



HIGH ROAD INFRASTRUCTURE HANDBOOK

10 STEPS FOR CITIES SEEKING TO ACCELERATE IMPLEMENTATION OF MORE AND BETTER INFRASTRUCTURE



BY THE HIGH ROAD PROJECT TEAM

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The High Road infrastructure project is made possible by the generous support of the Ford Foundation.

About NRDC

The Natural Resources Defense Council is an international nonprofit environmental organization with more than 3 million members and online activists. Since 1970, our lawyers, scientists, and other environmental specialists have worked to protect the world's natural resources, public health, and the environment. NRDC has offices in New York City, Washington, D.C., Los Angeles, San Francisco, Chicago, Montana, and Beijing. Visit us at nrdc.org.

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Table of Contents

INTRODUCTION TO THE HIGH ROAD	4
Contrast With the Low Road	5
THE 10-STEP PREDEVELOPMENT PROCESS	6
Step 1: Establish Community Priorities Within a High Road Policy Framework.....	6
Step 2: Prioritize High Road Projects and Define Project Delivery Alternatives	8
Step 3: Identify and Screen Applicable Funding Sources	10
Step 4: Identify and Screen Relevant Finance and Project Delivery Strategies	12
Step 5: Identify and Screen Procurement Mechanisms	14
Step 6: Identify Specific Target Investors	15
Step 7: Identify Project Bundling and Aggregation Needs and Opportunities	16
Step 8: Conduct Technical Studies to Confirm Viability	16
Step 9: Finalize Project Sponsor/Investor Plans and Arrangements	17
Step 10: Close the Deal and Develop Implementation Plan.....	18

Introduction to the High Road

NRDC has led a cross-disciplinary effort to explore opportunities to generate more and better infrastructure investments to build communities in the 21st century. Our research has included a literature review, interviews with investors, and extensive discussions with stakeholders in several U.S. cities. We have focused on cities because of their expected growth and their central role in determining regional and national health and wealth. Currently, 62 percent of Americans live in cities. By 2050, that figure is expected to reach 80 percent.

Our findings show that the United States does not need to continue the narrative of infrastructure as an expensive, ongoing crisis. Instead, we can systematically capitalize on infrastructure improvements as a driver of multifaceted and equitable transformation and growth. All we have to do is take the High Road.

High Road infrastructure is designed to deliver social, environmental, and climate resiliency benefits. These include greater equity within and between communities, cleaner air and water, quality jobs, improved health, and the ability to withstand and recover from acute and chronic stresses caused by severe storms and extreme temperatures. Over time, High Road projects yield savings in operations and maintenance and promote financial, social, and environmental sustainability.

The private sector is increasingly adopting the “triple bottom line”—which gives equal weight to long-term social, economic, and environmental outcomes. More and more businesses are accepting that this approach is less risky and more resilient than a traditional approach that simply maximizes short-term profits for shareholders. For the public sector, the traditional approach to infrastructure aims to minimize upfront front cost. The High Road approach instead applies long-term, holistic thinking to public sector decisions about infrastructure.

The importance of High Road ideas is increasingly recognized by some of the most experienced infrastructure practitioners. In a November 2017 paper on infrastructure outcomes, McKinsey & Company recommended a people-focused approach:

“The best KPIs [key performance indicators]—and those that we recommend all state and local governments consider—focus on outcomes for citizens. In other words, they examine factors such as the reduction in

homelessness rates, rather than the number of affordable-housing units built, or student achievement in math and science, not just the number of new school labs. Agencies could incorporate state KPIs into all projects that they implement and provide regular reports to governors or other top leaders that describe their progress.”¹

Our strategy for infrastructure is based on an inclusively created long-term community vision. We detailed this outlook in a 2016 paper, *Taking the High Road to More and Better Infrastructure in the United States*.² In 2017, we also produced a video profiling the Clean Water Partnership in Prince George’s County, Maryland, a successful High Road project that is using investments in innovative distributed water infrastructure to spur jobs, grow small businesses, add amenities to neighborhoods, and educate communities about environmental protection.³ This paper picks up where our previous one left off. Here, we outline specific processes to reliably improve infrastructure outcomes. We pay particular attention to the preparations that must occur before the first shovel hits the dirt.

This handbook helps stakeholders navigate the High Road predevelopment process, from conceptualization through design and procurement. Instead of reinventing the wheel, we reexamine existing approaches through a High Road lens and provide a 10-step road map to accelerating and improving projects that meet urgent community needs. Beginning with Step 1, which is the creation of an overarching policy framework, we apply a broader set of standards that place High Road projects at the head of the project pipeline and then maximize the chances for their full implementation. This is done through project design that values High Road objectives over least-cost solutions, creative yet systematic interaction with funding and financing sources, and smart procurement strategies.

TAKING THE HIGH ROAD REQUIRES RESOURCES

A High Road predevelopment process requires resources including time and money. Communities may tap into federal or state grant programs or private foundations committed to equity, resiliency, and better environmental outcomes to help pay for this effort.

Given limited outside funding sources, though, most funding will likely come from local sources. Communities may dedicate a specific budget to High Road projects or embed enhanced processes in planning and project development budgeting. Ultimately, once the tools and enhanced processes and framework are developed, ongoing implementation is often less expensive than the initial investment.

CONTRAST WITH THE LOW ROAD

High Road infrastructure challenges the typical mind-set associated with infrastructure project design and delivery, which is laser-focused on minimizing short-term costs. Juxtaposing this with our vision, we call this the “low road.” Its key pitfalls include:

- **Value engineering that ignores community values.** Value engineering analyzes the requirements to achieve a project’s essential functions at the lowest total cost (capital, operating, and maintenance). The process falls short, however, when it prioritizes the lowest cost over a long-term life-cycle analysis, when it improperly values benefits, or when its definition of “essential functions” excludes project elements that are valuable to the community. The High Road approach hardwires community values and benefits into project definition and uses life-cycle costing—which includes the full costs and savings over the life of the project— as its baseline (see Steps 2 and 8).
- **Seeing silos, not synergies.** Energy, water, communications, and transportation infrastructure as well as economic development often intersect, yet they are managed in silos. This makes it difficult to recognize and capitalize on the potential for savings in design, construction, operation, and maintenance and more challenging to combine revenue streams from multiple sources. The High Road approach systematically identifies opportunities to bundle different assets, aggregate small projects, and promote communication across stakeholders (see Steps 2, 3, and 7).
- **Failure to incorporate resiliency.** When a project does not incorporate systems that can withstand chronic stresses or bounce back after a disaster, it will inevitably cost more in the long run. This is especially true in the face of intensifying climate change impacts, including severe storms, temperature volatility, floods, droughts, and fires. In line with a growing recognition that climate preparedness is a critical indicator of the financial

health of cities, the High Road approach applies a climate screen to every infrastructure investment (see Step 2).⁴

