SPUR REGIONAL STRATEGY

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Infrastructure Bay Area

A proposal for a new institution to help successfully deliver the region's most significant transit projects

SPUR.ORG/IBA

This report is one in a series of publications that lay the groundwork for the SPUR Regional Strategy.

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Introduction

Why We Need Infrastructure Bay Area

In our report *More for Less* (spur.org/moreforless), we examine how the Bay Area can reverse its poor track record of delivering large, complex public transit projects on time, on budget and without major defect. One of our most significant recommendations is for California's legislature and governor to establish Infrastructure Bay Area (IBA), a highly specialized entity that would lead the procurement and delivery of the region's most significant transit projects.

In this report, we share a proposal for IBA's mandate, describe its benefits, roles and responsibilities, provide case studies of similar organizations around the world and outline key factors and tensions to consider for successful organizational structure and design. In doing so, this report rethinks the roles of the state, regional agencies and transit agencies in supporting projects that have a decisive role in achieving long-term strategic goals.

This report is not an exhaustive description of all that would need to be considered and implemented to establish IBA. Instead, it offers a bold idea to improve the governance of project delivery and acts as a starting point for future conversation. SPUR believes that the Bay Area must start thinking through the institutional structure that will be equipped to deliver the region's most significant and high-risk transit projects. There are four key reasons why we must plan new ways of delivering these projects today:

1. **The next generation of regionally significant transit projects will shape the region and the state for decades to come.** These projects have far-reaching impacts and, if done well, could shape the Bay Area for the better for decades. If done poorly, their failures could be irreversible.

2. **Many of our regionally significant transit projects are megaprojects, and megaprojects are inherently risky.** (See sidebar "What Are Major Transit Projects?" on page 5.) An agency that is solely responsible for planning and constructing all large capital projects across the region could reduce the strain on transit agencies, which balance many mandates.

3. **The Bay Area has a poor track record of success in delivering major transit projects,** in part because each agency builds its own project and mobilizes to deliver one about once in a generation. As a result, every project is prone to "first timer" mistakes. An entity that solely focuses on procurement and construction could apply lessons learned from one project to the next, making learning part of the process of building.

4. **The causes of cost overruns and schedule delay often start in the planning process.** The best time to reimagine the way we deliver projects is now — well before the many major projects currently in the planning stages break ground.

What Are Major Transit Projects?

We recommend establishing Infrastructure Bay Area specifically for the delivery of major transit projects, characterized as complex, large-scale projects that are significant to the region's transit network and that transform the way people get around by providing significant new access, frequency and connectivity and reducing greenhouse gas emissions. We focus on these projects because they have high initial costs and are at high risks of cost overruns and delay. With approximately $100 billion worth of major projects in the pipeline in the Bay Area, the savings from these recommendations could number in the tens of billions of dollars.

Some of these major transit projects cost over $1 billion and could be classified as "megaprojects" according to academic literature.[1] These include integrated station projects such as the rebuilding of Diridon Station or the new Salesforce Transit Center, the electrification of diesel railroads, and rail extensions such as the Silicon Valley BART extension or additional transbay crossings, among others. However, the Bay Area has many projects that do not meet the $1 billion threshold but can be equally transformative and can suffer from similar risks and challenges. These include the region's many stalled bus rapid transit projects.

Benefits of Establishing Infrastructure Bay Area

A single entity that delivers a portfolio of projects across the region would be uniquely able to:

- *Learn and accrue expertise from one project to another.* A central benefit of IBA is that the agency could learn from its mistakes and quickly apply the hard-earned lessons to the next project. This is particularly important for overcoming the optimism bias that tends to lead project sponsors to underestimate project risks and overestimate project benefits, as discussed in *More for Less* (spur.org/moreforless).

- *Create greater interoperability across projects and accelerate progress toward a seamless transit network.* In the Bay Area, there is a strong tradition of each agency planning its own projects independently, leading to bespoke systems that are not integrated as a network and higher life-cycle costs. A centralized project delivery entity could work with operators to achieve greater interoperability, resulting in both cost efficiencies and better outcomes for riders and communities.

- *Sequence construction projects to achieve cost efficiencies and synergies.* This would be particularly useful both for co-located projects, such as projects in a related capital program like Valley Link and Dumbarton Rail or a second transbay crossing. Taking a regional (portfolio-scale) approach to project sequencing reduces disruption and improves efficiency and coordination on projects that share facilities. Similarly, IBA could find cost efficiencies in procurement and in the interactions of different contracts.

1 Bent Flyvbjerg, "What You Should Know About Megaprojects and Why: An Overview," *Project Management Journal*, v. 45 (2), April-May 2014, pp. 6–19. https://journals.sagepub.com/doi/10.1002/pmj.21409

- *Minimize changes in project scope, scale or technology, particularly those that result from misalignments between project stakeholders.* Some of the biggest project cost increases occur when projects change scope. This was the case with the Oakland Airport Connector, with Phase II of the Silicon Valley BART extension and with San Francisco's Central Subway.

- *Create an organizational structure and operational governance model that is optimized for project delivery.* Transit agencies and their boards of directors have many responsibilities. A project delivery entity would be designed exclusively to deliver projects. Its governance structure could be built to make project delivery decisions in an effective and timely manner.

- *Align the accountability for cost, schedule and risk with a public-sector entity with a mandate to deliver the public good value for the money it has invested.* Although much of the work of project delivery would still be performed by third parties, having an experienced public agency that is responsible for integrating and managing them can ensure that the project meets public goals.

- *Bring a comprehensive and consistent approach to project management and project controls.* Large projects require comprehensive project controls through all phases. IBA could help the Metropolitan Transportation Commission develop a comprehensive and consistent approach to evaluating projects and mitigating risks associated with project delivery at the regional scale. Further, many traditional project management tools are insufficient for the complexity and duration of such projects.[2] Centralizing the project management function could also avoid the need for each agency to create or purchase its own digital platforms and tools for each project.

- *Nurture the market and monitor for the interaction of different procurements at any given time, noting how they affect the delivery of each project.* If many projects are moving forward at once, it can be difficult to get a pool of competitive bids for any given project. IBA can help prepare the construction industry for projects that require a high level of complexity and risk. Having one entity with a portfolio perspective is necessary to appropriately sequence projects and to work with building trades and workforce development agencies to grow the labor pool.

