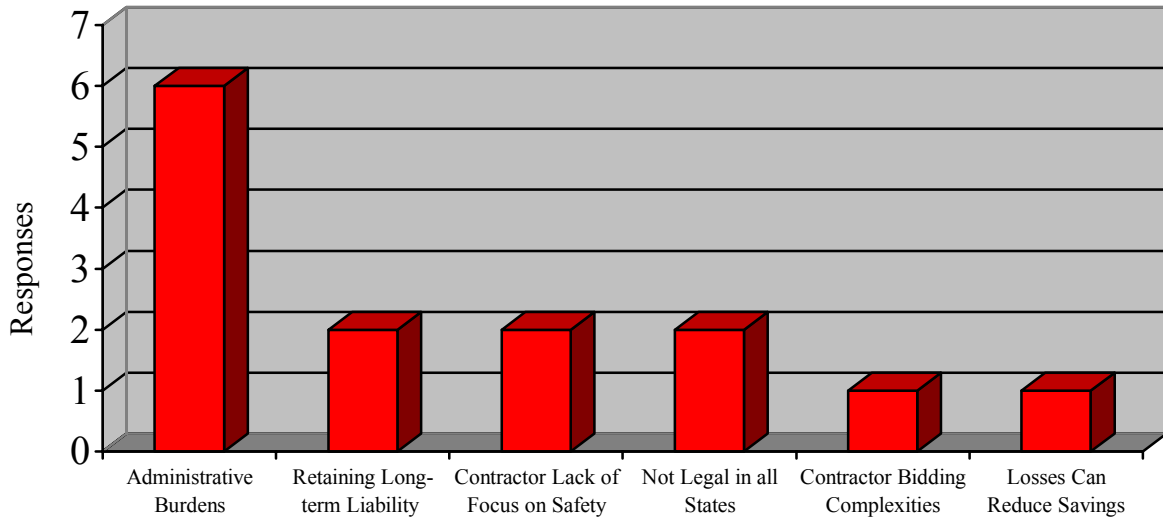


Figure 4-19 Disadvantages of OCIPs as Perceived by Owner Representatives

When asked about the common mistakes made with the use of OCIPs, the following responses were provided:

- Failure to understand complexities of OCIP implementation and administration. Poor communication. Insurance carrier or administrator lack of experience with OCIPs.
- Failure to take control of the safety program. Failure to understand administrative procedures.
- Failure to communicate. Failure to understand administrative requirements. Coordination difficulties. Inconsistent employment of OCIP processes and procedures. Lack of contractor buy-in.
- Failure to establish safety criteria as part of contractor evaluation. Failure to understand increased administrative burdens.
- Program must be clearly defined. Poor contractor selection process.
- Contractors do not completely eliminate insurance markups. Contractors increase costs in other areas to make up for amounts lost by removing insurance costs from their bids. Lack of contractor commitment to safety and loss prevention. Failure to consider the impact of severe losses and failure to recognize the long term payout of claims after the project is over.
- Failure to implement an effective health, safety, and environmental program. Poor medical case management. Not having an injury case management plan. Poor understanding of project management and how to generate the cost savings.

The majority of the owner representatives interviewed believed that the common mistake with the use of OCIPs is a poor understanding of the administrative responsibilities an OCIP imposes. Three of the representatives believed that a common mistake is poor safety management. See Figure 4-20.

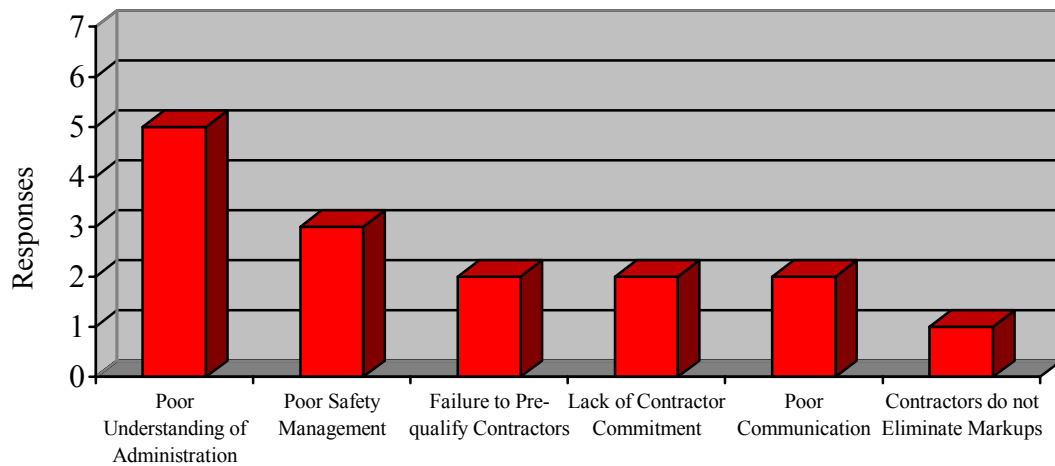


Figure 4-20 Common Mistakes When Using OCIPs as Perceived by Owner Representatives

The owner representatives were asked about the keys to success with the use of OCIPs.

This question yielded the following responses:

- Focus on safety. Comprehensive safety standards. Commitment to safety. Contractor support of the program.
- A highly effective health, safety, and environmental program and management systems. Onsite third party medical. Good injury case management. Experienced administration. Understanding of OCIP management at the project level. Contractor management. Asserting influence for contractors to work safely. Give safety technology to contractors and help contractors work safely.
- Involve contractors early. Communication. Competent onsite administrative support. Preparation, planning, and coordination. Management commitment. Contractor participation and cooperation. Owner should be actively involved with program. Focus on safety. Manage program like a project.
- A good safety program involving contractor participation. Choose an insurance carrier experienced with OCIPs. Need an experienced safety administrator. Dedication to safety. Dedicating resources to administration, safety, and loss control. Cooperation among different parties. Safety incentives for contractors.