- **The view that quality jobs are inconsistent with cost-effective projects.** More-efficient technologies can reduce labor requirements for construction and operation. Projects on the low road may not prioritize opportunities to create meaningful jobs for displaced workers and local residents. The High Road, on the other hand, includes good jobs as an explicit part of its procurement strategy (see Steps 1 and 5).
- **Transforming places but displacing people.** Too often, infrastructure is designed for the needs of the economically privileged and can exacerbate existing environmental justice issues. For example, place-based infrastructure like new public transit hubs should improve neighborhoods. Too often, though, the residents meant to benefit are forced out by rising prices that could have been mitigated when projects were defined. On the High Road, infrastructure is designed and located to benefit underserved communities and promote inclusive growth. In communities facing a lack of affordable housing, the High Road does not assume that the market will come to the rescue. Instead, solutions are built into the community framework, and specific strategies are carried through the entire predevelopment process to address it (see Steps 1 and 2).
- **Locking in outdated technologies.** Sound infrastructure must be based on reliable and tested engineering solutions. But decision makers often over-prioritize “tried and true” technologies to avoid perceived or potential risks presented by newer alternatives. A High Road approach affords opportunities for companies to suggest innovative solutions before actual proposals, through requests for information or requests for qualifications (RFIs or RFQs) (see Step 5). It also includes consideration of financing and delivery models that reduce the public risk for trying out new technologies.
- **Unconditional love or irrational fear of public-private partnerships.** Too often, proponents of public-private partnerships (P3s) present them as the solution to everything that’s wrong with U.S. infrastructure, compared with that of other countries. And sometimes the pendulum swings too far in the other direction, with opponents of P3s presenting them as necessarily prioritizing private profit, asset ownership, and undue control over the public interest and benefits. In reality, these issues can be addressed in project design. P3s are appropriate for some projects and not for others. There is a diverse range of forms of public-private collaboration, and High Road P3s can be designed to advance the public interest (see Steps 3 and 4).

The 10-Step Predevelopment Process

The High Road requires ongoing community engagement and other project-enabling activities. These include siting studies, environmental reviews, useful life assessments, capital improvement plans, and long-term budgeting. In most cases, these activities are led by a city, county, or regional entity, such as an economic development agency, utility, or transit agency.

The lead entity directs the planning process, including sponsoring the necessary background studies, testing the various financial models, managing the procurement process, and providing the necessary community contact and accountability. It may not, however, be responsible for delivering or operating all of the project components.

Depending on the step, the nature of the project, and local context, ongoing participants in the process can include:

- **Community members** who set a vision or long-term goals that then translate into standards that become the project performance benchmarks;
- **Local governments or regional authorities**, including both staff and elected or appointed officials, that must oversee the predevelopment process to ensure that it is responsive to the performance metrics;
- **Project delivery teams** that are responsible for the detailed technical work to both define projects and determine the best financing/delivery approach;
- **Investors** who will participate at various stages of the project, and whose investments can be well aligned with the goals determined by the community; and
- **Credit rating agency representatives** to ensure sustainable financial decision making.

Our step-by-step process is iterative and includes critical feedback loops. These feedback loops are an essential part of planning for the more complex projects for which financing, delivery mechanisms, and long-term credit implications may not be immediately apparent for all High Road components. Figure 1 illustrates some of the more typical feedback loops, but the number of loops and how they flow among the 10 steps in the process is context specific for each set of projects. The order of the 10 predevelopment steps can also change based on specific project types and the context for community decision making, including politics. Some steps can even be condensed or skipped, when appropriate.

It's important to remember that the High Road can deliver more and better projects, but it is not a shortcut. It may take up to two years for the most complex projects to work through this process. Still, proceeding systematically increases the likelihood of a realistic financing and implementation path and accelerates the time frame in which they can be implemented. When High Road projects do save time, this will come through a more complete and systematic assessment of risks and opportunities (like potential long-term cost savings).

Below, we present the 10 predevelopment steps essential to the High Road infrastructure approach. At the end of each step's description, we include a "High Road GPS" checklist to make sure a project is on the right track before moving to the next step.

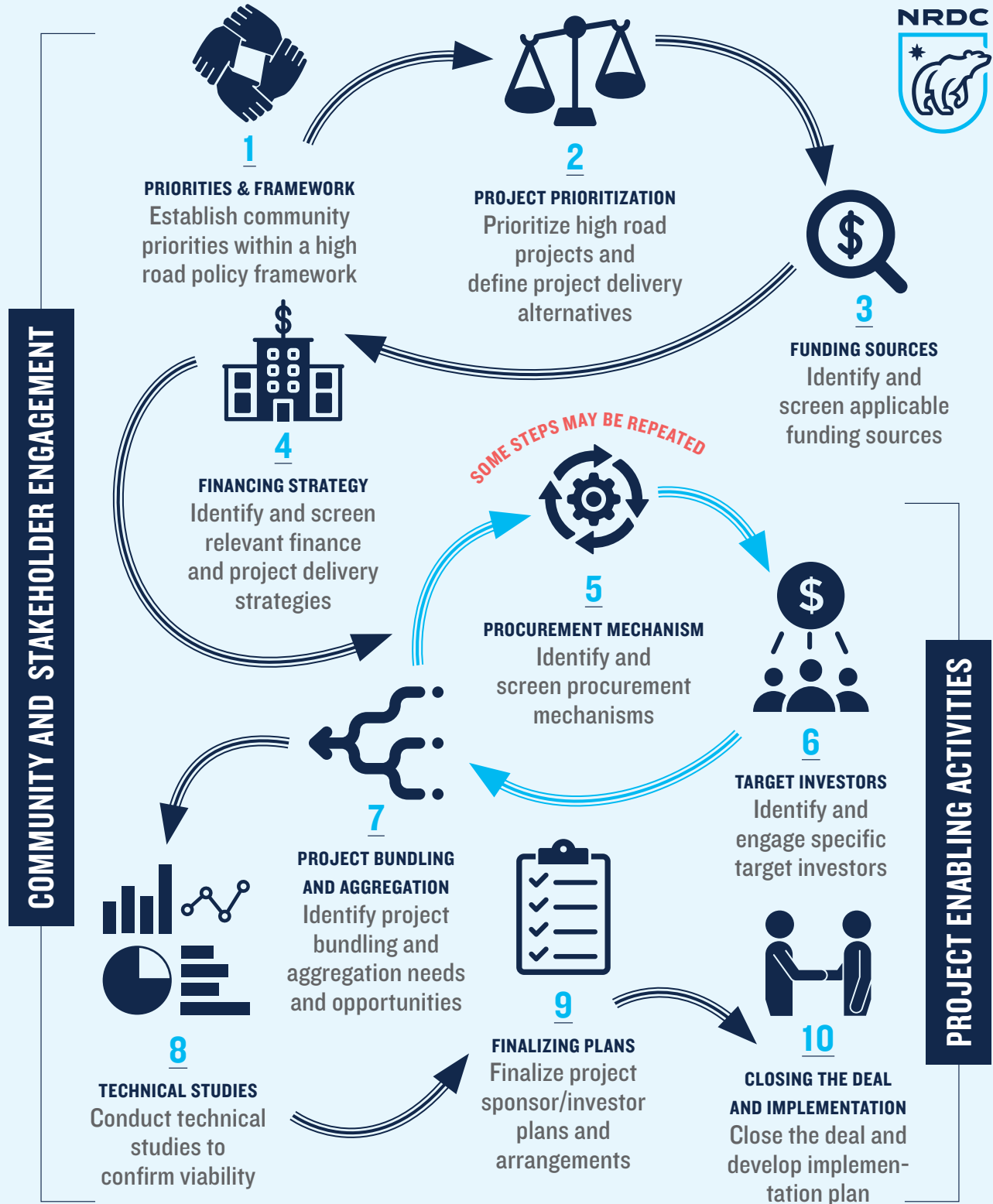
STEP 1: ESTABLISH COMMUNITY PRIORITIES WITHIN A HIGH ROAD POLICY FRAMEWORK

Infrastructure investments can be prompted by a need for capital improvements or dictated by legal or regulatory standards, such as the Clean Water Act. In a business-as-usual scenario, an elected body approves a project or a capital improvement plan including multiple projects. Once this initial decision has been made, the planning and delivery processes may be constrained by existing policies or regulations aimed at efficiency, transparency, and the lowest possible cost. In this model, technical staff execute project design and implementation within these existing parameters.