- *Advise on regional and statewide workforce development and mobilization needs.* Because IBA would oversee a regional portfolio of projects, it could advise industry and workforce development partners on upcoming labor needs and skill gaps, helping to build a workforce pipeline for people to enter into apprenticeships or other training opportunities.

If we continue to plan and deliver projects the way we always have, each transit agency will make "first timer" mistakes with every project, with minimal oversight and accountability to the public for cost and schedule overruns. Each agency will continue to solve similar problems independently, invent new practices for estimating costs and controlling project risks separately, purchase project management platforms and technologies independently, compete against each other for talent, confront rules about procurement one by one and seek special exemptions and authorities individually. Centralizing project delivery in one entity could help the Bay Area overcome many of these challenges.

2 Frank R. Parth, "Planning and Controlling Megaprojects," presented at PMI Global Congress 201, Project Management Institute, 2014, https://www.pmi.org/learning/library/planning-controlling-megaprojects-9289

Chapter 1

Case Studies: Project Delivery Organizations Around the World

The recommendations in this report are informed by a literature review on megaproject delivery, lessons learned from Bay Area project delivery practitioners through interviews and a task force, and interviews with IBA-like organizations in other countries that were established to focus on project delivery and procurement. In the fall of 2019, SPUR conducted interviews and reviewed documents to understand the functions and attributes of organizations that focus on project delivery. In this report, we focus primarily on Infrastructure Ontario, Crossrail Ltd., Infrastructure New South Wales, and Societe du Grand Paris because they focus on project delivery (as opposed to project selection and oversight) and because they deliver multiple projects within a program (as opposed to a single project).[3]

This chapter characterizes some of the distinguishing features of each of these organizations and ends with a summary of key lessons that should be considered when designing IBA.

Infrastructure Ontario

Infrastructure Ontario (IO) is a public agency that supports the modernization of public assets in the Canadian province of Ontario and maximizes the government's return on investment through partnerships with the public and private sector. It has four business lines — major projects, infrastructure lending, commercial projects and real estate services — across the business, transportation, health, energy and finance sectors.[4]

For major transportation projects, it acts as the procurement and project delivery lead, while serving as an advisor to the project sponsor in the early planning phases to provide guidance on risk management and project deliverability. Staff members of IO are often located in the partner agency's office because they work so closely together. The agency assesses which entity is best positioned to successfully deliver capital projects, as well as the best method for project delivery, often using nontraditional project delivery models.

IO's 11-member board is overwhelmingly composed of nongovernment professionals appointed by the lieutenant governor of Ontario.[5] The professional board structure helps deliver projects to market when they are ready, mitigating the pressure to put out projects on a politically driven schedule.

IO has found that successful delivery agencies tend to grow in their scope of responsibilities because of their proven competencies — even if part of their success and competence derives from the narrowness of their mission. IO staff members are exempt from civil service pay scales[6], allowing IO to compete for talent with the private sector.

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3 SPUR also looked at the Foothill Gold Line Construction Authority, a single-purpose construction entity responsible for delivering a 31-mile extension of the LA Metro Gold Line in Los Angeles. We do not focus on this agency in this report because its mandate is to deliver a single project.

4 Infrastructure Ontario, "About Infrastructure Ontario," https://www.infrastructureontario.ca/About-Infrastructure-Ontario/

5 Infrastructure Ontario, "Reporting & Governance," https://www.infrastructureontario.ca/Reporting-and-Governance/

6 Province of Ontario, Ontario Infrastructure and Lands Corporation Act, 2011, § 20(2), https://www.ontario.ca/laws/statute/06p35

The Toronto region has a strong regional planning body, Metrolinx, which is also a transit operator.[7] Metrolinx conducts business case assessments for major projects and is the lead in planning new projects. When the two agencies work together, IO focuses on deal-making, contract management and delivery responsibilities on behalf of Metrolinx. Metrolinx is in charge of project definition and development, though IO provides advice related to the cost and delivery implications of early decisions.

Project Delivery Models

Infrastructure Bay Area should be authorized to use a variety of project delivery options, including but not limited to:

- Design-Bid-Build: The project sponsor hires two separate entities, one for design and one for construction, with separate contracts and responsibilities. This is the most traditional project delivery approach. It allows the sponsor great control over design, but also increases the sponsor's risk regarding constructibility and fails to incentivize design efficiencies.

- Design-Build: The project sponsor hires one entity for both the design and construction of the project. The design-build contractor assumes responsibility for the majority of the design work and all construction activities, together with the risks associated with providing these services, for a fixed fee. The project sponsor retains responsibility for financing, operating and maintaining the project.

- Construction Manager/General Contractor (also known as "construction manager at risk"): The project sponsor hires a contractor to act as a consultant and provide feedback on the design and constructability during the design phase. This approach brings the project sponsor, the designer and the contractor together early on and enables the project sponsor to more readily control construction costs and final plans. Cost savings from risk mitigation accrue to the project sponsor. Consulting the contractor at the beginning can be especially beneficial in urban areas or on projects with highly sensitive schedules.

- Design-Build-Finance: The project sponsor awards a single contract for the design, construction and full or partial financing of a project. The design-builder assumes responsibility for the majority of the design work, all construction activities and the short-term financing for all or a portion of the project, together with the risk of providing these services, for a fixed fee. Responsibility for the long-term maintenance and operation of the facility remains with the project sponsor.

- Design-Build-Finance-Operate-Maintain: The responsibilities for designing, building, financing and operating are bundled together and transferred to private-sector partners. This is beneficial when the project sponsor does not have the capacity to operate and maintain the infrastructure or prefers to transfer most of the life-cycle costs of the project to the private sector.

7 Metrolinx, "Metrolinx Overview," http://www.metrolinx.com/en/aboutus/metrolinxoverview/metrolinx_overview.aspx

Source: Adapted from the U.S. Federal Highway Administration.

Crossrail Ltd.

The Elizabeth Line is a new 73-mile east-west railway currently under construction beneath London. Crossrail Ltd. is a publicly owned private company charged with delivering the project.

