



# EXPLORING DISPUTE RESOLUTION MECHANISMS IN LARGE-SCALE DESIGN-BUILD TRANSPORTATION INFRASTRUCTURE PROJECTS IN THE U.S.

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**ABSTRACT:** Disputes are an inevitable challenge in construction projects, particularly in large-scale transportation infrastructure initiatives using design-build (DB) delivery. The early involvement of the DB team with limited design intent often leads to disputes arising from differing contract interpretations, misaligned expectations, and unforeseen complexities. Effectively resolving these disputes is essential to maintaining project momentum. This study investigates dispute resolution procedures employed by state departments of transportation (DOTs) in DB projects, focusing on both external mechanisms, such as dispute resolution boards (DRBs), and internal mechanisms, including partnering processes. Through content analysis of contract documents from six DB projects valued at over \$400 million and semi-structured interviews with subject matter experts from four state DOTs, this research examines the practices, benefits, and challenges of various approaches. Findings reveal significant variability in how DOTs implement dispute resolution mechanisms, with some emphasizing external strategies like DRBs and mediation, while others prioritize internal approaches, such as formal partnering and tiered issue escalation. This study provides valuable insights into effective dispute resolution practices, offering guidance for improving project delivery outcomes in large-scale DB transportation infrastructure projects.

## 1. INTRODUCTION

Disputes and claims are an inherent challenge in construction projects, often leading to cost overruns, schedule delays, and strained relationships among stakeholders. Once the construction process has commenced, any interruption or delay can lead to significant financial implications (Allensworth et al., 2009). Recent market conditions, including inflation, supply chain disruptions, and labor shortages, have further complicated capital program planning and project execution (Arcadis, 2023). Traditional legal remedies, particularly litigation, are often not well-aligned with the needs of large-scale infrastructure projects. Litigation is typically adversarial, time-consuming, and expensive, often involving prolonged discovery, procedural rigidity, and strained relationships between project stakeholders (Allensworth et al., 2009). Construction litigation, in particular, involves “numerous parties, thousands of activities, tens of thousands of documents and facts, and a multitude of legal issues,” making it an inefficient process that can ultimately undermine project goals (Harmon, 2003). With the influx of federally funded transportation infrastructure projects, the need for effective dispute resolution mechanisms has become more pressing as transportation infrastructure projects increase in size and complexity. As these projects grow in size and complexity, so too does the potential for disputes. According to FMI’s earlier projections in 2019, total construction

spending on megaprojects was expected to exceed \$2.5 trillion over the following decade, approximately 20% of total annual construction spending (Hoover, 2019). Historically, megaproject activity has been concentrated in the industrial and infrastructure sectors, with starts in these segments accounting for 61% of all industrial and infrastructure projects starting in 2018 (Hoover, 2019). More recently, Bellis (2024) of FMI Corporation reports that annual construction put in place on megaprojects in the U.S. is projected to increase by nearly 600%, from approximately \$50 billion to over \$350 billion over the next decade, further underscoring the dramatic rise in project scale and complexity. As a result, the demand for dispute resolution approaches that are both timely and equitable has become more critical than ever (Gad et al., 2015).

To address these challenges, the construction industry has increasingly turned to alternative dispute resolution (ADR) methods (Hardjomuljadi, 2020). ADR encompasses a range of techniques, including negotiation, dispute review boards (DRBs), mediation, and arbitration, that emphasize collaboration over confrontation. These mechanisms help preserve working relationships between parties while providing a more flexible and timely approach to resolving disputes compared to litigation (Gad et al., 2011; Treacy, 1995). The growing reliance on ADR methods is evident in industry trends. The 13th Annual Construction Disputes Report by Arcadis highlighted a 42% increase in the average value of construction disputes in North America from 2021 to 2022, reaching historically high levels (Arcadis, 2023). Similarly, a survey by Ames & Gough reported a rise in litigation, contributing to increased insurance premiums (Ames & Gough, 2024). In response to the escalating costs and risks, insurers are advocating for early dispute intervention, particularly in structural, geotechnical, and mechanical engineering disciplines to mitigate claim severity (Loulakis & McLaughlin, 2023). These early intervention strategies, including mediation, thorough litigation analysis, and proactive resolution efforts, aim to prevent disputes from escalating into prolonged and costly legal battles (Loulakis & McLaughlin, 2023).