- Program must be clearly defined. Pre-qualify contractors during the bidding process. Follow the CII safety, contractor selection, and management processes. Management commitment. Contractor orientation and buy-in. Monitor field activities. Project specific safety procedures. Good case management. Work closely with insurance carrier.
- Share cost savings in the form of safety incentives for contractors. Instituting an excellent safety program supported by senior management of the owner and the contractors. Make sure the project is large enough to produce cost savings. Everyone must be involved with and promote safety.
- Understanding of OCIP. Start early. Perform a feasibility study. Learn from experiences of other organizations using OCIPs. Focus on safety. Ensure communication between parties. Contractor buy-in. Finding the right insurance broker. Ensure program components are in place and responsibilities are clearly defined. Hold contractor workshops.

All eight of the owner representatives believed that the key to success with the use of an OCIP is effective safety management. The majority of the representatives interviewed believed that the keys to success are contractor commitment to safety and effective administration of the OCIP. Three of the representatives believed that the key to success is good communication. See Figure 4-21 for a summary of the responses.

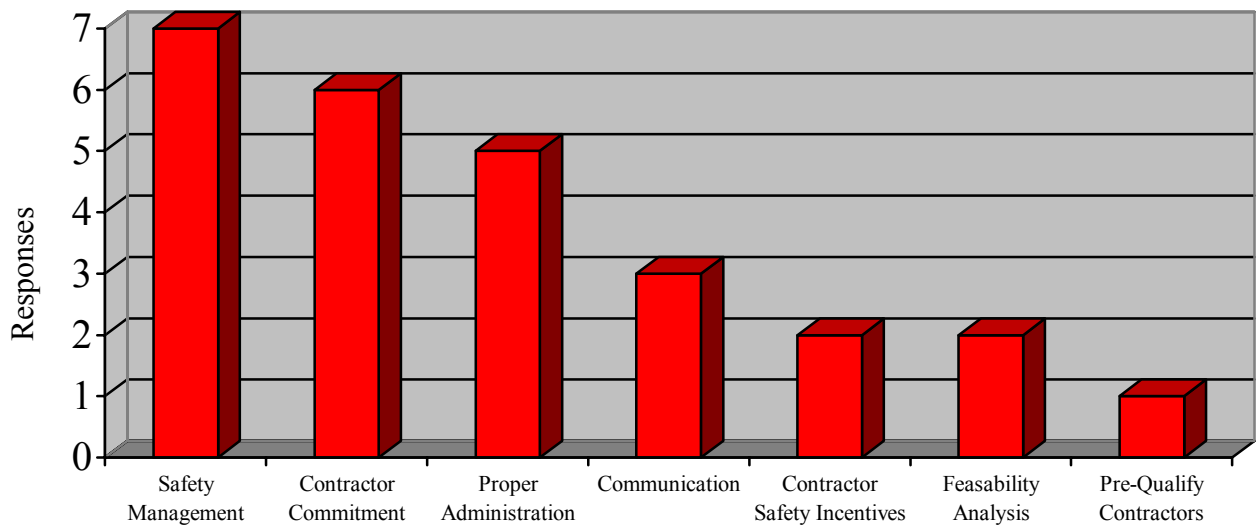


Figure 4-21 Keys to Success When Using OCIPs as Perceived by Owner Representatives

The owner representatives were asked about the appropriate size of a project in order for it to be successful under an OCIP. This question yielded the following responses:

- At least \$100 million (4 responses).
- At least \$50 million. For significant cost savings, at least \$250 million.
- Minimum \$25 million in total labor costs.
- Once there is an effective health, safety, and environmental management program in place, all projects can be covered under a rolling wrap-up.

Four of the owner representatives believed that the minimum size of a project for an OCIP to be successful is \$100 million (see Figure 4-22).

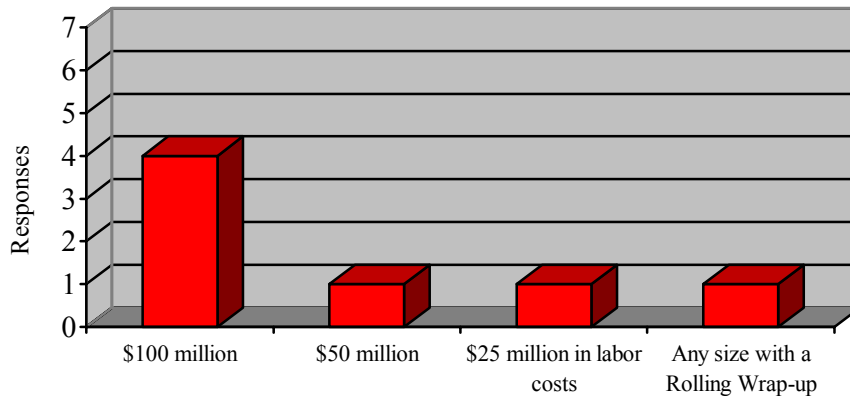


Figure 4-22 Minimum Size of Successful OCIP Projects as Perceived by Owner Representatives

The owner representatives were asked about which is more cost effective: OCIPs or CCIPs. All seven representatives stated that OCIPs are more cost effective for the owner (see Figure 4-23).