Crossrail Ltd. is a subsidiary of Transport for London and the U.K. Department for Transport. Because it is one step removed from the day-to-day operations of London's transit services, it has minimal distractions and can focus exclusively on project delivery. It is overseen by an entirely nonelected board composed of industry experts and senior managers appointed by the two parent agencies. The organization has a layered governance structure — corporate governance, program-level governance and project-level governance — designed to make quick project-level decisions, to evolve as the project evolves and to remain focused on project delivery.[8]

In 2018, Crossrail Ltd. surprised London and U.K. leaders with news that the project was not on target to achieve its schedule or budget.[9] After a leadership refresh, the project is expected to open in early 2021. Leaders suggested that the former board became so enthusiastic in the final stages of the project that it lost its objectivity. This suggests the need for a continual infusion of new perspectives into project oversight.

Despite the Elizabeth Line's challenges, leaders argue that without an independent authority, the project would have taken longer, cost far more and distracted operating agencies from their day-to-day challenges in operating, maintaining and improving the existing system.

Infrastructure New South Wales (INSW)

Infrastructure New South Wales is a state agency in Australia charged with identifying, prioritizing, costing and helping to deliver state infrastructure needs. INSW is governed by a board that balances appointed private-sector experts with the heads of relevant state ministries; the state's premier has ultimate authority. In its role as a construction authority, INSW manages the delivery of site plans and large public buildings such as museums. It plays a more limited role in the delivery of transit projects, typically only when project sponsors have minimal delivery experience. For larger agencies, such as transportation and transit departments, INSW generally provides project delivery expertise as an advisor or serves as independent oversight, ensuring adequate assessment of risk and guiding a transparent process that engages all appropriate partners.

INSW stands out for its role in providing guidance and establishing requirements for stage gate reviews for all major capital projects. The agency has set up specific thresholds and protocols that must be met before projects pass from one development phase to the next. INSW guidance documents include detailed workbooks and project delivery best practices, using lessons from ongoing projects to adapt guidance going forward.

Société du Grand Paris

The Société du Grand Paris (SGP) is a public authority created by the French national government for the purpose of planning and delivering an extension of the Paris region's transit network, the Grand Paris Express. SGP is authorized to issue regional bonds, incur debt, sponsor applications for approvals and permits and hire nonpublic agents while following most of the public procurement rules.

The SGP can be considered a single-purpose entity, but it is organized, like Crossrail Ltd., to deliver many projects in a large capital program of more than 120 miles of tracks, 68 stations and several public spaces. The executive team, led by three renowned megaproject delivery experts, is organized around eight business lines in management, city and station planning, system and rail operations, procurement, construction and coordination,

8 Ibid.

9 "London Crossrail Opening Delayed Until Autumn 2019," The Telegraph, August 31, 2018, https://www.telegraph.co.uk/news/2018/08/31/london-crossrail-opening-delayed-autumn-2019/

finances, public relations and regulation.

The Grand Paris Express was championed by the French president, building upon long-lasting regional and national ambitions in managing the region's growth, improving its international competitiveness and reducing greenhouse gas emissions. Even though the SGP is supervised by a board of 21 local elected officials and national government appointees at the corporate level, it did not always benefit from local support. A more robust accountability structure at the program and project management levels helped to garner more political and public support. The SGP established a steering committee and a technical committee for each station, station area and line to support integrated decision-making and alignment among all parties. The committees are led by local elected officials, executives of other public agencies or directors from the SGP. Though the authority holds decision-making power over day-to-day construction decisions, it discusses plans, designs and schedules with each project's steering and technical committees, which issue recommendations for the SGP board to consider. Coupled with strong political leadership from the French president, this approach has been critical to balance the interest of individual agencies and jurisdictions and to enable the project to survive backlash.

Key Lessons

Though each organization and each project described above is different, several commonalities offer key lessons for the Bay Area.

1. ***Project delivery entities benefit from a tiered governance structure that provides both external and internal support, plus a high degree of project delivery expertise.*** All of the organizations have a tiered governance structure, typically consisting of:

   → A leadership layer, which provides either:
   — Strong political championship to build and sustain external support for the project, or
   — A high level of stature and expertise at project delivery, asset management or operations from various infrastructure sectors

   → An organizational (corporate) governance layer, which drives the strategy of the organization, ensures that projects are delivered in accordance with project delivery best practices, ensures that the project meets statutory and contractual obligations and manages the executive team.

   → A project-based governance layer, which engages project sponsors and other stakeholders impacted by the project.

The primary rationale for a tiered governance structure is that megaprojects are difficult, entail many risks, take a long time and easily fail if they lack either external or internal support. The tiered governance structure ensures that projects are not built on top of a one-legged stool.

In a tiered structure like that of the Société du Grand Paris[10] and Crossrail Ltd., the corporate governing board drives the overall direction of the organization, manages the executive team and ensures that projects are delivered in accordance with best practices and statutory and contractual obligations. It has the ultimate decision-making authority on procurement, project delivery and any other decisions outlined in a project agreement. Project sponsors continue to engage through a strategic council and/or project-level committees and through integrated project management teams.

Project delivery entities also need political champions. In some cases, project delivery entities will spend their first few years fighting for their existence. The Société du Grand Paris survived because of the French president's support; Infrastructure Ontario's authority comes from its standing as a Crown agency reporting directly to the minister of infrastructure.

However, interviewees stressed the overriding importance of minimizing political interference in strategic decisions and project designs, as well as in the day-to-day project decisions, such as issuing contracts, choosing construction methods or determining the schedule. In most cases, they favored a board composed of seasoned project delivery professionals who do not represent local interests, who bring independent and experienced viewpoints to the project and who delegate day-to-day decisions to a highly capable executive and professional staff working in integrated project management teams.

Chapter 4 further discusses potential governance approaches for IBA.

2. ***A specialized project delivery entity is no substitute for steady independent project oversight and other project controls.*** Even a specialized project delivery entity requires external project oversight and rigorous project controls, such as stage gates, independent peer review and audits. Large infrastructure projects can enamor decision-makers and cloud their judgment, leading to poor decisions that can sacrifice public interest goals such as safety or threaten the project timeline and budget. Creating mechanisms to continually bring in an outside viewpoint can prevent these problems and other risks. The more transparent a project is, the more likely it will be to enjoy durable public and political support.