Given these challenges, such as rising dispute values, increasing litigation, and strained insurance markets, ADR methods have become an increasingly vital tool in managing claims and disputes in transportation infrastructure projects. ADR methods are being used more frequently, either in place of or as a step preceding litigation (Gad et al., 2023). These methods are known for their ability to handle disputes more quickly and cost-effectively. However, it is crucial for parties to understand the benefits and drawbacks of the ADR methods. Some ADR methods can be binding, offering assurance that parties will not need to resort to outside litigation, whereas others aim to prevent disputes from escalating (Gad et al., 2023). These preemptive measures not only mitigate the risks of prolonged disputes and escalating costs but also enhance the overall efficiency and success of project delivery.

Understanding how different state departments of transportation (DOTs) implement ADR processes is essential for identifying the state of practices that can help manage and resolve disputes in large-scale transportation infrastructure projects. The overarching goal of this research is to investigate the dispute resolution processes employed by various state DOTs, focusing on methods for avoiding and resolving construction disputes. This study aims to compile and analyze the strategies and lessons learned by state DOTs in implementing effective dispute resolution mechanisms, ultimately highlighting best practices that can enhance the efficiency and effectiveness of managing disputes in the complex arena of transportation infrastructure projects. To explore how state DOTs address disputes in large-scale DB projects, this study employed a two-phase research design: (1) content analysis of contract documents and procurement materials, and (2) semi-structured interviews with DOT representatives actively using design-build.

## **2. LITERATURE REVIEW**

A range of external and internal dispute resolution mechanisms have been explored in the literature to mitigate risks and preserve project momentum in large-scale DB transportation infrastructure projects. Menassa & Peña Mora (2010) conducted a comprehensive review of 1,042 U.S. construction projects to provide a foundational understanding of DRBs. Their trend analysis revealed a steady increase in the use of DRBs since 1975 across buildings, highways, and tunnels. Extending this discussion, Mante et al. (2012) examined the influence of procurement methods on both the frequency and resolution of disputes. Their findings indicate that standard contractual provisions tend to favor binding ADR methods, such as

arbitration and adjudication, without sufficiently accounting for the relational dynamics inherent in the procurement process. They argue that better aligning procurement strategies with dispute resolution mechanisms could encourage the adoption of nonbinding methods, which may offer more flexibility and foster a more cooperative project environment (Mante et al., 2012).

A practical perspective is provided by Dettman et al. (2010) in their case study of the “Big Dig” Project, one of the most challenging U.S. megaprojects. This study highlights that proactive partnering, integrating dispute prevention strategies into the project management plan, can significantly reduce the need for formal dispute resolution. The authors advocate for the active use of partnering throughout the project lifecycle and suggest that DRBs, when composed of members with a proactive stance, can effectively serve dual roles in both preventing and resolving disputes (Dettman et al., 2010). Complementing these insights, Marathe et al. (2017) offer valuable perspectives on laddered dispute resolution processes. Based on interviews with construction professionals, their research supports a sequential approach that begins with nonbinding mediation and progresses to binding arbitration if necessary. This multi-tiered strategy appears particularly effective in collaborative contracts, as it allows for early, less formal resolution attempts while preserving the option for more formal measures when required (Marathe et al., 2017).