Business as usual is insufficient to ensure that High Road infrastructure projects get delivered. To achieve High Road projects, elected bodies must adopt a clear policy framework mandating that a High Road approach be taken in designing and delivering specific infrastructure initiatives. This framework can stipulate whether the process will apply to all capital investments, to some specific asset classes, or to projects defined by place-based criteria. The key activities discussed below are intended to secure:

- Commitment to a High Road process;
- Commitment to High Road values, including environmental enhancement, greater resiliency, and social and economic benefits; and
- Commitment to community priorities and an inclusive governance structure.

FIGURE 1: HIGH ROAD PREDEVELOPMENT MAP



Key Activities

- Develop a policy statement that sets out High Road principles in line with local priorities. This can include commitments to community objectives or outcomes like equity, clean energy, resilience, quality jobs for low-income residents, and preferences for local contractors. It can also include specific needs such as increased green space in distressed neighborhoods or decreased frequency or severity of flooding.
- Iteratively draft a community plan or policy that embodies High Road principles, or enhance existing plans to include High Road considerations and expectations for project delivery.
- Vet the draft plan or policy with stakeholders.
- Secure approval of the plan from the relevant governing body, typically the city council or county commission.
- Create a methodology or scoring system (see Step 2) to prioritize potential projects.
- Establish metrics of success in meeting High Road goals during project operations.
- Establish a protocol for ongoing community engagement to ensure transparency and accountability as projects advance through the High Road financing process.
- Incorporate sustainability as a criterion to be applied in the decision-making process.

Implementation Participants

To succeed, the framework needs support not only from city leadership but also from the broader community and key stakeholders. Main stakeholders can include local businesses, nonprofit groups, and community and neighborhood associations. There can also be groups that represent ratepayers, taxpayers, or any other sources of revenue generation. In many communities multiple agencies will participate, and they may have differing geographic coverage and governance structures. Some organizations, such as EcoDistricts, offer tools and resources that encourage neighborhood-level planning and development that results in more equity, sustainability, and resiliency.

At this stage, the key deliverable is a plan or policy that commits to cost-effective infrastructure projects that also deliver multiple benefits. The plan should be accompanied by a blueprint that prioritizes projects and stipulates that High Road objectives be included in procurement and contract documents. The public should be able to track progress through a web-based dashboard and periodic progress reports.

High Road GPS: An effective framework comes from the top and includes clear implementation guidelines based on extensive engagement with affected communities and stakeholders.

Have you:

- Developed a policy statement outlining High Road standards and the metrics of success you want to achieve for the community?
- Shared the statement with local stakeholders and incorporated their feedback?
- Secured plan approval from the relevant governing body?
- Created a methodology of how to apply the plan to projects?

Examples of High Road Policy Frameworks: L.A. Metro Vision 2028 Plan (entity-level),⁵ Portland, Oregon, 2035 Comprehensive Plan (city-level),⁶ Sun Valley Transformation Plan (neighborhood-level),⁷ Scoring System (EcoDistricts,⁸ Star Communities,⁹ Envision¹⁰)

PRINCE GEORGE'S COUNTY CLEAN WATER PARTNERSHIP BRINGS CLEAN WATER, GREEN SPACE AND LOCAL JOBS

In Prince George's County, Maryland, pollution in the regional waterways violated the Clean Water Act, resulting in the county being required to assess a fee to residents and businesses in order to invest in new stormwater infrastructure. Relative to its Washington, D.C., area neighbors, the county has high unemployment and poverty and low levels of investment. Seeking to design a program that delivered jobs, education, and community amenities in addition to stormwater management, officials decided to use a public-private partnership model to build green infrastructure all over the county. In addition to reducing costs and promoting long-term sustainability, the partnership focuses on social goals, like creating local jobs, developing area businesses, supplying educational programs, and creating neighborhood amenities such as parks. The contract with the partner is performance based, so a portion of the payout is contingent on meeting the specified social goals.

STEP 2: PRIORITIZE HIGH ROAD PROJECT PIPELINE AND DEFINE PROJECT DELIVERY ALTERNATIVES

At this stage, the responsible agencies apply the High Road standards identified in Step 1 to potential projects. While all projects have some potential to support High Road values, with a systematic approach, project proponents bring these values to the fore.

Table 1 and Figure 2 offer a simplified example of the High Road prioritization methodology. (Here, "projects" include rehabilitations or upgrades of existing facilities as well as construction of new facilities.) This approach rates the projects on a scale of 1 to 5 across six High

TABLE 1: APPLYING HIGH ROAD STANDARDS TO PRIORITIZE PROJECTS AND CREATE A HIGH ROAD PROJECT PIPELINE*

SAMPLE SET OF HIGH ROAD STANDARDS FOR PRIORITIZING PROJECTS

PROJECT	UP-FRONT COST	LIFETIME COST	RESILIENCE/ ENVIRONMENTAL BENEFIT	INNOVATION	QUALITY JOBS/ DEVELOPMENT	COMMUNITY PRIORITY
Project A	1	5	5	5	5	5
Project B	2	4	3	4	3	2
Project C	3	3	3	3	3	3
Project D	5	1	1	1	3	1

*Using a scale of 1 to 5, with 5 being the most favorable.

Road categories. Project C emerges as the most balanced, garnering 3 points in every category and creating a symmetrical hexagon shape. Project A, on the other hand, has high up-front costs but yields savings over the long term as well as considerable benefits in other categories, including being prioritized by the community. Project D has low up-front costs and scores the same with regard to jobs as most of the other projects. It is, however, expensive in the long run.

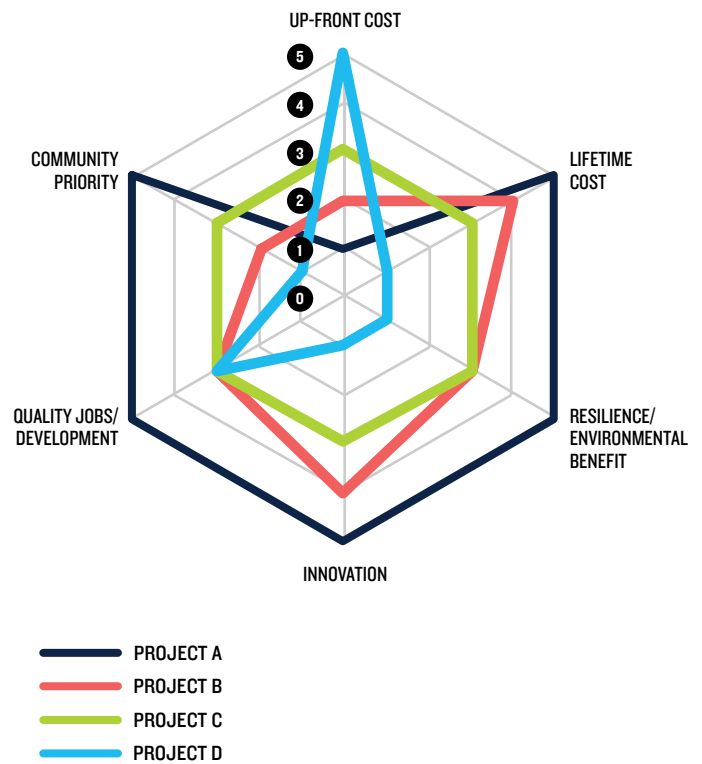
The “right” choice among projects is determined by each community’s High Road policy framework, which could require a minimum score in a given category before a project is considered. For example, it could require all projects in flood-prone areas score at least a 4 for resilience.