3. ***The relationships between project sponsors have to be carefully defined on a project-by-project basis.*** Large projects are unique and will therefore resist a template approach. Though IBA's core roles and responsibilities would have to be defined in legislation, there are many other responsibilities, actions and interfaces between the project sponsor and IBA that would need to be addressed on a project-by-project basis. These include agreements on labor standards, the cost envelope and contingencies, how to resolve disputes and who is responsible for financial overruns. These understandings and relationships would be enumerated and specified in a detailed project agreement completed for each project.[11] In other words, it is more important to have a routine *process* for determining risk and assigning responsibility and risk than a routine *assignment* of responsibility and risk.

4. ***Project delivery entities need to offer competitive compensation packages to attract the best talent.*** While construction is performed by third parties, each organization relies on in-house staff with skill sets

10 Grand Paris Express, "The Société du Grand Paris, an Organization Entirely Dedicated to Managing the Project," https://www.societedugrandparis.fr/info/societe-du-grand-paris-organisation-entirely-dedicated-managing-project-1063

11 One such example can be found here: https://www.infrastructureontario.ca/uploadedFiles/_CONTENT/Projects/Regional_Express_Rail_%E2%80%93_Highway_401_Rail_Tunnel/RER%20401%20Tunnel%20-%20%20Project%20Agreement%20(Redacted%20Version).pdf

such as law, finance, systems integration, contracting and project management, and transit operations. Having a high-capacity staff in-house allows board members and executives to delegate tactical project decisions and negotiations to experienced professionals so the executives can stay focused on higher-order responsibilities. Infrastructure Ontario and the Société du Grand Paris were not required to follow civil service hiring provisions, and Crossrail Ltd. is a private company. Without employment constraints, all three of these agencies can more effectively compete for talent and scale their staff up or down as project needs change. For instance, the Société du Grand Paris was able to quickly grow by 300% when its completion date was accelerated.

Chapter 2

IBA's Mission: Deliver Regionally Significant Transit Projects in the Bay Area

The mission of IBA would be to deliver regionally significant transit projects in the Bay Area and, in doing so, to provide good long-term value to the public for the money it has invested.

By establishing IBA, the state (which has the authority to establish such an entity) could acknowledge that regionally significant transit projects are important for all residents of California. Other models, explored in greater detail (see sidebar "Projects of Regional and National Significance" on page 15), start from a similar foundation.

What is a project of regional significance? Projects of regional significance are those that:

- **Provide a backbone connection between areas of economic activity within the region and the state.** SPUR recommends that IBA deliver projects that create new rapid, regional services — or that significantly improve existing services — to connect major areas of economic activity. The state and the region have strong interests in creating high-quality transit access to these locations. Increasing transit access is good for workers, existing and potential employers and the environment and would connect parts of the state that have not seen economic gains comparable to the Bay Area.

- **Shape urban form and create significant new opportunities for growth.** SPUR recommends that IBA deliver projects that significantly shape the spatial and economic form of the region. In particular, this includes projects that develop or modernize stations, especially multimodal stations — those that serve several modes of transportation (bus, light rail, regional rail, etc.). This type of station can significantly shape the urban characteristics of the areas around it or can act as a starting point for urban infill and economic development.

- **Are a critical piece of infrastructure whose design affects the functioning of the regional transportation system.** SPUR recommends that IBA deliver infrastructure that has a significant impact on the functioning of the regional transportation system through its design, capacity and location, such as multimodal stations. These require multidisciplinary thinking and a high degree of alignment between all stakeholders in support of a shared purpose.

- **Are high-value and high-risk.** SPUR recommends that IBA become the default project delivery entity[12] for projects that fit into one or more of the categories above and are estimated to cost over $1 billion. Projects

12 SPUR imagines that IBA would be the default entity charged with building projects that fit into one or more of these categories. However, there may be cases when it makes sense to have an existing agency deliver a project. Such examples might include BART delivering the second phase of the Silicon Valley BART extension or the California High-Speed Rail Authority delivering the Downtown Extension project (DTX). In these cases, we imagine that the project sponsor would work with the state to get an exemption.

of regional significance are generally megaprojects and therefore risky. In general, the project cost is less of a factor than the purpose of the project within the overall spatial and economic organization of the region, as described above.

Some of the projects currently in the regional pipeline that meet these criteria include:

- The implementation of the Caltrain 2040 Service Vision,[13] which would upgrade the Caltrain corridor with fast and frequent service all day long and more fully integrate regional rail with the state's high-speed rail system.

- The construction of a regional express bus network, which would involve creating a new high-frequency and rapid transit system and stations on existing highway rights-of-way.

- The redevelopment of Diridon Station, a multimodal station that connects regional rail services, bus services and a service to the San Jose airport. Diridon is expected to be the first access point to the region by high-speed rail and an important anchor for more than 200 acres of urban infill and economic development.

- The region's second transbay crossing, including both the crossing itself and any new stations or station modernization projects in Oakland and San Francisco.

- The extension of Caltrain to the Salesforce Transit Center in downtown San Francisco from its current terminus at 4th and King Station. The extension would travel underground through a heavily developed area of San Francisco.

In summary, projects of regional significance are those that have far-reaching impacts and that, if done well, could shape the Bay Area for the better for decades. If these projects are done poorly, their failures could be irreversible.

13 Caltrain, "Business Plan Overview," https://caltrain2040.org/

Projects of Regional and National Significance

Several European countries have developed frameworks for designating projects of regional or national significance and establishing institutional vehicles — special public government agencies or semi-public agencies — and/or special tools for the successful completion of those projects. These include France, the Netherlands and Germany, among others.

This section provides a brief introduction into how France and the Netherlands determine what characteristics distinguish a project of regional or national significance, the types of institutional vehicles and tools that are available to those types of projects and how these vehicles are similar to and different from SPUR's proposal. This section provides context for our recommendation to establish IBA within other planning approaches and global best practices for megaprojects.