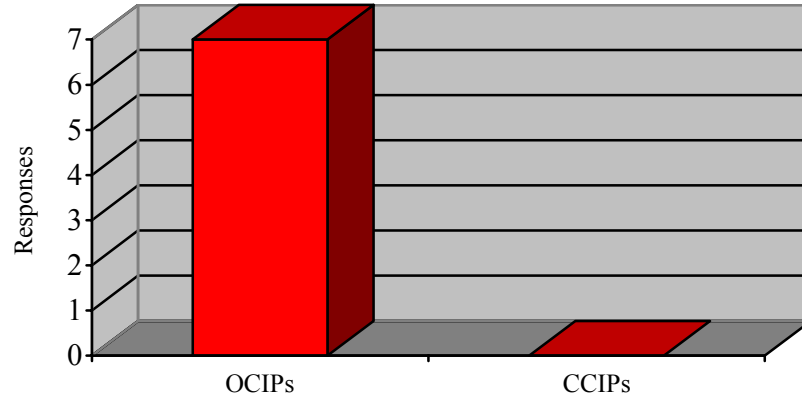


Figure 4-23 Owner Representative Perceptions About the Cost Effectiveness of OCIPs and CCIPs

The owner representatives were asked about which has the better safety performance:

OCIPs or CCIPs. This question yielded the following responses:

- 5 responses OCIPs.
- 1 response Depends on safety programs.
- 1 response About the same.

Five of the owner representatives believed that OCIP projects had a better safety performance than CCIP projects. One representative stated that the safety performance depends on the experience of the party in control of the program and the effectiveness of the safety management program. One representative stated that the safety performance of OCIP projects was the same as CCIP projects. See Figure 4-24.

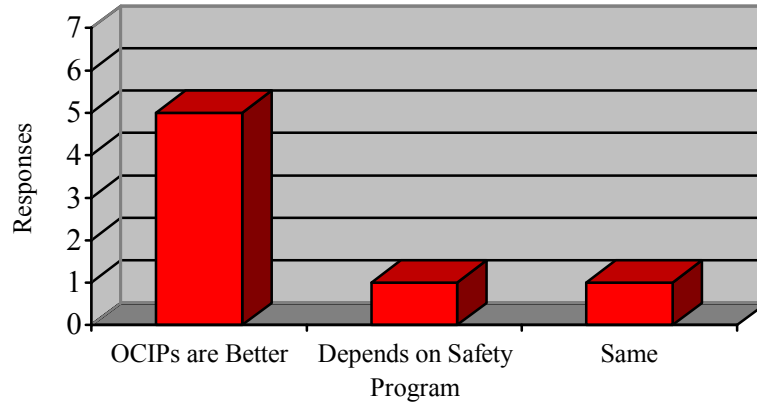


Figure 4-24 Owner Representative Perceptions About the Relative Safety Performances of OCIPs and CCIPs

The owner representatives were asked about how safety is promoted differently on an OCIP versus a CCIP. This question yielded the following responses:

- With an OCIP, the owner is in charge of safety (6 responses).
- With an OCIP, the owner should offer safety incentives to contractors.

The majority of the owner representatives interviewed believed that with an OCIP the owner is in charge of the safety management program and the owner is responsible for enforcing safety (see Figure 4-25).

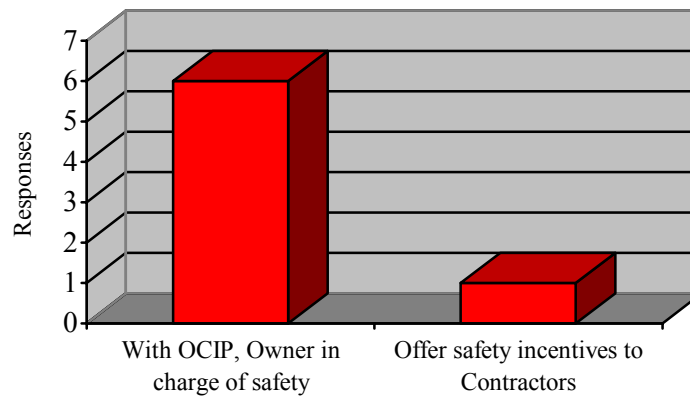


Figure 4-25 Safety Promotion as Perceived by the Owner Representatives

The owner representatives were asked about what is done differently on a project with an OCIP versus a CCIP. All seven representatives stated that with an OCIP, the owner is responsible for administration, safety management, and safety enforcement.

Results of the Insurance Company Interviews

Representatives from four insurance companies and three insurance consulting companies were interviewed. The positions held by the insurance company representatives are shown below:

- Loss Control Consultant (2 representatives)
- Senior Vice President and Director of Safety Management
- Vice President of Government and Institutions Sector

The positions held by the insurance consulting company representatives are shown below:

- President
- Risk Management Consultant
- Consultant and Insurance Lawyer

The representatives referred to OCIPs and CCIPs interchangeably, essentially as if they saw no apparent difference between them. They all stated that the only difference between the two is the party who is in control.

The insurance representatives were asked about the cost effectiveness of OCIPs and CCIPs. This question yielded the following responses:

- OCIPs and CCIPs are cost effective when administered correctly. Cost savings of 1% to 3% of total construction costs.
- If the OCIP or the CCIP is structured properly, significant cost savings can be realized. Typical cost savings of 1% to 2% and as high as 5% of total construction costs.
- Cost savings of 1% to 2% of total construction costs.
- OCIPs and CCIPs are cost effective for the owner.

- The cost effectiveness is generally good. Results from volume discounts, safety incentives, and elimination of cross litigation.
- The cost effectiveness is good.
- Very good if run properly. Owners save money.

All of the insurance representatives interviewed believed that OCIPs and CCIPs are cost effective for the party in control of the program. Three of the representatives believed that CIPs can generate cost savings of at least 1% of total construction costs. See Figure 4-26.

