

Appendix

Appendix A – Implementation of Research Findings and Products

The findings of the Playbook on *Quantifying the Impacts of Corridor Management* can be implemented by agencies directly applying each of the eight plays of the playbook. Because each play is designed to be read in less than an hour or serve as a discussion piece in a transportation agency, implementation can begin with a simple meeting of a DOT staff group or corridor coalition. The links in the playbook are designed to enable practitioners to select specific methods or cases to use as examples for innovative corridor management techniques and interactive tools developed in the research. While the playbook itself has a strong focus on implementation strategies and success factors, this appendix calls out some important success factors for implementation of the research, as well as suggested institutions to lead the application of findings, issues affecting implementation, and methods for identifying and measuring impacts of implementation.

Recommendations for Putting Findings into Practice

There are two principal approaches by which agencies may implement the findings of the playbook. These include (1) incremental use of selected methods and tools in specific business processes, or in the management of specific corridor initiatives and (2) development of agency-wide policies for developing and implementing a next-generation corridor management program. These approaches are not mutually exclusive and may represent either alternative or complementary ways to utilize the research.

Corridor Management Policies

Each individual play directly informs policies that can be developed at the agency level. Such policies can also be applied at the level of an individual corridor coalition or management process. The plays can also be used by stakeholders seeking to create coalitions or create quantifiable strategies to manage corridors over time. An entity does not have to have explicit planning or programming authority to apply the plays for initiating or enhancing a corridor management process.

Implementation of the corridor management plays does not require following the sequence in which they are presented in the playbook. Instead, corridor managers or coalitions can begin with whichever play is most relevant to where a given corridor is in its management process, and progressively implement different aspects and methods of next-generation corridor management by selecting methods, cases and tools from the research as appropriate.

Implementation at the policy level is envisioned to be undertaken either at agency of a DOT or MPO which may have a corridor management program, or a system of corridors to manage.

When implemented at the policy level, the playbook can serve as a common structure for an internally consistent corridor impact measurement strategy.

Selective/Incremental Implementation of Technical Methods

While the implementation of an impact-based corridor management strategy is the ideal approach, the playbook can also be used by practitioners at the technical level in the absence of an overarching strategy. Planners, engineers, analysts and consultants can use any of the plays or their associated case studies and worksheets answer specific questions or develop specific alternatives in a corridor study or project development process outside of a larger management effort.

Furthermore, when agency staff are scoping corridor studies for consultants or other partners, they may wish to call for the application of selected methods shown in the playbook within the broader scope of such efforts. Therefore, some aspects of quantifying corridor impacts and the methods in the playbook can be selectively included in studies and planning efforts that may not otherwise be part of a formal corridor management initiative. The methods and tools are designed to offer “stand-alone” value in this regard, by answering practical questions that arise in agency decision-making.

Selective/Incremental Implementation of Partnerships

Agencies without formal corridor management programs may also benefit from engaging in corridor-based partnerships to address particular areas or problems. These partnerships are described in detail in *Play #3 on Durable Coalitions*. Just as technical staff may directly apply the methods described throughout the playbook, agency executives or senior managers may follow the guidance on durable coalitions, effectiveness evaluation and future-proofing to formulate corridor management objectives and scopes for strategic inter-governmental agreements or initiatives aimed at particular corridor management needs. As with the methods and tools, the guidance for corridor management coalitions and partnerships is designed to provide “stand-alone” value by enabling agencies to apply next-generation corridor management principles together with allied agencies or other potential partners (e.g., the private sector, non-governmental institutions) who share an interest in improving the value of a corridor over time.

Resources for Implementation

The research products of this NCHRP research effort include a number of resources specifically aimed at implementation. The following is a brief discussion of how they can be applied to recruit agency champions for next-generation corridor management and use of the techniques of the corridor management playbook in transportation agencies.

PowerPoint Summary

The PowerPoint Summary of the playbook can be presented as a session topic or a panel topic at state, national and local planning and engineering conferences or state DOT partnering conferences. Presenting the PowerPoint jointly with the state DOT's and MPO's featured in the innovation database or the case studies can provide a unique opportunity for peer-to-peer learning and advancement of implementation for next generation corridor management techniques using the playbook.

Educational Videos

The educational videos provided with the playbook only take a few minutes to watch and provide an easy introduction for agency staff or executive leadership on key aspects of corridor management that can be introduced by the use of the playbook. Promotion of these videos through TRB webinars, FHWA's "Talking Freight" series, APA and AMPO conferences (including both the national and state conference) for use in internal agency educational programs, "brown bag" lunchtime discussion programs and other informal learning opportunities can make it easy for agencies to develop enough awareness of the playbook within a matter of minutes to have internal discussions and make decisions about further exploration and use of the plays and their resources.