France

France has two designations that can be used to characterize a project's significance: "project of national interest" and "project of general interest." Transportation projects are typically projects of general interest, while urban development projects or revitalizations of business districts are typically projects of national interest.[14] National laws lay out a set of authorities for the establishment of new institutional vehicles and tools to help shape the project outcomes.[15]

In France, several types of institutional arrangements are created for projects, all of which can be considered public authorities. These organizations enable the national government to establish teams of public-sector and private-sector experts devoted to a specific project. The type of institution, its authorities and governance structure depend on whether the project is designated as a project of general interest or a project of national interest and on the level of investment from local governments.

Importantly, a French public authority differs from a joint powers authority, a typical institutional vehicle used in California for the delivery or management of a specific project. All French public authorities come with a suite of new tools, and most come with new authorities that are needed for the project (some of which are described below), whereas a joint powers authority only has the tools and authorities that are already shared by the member agencies. In some cases, French public authorities are often publicly owned private corporations, meaning that they're allowed to make a profit but the national government sets limits on the profit and requires reinvestment back into the project.

France has different institutional vehicles or "local public enterprises" for different types of projects. Each has a mandate to guarantee and execute on the long-term ambitions of the projects. Key distinctions among them include their governance, capitalization, and where they are allowed to operate. "Projects of general interest" are created for specific urban services or projects and can use two types of local public enterprises: a local public company (SPL), which is a cooperation among public partners, or a semi-public company (SEM), in which at least half of the organization's funding is held by the public.[16] For example, local public enterprises were used to deliver several high-speed rail stations and the redevelopment of station areas. These are formed

14 Gaelle Pinson and Eliane Dutarte, "3.2.4 Greater Paris Area (France)" in Bernd Scholl (ed.), *SAPONI: Spaces and Projects of National Importance*, 2012, https://books.google.com/books?id=2TqhM6mtBTYC&lpg=PT35&dq=operations%20d'interet%20national%20france%20definition&pg=PP1#v=onepage&q&f=false

15 Bernd Scholl (ed.), *SAPONI: Spaces and Projects of National Importance*, 2012, https://books.google.com/books?id=2TqhM6mtBTYC&lpg=PT35&dq=operations%20d'interet%20national%20france%20definition&pg=PP1#v=onepage&q&f=false

16 Federation des enterprises publiques locales, "Local Public Enterprises in France: a Tailor-Made Solution", https://www.lesepl.fr/wp-content/uploads/2018/11/Local_public_enterprises_in_France.pdf

at the request of local governments and can only operate within a designated territory; the state does not engage in the public authority's decisions. "Projects of national interest" are those that are significant to national development, including environmental conservation of sensitive habitats or urban revitalization and development over large areas. For projects of national interest, the national government initiates the formation of either a local public company (SPL) or a public planning establishment (EPA). Though local governments are also on the governing board, the national government plays a role in decisions and funding.

The Netherlands

In the Netherlands, the planning framework is more decentralized than in France, yet the national government still takes an active role in defining and shaping projects of significance. The national government produces a plan, known as the National Spatial Strategy, for urban and rural development that is driven by a number of strategic priorities, such as growing regional economies. The plan establishes specific goals and targets for jobs, housing and mobility in each region. This commitment to improving particular regions (e.g., increasing jobs in one area over another) is backed up with investments in these particular places. Each national agency then selects key projects based on this National Spatial Plan, turning long-term national goals into short- and medium-term priorities. Though the national government is involved in every major urban development and infrastructure project, it does so by deploying the tools described below rather than by forming new institutional arrangements.

Tools

IBA would provide some, but not all, of the tools that are often granted to projects of regional or national significance in other countries. It is therefore intended to complement, but not replace, other tools that are needed to ensure that projects of regional significance are successful. Other tools that could steer and support a project of regional or national significance include:

- **Providing funding or financing for the project,** such as grants or low-cost loans, or otherwise guaranteeing the financial stability of the project. For example, in the Netherlands and France, the national government will typically provide a significant up-front investment in a project or provide some amount of operating subsidy to ensure viability of the project.

- **Coordinating across government departments and levels of government** to ensure broad political support and to accelerate project approvals. For example, in the Netherlands, the national government will commonly coordinate across agencies to help secure alignment among all parties or build political support. In France, new institutional vehicles (described in greater detail below) with layered governance structures include a strategic council comprised of local mayors whose cities are directly impacted by the project.

- **Providing technical support on aspects of the project,** such as architecture, engineering or design. For example, the Netherlands has a Spoorbouwmeester (National Railway Architect), an architect or urban designer appointed to advise on the design of rail stations. (Note: Canada's Infrastructure Ontario, described in Chapter 1, bears the greatest similarity to IBA and is designed to provide technical support

on aspects of projects. It works closely with the metro area's transit operator, Metrolinx, to execute and manage specific contracts.)

- **Making direct investments in real estate for the project,** such as purchasing property needed to build affordable housing, to stimulate growth around a station or to secure a right-of-way. For example, in Germany, there is an urban development tool that, while used sparingly, allows cities to purchase and sell land and reinvest the revenue in infrastructure improvements for projects that are in the public interest, such as affordable housing or station area redevelopment.

- **Steering or making land use planning decisions.** In the Netherlands, the national government sets a target for the number of jobs and housing units to be located within a city or near a new station. Local governments produce their own master plans for each station, and the national government reviews the plans to make sure they are feasible, consistent with the target and sufficiently ambitious. Local governments make all land use decisions, but each city's role is also to put into practice the larger regional vision established by the national government and the province. In France, there is much more direct national authority over land use.

Summary

IBA's focus would be on boosting a targeted set of skills — procurement, construction and integration — needed to ensure that a specific infrastructure project is built on time and cost-effectively and as part of a coherent network. It is not a substitute for — and could coexist with — the other types of tools and institutions that can make projects successful, such as having integrated station area planning that creates equitable communities and great public spaces. These other types of tools are outside the scope of this report but are explored in greater depth in SPUR's report *Harnessing High-Speed Rail*.[17]

17 SPUR, Harnessing High-Speed Rail, 2017, https://www.spur.org/publications/spur-report/2017-09-13/harnessing-high-speed-rail

Chapter 3

Roles, Responsibilities and Enabling Authorities

IBA is intended to have a narrow mandate focused on procurement and project delivery. This is especially important when designing an organization that must deliver multiple projects consecutively or simultaneously, as delays in one project can have cascading delays on all other projects.