During this step, agencies will consider the project delivery alternatives that can support the High Road policy objectives. See Prince George’s County Clean Water Partnership Box, above, for an example of how an innovative public-private partnership to deploy decentralized green infrastructure for stormwater management increased the opportunity to use local labor, create neighborhood amenities, and deliver other social benefits.¹¹ However, project definition will likely continue to evolve throughout the funding and financing process, depending on available funding sources, financing strategies, and project delivery mechanisms (see Steps 3, 4, and 5).

Key Activities

- Identify projects in the capital program that include significant High Road opportunities. Some agencies can incorporate High Road factors into a business case evaluation process that looks at the negative and positive implications of community objectives. Agencies that do not conduct this evaluation should define criteria that address High Road goals and assess the possible contributions of all potential projects.
- Use High Road standards to prioritize projects in the capital improvement plan. This can lead to a snowball effect as savings from one project accelerate further

FIGURE 2: APPLYING HIGH ROAD STANDARDS TO PRIORITIZE PROJECTS AND CREATE A HIGH ROAD PROJECT PIPELINE



development. Projects that tick multiple High Road boxes may be put at the head of the line. Projects that tick fewer of them may be given lower priority unless they can be enhanced or they fulfill a critical infrastructure need.

- Identify the beneficiaries of the High Road elements. Examples include community partners and local businesses.
- Test project delivery alternatives against High Road standards to identify the most beneficial approach.

Implementation Participants

This step may require creating new governance structures, partnerships, and cooperation across agencies to assign responsibility and define accountability with respect to specific tasks or projects required to achieve the expected High Road outcomes. For cities and counties, participants include public works departments, economic development agencies, and public utility departments. For regional authorities, it could include representatives from the primary functions within an agency, such as finance, engineering, planning, zoning, and executive leadership.

High Road GPS: This step is completed when a community can identify the projects in its capital improvement plan that provide the greatest opportunity to realize High Road benefits.

Have you:

- Identified the projects in the capital improvement plan that have the greatest potential for the High Road?
- Identified opportunities to improve and redefine project concepts through incorporation of High Road features?

STEP 3: IDENTIFY AND SCREEN APPLICABLE FUNDING SOURCES

This step identifies the traditional and emerging public, private, and philanthropic funding sources most viable to meet High Road objectives. Agencies should survey direct revenues, grants, value capture, municipal borrowing, low-interest government-subsidized loans, tax credits, and private capital as well as options to combine multiple revenue sources. (Funding versus Financing Box discusses the differences.) Some money may already be available: future cost savings can be used as future revenue, especially in energy efficiency projects or undertakings that have lower operation and maintenance (O&M) costs.

Emerging financing options for public projects include green bonds, social and environmental impact bonds, and

new federal loan programs. In 2017, for example, the U.S. Environmental Protection Agency, through the Water Infrastructure Finance and Innovation Act (WIFIA), provided nearly \$2.3 billion in low-interest funding for water infrastructure, leveraging an additional \$2.8 billion for projects from state, local, or private sources.¹²

A variety of funding sources are available for project planning, design, or construction. Figure 3 illustrates potential sources, including general funds in a city or agency budget, that can kick-start the design of an overarching framework.

FUNDING VERSUS FINANCING

In the infrastructure discussion, funding and financing are often confused. *Funding* is a revenue stream that can be used to pay for infrastructure. *Financing*, on the other hand, is a transaction structure for borrowing money to pay for projects over time. For example, public-private partnerships allow public agencies to borrow money, but they are not a new source of revenue. Using private finance may enable more capital to be invested up front with less immediate impact on public borrowing levels. But due to the need to pay interest on debt and/or a return on equity capital, it can be more expensive in the long run.

Useful guides to municipal funding and financing include:

- Smart Cities Financing Guide: Expert Analysis of 28 Municipal Finance Tools for City Leaders Investing in the Future¹³
- Infrastructure Financing Options for Transit-Oriented Development¹⁴
- Green Muni Bonds Playbook¹⁵
- P3 Project Structuring Guidelines for Local Governments¹⁶
- Infrastructure Financing: A Guide for Local Government Managers¹⁷

FIGURE 3: POTENTIAL FUNDING SOURCES AT DIFFERENT PROJECT STAGES

FUNDING FOR MASTER PLAN	FUNDING FOR ADMINISTRATION	FUNDING FOR DESIGN	FUNDING FOR CONSTRUCTION	FUNDING FOR O&M
		City/Agency Budget	Grants	General Fund
User fees	User fees	Short-term notes	User fees	User fees
City/Agency Budget	City/Agency Budget	Long-term bonds	GO bonds	Special assessments
		Grants	Traditional SRF Loans	Ad Valorem taxes
		User fees	Private Equity	

In 2015, the city of Detroit published a guide and scenario analysis to assess eight potential uses for open space throughout the city. Options included solar power and biofuel production, urban farming, parks, and green infrastructure for stormwater management. A prioritization matrix assessed the applicability of more than 40 funding/financing mechanisms for the eight uses of open space.¹⁸

Figure 4 illustrates dozens of potential funding and financing sources for capital projects. Traditional sources include general obligation bonds, revenue bonds, and property tax and user fee programs. Newer options include green bonds, social and environmental impact bonds, and public-private partnerships. It is important to examine each source carefully to develop the right financing blend. For example:

- Projects that use long-term general obligation or revenue bonds typically include significant assets that last at least 15 to 20 years.

- Projects that incorporate assets with a defined and stable revenue source are stronger candidates for private delivery and finance mechanisms and for municipal revenue bonds. These projects can rely on user fees or a dedicated charge or tax revenue base (such as highway tolls). Projects that deal with non-revenue-generating assets like sidewalks or parks, on the other hand, may need to rely on general fund revenues and taxes.

Given the large and varied scope of many capital projects and programs, it is important to combine revenues from multiple sources. This can reduce risks associated with overreliance on one source. Revenues should be reliable and insulated from market or political pressures. Dedicated funding can lower repayment risk and therefore help reduce financing costs and attract strong partners.