Interactive Tools

Appendix 5 of the playbook gives step-by-step easy to use instructions and demonstration cases for new methods of quantifying corridor impacts. Offering the playbook, with specific direction to University faculty or applied research centers to offer mini-courses on corridor management, or to include exercises using these tools in graduate civil engineering or urban planning curricula can educate a new generation of practitioners on this wider concept of corridor management. If a University Transportation Center (UTC) were to develop a curriculum around the methods, using Appendix 5 and its associated material as starter text; such a resource could be widely applied throughout the nation.

Institutions to Lead Application of Findings

Because agencies have typically defined corridor management more narrowly than the playbook, it is expected that some degree of education and field testing of the methods and tools presented will be necessary. Support will also be needed to ensure consistent application and progress in the state or MPO corridor management practices across different states in the long-term as federal requirements, technology and economic conditions evolve. For this reason, in addition to state DOTs and MPOs implementing the playbook directly, institutions positioned to facilitate the ongoing application of research findings include:

- (1) Transportation Research Board (TRB)
- (2) American Association of State Highway Transportation Officials (AASHTO)
- (3) Collaborative National Efforts of TRB, ASHTO and other Partners
- (4) Universities and Applied Research Centers

Transportation Research Board (TRB)

TRB's research program (and the National Cooperative Highway Research Program – NCHRP) can have a role in supporting implementation of the playbook through potential sponsorship of pilot projects with selected transportation agencies and special workshops and events to educate key executives, managers and technical staff about the playbook and its associated resources. TRB also may have a role in facilitating peer exchanges for agencies to share approaches for implementing the plays and lessons-learned from early adoption of the recommendations. In addition, TRB committees can support implementation by issuing calls for papers to support documentation and sharing of corridor management implementation efforts and innovations both at the TRB annual meeting and in the Transportation Research Record.

Finally, it is likely that the Transit Cooperative Research program (TCRP) may wish to consider companion and complementary research on transit-oriented corridor management to elucidate how holistic corridor management approaches relate more fully to the role of transit, especially with the advent of micro-transit and potentially autonomous routes.

The potential scope of a 20-44 Implementation Initiative that could proceed with the sponsorship of states with diverse corridor management challenges could illustrate how the plays work in practice and provide live case-example of corridor management changes (and pitfalls) achieved with the playbook. The recommended scope of an implementation project would include:

- (1) **Initiatory Workshop:** The participating DOT's each have an orientation/training to learn the plays of the playbook and pinpoint specific implementation objectives within the context of their corridor management programs.
- (2) **Pilot Study Execution:** Each participating DOT carries out one or more of the plays, using the interactive tools of the playbook to arrive at new priorities, decisions or coalition engagement processes to enhance the scope and impact vision of the corridor management effort.
- (3) **Peer Exchange & De-Brief:** Participating DOT's hold a peer-exchange style concluding workshop to exchange their experiences with the playbook, demonstrate how their corridor management programs and experiences have utilized the findings of the playbook and lessons learned for other agencies – to be published in a 20-44 web-only publication and possible video or instructional presentation featuring the implementation experiences.

American Association of State Highway Transportation Officials (AASHTO)

AASHTO has a role in supporting implementation through presentation of key findings, especially for executives at the policy level at AASHTO's regular meetings, as well as AASHTO's regional affiliates. AASHTO may also support development of primers on the new corridor management techniques and educational webinars for agencies undertaking impact-based corridor management as a planning and investment strategy.

Collaborative National Efforts with Other Partners

AASHTO and TRB are part of a larger national community (which also includes groups like AMPO, NACTO, APA as well as other partners) with a national perspective common to all of the states. National organizations have missions pertaining to safeguarding the nation's investment in its transportation infrastructure through establishing financial and technical practices for State and local governments. Such organizations align with an interest in the proper implementation of corridor management policies and tactics. Collaborative efforts with national organizations can offer the opportunity to ensure that implementation efforts for corridor management approaches offered in the playbook are reasonably consistent, that lessons learned in one state are available to other states, and that interpretations and applications of corridor management techniques are consistent with wider national policy objectives. For these reasons, all transportation organizations operating at the national level are suited to support implementation of the playbook through pilot studies, workshops and the further refinement of the tools and

methods initiated in the playbook. In particular, collaborative national initiatives of allied organizations may support implementation by:

- (1) **Sponsoring pilot studies** that link land use planning, freight system planning, travel demand, asset management and economic models to identify partners and strategies using the techniques of the playbook.
- (2) **Establishing a consistent and publicly available set of tools based on the guidebooks' recommendation can greatly facilitate state and MPO corridor management initiatives.** The national planning and engineering community greatly support corridor management efforts by promoting the re-assessment of current strategies and coalitions within the next-generation framework and tools offered in this playbook.
- (3) **Supplementing the Interactive Tools of the Playbook** with research to develop additional methods for analyzing corridors to address changing demand, sources of value and potential coalitions.