SPUR suggests the following roles and responsibilities for IBA. We also point to the key authorities that the State of California would need to grant to IBA in order to fulfill these functions. These are organized to correspond roughly to the phases of a project's life cycle.

1. **Assist the Metropolitan Transportation Commission (MTC) in the preparation of the guidance documents used to evaluate projects and implement project controls,** particularly on matters related to cost and benefit estimates, risk assessment, project governance and the project delivery assessment. MTC could contract with IBA to prepare these materials.

2. **Work with project sponsors to establish a cost envelope (budget range)** for the project, including a contingency budget. It is critical that both IBA and the project sponsor agree on a cost envelope and who is responsible for contingencies.

3. **Advise project sponsors during project development.** This includes participating in decisions on all aspects of planning, design, engineering and land management (e.g., for construction staging) that impact procurement and construction. IBA would be responsible for delivering the project on time and on budget. It would also have the ability to say that a project isn't ready to enter into procurement, suspending it indefinitely. Therefore, its advice in planning decisions would carry significant weight. IBA must be involved in project development decisions so that it can be set up for success and fulfill its broader mandate of delivering good value to the public for the money. In some cases, the project sponsor and IBA might specify decisions that are strictly the responsibility of IBA in a project development agreement.

4. **Determine the sequencing of interdependent and/or co-located projects.** This would include developing a schedule for project development, procurement and construction for different projects within a program or for separate projects that have many interdependencies. However, IBA would be unlikely to have full discretion on these decisions, as project timelines are often driven by funding sources, particularly federal programs.

5. **Jointly evaluate projects in stage gate reviews and advise MTC and project sponsors about changes that could deliver better public value** and minimize risks in procurement and construction.[18] IBA would

18 It is important to differentiate between project selection and evaluation. "Project selection" refers to the process of identifying opportunities and choosing projects that can be

evaluate projects and make a recommendation to MTC, but MTC would make the final decision. The exception to this would be the stage when a project is ready to enter into construction (see point 9 below).

6. **Prepare the project-delivery-options analysis,** including both a qualitative assessment and a quantitative value-for-money assessment. IBA would make the final decisions with consultation from the project sponsor.

7. **Determine the project delivery model** for the project and its components. IBA would make the final decisions on the project delivery model to use. Importantly, this would require the legislature to authorize IBA to use many different project delivery models.

8. **Approve a project's environmental impact report (EIR).** The project sponsor would likely continue to act as the lead agency in developing the EIR, because the board of the project sponsor agency is more directly accountable to the communities impacted by the project. However, many design decisions that impact deliverability are made in the environmental impact statement (EIS) and EIR. For this reason, we recommend that IBA not only participate in an integrated project management team in the preparation of the EIR, but also sign off on the final document.

9. **Determine when a project can enter into construction.** At this stage gate, IBA would have full decision-making authority to determine if a project can enter into construction. Importantly, this also means that IBA would have the ability to say "no" or "not yet" to a project. Much of IBA's strength would come from its ability to objectively determine if a project is not ready for construction and/or needs additional preparation. IBA's ability to say no would be a compelling reason for project sponsors to work closely with IBA.

10. **Lead and implement the procurement process,** including but not limited to identifying economies of scale; preparing a final execution strategy; preparing bid documents, including the design and specifications as determined by the project sponsor; evaluating bids; negotiating and awarding contracts and establishing a dispute resolution process. Here, IBA would make the final decisions with consultation from the project sponsor.

11. **Manage the construction of the project.** This includes overseeing contractors, managing contract interfaces and dependencies, addressing and minimizing change orders, providing information to the public and all stakeholders, establishing a dispute resolution process and more. IBA would have the final decision-making authority during this phase, with significant input from the project sponsor and operator to ensure that the project meets operational requirements as specified in a project agreement.

12. **Ensure the project is ready for service.** The project operator would be responsible for testing and operating the service. However, IBA would be responsible for constructing the project according to the

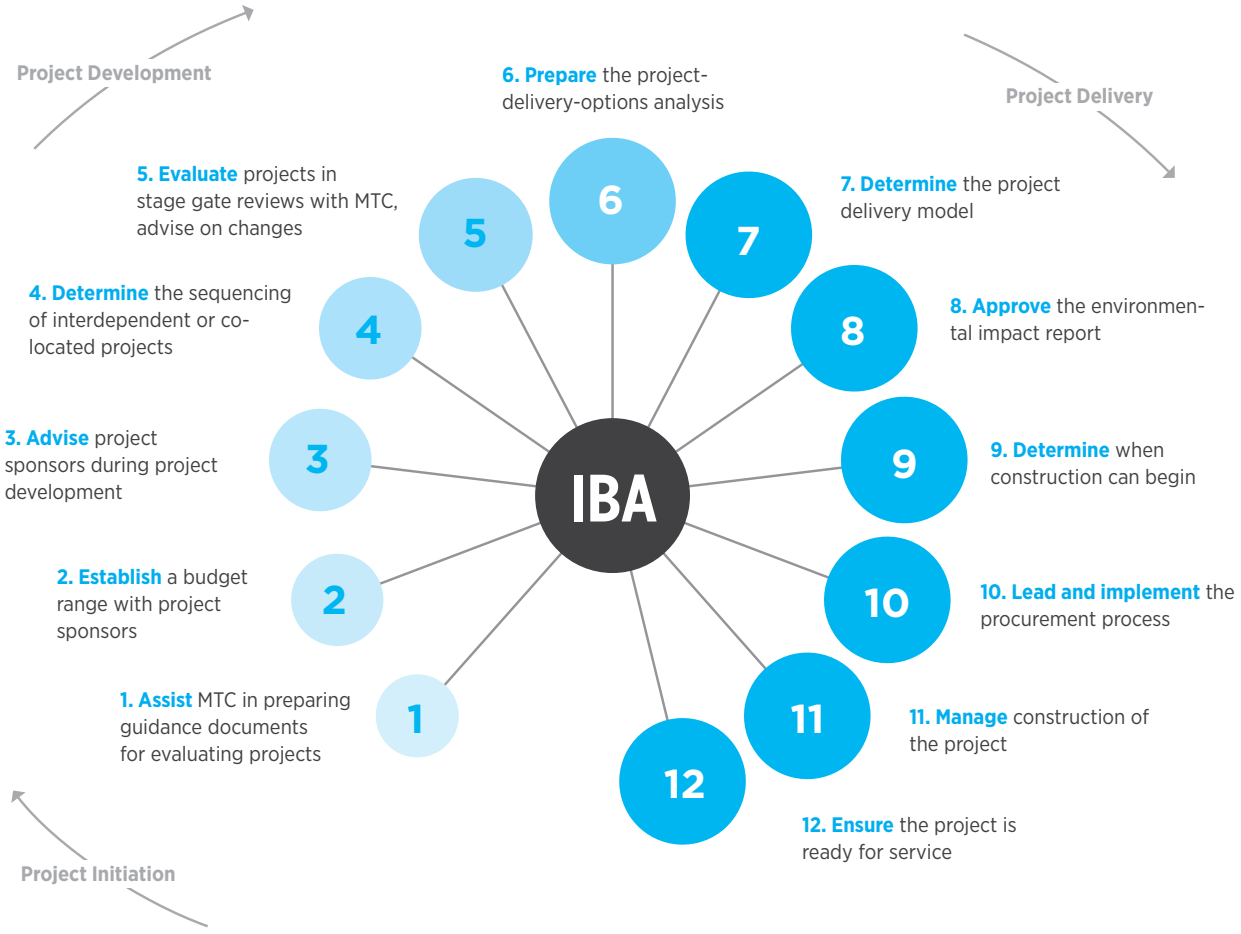
included in a regional transportation plan and that bring the strategic network plan to life. We do not envision IBA having a role in project selection. Evaluating projects within stage gates would fall within IBA's role in implementing risk management and project controls, beginning with the business case.