Despite the valuable insights provided by these studies, several gaps remain. Although the literature confirms the effectiveness of ADR mechanisms in resolving disputes, there is a need to explore the practical strategies that are actually employed in the field. As construction projects become larger and more complex, it is imperative to refine these mechanisms to ensure they are contextually appropriate and aligned with the dynamics of modern project delivery. This study aims to develop a holistic understanding that will advance effective dispute resolution practices and improve outcomes in large-scale DB transportation infrastructure projects.

### **3. RESEARCH METHODOLOGY**

To investigate the dispute resolution processes used by state DOTs in transportation infrastructure DB projects, this study utilized a combination of content analysis of contract documents and semi-structured interviews with subject matter experts (SMEs) from various state DOTs. The first phase of the research involved a content analysis of seven publicly available state DOT documents that explicitly referenced dispute resolution processes (see Table 1). The primary objective was to map out and understand the diverse approaches to dispute resolution, including the use of DRBs and other alternative methods. Each document was meticulously examined to identify the key stages and procedures within the dispute resolution process, leading to the development of detailed flowcharts that illustrate the specific practices adopted by each DOT. For instances where a DRB was utilized, the analysis included a comprehensive examination of the DRB process, including the selection process for DRB members and the associated costs of DRB meetings. In cases where a DRB was not implemented, the analysis documented any ADR procedures outlined in the contract documents.

Table 1. Overview of state DOT documents analyzed for dispute resolution processes

| Project Name                                                                                          | State DOT        | Estimated Contract Value | RFQ Issued Year |
|-------------------------------------------------------------------------------------------------------|------------------|--------------------------|-----------------|
| I-95 Express Lanes – Phase 3C                                                                         | Florida          | \$457 million            | 2017            |
| I-285/I-20 East Interchange                                                                           | Georgia          | \$495 million            | 2022            |
| Triangle Expressway Southeast Extension from south of SR 2542 (Rock Quarry Road) to I-87/US 64/US 264 | North Carolina   | \$449 million            | 2023            |
| Brent Spence Bridge Corridor                                                                          | Ohio             | \$3.1 billion            | 2023            |
| I-35 NEX South                                                                                        | Texas            | \$700 million            | 2022            |
| SR 509/24th Avenue South to South 188th Street – New Expressway                                       | Washington State | \$500 million            | 2023            |

Following the content analysis, the research team conducted semi-structured interviews with managerial-level SMEs from the alternative project delivery offices of state DOTs actively using DB. This study was approved by the Human Subjects Review Board at the primary author's institution (Protocol #16'1) in June 2024, ensuring ethical compliance in the interview process. Of the seven DOTs contacted, four responded and participated in the interviews: Missouri, Minnesota, Washington, and Colorado. The interview protocol was prepared in advance, beginning with questions about whether the DOTs utilized DRBs. Based on the interviewees' responses, follow-up questions were tailored to gain a deeper understanding of how each state DOT implements its dispute resolution processes. For DOTs employing DRBs, the discussions focused on the overall procedures and specific tasks involved, such as the timing of DRB formation and the procedural steps undertaken. For those who did not use DRBs, the interviews explored alternative methods employed to address disputes. To foster openness and candidness among the interviewees, the research team opted to use interview notes rather than recordings. This approach not only encouraged participation but also allowed for more honest and detailed responses. The notes were systematically coded and analyzed to identify common themes, practices, and insights related to dispute resolution processes (See Figure 1).