However, as mentioned in Step 4, you may need to return to Step 3 to identify alternative sources if any become unavailable or the project delivery method forces any

FIGURE 4: RANGE OF POTENTIAL FUNDING AND FINANCING SOURCES

DIRECT FEES	DEBT TOOLS	CREDIT ASSISTANCE	EQUITY/PRIVATE SOURCES	VALUE CAPTURE MECHANISMS	GRANTS	EMERGING TOOLS
User fees and charges	Industrial loan companies and industrial banks	State Infrastructure Banks	Public-Private-Partnership	Developer fees and exactions	Federal: EPA, DOT, HUD	Structured Funds
Public benefit funds	Bonds (general obligation, revenue, green, qualified energy conservation)	On-bill financing	Pay for Performance	Value Capture	State	Land Banks
Congestion Pricing	Pooled bond financing	TIFIA/WIFIA	Pooled lease-purchase	Linkage Fees	Local	Greenhouse Emissions Allowance Auctions
	Social/environmental Impact Bonds	Railroad Rehabilitation and Improvement Financing	Loan Loss Reserve Fund	Developer dedication requirements	Foundation	Stormwater credit trading program
	Private Activity Bonds	SBA 504 loans	Infrastructure investment Funds	Special Districts		Redfields to Greenfields
	Catastrophe bonds			Tax Increment Financing		National Infrastructure Bank
	Certificates of Participation			Joint Development		Green Banks
	Revolving Loan Funds (state clean water funds)			Payment in Lieu of Taxes		Green Bonds
	Energy efficiency loan			Tax Equivalency Payment		
	Linked deposit programs					
	Property Assessed Clean Energy loans					

changes. It is also important to fully understand the requirements attached to various funding and financing sources. For instance, if a project incorporates federal grants or loans, it must comply with federal regulations such as the National Environmental Policy Act (NEPA), Buy America provisions, the Davis-Beacon Act, post-construction reporting requirements, and others. These requirements may ultimately make some funding or financing resources less accessible.

At this stage, it is also important to recognize that while some infrastructure assets are typically funded through revenue from user fees, other infrastructure, including roads and, in some states, stormwater collection systems, are not paid for through direct user fees. It can be a challenge when a project that does not directly generate revenue has been prioritized by the community, but funds are not readily available to pay for it. There are no easy answers to this problem, but the entire High Road process looks for opportunities to create efficiency by bundling revenue-generating and non-revenue-generating projects together. In particular, the process addresses this issue in Step 2 by taking community priorities into account, as well as in Step 3 by conducting a comprehensive review of traditional and nontraditional funding and financing sources.

Key Activities

- Identify funding sources to support High Road capital projects, taking into consideration project characteristics and likely funding limits.
- Align the time lines for available funding sources and sequencing of project activities and combine funding streams to accelerate delivery of community benefits. For example, perhaps affordable housing is planned for the later phase of a transit-oriented development project, but state or federal grants are available in the near term to support construction. In this case, affordable housing could be accelerated.

Implementation Participants

Likely participants at this stage include the heads of finance at the lead agency, at each of the involved departments, and at other agencies with aligned or related capital projects. Participants also include project proponents and sponsors within the lead agency's departments. For projects that include grant support or public-private partnerships, the participants should include experts in those areas to ensure early engagement.

High Road GPS: This step is completed once a community has specified the viable funding sources for each project, project component, or program in its capital planning documents.

Does your funding plan:

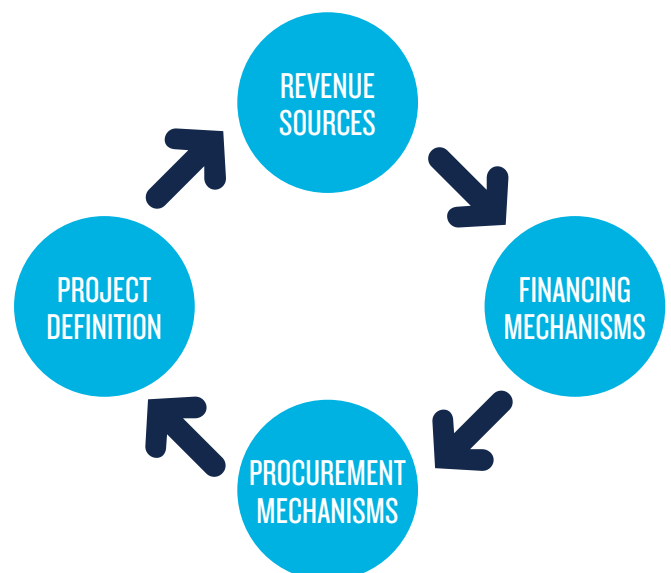
- Represent the best opportunity to get capital to priority projects?
- Provide for repayment of any borrowed funds and for the sound operation, maintenance, and renewal of the developed assets?
- Allow significant community benefits to be realized early in the project's life cycle?

STEP 4: IDENTIFY AND SCREEN RELEVANT FINANCE AND PROJECT DELIVERY STRATEGIES

This step should produce an overall financing and delivery strategy for initial capital investment, long-term debt repayment, and O&M.

Traditional financing strategies operate in discrete and sequential steps, emphasize lowest capital costs (with potentially higher O&M costs as a result), and often fail to prioritize non-revenue-generating activities even when they are important from a community's perspective. The High Road approach, on the other hand, identifies synergies between predevelopment and procurement steps and places more emphasis on aligning project delivery with financing strategies, even though this may require returning to the drawing board to redefine the project multiple times. These adjustments can improve efficiency by including cost savings or performance standards not originally identified and securing greater buy-in from increased stakeholder engagement. It's important to recognize that future savings are future revenue.

FIGURE 5: ITERATIVE PROCESS FOR IDENTIFYING FINANCING AND PROCUREMENT



The project delivery mechanism will also determine the arrangement between public and private partners for capital project construction and subsequent operations and maintenance. Typical project delivery models include:

- **Design-bid-build:** In this traditional public delivery model, these three processes are conducted by separate private teams, followed by operation by the public agency.
- **Design-build:** This simplified process uses a single private team, and the assets are then turned over to the public agency for operation.
- **Design-build-operate:** This process designates a single private team responsible for ongoing operations, and the public agency is responsible for oversight and financing through traditional municipal instruments such as general obligation or revenue bonds or equity capital.
- **Design-build-finance:** In this model, a single private team delivers, operates, and finances the project, with oversight from the public agency.
- **Design-build-finance-operate-maintain:** In addition to design, build, and finance elements, the project operators are responsible for maintenance costs and services, with oversight from the public agency.
- **Build-operate-own:** The private partner gains full control and ownership of the public asset after construction and is responsible for operations and other services. Public oversight is limited.

To determine the right project delivery mechanism, planners must understand the proper risk allocation. Figure 6 illustrates the spectrum of potential private collaboration in the delivery of public projects. There has been a recent trend toward progressive design-build frameworks in which public agencies give more extensive input on project definition. Figure 6 also shows how risk transfer increases from the public agency to the private partner as the delivery mechanism changes; thus the transfer also means that the fees paid to the private partner will likely increase accordingly.

RISK SHARING VERSUS RISK TRANSFER

With risk transfer, the devil is in the details. It can be challenging to align conflicting incentives among municipalities, developers, and financiers to deliver a focused and effective outcome. It is important to work with legal, engineering, and other teams to ensure that risk actually does transfer under project agreements. Also, it may be more advantageous to seek to share risk through mechanisms like price caps, revenue sharing, and performance-based availability payments rather than transfer it altogether. This way, partners share in the upsides and the downsides of different scenarios, reducing chances for unbalanced, “zero-sum” outcomes.

Key Activities

As outlined in Step 3, some projects may be aligned with a single funding source, while others may require funding from several sources. Likewise, in terms of delivery options, some projects may be too small for private options or to be bundled with other projects. These projects may be aligned solely with traditional public finance and delivery options. Small projects may have high transaction costs (such as permitting expenses, legal fees, or staff time) that can be lowered if projects are aggregated (see Step 7). For instance, a series of small transportation projects could be aggregated to complete the permitting at one time, which would lower transaction costs and accelerate delivery.

Determining the best option for the project and for the community requires an assessment of trade-offs and an understanding of the desired level of control and engagement. In order to strike the proper balance between public and private control on the High Road, you may need to return to this step after beginning Step 5.