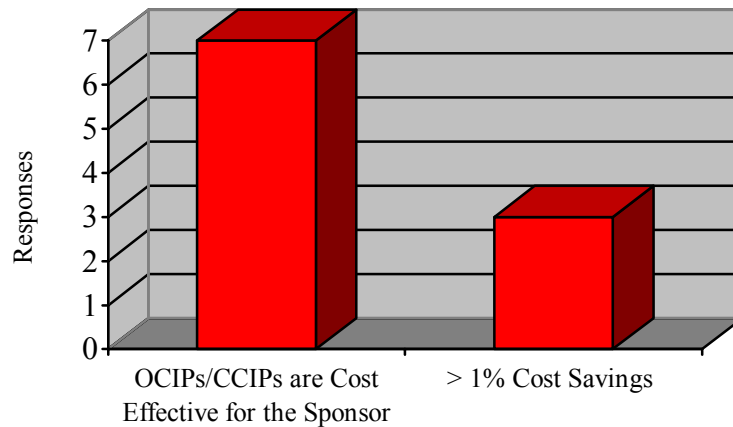


Figure 4-26 Cost Effectiveness of OCIPs/CCIPs as Perceived by Insurance Representatives

The insurance representatives were asked if project safety performance was affected by OCIPs and CCIPs. This question yielded the following responses:

- The safety performance is good (2 responses).
- The safety performance is generally good. Results from a centralized comprehensive safety program and safety incentives.
- Good, as long as a good safety program is in place and is enforced.
- The majority are better than traditional insurance policies.
- They reduce losses. Loss experience averages less than 40% of traditional insurance policies.

- Much safer, because of the safety requirements. But it depends on whether the owner is a public entity or a private entity. Private entities have better safety performances because they are more clearly focused on the cost of injuries whereas public entities dealing with public funds are not always as concerned about the cost of injuries.

Four of the insurance representatives believed that the safety performance of OCIP projects and CCIP projects was good and three believed that the safety performance of OCIP projects and CCIP projects was better than with the traditional insurance method. See Figure 4-27.

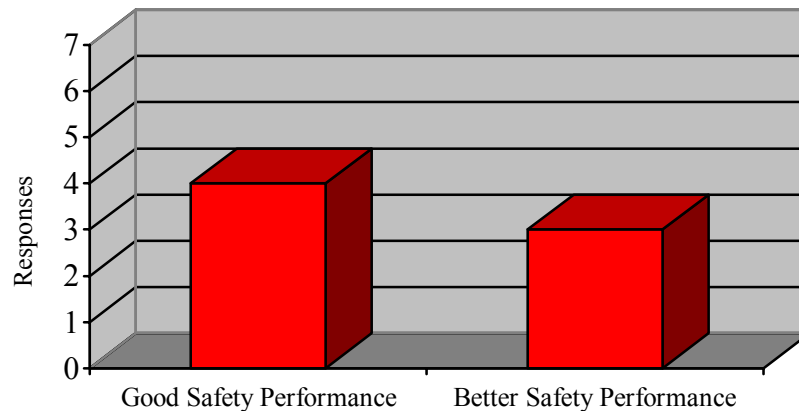


Figure 4-27 Safety Performance of OCIPs/CCIPs as Perceived by Insurance Representatives

When asked about the advantages of OCIPs and CCIPs, the following responses were provided:

- Sponsor cost savings. Safety. Single point of control. (2 responses).
- Sponsor cost savings. Elimination of cross litigation. Promotion and enforcement of safety. Aggressive claims administration. Adequate insurance coverage. Higher coverage limits. Increased minority contractor participation.
- Sponsor cost savings. Broader coverage. No gaps or duplication of coverage. Higher coverage limits. Volume discounts. More effective safety and loss control programs. Safety incentives from the insurance carrier. One insurance carrier. Improved quality of services. Increased subcontractor participation.
- Sponsor cost savings. Elimination of coverage gaps. Increased coverage limits. Increased disadvantaged subcontractor participation.

- Volume discounts. Sponsor cost savings. Single insurance provider. No cross litigation. Higher coverage limits. Broader coverage. Centralized comprehensive safety program. Centralized loss control program. Less paperwork. Easier administration.
- Known subcontractor insurance coverage. One insurance provider. Higher coverage limits. No cross litigation.

The majority of the insurance representatives interviewed believed that the main advantages to the use of OCIPs and CCIPs are cost savings for the party in control of the program, better insurance coverage, and improved safety. Three of the representatives believed that the advantages are reduced cross litigation, only one insurance carrier is responsible for insuring the project, greater contractor participation, and increased management control. See Figure 4-28 for a summary of the responses.

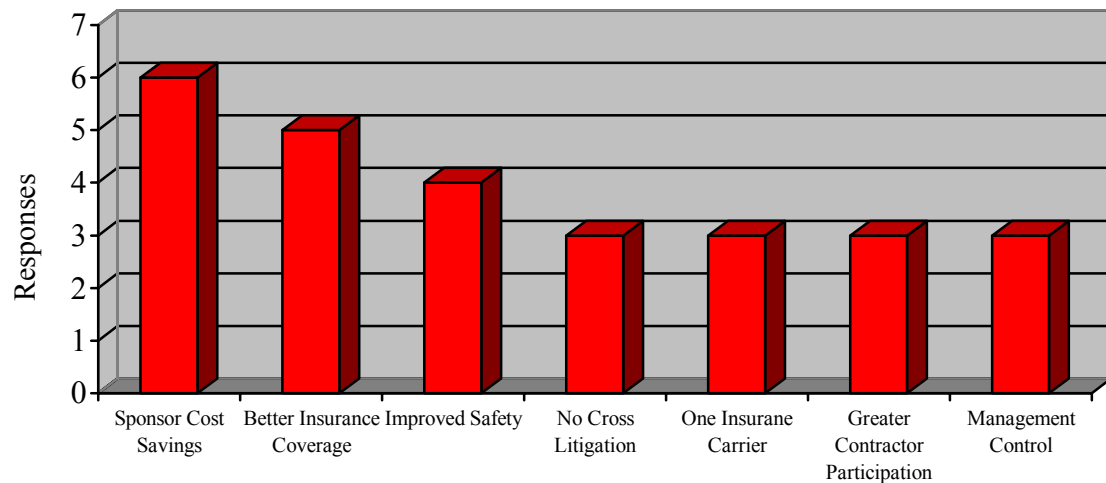


Figure 4-28 Advantages of OCIPs/CCIPs as Perceived by Insurance Representatives

The insurance representatives were asked about the disadvantages of OCIPs and CCIPs.