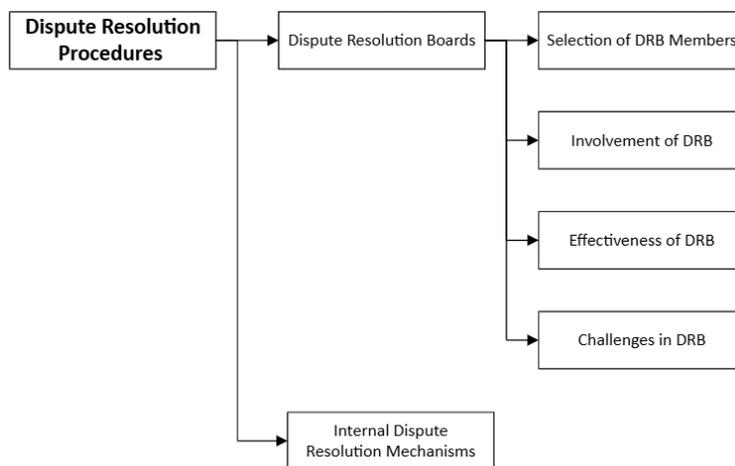


Figure 1: Thematic structure of dispute resolution procedures

This methodology enabled the research team to gather substantive information on the dispute resolution strategies of state DOTs, focusing on how these agencies manage and resolve disputes in large-scale transportation infrastructure projects. The insights obtained from both the content analysis and semi-structured interviews provide a comprehensive understanding of the diverse dispute resolution procedures employed by state DOTs.

## 4. FINDINGS FROM CONTENT ANALYSIS

### 4.1 Summary of Typical Dispute Resolution Process

In large-scale transportation infrastructure projects, disputes are almost inevitable due to the complex and dynamic nature of DB contracts. The dispute resolution process typically follows a multi-step approach aimed at resolving conflicts in a structured and efficient manner as shown in Figure 2. Most state DOTs adopt a tiered process to manage disputes, beginning with negotiation, where parties attempt to resolve issues through open dialogue at the lowest level. If negotiation fails, the dispute may proceed to mediation, where a neutral third party, such as a DRB or a mediator, is brought in to facilitate resolution. In some cases, DOTs may implement arbitration, which is a more formal process involving a neutral third-party arbitrator whose decision may be binding. Finally, if all other methods fail, disputes may escalate to litigation, the last resort where issues are settled through the court system. Each step in this process is designed to avoid project delays and maintain forward momentum while resolving conflicts efficiently.

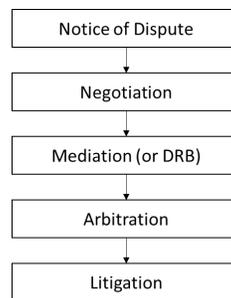


Figure 2. Typical dispute resolution process

One of the critical elements of a project partnering charter is the dispute resolution ladder (Black et al., 2000; Pinto Nunez et al., 2018). Formal partnering is a structured, proactive approach that encourages collaboration and open communication between project stakeholders, including the owner, design-builder, and other involved parties (Black et al., 2000). When an issue occurs, the involved parties engage in a sequence of negotiations, progressively escalating the matter through a predefined hierarchy of decision-makers until a resolution is reached (Martin & Thompson, 2011). By promoting early dialogue and problem-solving, formal partnering encourages stakeholders to seek common ground, leveraging pre-established relationships and open communication channels developed during partnering sessions (Black et al., 2000). However, not all DOTs employ a formal partnering approach as a method for addressing contractual disagreements with contractors in transportation projects (Pinto Nunez et al., 2018).

Another critical component of this dispute resolution process is the DRB, convened early in the project life cycle and serving as a neutral body that works with both the owner and the contractor to resolve disputes before they escalate (Harmon, 2011). Figure 3 illustrates a typical DRB process. There are several key elements or steps common to DRBs across many DOTs, although their implementation and specific procedures may vary depending on the agency. A DRB typically consists of three members: one chosen by the owner, one by the contractor, and the third selected mutually by both parties. This impartial board is established early in the project, often within 30 days of the notice to proceed (NTP), to ensure that any disputes can be addressed promptly as they arise.

