

Guidebook on Policies and Estimation of Matching Funds for New BIL Grants

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Guidebook on Policies and Estimation of Matching Funds for New BIL Grants

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TABLE OF CONTENTS

DISCLAIMER	iii
1. INTRODUCTION	1
2. RESEARCH METHODOLOGY	3
3. ANALYSIS OF MATCHING FUND POLICIES	4
3.1. BACKGROUND AND KEY TERMINOLOGY	4
3.2. CASH MATCH	7
3.3. THIRD-PARTY IN-KIND MATCH.....	8
3.4. SOFT MATCH	9
3.5. SPECIAL PROVISIONS	10
4. POTENTIAL SOURCES FOR MATCHING FUNDS	14
4.1. SPECIALIZED LOCAL OPTION TAXES	14
4.2. VALUE CAPTURE METHODS	16
4.3. STATE INFRASTRUCTURE BANKS.....	17
4.4. TIFIA CREDIT ASSISTANCE.....	20
4.5. PUBLIC-PRIVATE PARTNERSHIPS.....	21
4.6. LEGISLATURE SUPPORT	24
5. FRAMEWORK FOR ESTIMATION OF MATCHING FUNDS	24
6. RECOMMENDATIONS ON THE USE OF MATCHING FUNDS	34
7. ACKNOWLEDGEMENTS	36
8. GLOSSARY OF ACRONYMS	37
9. QUICK REFERENCE	38
APPENDIX 1 – SURVEY QUESTIONNAIRE	39
APPENDIX 2 – LIST OF BIL PROGRAMS UNDER USDOT	40

LIST OF TABLES

Table 1: Eligibility of contributions by type.....	6
Table 2: Sample list of fifty projects with costs in State XXXXVVV.....	27
Table 3: Sample list of USDOT programs with matching fund requirements (MFR) and maximum fund available under each program	29
Table 4: List of projects matched with eligible Federal programs.....	30
Table 5: Results from GA Optimization	32
Table 6: Residuals under each program after project allocation.....	33
Table 7: Suggestions for best use of matching funds	35

LIST OF FIGURES

Figure 1: Illustration of Federal and non-Federal share requirement of project costs with 80/20 ratio	6
Figure 2: Illustration of Federal and non-Federal share requirement of project costs with 80/20 ratio and contributions from subgrantee.....	7
Figure 3: Illustration of Federal and non-Federal share requirement of project costs with 80/20 ratio with contributions from in-kind donations.....	8
Figure 4: Illustration of Federal and non-Federal share requirement of project costs with 80/20 ratio – with higher contributions of non-Federal share	9
Figure 5: Illustration of use of tapered match in Federal aid matching.....	10
Figure 6 : CDOT Change in matching fund requirements (pre-IIJA scenario).....	12
Figure 7 : CDOT Change in matching fund requirements (IIJA scenario)	12
Figure 8: States engaging local option taxes.	15
Figure 9: States engaging State Infrastructure Banks	19
Figure 10: States engaging TIFIA Credit Assistance.....	20
Figure 11: States engaging P3 Projects	22
Figure 12: Illustration of model for engagement of private sector participation	23
Figure 13: Flowchart for estimation of matching funds	26

1. INTRODUCTION

On November 15, 2021, the Bipartisan Infrastructure Law (BIL) was enacted, authorizing \$1.3 trillion in Federal investment in infrastructure from 2022 to 2026. Commonly referred to as the Infrastructure Investment and Jobs Act (IIJA) or Public Law 117-58, this legislation is recognized as the most substantial long-term investment in the United States' infrastructure and economy¹. The allocated funding targets various sectors, including roads, bridges, mass transit, water infrastructure, resilience, and broadband.

The BIL has significantly expanded opportunities for infrastructure development and created multiple avenues for accessing Federal support for State transportation agencies. However, these avenues need States to provide matching funds as a requirement to receive Federal aid. Consequently, there has been a notable increase in the annual amount of matching funds required. **Matching funds, or cost sharing, refers to the portion of project costs that are not covered by Federal funds unless explicitly authorized by Federal statute².** These matching funds represent the mandatory cost-sharing obligation imposed on States or local agencies to qualify for Federal grants.