This resulted in the following responses:

- Increased administrative and safety program management responsibilities. Lack of contractor safety incentives under an OCIP.
- Initial upfront investment. Administrative requirements and loading.

- Gaps in completed operations coverage. Contractors covered only when onsite. Loss of contractor leverage with insurance carriers. Illegal in some states. Subcontractor past safety records may not be taken into consideration during the bidding process. Administrative costs may outweigh the benefits. Large deductibles. Loss sensitive program exposes risk of increased premiums if labor costs and loss experiences exceed estimates.
- Subcontractor past safety performance records may not be taken into consideration during the bidding process. Increased administrative responsibilities.
- Subcontractor past safety records may not be taken into consideration during the bidding process. Potential cost savings not always realized.
- Contractor coverage exclusions. Additional administrative burdens. Additional accounting efforts. Additional monitoring efforts. Sponsor responsible for safety management.
- Contractors may lose insurance markups. Lack of contractor compliance. Contractor or owner complacency. Failure to share cost savings. Parties may be inexperienced and not be well informed. A lot of paperwork.

The majority of the insurance representatives interviewed believed that the main disadvantage to the use of OCIPs and CCIPs are increased administrative responsibilities for the party in control of the program. Three of the representatives believed that a disadvantage is a failure of the party in control of the program to pre-qualify contractors based on their past safety records. Two of the representatives believed that the disadvantages are a failure of the party in control of the program to share the cost savings, certain coverage exclusions that exist for the contractors, and severe losses can significantly reduce the cost savings. See Figure 4-29 for a summary of the responses.

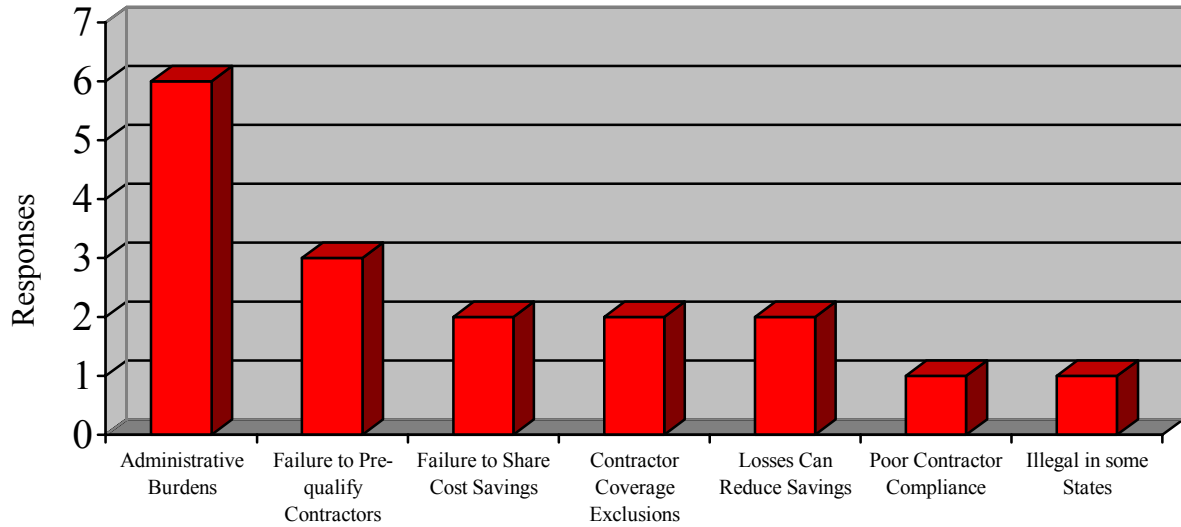


Figure 4-29 Disadvantages of OCIPs/CCIPs as Perceived by Insurance Representatives

When asked about the common mistakes made with the use of OCIPs and CCIPs, the following responses were presented:

- Inexperienced management and administration. Lack of focus on safety. Poor communication. Failure to use past safety performance records during the bidding process.
- Failure to understand administrative requirements. Poor safety management. Failure to use past safety performance records during the bidding process. No contractor safety incentives.
- Poor administration. Failure to understand when the use of CIPs is beneficial.
- Poor subcontractor enrollment and management. Failure to understand administrative loading.
- Poor safety program. No fulltime project safety coordinator. No contractor safety incentives.
- Poor safety program and lack of enforcement. Inexperience with administrative responsibilities. Poor documentation.
- Risk managers in the office think that they can control safety better than the safety managers in the field. Failure to share information.

Most of the insurance representatives interviewed believed that the common mistakes with the use of OCIPs and CCIPs are a poor understanding of the administrative responsibilities an OCIP or CCIP imposes on the party in control of the program and poor safety management. See Figure 4-30 for a summary of the responses.