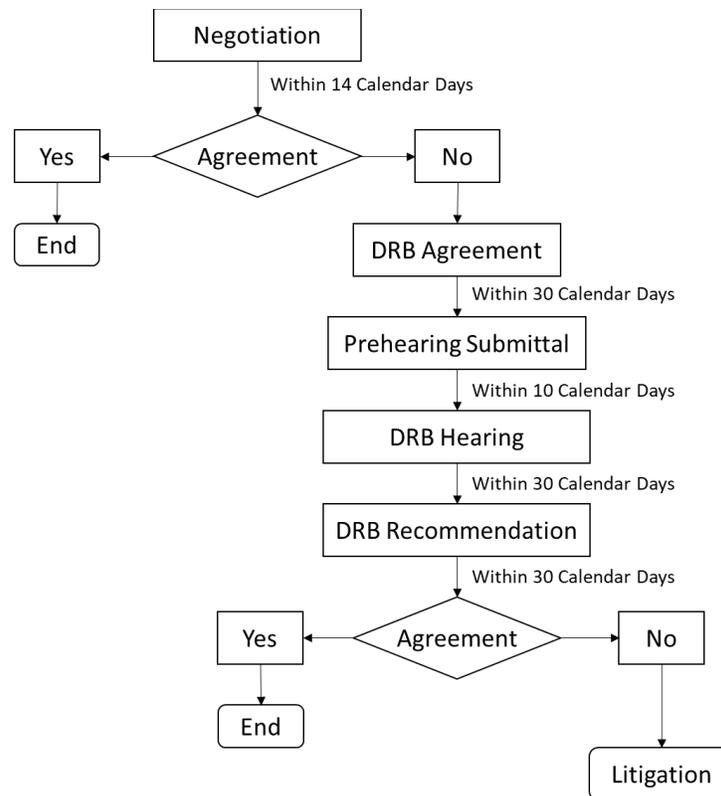


Figure 3: Typical dispute resolution board process (adapted from Colorado DOT, 2023; Washington State DOT, 2019)

When a dispute is brought to the DRB, the board conducts hearings where both parties present their positions and support documentation. The DRB assesses the evidence and provides recommendations or decisions aimed at resolving the dispute before it escalates further. Although most DRB decisions are nonbinding, the contract establishing the DRB may stipulate that the board’s decision will be temporarily binding for the duration of the project (Harmon, 2011). If a party is dissatisfied, they can choose to escalate the issue to arbitration or litigation. The cost of the DRB process is typically shared between the owner and contractor, with clear caps or stipulations on the hourly rates and per diem expenses for the board members. For example, North Carolina DOT stipulates that DRB members are compensated up to \$250 per hour, with a maximum of \$2000 per day. Different state DOTs adopt variations of these DRB elements depending on their specific project needs, budgets, and dispute resolution procedures.

## 4.2 Dispute Resolution Components

This research aims to compile and analyze the state of the practice across various state DOTs, investigating the specific dispute resolution procedures used in DB projects. While some DOTs fully utilize all aspects of the DRB process, others rely on simpler internal mechanisms. To contextualize these findings, we draw on the definitions provided by Gad et al. (2023), who distinguish between internal and external dispute resolution mechanisms. Internal mechanisms refer to processes that do not involve third-party intervention and instead rely on collaboration among key stakeholders. External mechanisms, by contrast, incorporate third-party involvement, such as DRBs, mediation, or arbitration, to assist in resolving disputes (Gad et al., 2023; Martin & Thompson, 2011).

These mechanisms reflect the diverse approaches DOTs employ to manage and resolve conflicts within large-scale infrastructure projects. Although many DOTs clearly define either internal or external dispute resolution mechanisms, each state has a distinct procedure to follow. To provide a comprehensive comparison of the various approaches to dispute resolution, Table 2 offers an overview of the dispute

resolution processes employed by different state DOTs. This table highlights the key features of both internal and external mechanisms, illustrating how each DOT structures its dispute resolution strategies.