At this stage, begin a separate process to prepare for state environmental review or federal NEPA compliance. This can run throughout the predevelopment process, since only preliminary design is submitted during environmental permitting review periods.

Implementation Participants

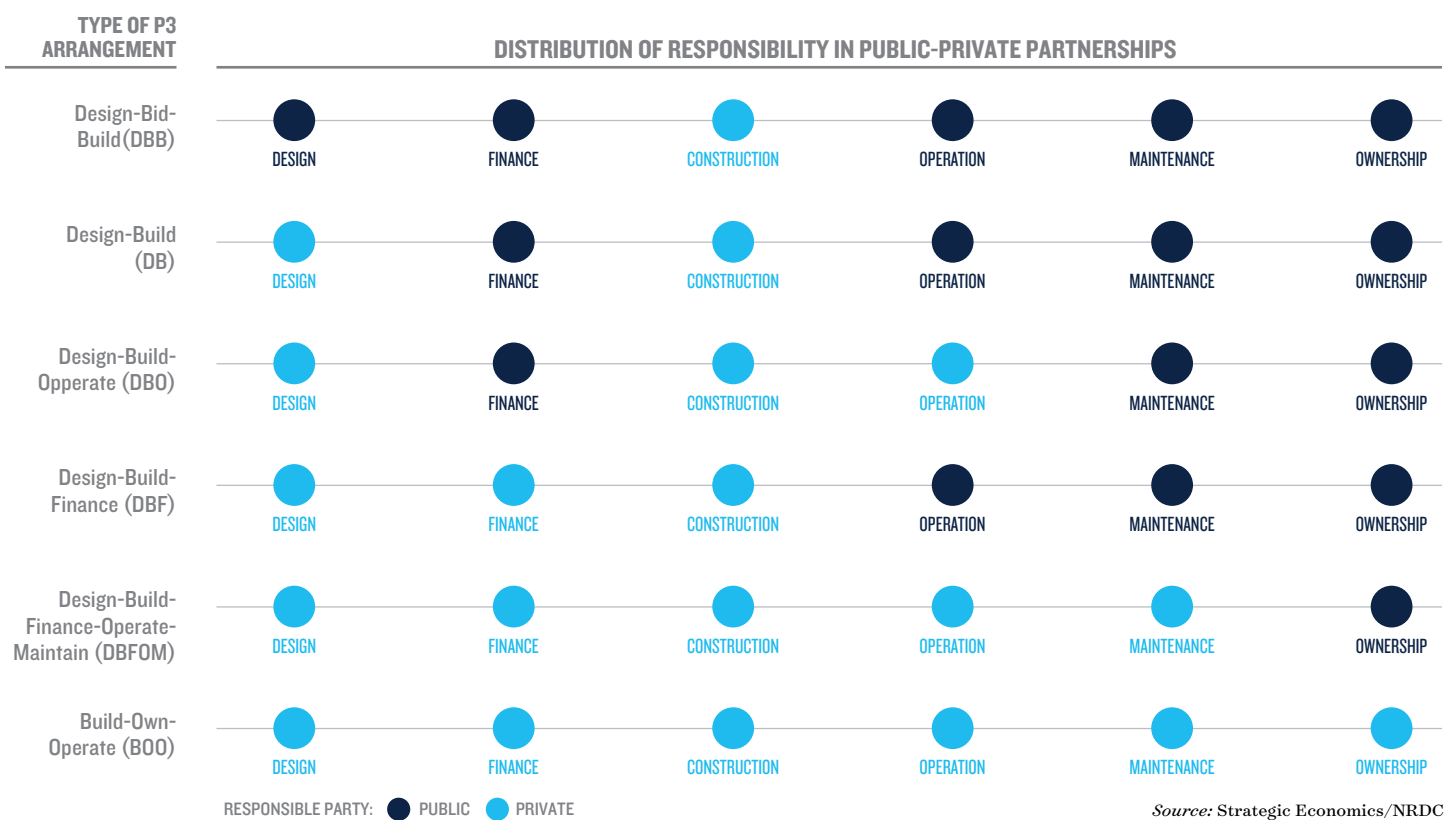
Likely participants at this stage include the heads of finance at the lead agency, at each of the involved departments, and at other agencies with aligned or related capital projects. Early dialogue with some of the potential financiers and investors could also be useful.

High Road GPS: This step is completed when the lead agency has identified financing strategies that address the full range of project components necessary to achieve the High Road goals and has accounted for the full range of life-cycle costs.

Have you:

- Identified a project delivery model that meets your project’s High Road goals and funding needs?
- Identified classes of partners that can execute on the delivery model?
- Assessed the life-cycle costs of the projects and how those might change under different project delivery models?
- Engaged with potential investors and financiers?

FIGURE 6: BALANCE OF RISK AND OVERSIGHT BETWEEN PUBLIC AND PRIVATE PARTNERS ACCORDING TO P3 MODEL TYPE



STEP 5: IDENTIFY AND SCREEN PROCUREMENT MECHANISMS

This step refines project financing and the procurement approach based on the strategies identified in Step 4. Sequencing is important here. If the primary funding opportunity includes grant funds or state revolving funds (SRF) or WIFIA loans, the funding request should be timed to coincide with other projects to be submitted for such loans, given annual funding limits and the application cycles for those programs. If long-term funding includes a private delivery and finance track instead of a municipal bond offering, the lead agency will develop a procurement strategy to engage private teams.

High Road performance standards should be incorporated into bid documents and the bid scoring and evaluation process. For example, the request for qualifications for the Prince George’s County Urban Retrofit Program (which ultimately resulted in the Clean Water Partnership described in Prince George’s County Clean Water Partnership Box) awarded a maximum of 10 points (out of 100 possible total points for all categories) for RFQ respondents’ socioeconomic plans, because the community had identified economic development as a key value in the High Road framework. Thus, the winning bid’s socioeconomic elements stood out in a field of respondents with similar technical experience. Additionally,

performance standards and measurable indicators of success for the community-based outcomes should be integrated into the fee structure for the private partner. When payments are contingent on a partner achieving goals (not just providing basic services), the partner has the incentive to stay on the High Road.

At an earlier stage, agencies interested in innovative options may use a request for expressions of interest to assess market appetite. The Miami Dade Water & Sewer Authority, for example, issued a request for expressions of interest related to private delivery and finance for portions of its capital program. It received more than 30 responses, a sign of considerable market interest. The Authority was then able to use information in the responses to define more innovative and specific plans for private sector involvement in its capital program delivery.

Key Activities

- Develop a preliminary financing/project delivery implementation plan. For example, projects designed with traditional municipal finance options could be attached to a specific state revolving fund cycle or planned municipal bond offering to create economies of scale. Projects targeted for private finance and delivery should outline a procurement model aligned with their size and complexity and market interest.

- Issue a request for expressions of interest in delivering multiple projects as part of an overall capital program. This may be an efficient way to secure early input on the level of market interest and on which projects are the best candidates to move forward.
- Issue a request for qualifications for a specific discrete project or group of projects to elicit creative bundling and aggregation concepts.
- Issue a request for specific proposals that broadly outlines technologies and approaches and invites respondents to help define the project or program. This can be a useful way to elicit innovative ideas within a prescribed framework relating back to Steps 1 and 2.
- For agencies highly comfortable with all the material parameters of the investment, issue a request for specific proposals, including price and defined technologies and approaches.
- Conduct a sole-source negotiation with a single private team to deliver a project. This is appropriate only when competition is not necessary or possible and when procurement rules permit.
- Embed High Road standards into the procurement plans. Any RFP for private delivery and finance, for example, should require and incentivize a team with experience delivering High Road outcomes. A sole-source negotiation with a single private team should incorporate High Road goals early on. Those goals should remain nonnegotiable throughout the procurement process.