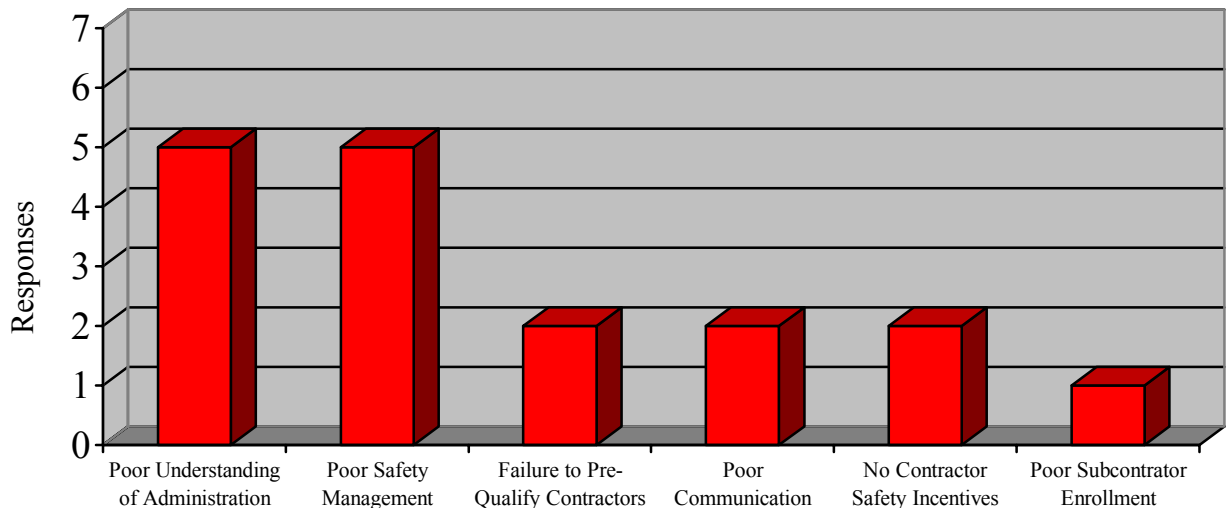


Figure 4-30 Common Mistakes When Using OCIPs/CCIPs as Perceived by Insurance Representatives

The insurance representatives were asked about the keys to success with the use of OCIPs and CCIPs. This question yielded the following responses:

- Meeting payroll threshold for warranting additional expenses. Subcontractor management and participation. Focus on safety.
- Good safety program. Enforcement. Contractor buy-in. Good communication. Administration by experienced personnel.
- Good safety program that is project specific. Require contractors to have a site specific safety plan. Full support and buy-in of contractors.
- Good management and contractor buy-in.
- Experienced administration. Focus on safety. Involvement and participation of all parties. Prescreening bidders based on past safety records.
- Prescreening bidders based on past safety records. Good administration. Sharing of cost savings.

- Structuring the program properly. Delineation of responsibilities. Communication and cooperation. Effective safety program. Effective administration. Safety incentives. Reinforcing and monitoring safety. Planning.

The majority of the insurance representatives interviewed believed that the keys to success with the use of OCIPs and CCIPs are effective administration of the program, contractor commitment to safety, and effective safety management (see Figure 4-31).

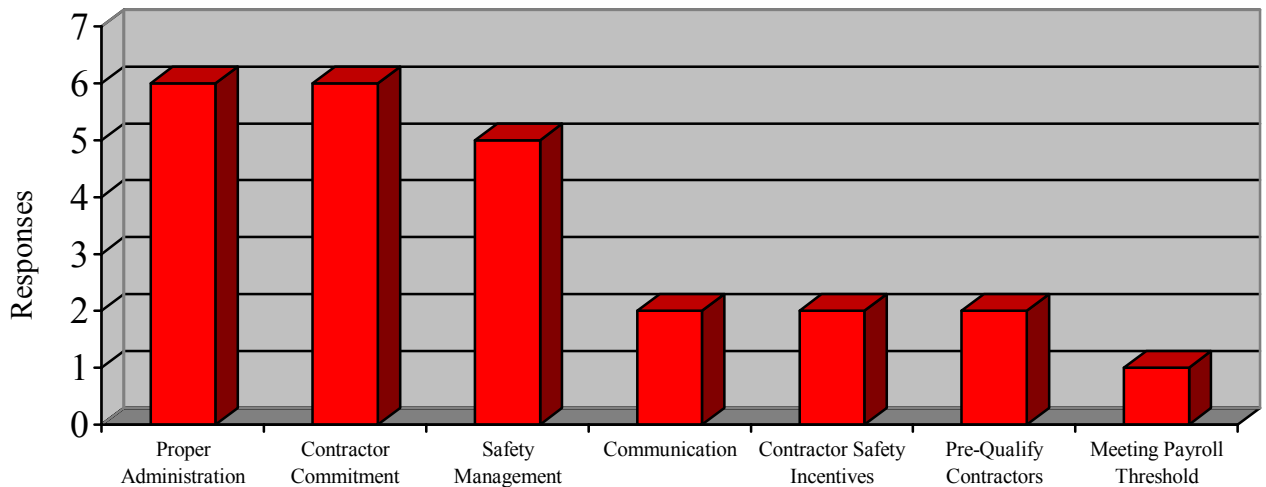


Figure 4-31 Keys to Success When Using OCIPs/CCIPs as Perceived by Insurance Representatives

The insurance representatives were asked about the appropriate size of a project in order for it to be successful under an OCIP or CCIP. This question yielded the following responses:

- At least \$100 million (3 responses).
- At least \$100 million or at least \$1 million in workers' compensation premiums.
- At least \$100 million or at least \$50 million for rolling wrap-ups.
- At least \$100 million for significant cost savings. At least \$40 million for management control.
- At least \$50 million or at least \$15 million for rolling wrap-ups.

The majority of the insurance representatives interviewed believed that the minimum size of a project for an OCIP or CCIP to be successful is \$100 million (see Figure 4-32).