Table 2. Summary of dispute resolution processes

| State DOT        | Internal Dispute Resolution |                |                    |            | External Dispute Resolution |           |            |
|------------------|-----------------------------|----------------|--------------------|------------|-----------------------------|-----------|------------|
|                  | Involvement by              |                |                    |            | DRB                         | Mediation | Litigation |
|                  | Project Site Staff          | District Staff | Executive Director | Partnering |                             |           |            |
| Washington State |                             |                |                    |            | ✓                           |           | ✓          |
| North Carolina   |                             |                |                    |            | ✓                           |           |            |
| Georgia          |                             |                |                    | ✓          | ✓                           | ✓         | ✓          |
| Florida          | ✓                           | ✓              |                    |            | ✓                           |           |            |
| Texas            |                             |                | ✓                  |            |                             | ✓         |            |
| Ohio             |                             |                |                    | ✓          |                             |           |            |

Among those employing external mechanisms, a common practice is to convene a DRB before proceeding to litigation. In this regard, Washington State, North Carolina, and Georgia DOTs exhibit similar approaches. Those agencies establish a DRB within 30 calendar days of issuing the NTP. Washington State DOT's process is notably straightforward, offering clear and concise descriptions of the steps involved in negotiation, DRB, and litigation, which can enhance the understanding of all parties involved. Similarly, North Carolina DOT utilizes DRB recommendations as a precursor to the next steps, although they do not specify what occurs if the dispute remains unresolved. Georgia DOT's dispute resolution process shares similarities with those of Washington State and North Carolina DOTs, but it includes an additional step before litigation. If a dispute is not resolved during the DRB phase, a party may involve a private mediator to formally mediate the dispute through nonbinding mediation. An interesting aspect of Georgia DOT's approach is its requirement for DRB members. Specifically, Georgia DOT mandates that the third member of the DRB must be an attorney licensed in any U.S. state, nationally recognized as an expert in commercial dispute resolution, and with prior experience on at least one DRB. In contrast, Washington State DOT explicitly states that "Attorneys shall not attend Board hearings" unless mutually agreed upon by both parties.

Florida DOT takes a comprehensive approach by incorporating both internal and external dispute resolution mechanisms and employs a more structured process through its issue escalation ladder, which serves as a step-by-step guide for resolving disputes. This process details how issues are escalated to higher-level personnel and includes the potential formation of a DRB. If disputes or claims arise during the execution of the contract, the DRB is engaged to assist in the resolution process.

Unlike state DOTs utilizing a DRB as an external dispute mechanism, Texas DOT brings a mediator on board instead of a DRB, and they emphasize internal resolution procedures as an initial step upon receiving a notice of dispute. This approach involves executive-level meetings to address the issue. If the dispute remains unresolved within 15 days, a decision is made on whether to move forward with formal dispute resolution or pursue mediation. Additionally, Texas DOT offers a unique "Fast Track Disputes" process, where the decision to proceed is accelerated, requiring action within 7 days instead of the typical 15-day window.

On the other hand, Ohio DOT primarily relies on internal dispute resolution mechanisms, emphasizing partnering as a core method for resolving disputes. If disputes remain unresolved, they are then filed in court. Notably, Ohio DOT does not incorporate external dispute resolution mechanisms in its process.

These varied approaches underscore the adaptive strategies state DOTs employ to manage and resolve disputes, reflecting the diverse regulatory and operational landscapes they operate within.

## **5. FINDINGS FROM INTERVIEWS**

### **5.1 Dispute Resolution Boards**

Following the content analysis, the research team developed an interview protocol to examine the dispute resolution procedures of various state DOTs, assessing their effectiveness and identifying the state of the practice. Interviews were conducted with key personnel from four state DOTs: Washington, Colorado, Missouri, and Minnesota. Among these, Washington State and Colorado DOTs actively implement external dispute resolution mechanisms, particularly through the use of DRBs. Missouri DOT has shifted toward internal dispute resolution mechanisms. Although the DRB is still included in the contracts, they have not actively implemented this approach in recent projects, instead favoring internal processes to resolve disputes. Minnesota DOT relies exclusively on internal mechanisms, utilizing an internal board through a structured partnering process without involving external parties. Each DOT showcased a distinct approach to handling disputes, with varying reliance on external and internal mechanisms. Overall, interviewees noted that early engagement of DRBs and clearly defined escalation ladders contributed significantly to the timely resolution of disputes. DOTs that emphasized proactive communication, partnering sessions, and informal conflict resolution prior to DRB involvement reported fewer escalated claims and greater stakeholder trust.