Universities and Applied Research Centers

Universities and Applied Research centers have a role in implementing the playbook by:

- (1) **Teaching Corridor Management Techniques:** Including elements of the playbook in transportation planning, policy and engineering curricula in graduate and undergraduate programs
- (2) **Offering mini-courses** on next-generation corridor management concepts and methods through their extension and outreach programs
- (3) **Partnering with transportation agencies** to develop corridor management capacity building curricula

Issues Affecting Implementation

There are likely to be challenges for agencies seeking to implement the playbook. The following is a brief summary of the issues and likely remedies.

Confusion of Corridor Management Concepts

Because the term “corridor management” has often been used to refer to integrated corridor management limited to safety, pre-design of highways and the implementation of Intelligent Transportation Systems, it is likely that practitioners may think of any application of highway engineering solutions. In its first play: *Define the Corridor and its Impact*, the playbook offers a solution to this issue by making explicit the distinct objectives and decisions that demarcate can broadly define a corridor management effort. . While a corridor management strategy may entail ITS, performance based practical design, context sensitive solutions, and the use of innovative design concepts or other tactics – corridor management is an over-arching planning and investment strategy that uses these tactics to achieve a unified efficiency objective. For this reason, utilizing the playbook as a tool for educating practitioners about the wider process of corridor management including land use, community development, technology and economics is essential to implementing the research.

Lack of Internal Capacity or Authority

Implementation of the corridor management plays will be challenged by the fact that agencies are not accustomed to viewing their corridors in terms of value that extend beyond the performance areas within their control or engaging in the types of relationships and transactions holistic corridor management entails. In addition to building capacity for wider corridor management efforts, in some cases legislative remedies may be needed to empower transportation agencies to enter into certain types of agreements or transactions involving holistic approaches to corridor management of the type suggested in the playbook. It is recommended that subsequent NCHRP research may focus on legal constraints and remedies for agencies undertaking multi-jurisdictional corridor management through durable coalitions.

Political Risk

There is implicit political risk in shifting from an investment paradigm of “always adding or keeping” assets to a collaborative corridor management process that ties investments and strategies to the asset or liability value of a corridor. A holistic corridor management paradigm of the type offered in the playbook rearranges the board in terms of perceived “winners” and “losers” in corridor management. The likely remedy to this (as discussed in the playbook) is the incremental adoption of corridor management techniques beginning with less controversial techniques and focusing on safer clear “win-win” agreements in early implementation. Furthermore, incorporating non-government institutions in corridor coalitions can play a key role in overcoming this challenge by providing a trusted and consistent voice regarding the objectives and quantifiable impacts of corridor management in the long-term.

Methods of Identifying and Measuring Impacts of Implementation

Key methods for identifying and measuring impacts of implementation include enlisting implementing agencies in self-reporting over time, and possibly engaging in follow-up studies after agencies have implemented the research for a number of years. The playbook does not specify methods for tracking and measuring implementation outcomes, however the topic is ripe for subsequent research by NCHRP and other national entities. Some internal metrics that agencies may consider using to track their progress on an annual, 2-year and 5-year basis include:

- (1) Percentage of the Agency’s assets that are subject to some type of corridor management process described in the plays,
- (2) The number and average lifespan of corridor management coalitions, and the frequency with which they use corridor balance sheets and self-assessments from the playbook
- (3) Number of corridor initiatives that involve both supply and demand-side transportation actions of the type offered in the playbook.
- (4) Case reports of corridors that have utilized playbook techniques and their outcomes
- (5) Changes in performance outcomes relative to performance-based planning targets before vs. after the playbook is applied to a corridor or corridor system.

In addition to internal tracking of corridor management outcomes, processes such as peer exchanges, bottom line reports from AASHTO or NCHRP and other entities may inquire about the extent of corridor management activity in agencies in relation to trends in performance, investment gaps and economic impact over time.