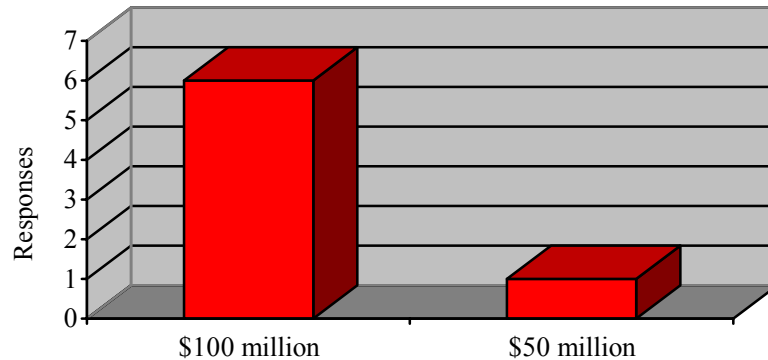


Figure 4-32 Minimum Size of Successful OCIP/CCIP Projects as Perceived by Insurance Representatives

The insurance representatives were asked about which is more cost effective: OCIPs or CCIPs. This question yielded the following responses:

- About the same. Cost savings go to the party in control. (2 responses).
- Generally CCIPs, but depends on experience and safety focus of the owner.
- Generally CCIPs because the contractor is in control, typically more experienced, and is cost sensitive. However, OCIPs can be more cost effective when a large private company is using them because they tend to have in depth experience with the type of project being constructed and rigorous safety management programs already in place.
- CCIPs.
- CCIPs are probably slightly more cost effective.
- Depends, but typically CCIPs because the contractor is in control over cost savings and safety.

The majority of the insurance representatives interviewed believed that CCIPs are more cost effective than OCIPs. However, two representatives believed that the cost effectiveness of OCIPs and CCIPs is the same. See Figure 4-33 for a summary of the responses.

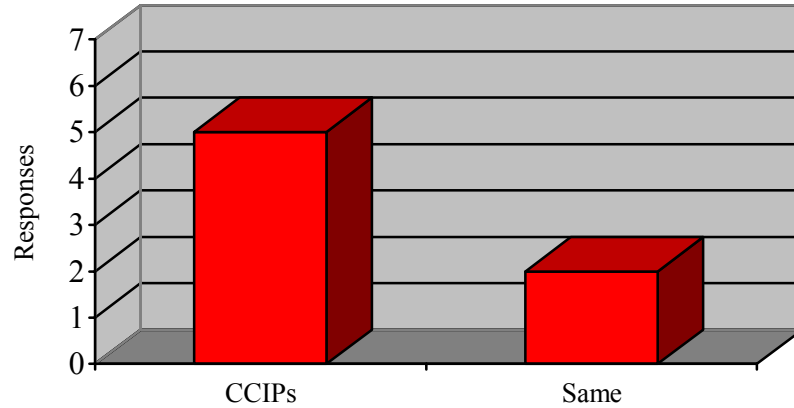


Figure 4-33 Insurance Representative Perceptions of Whether OCIPs or CCIPs are More Cost Effective

The insurance representatives were asked about which has the better safety performance: OCIPs or CCIPs. This question yielded the following responses:

- CCIPs (3 responses).
- Generally CCIPs, but depends on experience and safety focus of the owner.
- Depends, but typically CCIPs because the contractor is in control over cost savings and safety.
- Possibly CCIPs because of contractor experience with safety.
- About the same.

The majority of the insurance representatives interviewed believed that CCIP projects had better safety performances than OCIP projects. One representative believed that the safety performance of OCIP projects and CCIP projects were the same. See Figure 4-34 for a summary of the responses.

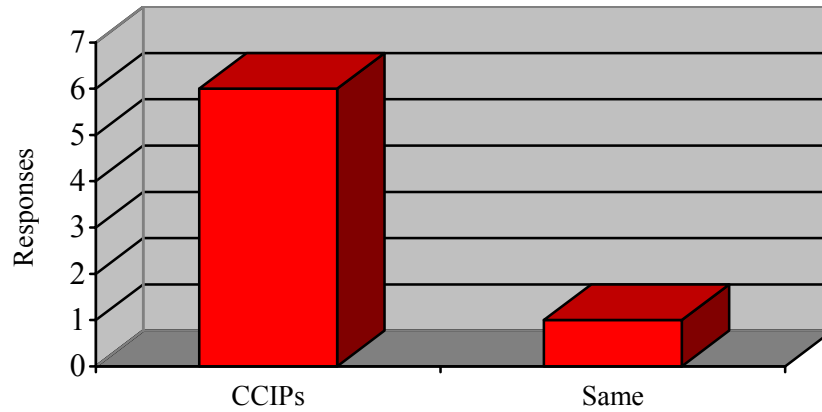


Figure 4-34 Insurance Representative Perceptions of Whether OCIPs or CCIPs have Better Safety Performance

The insurance representatives were asked about how safety is promoted differently on an OCIP versus a CCIP. This question yielded the following responses:

- The owner is in control of safety with an OCIP (2 responses).
- Owners should provide safety incentives to the contractors with an OCIP.
- Owner may need to hire safety consultants.
- Contractor buy-in and participation is needed.
- Safety must be promoted for either to be successful.
- No difference.

The insurance representatives were asked about what is done differently on a project with an OCIP versus a CCIP. All seven representatives stated that the only difference was the party responsible for administration and safety management.

CHAPTER 5 CONCLUSIONS AND RECOMMENDATIONS

Conclusions of this Study

The objective of this study was to perform a cost/benefit analysis on controlled insurance programs in comparison with traditional insurance policies in the construction industry. The decision of which type of insurance to choose, an owner controlled insurance program (OCIP), a contractor controlled insurance program (CCIP), or a traditional insurance policy, is generally based upon the perceived costs and benefits associated with the particular type of insurance coverage.