#### **5.1.1 Selection of DRB Members**

A significant finding from the interviews was the prevalent use of DRBs among the DOTs that employ external dispute resolution mechanisms. DRBs are typically constituted early in the project life cycle, often within 30 days of the NTP, to ensure that any disputes can be addressed promptly, maintaining project momentum. In terms of selecting DRB members, both Washington State and Colorado DOTs have established clear procedures to ensure the impartiality and effectiveness of the board. In Washington State DOT, the design-builder and the DOT are required to provide nominees for the DRB with a comprehensive list of all firms and key personnel involved in the project, including designers, engineers, consultants, and subcontractors. This ensures that potential conflicts of interest are identified early. The DRB for Washington State DOT is composed of three members, ensuring a balanced representation of interests. Similarly, Colorado DOT follows a collaborative selection process in which both the design-builder and Colorado DOT each select one member, and those two members jointly select a third member to serve as the chair. This third member must be approved before the preconstruction conference, with the entire selection process completed within 15 days of the contract's execution.

#### **5.1.2 Involvement of DRB**

Another common theme during the interviews was the emphasis on negotiation phases before involving the DRBs. Washington DOT stressed the importance of resolving disputes through negotiations as outlined in their General Provisions. This step is crucial as it aims to mitigate issues early in the process, potentially avoiding the need for DRB intervention. Colorado DOT also requires that issues be formally brought to the project engineer's attention within 30 days of recognition. A formal notice of dispute is required to escalate unresolved issues beyond the resident engineer level, leading to the DRB.

#### **5.1.3 Effectiveness of DRB**

Both Washington State and Colorado DOTs routinely incorporate DRBs into their dispute resolution processes. Washington State DOT noted that DRBs might not be utilized for smaller projects or if the project partners prefer alternative methods; in such cases, the project partners are required to specify an ADR

approach. Colorado DOT distinguishes between ongoing partnering boards that meet regularly and on-call DRBs that are assembled as needed, underscoring the flexibility and adaptability of the DRB process. Despite their effectiveness in resolving disputes and ensuring contractual compliance, DRBs were not universally praised for their speed. Both Washington and Colorado DOTs noted that although DRBs are effective in mitigating issues, the process can be time-consuming and does not always meet the expectation of being “fast.” However, the presence of a DRB often benefits project partners by providing a structured process for dispute resolution, which can help reduce the number of disputes that escalate to litigation. As a result, although DRBs may not always expedite the resolution process, they contribute to a more orderly and manageable approach to resolving conflicts within large-scale transportation infrastructure projects.

#### 5.1.4 Challenges in DRB

Despite the benefits, several challenges were associated with the implementation of DRBs. One significant issue is the selection and capacity of DRB panel members. Finding qualified individuals who are both skilled and free from conflicts of interest can be difficult, particularly as demand for these roles increases. The capacity and demand for skilled panel members make it challenging to assemble DRBs promptly, often delaying the initiation of the dispute resolution process. This challenge is compounded by the administrative burden of managing the DRB process, which often involves third-party coordination and extensive documentation.