The introduction of the BIL, coupled with the evolving needs of State Departments of Transportation (State DOTs) and local public agencies (LPAs) in identifying innovative financing methods, has led to a significant rise in the annual requirement for matching funds. State transportation agencies face challenges in fully leveraging available Federal grants and innovative financing programs due to budgetary constraints. It is crucial to strategically manage limited funds over time to optimize the timing and quantity of capital projects, ensuring the best interests of the States.

Opportunities exist to enhance the objectivity and clarity of methods employed in forecasting the annual matching fund needs for each State. This can be achieved by considering the types of projects and programs in which States are engaged. Such considerations are vital to assess the availability of State funds and ensure full utilization of Federal grants. By employing these models, State agencies can generate more reliable estimates and precise timing of their funding requirements based on data, leading to more effective and efficient resource allocation. Furthermore, agencies can develop models to evaluate alternative methodologies for addressing highway financing needs and assessing their effectiveness. This report provides a deeper understanding of match requirements and explores methods to achieve these objectives.

Background on matching funds

It is worth noting that the Federal government has been providing highway funding to States in various forms for over a century. The funding typically adheres to certain characteristics that have remained consistent since the early 1920s. Most funds are allocated to States based on formulas, and the State

¹ Federal Highway Administration (2022) - Bipartisan Infrastructure Law. Retrieved from <https://www.fhwa.dot.gov/bipartisan-infrastructure-law/>

² US Government Publishing Office – GPO (2022) - Code for Federal Regulations - Cost Sharing or Matching. Retrieved from <https://www.ecfr.gov/current/title-2/subtitle-A/chapter-II/part-200/subpart-D/section-200.306>

DOTs or the LPAs bear the primary responsibility for implementing the projects. Additionally, States are obligated to provide matching funds. In the past, up until the 1950s, each Federal dollar had to be matched by an equivalent amount of State and local funds.

The current Federal share varies, with non-Interstate system road projects receiving 80% Federal funding and Interstate system projects receiving 90% Federal funding. There also exist programs that do not require a match. The State has the option to fully match the non-Federal share or to have a partial match with contributions from both the State and local entities. The non-Federal matching requirements vary among States and even within the same State, depending on the grant program. Match requirements for government programs are typically implemented for distinct reasons. One primary objective is to distribute program costs across different jurisdictions or involve the private sector in the funding process. Additionally, match requirements are structured to promote the long-term sustainability of projects beyond the grant program's duration. By mandating matching funds, funders ensure that grant recipients maintain a continued interest in the project's success. This approach fosters a sense of ownership and accountability among grantees and ensures the long-term viability of the projects.

Prelude to the research: The BAC-CFO Forum

As part of the research study, the Build America Center (BAC) organized a CFO forum (Chief Financial Officers of State DOTs Forum) on September 21, 2022, to discuss the strategies and best practices used by State DOTs to identify matching funds. The forum focused on initiatives to expedite project implementation through smart and innovative finance, addressing legislative budgetary constraints, and bridging financing needs. The discussion also highlighted the increased demand for matching funds requirements in the States, given the accelerated infrastructure growth resulting from the enactment of the BIL. During the CFO forum, it was emphasized that creating a dedicated budget is crucial for aligning funds with anticipated requirements and maximizing grants from Federal programs. This budget should outline the funding needs for the next five years, considering the higher demands caused by the increased funding from BIL and other Federal mandates. The discussion underscored the challenges faced by the Flexible State Highway User Trust Fund (HUTF) revenue, which is already stretched thin due to various funding requirements, including matching Federal formula funding, competitive matches for discretionary grants, and funding the maintenance and operations of the assets. The insights gained from the CFO forum are further elaborated in subsequent sections of the report.