Based on the results of the literature review and the limited number of interviews, OCIPs and CCIPs can be considered more cost effective than traditional insurance policies if they are administered correctly and losses are controlled. However, the cost effectiveness is a matter of perspective. Owners can directly benefit from the implementation of an OCIP because they become responsible for controlling the insurance program and the safety management program. This means that they can obtain volume discounts from the insurance carrier by wrapping all of the separate project insurance policies into one consolidated program. This also means that owners can control safety and benefit from favorable loss experience incentives offered by the insurance carriers for improved safety performances.

Contractors may lose money with an OCIP because they are required to exclude the cost of insurance from their bids and they do not directly benefit from any financial rewards that insurance companies might provide when there is a favorable loss

experience. Many contractors view the cost of insurance as a revenue generating function because they include overhead and profit markups on the cost of insurance in their bids. With an OCIP, contractors may lose the incentive to work safely because the owner is responsible for purchasing and maintaining the insurance coverage and any losses that occur are paid for by the owner's insurance carrier. Contractors may also not see the need to strictly enforce safety if they are not going to benefit from any financial rewards that the insurance carrier might provide to the owner when losses are controlled. This concern may be alleviated when owners decide to share cost savings with the contractors, thereby creating an incentive to work safely.

A major concern with the use of OCIPs is that many owners do not have the experience necessary to properly administer and control such programs. If losses exceed estimates, OCIPs may cost the owner more money than traditional insurance policies. Many contractors may be better suited to administer and control a consolidated insurance program. This is because contractors may be more experienced with the administrative aspects of construction, safety, construction insurance, and subcontractor management. Contractors can directly benefit from the implementation of a CCIP because they become responsible for controlling the insurance program and the safety management program. This allows contractors to obtain volume discounts and favorable loss experience incentives from the insurance carrier. Contractors should also consider sharing cost savings with the subcontractors as an incentive for them to work safely. Although OCIPs could save owners more money than CCIPs, the benefit of CCIPs to owners is that administration, management, and control over the insurance and safety programs resides

with the prime contractor in charge of the CCIP. However, the prime contractor must have the experience and ability to properly administer such a program.

OCIPs and CCIPs can be considered more cost effective than traditional insurance policies if they are implemented on projects of sufficient size. The minimum project size for which significant cost savings can be realized by using an OCIP or CCIP is probably around \$100 million. However, experienced owners and experienced contractors could benefit from the management control that can be gained through the use of an OCIP or CCIP on projects valued at \$50 million or more. Experienced owners and contractors may also consider using rolling wrap-ups to insure numerous projects that do not meet the requirements for a CIP on an individual basis.

OCIP projects and CCIP projects may have better safety performances than projects insured under traditional insurance policies. A centralized comprehensive safety management program that includes all parties onsite is paramount to achieving success. To minimize losses, the party responsible for administering and managing the safety management program must create and continuously reinforce a proactive safety culture. OCIPs and CCIPs allow the party responsible for administering the program to gain and maintain control over safety. This allows them to impose and enforce stringent safety requirements applicable to all parties onsite. However, the safety performances of OCIP projects and CCIP projects is contingent upon the experience and abilities of the party in control of the program. If owners are experienced with the type of construction projects being built and if they are experienced in the management and control of safety, they could successfully use OCIPs to lower injury frequency rates and costs. A major concern with the use of OCIPs is that many owners do not have the experience necessary to

properly administer and control such programs. Inexperienced owners may find it difficult to maintain and control the safety performance of OCIP projects. Contractors may be better suited to administer, manage, and control the safety management program. This is because contractors may be more experienced with the administrative aspects of construction, safety, construction insurance, and subcontractor management. Contractors could successfully use CCIPs to lower injury frequency rates and costs. The benefit of CCIPs to owners is that administration, management, and control over the insurance and safety programs resides with the prime contractor in charge of the CCIP. However, the prime contractor must have the experience and ability to properly administer such a program.

CCIP projects may have better safety performances than OCIP projects. However, the safety performances of OCIPs and CCIPs is contingent upon the experience and abilities of the party in control of the program. While some large owners may be very experienced with and capable of administering such programs, large contractors probably have more experience than most owners with the management and control of safety on construction projects. Therefore, contractors may generally be more capable of managing CCIPs to achieve slightly lower injury frequency rates and costs than owners using OCIPs.

Recommendations

Construction industry professionals and students could use this research to gain a better understanding of controlled insurance programs. This information could be used to help construction companies and owners of large projects better understand when the use of an OCIP or CCIP is beneficial and how to ensure that an OCIP or CCIP is used successfully. Owners should consider the implementation of an OCIP provided they

have the required skills necessary to properly manage the OCIP. Contractors should consider using a CCIP provided they have the required skills necessary to properly manage the CCIP.

Future researchers could use this research as background information for future studies. Sources of actual OCIP and CCIP numerical data should be obtained and analyzed. A wealth of knowledge about OCIPs and CCIPs could be gained from these data. Intricate details about the cost effectiveness and safety performance of OCIPs and CCIPs could be analyzed and reported.

While many aspects of OCIPs and CCIPs remain to be explained, it is suggested that hard data be obtained to quantify information related to the different types of construction insurance. At the base level, the following hypotheses should be considered for testing:

H₁: The cost of insurance for large construction projects is lower for projects using controlled insurance programs than for projects using traditional insurance policies.

H₂: Construction projects that are insured by controlled insurance programs have lower injury frequency rates and lower injury costs than construction projects that are insured by traditional insurance policies.

H₃: Construction projects that are operated under CCIPs have lower injury frequency rates and lower injury costs than construction projects that are operated under OCIPs.

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BIOGRAPHICAL SKETCH

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