Additionally, the interviewees highlighted concerns about the legal and procedural complexities of dispute resolution. For instance, while Washington State DOT prohibits lawyers from participating in DRB hearings to maintain focus on contractual issues, there is some uncertainty about this practice in other DOTs. Furthermore, although DRBs are generally seen as beneficial, their nonbinding nature means that not all parties may fully comply with DRB decisions, particularly when the outcomes are unfavorable. This can diminish the perceived effectiveness of the DRB process, although most issues are still resolved before escalating to litigation. In addition, financial considerations, such as capping costs associated with DRB processes, were generally not strictly controlled, although some DOTs mentioned setting caps on hourly rates and per diem expenses for DRB members.

#### 5.1.5 Internal Dispute Resolution Mechanisms

The DOTs collectively recognized the value of resolving disputes early and at the lowest possible level. The ability to address issues promptly through internal mechanisms like partnering was seen as crucial to maintaining project momentum and avoiding costly delays. In contrast to the reliance on external mechanisms, some DOTs, such as Missouri and Minnesota, prioritize internal resolution mechanisms, particularly through formalized partnering processes. Missouri DOT, for example, has largely shifted away from DRBs, preferring a tiered partnering and issue escalation ladder. This internal process begins at the project management level and can escalate to executive leadership if necessary. Most disputes are resolved at lower levels, emphasizing Missouri DOT’s contractor-friendly approach. In addition, the Department utilizes IQFs selectively, based on project-specific needs.

Minnesota DOT does not use DRBs for DB projects, relying instead on internal partnering with clearly defined procedures that involve various levels of project and executive management to address disputes. The partnering process is efficient enough to resolve most issues without escalating to legal procedures. The composition of the partnering teams is carefully selected to include individuals who are knowledgeable in both technical aspects and project management, ensuring effective resolution of disputes at the highest organizational levels. This approach has proven effective in resolving issues without the need for external arbitration or litigation and without external costs.

## 6. CONCLUSION

This study highlights the complexities and importance of managing disputes effectively within transportation infrastructure projects. As these projects grow in size and complexity, the potential for disputes similarly increases, necessitating robust and adaptable dispute resolution mechanisms. The findings from both the

content analysis and interviews with state DOTs underscore the critical role that DRBs, internal partnering processes, and other ADR methods play in maintaining project momentum and avoiding costly litigation. The use of DRBs, as adopted by agencies like Washington State and Colorado DOTs, offers a structured approach to resolving disputes before they escalate to litigation. However, although DRBs are effective in ensuring contractual compliance and mitigating disputes, issues such as the time-consuming nature of the process, the difficulty in selecting qualified panel members, and the nonbinding nature of DRB decisions can sometimes limit their effectiveness. Despite these challenges, the value of DRBs lies in their ability to resolve disputes early, often preventing them from reaching the courts. On the other hand, agencies like Missouri and Minnesota DOTs demonstrate the effectiveness of internal resolution mechanisms, particularly through structured partnering processes. These processes emphasize resolving disputes at the lowest possible level, allowing for quicker resolutions and reducing the need for external intervention. The success of these internal mechanisms highlights the importance of early and proactive dispute management, where collaboration and communication between project partners are key.

The research also found that flexibility and adaptability in dispute resolution strategies are crucial. DOTs that can tailor their dispute resolution approach to the specific needs and characteristics of each project whether through mandatory DRBs, on-call panels, or tiered escalation ladders are better positioned to manage disputes effectively. This flexibility allows agencies to address issues promptly, maintain project timelines, and ensure that disputes do not derail the overall success of the project. Based on the findings, several practices may help improve dispute resolution and, in turn, enhance project delivery outcomes in large-scale design-build projects. Establishing DRBs early, ideally at or before contract execution, ensures that the mechanism is in place and ready to respond promptly when disputes arise. Clearly defined internal escalation ladders also contribute to timely and informal resolution, helping to address issues before they escalate to more formal procedures. Furthermore, combining internal partnering sessions with external DRB mechanisms offers a balanced and cost-effective strategy that promotes collaboration while maintaining structured oversight. These practices, identified across multiple state DOTs, may serve as useful models for agencies seeking to refine their dispute resolution frameworks.

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