Implementation Participants

This step should involve the project team responsible for developing the financing strategy developed in Step 4, as well as any new participants involved in Step 5. The lead agency's finance team, political leadership, and stakeholder groups should be engaged to identify realistic and equitable tax, fee, and charge levels.

High Road GPS: This step is completed once the lead agency has identified the full team of internal staff for the project, a specific funding track, and a procurement method for each High Road project, with High Road standards and screens embedded.

Have you:

- Determined an approach to market for procurement?
- Evaluated the necessary steps and sequencing issues, including critical application deadlines?
- Ensured that potential partners can deliver your High Road standards and goals?
- Ensured that High Road standards and screens are embedded in the procurement process?

STEP 6: IDENTIFY SPECIFIC TARGET INVESTORS

Now it's time to identify and engage potential investors. While some projects will have started this process already, this step accelerates those efforts. Agencies should cast a wide net to identify investors. As they target general obligation or revenue bonds, agencies should also consider packaging and certifications to elicit investors interested in green or social bonds. Likewise, agencies should consider their project's potential appeal to the full spectrum of private investors, including impact investors, private equity, and pension funds.

In some cases, agencies may find that other public agencies could serve as potential investors, either as direct financial partners or by purchasing some of the project's benefits or services. This might require agencies to realign their funding sources to maximize High Road benefits. The City and County of Denver's effort to enhance water quality through green infrastructure uses a cross-agency team from the Departments of Public Works, Environmental Health, Parks and Recreation, and others.

If a likely funding source is identified in Step 3, the activities in Steps 6 through 8 may be combined and conducted earlier in the predevelopment process.

Key Activities

- Identify the specific objectives and needs of the target investors. For instance, to attract the interest of pension funds or equity capital groups, projects may need to meet a size threshold. Others may require verified environmental or social performance outcomes. (see the next bullet). Traditional municipal borrowing investors may require certain coverage, reserve, and rating metrics.
- Review target investor categories and identify more investors. Financial products such as impact capital, green bonds, and social bonds target investors interested in environmental or social outcomes in addition to economic ones. Therefore, these investors may be naturally attracted to High Road projects. While it may be difficult to locate such mission-aligned investors, it is worth seeking them out. These sources of capital may require independent certification, monitoring, verification, and disclosure of social and environmental impacts. The associated costs are increasingly outweighed by the benefits of investor diversification, lower financing costs, better financing terms, and enhanced reputation with community members.
- Ensure that all investments align with other funding sources and that delivery won't be impacted by investors' time lines.

Implementation Participants

This step will involve the same participants and funding sources identified in Step 5.

High Road GPS: This step is completed when investors and their respective requirements have been identified.

Have you:

- Identified target investors that align with your High Road success criteria or metrics?
- Assessed the requirements of the target investors and developed strategies to meet those requirements?

STEP 7: IDENTIFY PROJECT BUNDLING AND AGGREGATION NEEDS AND OPPORTUNITIES

Now, the lead agency will explore options to package projects to enhance attractiveness to investors. This is primarily relevant for private investors interested in opportunities in the range of \$150 million or more. When agencies need to issue a general obligation bond or revenue bond offering, it can be useful to bundle different projects or aggregate similar types of infrastructure assets to get to investible scale. An example of aggregation is when communities within a state group together water system improvement projects for a “pooled bond” offering that reduces transaction costs and lowers interest rates. An example of bundling is when a jurisdiction combines the capital needs of a water treatment plant with related expansion of a water distribution system to create a single project large enough to attract private investors.

Some projects may have already been bundled in Steps 2, 4, or 5. For example, a request for expressions of interest for a P3 in Step 5 would include an invitation for private teams to identify how to bundle the city’s capital projects. When Denver entered a P3 agreement to upgrade its Union Station, it bundled it with a regional bus facility and light rail improvements that also provided mixed-use retail, residential, and office space. The city identified these opportunities during the project definition and procurement stage.

Creative approaches to bundling and aggregating various pieces of the funding and financing strategy can create new High Road financing opportunities. High-priority, expensive projects or those that do not generate revenues can be bundled or aggregated with low-cost projects to reduce the average cost. For example, some university public-private partnerships combine the construction and operation of diverse campus assets (dormitories, classrooms, laboratories, parking, water treatment, and microgrids) into a single project supported by different fees and grants.¹⁹

Key Activities

- Explore opportunities to aggregate or to bundle in a specific location. Benefits may include lower capital costs and better services due to completing multiple projects together.
- Refer back to earlier steps (especially Step 2) to identify potential aggregation and bundling opportunities with projects at other locations. Examine planning documents and frameworks from multiple agencies and jurisdictions that may offer other projects that can be combined.

Implementation Participants

Likely participants include the lead agency’s head of finance, representatives from the line departments, and agency leads. As indicated above, in some situations agencies may solicit input from private developers to help identify aggregation and bundling options that would attract market interest.

High Road GPS: This step is necessary only when funding strategies and target investors require a minimum scale, and it is completed when a viable strategy is agreed on.

Have you:

- Assessed options to bundle or aggregate projects?
- Assessed how bundling or aggregation may improve outcomes or reduce capital costs?

STEP 8: CONDUCT TECHNICAL STUDIES TO CONFIRM VIABILITY

Some technical evaluations are needed to support preceding steps. For example, the processes defined in Step 2 will require planning, engineering, and pricing/cost estimation studies. Step 8 addresses additional, detailed financial/implementation feasibility evaluations that may be necessary, depending on the financial strategy and target investors.

Key Activities

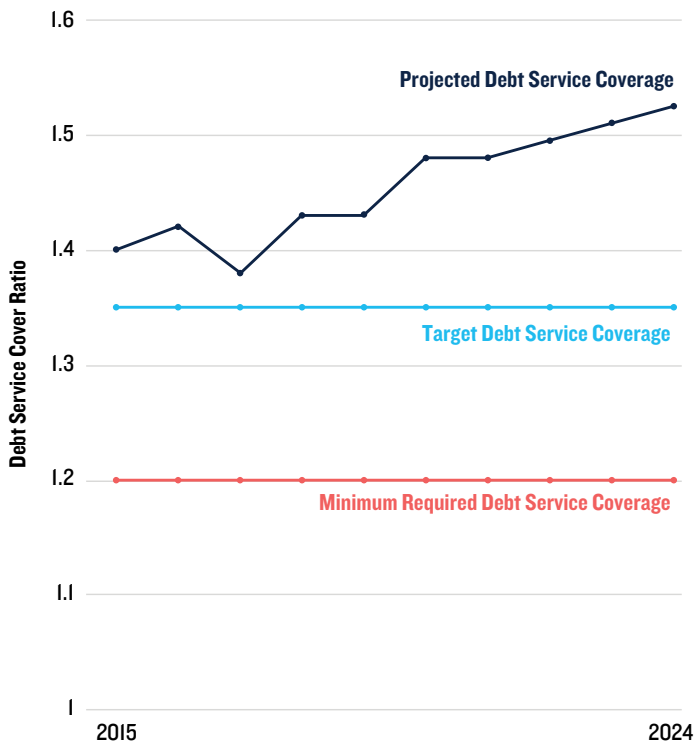
For projects targeting traditional financing methods:

- Assess the levels of revenues needed to repay bonds, cover debt service, and create operations and replacement reserves under various scenarios.