operator's requirements, as specified. This means that IBA would also be responsible for addressing any deficiencies so that the project can operate.

FIGURE 1

IBA's Responsibilities Through a Project's Life Cycle

SPUR suggests 12 roles and responsibilities for IBA. As IBA is intended to have a narrow mandate focused on procurement and project delivery, its responsibilities increase as the project moves from the development phase to the delivery phase.



Source: SPUR analysis

Because each project is unique, and because each project sponsor is unique, there are many other responsibilities and actions that could not be uniformly assigned to either IBA or the project sponsor. The responsibilities enumerated above should be considered as a baseline needed for success, and greater decision-making authority could be conferred to IBA through a project development agreement with the project sponsor.

What Is the Right Role for IBA in Planning and Design?

It is critical to establish clear decision-making responsibilities and interfaces between project stakeholders and to stick to them. If IBA is established without enough decision-making power in the right moments, this new system might create the illusion that the region has solved its project delivery challenges when in fact IBA would not have the ability to successfully fulfill its mission.

As shown in Figure 1, IBA's role in regional planning and project initiation phases would be primarily advisory. The agency would gradually take on more decision-making authority in the project development phase and as a project moves toward procurement and construction.

Though IBA has discrete decision-making authority, we envision a high degree of collaboration and integration between IBA, the project sponsor and the project's operator. Simple project hand-offs without such collaboration and integration would be counterproductive to the goals of delivering projects quickly, cost-effectively and with better public value. For instance, such hand-offs could create the need for late-stage and expensive change orders and delays. More fundamentally, a lack of collaboration can dampen trust between project actors or transfer risks from one actor to another.

In some models around the world, the construction authority is given even greater authority over decisions in the project development phase. SPUR's proposed design for IBA strives to balance the reality of the Bay Area's transportation governance framework with the need to deliver projects more quickly and cost-effectively. As a conceptual model, some of the decision-making responsibilities described in Figure 1 could be modified in project agreements based on the unique needs of the project.

Chapter 4

Governance

Lessons from Infrastructure Ontario, Crossrail Ltd. and Société du Grand Paris suggest the importance of a layered governance model consisting of a board of directors, a corporate management layer and a project management layer.

In this chapter, SPUR outlines the governance models for these three key case studies and considers potential structures for IBA. While we do not endorse a specific structure for IBA, this chapter discusses the advantages and disadvantages of each option.

FIGURE 2

Governance Map for Case Studies

This table outlines the governance structure for each of the case studies referenced throughout this report, highlighting the purpose and membership of each layer.

	Infrastructure Ontario	Crossrail Ltd.	Société du Grand Paris
Reporting Authority	Minister of infrastructure for the Province of Ontario	Mayor of London via Transport for London (TfL) and the secretary of state for transport via the Department for Transport (DfT)	Minister of Transportation, Minister of the Capital Region, Minister or Urbanism, Minister of the Economy[19]
Leadership Board	Board of directors, appointed by lieutenant governor in council. Composed of experts with professional backgrounds in various aspects of project delivery, asset management and procurement.	Board of directors nominated and appointed by TfL and the DfT. Composed of experts with professional backgrounds in various aspects of project delivery, finance, operations and asset management. Three members of the executive team also serve on the board and are responsible for driving the project forward and establishing the overall direction for the operational and functional teams.	Supervisory board representing state and local government authorities. Responsible for establishing overall direction for organizational policies, finances and the development of construction programs.
Corporate Management	The board of directors fulfills this function.	The board of directors fulfills this function. There are additional subcommittees of the board that address key topics such as risk and property.	A management board that works under the supervision of the supervisory board. This level focuses on the strategic implementation of construction programs, including program design and delivery, as well as cross-company functions such as financial and legal issues.
Executive Team	President and CEO are appointed by the lieutenant governor in council.	The team includes a chief executive officer, finance director, program director and an operations director.	The executive team is the management board.
Project Management	Integrated project management teams work collaboratively to deliver each project.	An operational governance structure operates below the corporate governance and subcommittees. It includes a function focused on program/project delivery and rail integration (testing and operations).[20] Integrated project management teams ("joint sponsors team") work collaboratively to deliver each project.	Integrated project management teams work collaboratively to deliver each part of the project.
Other			A strategic committee is a forum for discussion and continuing consultation with municipalities through which the project will run.

Source: SPUR analysis.

19 Decree No. 2010-756 of July 7, 2020 relating to the Société du Grand Paris. https://www.legifrance.gouv.fr/affichTexteArticle.do;jsessionid=D16237A0A6ABB9577918A8C2D791900D.tplgfr38s_2?idArticle=LEGIARTI000022448432&cidTexte=LEGITEXT000022448324&dateTexte=20200618

20 Simon Wright, Richard Palczynski and Patrick ten Have, "Crossrail Programme Organization and Management for Delivering London's Elizabeth Line," *Proceedings of the Institution of Civil Engineers*, 2017, https://learninglegacy.crossrail.co.uk/wp-content/uploads/2017/09/1R-001-Programme-organisation-and-management.pdf

In all cases, the reporting authority is typically the entity responsible for establishing the organization, securing financial stability and providing ongoing external or political support for the organization. For IBA, SPUR recommends that the reporting authority be one of these two options:

- → **The governor of California.** The governor, together with the legislature, has the authority to create (and dissolve) an entity such as IBA. The governor can provide political support for projects that significantly benefit the State of California and is not beholden to any single geography within the region.

- → **The governor of California and the executive director of the MTC.** This approach promises a stronger relationship to the Bay Area's needs and a more direct link between project selection, project funding and project delivery.

FIGURE 3

Options for IBA Leadership Board Structure

Board Structure	Advantages	Disadvantages
Nonelected with relevant professional experience Experts with professional backgrounds in various aspects of project delivery, finance, operations and asset management. Appointed by government agencies.	Brings seasoned and pertinent expertise to support strong program and project management. Board members are not beholden to any particular geography or constituency, allowing a stronger focus on regional needs and overall project delivery priorities. Board members have independence to say "no" or "not yet" to a risky project. Their independence supports the legitimacy of that decision. Board members may be able to protect high-performing projects from destabilizing political interference.	Less publicly accountable than other models since board members are not representatives of the public. Could lead to board engagement at a level of detail that would be challenging for staff to manage. Board members are unlikely to provide the political sway at the regional or local level that might be needed to expedite projects or secure funding.
Professional/political combined board *Could include elected officials, private-sector topic area experts and public-sector professional staff.*	Board members will have experience working with local and regional partners that are necessary to get projects done, while partially shielding the members from politics. Perceived as more accountable because the board contains elected officials and others who are appointed by people who are elected. Links the board directly to regional planning and project selection decision-makers as well as regional transit decision-makers and experts. Elevates the role of IBA's staff by creating a board that has less topic area expertise and less time to delve deeply into substantive details.	Potential for complex power dynamics between members of the board, as some members may be elected and also oversee other agencies meaning they would have the ability to hire or remove members of the board who are executive staff of those agencies. Potential to distort geographic representation, both by giving disproportionate representation to less populated counties and by diminishing representation from major cities. Creates confusion about the level of detail at which the board might be expected to engage, with board members having widely different levels of expertise on IBA topics. Maintains a path for political influence that staff and other board members might not be positioned to counterbalance. Might exacerbate the potential for conflicts of interest or corruption among private-sector board members.
Elected officials appointed to the board, with MTC as the board	Ties IBA directly to funding decisions, which increases IBA's authority. Ties IBA directly to regional planning and project selection decisions, supporting strong staff coordination between project planning and project delivery. Elevates the role of IBA's staff by creating a board that has neither topic area expertise nor time to delve deeply into substantive details.	Risks narrow geographic or political interests disrupting project delivery or pushing through projects with unacceptable risk. Diminishes the public perception that project delivery will change meaningfully from systems already in place today. Project sponsors might not fully accept or collaborate with IBA because of the sometimes-strained dynamic between MTC and transit agencies.

Chapter 5

Funding

A number of significant transit projects are currently in development in the Bay Area. It is critical that IBA be established as soon as possible so that it can participate in project planning and development decisions. If IBA is only available during procurement and construction of these projects, it will not deliver as much benefit. Since most projects do not secure a lot of funding until late in the process, we recommend establishing a dedicated source of revenue to support the agency's initial and ongoing operations. A new regional revenue measure is one promising source of funding that could provide support for the organization.

IBA's capacity would expand and contract as needed to deliver projects. In addition to core funding from a regional revenue measure, IBA would rely on project sponsors to pass through project funds. (In other words, IBA would not directly seek project-specific funding.) Additionally, IBA should be authorized to charge project sponsors and MTC for its services on a cost-recovery basis.

SPUR imagines that MTC, counties, cities and transit agencies could transfer funding to IBA for project delivery purposes and that IBA would deliver the project within an agreed-upon cost envelope. The project sponsor and IBA would define in a project agreement who bears responsibility for raising additional funds if the cost exceeds the cost envelope, since this is a risk that is difficult to assign on a routine basis. For example, if a project is delivered through a public-private partnership, the cost overruns could be shifted to the private partner. As stated earlier, it is more important to have a routine *process* for determining risk and assigning risk and responsibility than a routine *assignment* of risk and responsibility.

As part of its responsibilities, IBA would need the authority to bond or otherwise raise revenue to pay for overages.

Issues for Further Exploration

This report explores a concept for improving the governance of project delivery. But there is more to be done to determine how to design IBA for success within an already-complex regulatory and institutional landscape. Other factors to be considered and developed include:

- Institutional vehicles and structure
- Level of permanence and ability to scale
- Funding levels, sources of funding, debt and finance structure
- Authority and recourse for not advancing projects, given that projects require multiple sources of funding with rigid timelines
- Interactions with federal and state rules that govern procurement
- Interactions with federal and state rules that govern the use of nontraditional project delivery models
- Role in public engagement and accountability to communities
- The public's ability to spur agency improvement
- Fairness and transparency in contracting and dispute resolution
- Ability to affect other transportation policies, such as parking, tolls and fees
- Ability to affect local land use decisions that impact infrastructure, such as land disposition and value capture

Conclusion

The Bay Area has struggled to deliver major transit projects on time and on budget. A chief reason why is that we build so few projects, and each agency mobilizes just once a generation to do so. A highly specialized project delivery entity could help reduce costs and delays, especially those that result from misalignment between project stakeholders and human biases that consistently underestimate difficulty and inexperience. SPUR believes that the Bay Area can get ahead of these foreseeable challenges by creating the institutions we need.

SPUR

Ideas + action for a better city

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