For projects targeting private delivery and finance:

- Conduct a value-for-money analysis to determine the life-cycle costs of traditional versus alternative delivery. This includes risk transfers associated with private delivery options, as illustrated in Figure 8 with a comparison between a traditional public project and a Design-Build-Finance Operate-Maintain (DBFOM) model with a private partner.

FIGURE 7: DEBT SERVICE COVERAGE ANALYSIS FOR A PROJECT FUNDED THROUGH MUNICIPAL BONDS



- Supplement value-for-money analysis with fuller analytical tools that count the High Road co-benefits that will result in further savings or increased welfare. Emerging tools, such as “value for funding,” also evaluate the inherent risks presented by certain public-private partnership structures.²⁰ If the project team has already conducted preliminary versions of studies; these analyses should be updated with more accurate cost and risk information. These updated studies must uphold High Road features as essential components, not expendable attributes in the name of decreased costs or increased near-term, transaction-level efficiencies.

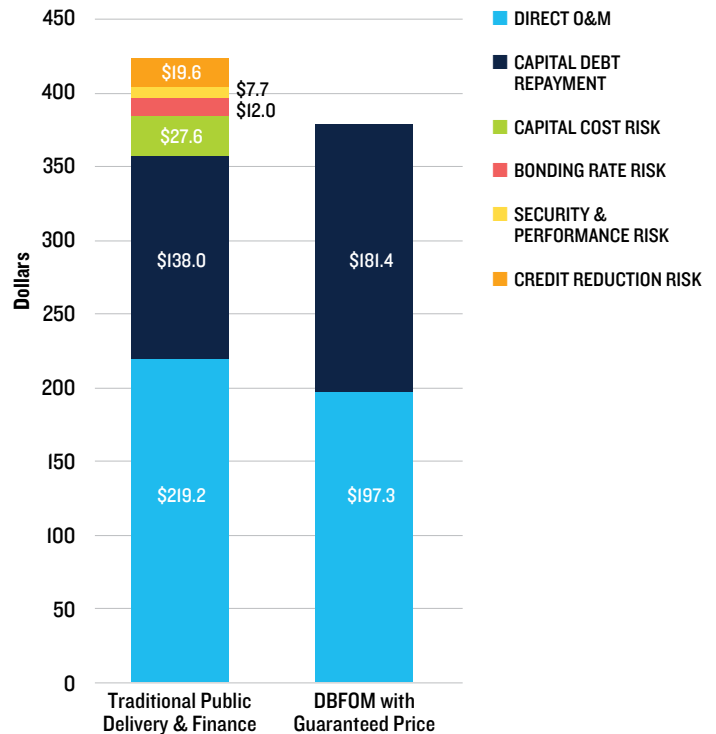
Figure 8 compares a traditional public project and a design-build-finance operate-maintain project with a private partner. The DBFOM is projected to have a lower overall cost, because it eliminates the risk of reduced credit ratings or poor construction and it includes lower O&M costs.

Implementation Participants

This step should involve the lead agency’s CFO and finance, planning, and engineering staff. Consultants may have to be retained to provide independent certification of bond covenants.

High Road GPS: This step is completed when supplemental, detailed analyses have been conducted. High Road objectives *must* remain intact.

FIGURE 8. ILLUSTRATION OF A VALUE-FOR-MONEY ANALYSIS



Have you:

- Analyzed projects across the full life cycle to determine any necessary adjustments to the financing model?
- Determined whether revenues can cover the debt payments and provide reserves and balances sufficient to maintain or strengthen applicable credit ratings?
- Assessed full risks and benefits of the delivery model?
- Assessed the value of High Road co-benefits?

STEP 9: FINALIZE PROJECT SPONSOR/INVESTOR PLANS AND ARRANGEMENTS

At this stage, agencies develop detailed execution plans based on project planning, engineering studies, and financial and delivery technical analyses. To secure funding through traditional municipal mechanisms, incorporate costs for the High Road projects into the capital improvement plan, rate studies, and budget plans. This ensures their inclusion in specific bond issues or SRF tracks and then finalizes the necessary bond prospectus documents to secure private finance and delivery, administer RFP or RFQ processes, or negotiate with a single private entity, based on the procurement approach. In the case of loan programs like WIFIA (for water infrastructure) and the Transportation Infrastructure Finance and Innovation Act (TIFIA), this step includes

locking down funding sources for matching shares, since the loan programs can cover no more than 49 percent of the identified project costs. Again, it is critical that High Road goals remain embedded.

Implementation Participants

Participants should include the lead agency's CFO, legal counsel to review contracts, and engineers/operators to review and confirm both the capital facilities definition and the operating specifications.

High Road GPS: Projects with traditional financing structures have completed this step when the bonds have been sold, rates have been raised if necessary, and SRF funding is available. Projects with private delivery and finance mechanisms have completed this step when they have reached a delivery agreement with a private team. This includes acceptable financial terms, compensation, schedule, and obligations that uphold High Road ideals.

Have you:

- Organized a bond issue or final loan application, or set a revenue schedule to cover capital and O&M costs?
- Secured a contract that includes financing with a private partner?

STEP 10: CLOSE THE DEAL AND DEVELOP IMPLEMENTATION PLAN

In the final step, project teams need to execute required construction and operation agreements. Regardless of the financing and delivery method, projects should have an implementation plan that defines the responsibilities and time line. It should also stipulate how to track and verify the delivery of both the public service objectives and the High Road goals.

Key Activities

For all delivery models:

- Issue a detailed implementation plan that defines the responsibilities and time line for all parties to provide the capital assets throughout their life cycles. It should also define how progress in both delivering the public service objectives and meeting the High Road goals will be tracked and verified.
- To support sustainability, include plans for the orderly renewal and replacement of the assets as they reach the end of their useful lives.
- Develop a marketing plan to share with the community and stakeholders information regarding pending projects.

For assets with traditional delivery and financing:

- Issue municipal general obligation or revenue bonds or close on an SRF/WIFIA/TIFIA loan.
- Seek bids from construction contractors.
- Negotiate financing terms.
- Secure contract approval from governing bodies and execute all required contracts.

For assets with private delivery and finance options:

- Close on private cofinancing for those using a federal loan.
- Finalize contract terms with the selected private delivery entity.
- Secure approval from the governing board.
- Execute the contract for service.

Implementation Participants

This step should involve the project's financing, engineering, construction, and legal leads to ensure that appropriate High Road elements are included.

High Road GPS: This step is completed when the construction contract or agreement with a private delivery/development team has been executed.

Have you:

- Finalized a contract for construction and services delivery?
- Implemented the methodology to track the High Road benefits of projects?
- Ensured that public and private parties understand their responsibilities to support High Road benefits?
- Communicated to stakeholders and the public that the project is about to begin?

HIGH ROAD RESULTS ARE WORTH THE EXTRA MILE

High Road infrastructure and revitalization can improve our health and cut our energy use and costs. It can also make our neighborhoods healthier, more equitable, and more resilient. The High Road framework can align local political goals and inclusively engage diverse sets of stakeholders, encouraging more direct participation in community building. High Road goals should be insulated from "politics," as the term is usually used, but encourage political participation. It takes a little more planning and a few more resources, but that extra mile is worth it for the good of the people and the economy.

ENDNOTES

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