Organization of the report

The report is organized into six chapters: Introduction, Research Methodology, Analysis of Federal Policies on Matching Funds, Discussion on Funding Sources, Estimation Framework for Matching Funds, and Recommendations. The Introduction chapter provides an overview, including the background on matching funds and findings from the BAC-CFO forum. It emphasizes the importance of innovative financing for transportation projects.

Chapter 2 covers the research methodology, outlining objectives, data sources, collection approach, and analysis techniques. Chapter 3 explores Federal policies on matching funds, comparing different approaches, and evaluating their effectiveness. Chapter 4 investigates potential funding sources used by transportation agencies, including traditional and alternative options. Chapter 5 presents a framework for estimating and optimizing matching funds, discussing methodologies and factors influencing its requirements. Chapter 6 offers recommendations on best practices for maximizing Federal grants and minimizing matching fund burdens. Additional sections include a glossary of acronyms, acknowledgements, and quick references to relevant websites.

2. RESEARCH METHODOLOGY

Objectives of the research

The study aims to achieve the following objectives:

- Document and analyze standard Federal policies concerning matching fund requirements.
- Determine the matching fund requirements for programs implemented under the BIL.
- Explore the various sources utilized by State DOTs to secure matching funds.
- Develop a framework and tool for estimating and quantifying the amount needed to match Federal funds for a portfolio of projects and programs.
- Provide recommendations to public agencies on effectively utilizing financial resources and optimizing access to Federal funds through the connection between State funding sources and Federal grant matching.

By accomplishing these objectives, the study aims to assist in improving the efficient utilization of financial resources and maximizing the benefits derived from Federal grants for infrastructure projects.

Research approaches & data collection

The research began with an extensive review of existing Federal policies on matching funds, particularly those outlined by the Federal Highway Administration (FHWA) and the specific provisions of the BIL. The second phase involved a two-stage data collection process using a survey questionnaire. Initially, publicly available resources were gathered and reviewed, followed by email contact with State DOTs to validate the collected data and fill in any gaps. This approach allowed for targeted information gathering from survey respondents, reduced response time, and ensured consistency in data collection. The survey format can be found in Appendix 1.

Data sources

To collect data on policy-related matters, the research team utilized trusted sources such as the FHWA and the United States Department of Transportation (USDOT) websites. These websites offered valuable insights into matching funds and the allowable methods of matching. Additionally, the researchers referred to relevant publications related to Federal grants and implementation of the BIL.

For the survey instrument, the researchers prepared pre-filled information on State DOT's matching fund practices. Studies conducted by reputable organizations were referred, including the reports prepared by the American Association of State Highway and Transportation Officials (AASHTO), the National League of Cities (NLC), and other relevant publications on State funding utilization. By gathering information from these reliable sources, the researchers compiled the draft pre-filled data for the survey.

Data analysis

This report simplifies and summarizes policy matters regarding matching funds, making the information accessible to policymakers, transportation experts, and the public. The survey results are represented visually using a map of the United States, showing separate illustrations for each funding source. Six distinct funding types were identified, with information on States currently using them and those that have authorized but not yet utilized them. This approach clarifies patterns and trends in the type and kind of matching fund sources engaged across States. Additionally, the report discusses a framework for estimating and optimizing matching funds, including a sample set of USDOT Federal programs under BIL and a hypothetical project portfolio. Projects are assigned to Federal programs after the portfolio optimization. The BAC team is currently working on developing a publicly accessible program, which will be released as an addendum to this report. The report also provides recommendations for the best use of matching funds.

3. ANALYSIS OF MATCHING FUND POLICIES

3.1. BACKGROUND AND KEY TERMINOLOGY

The Federal share of Federal-aid projects is primarily determined by the guidelines outlined in United States Code - 23 U.S.C. 120. It presents the maximum percentage of project costs that can be funded with Federal aid. It is important to be aware that additional restrictions or flexibility may apply under program-specific legislation, and it is recommended to consult relevant resources prior to the application for funding. The following key terminologies may be noted while reading this guidebook.

- **Cost Sharing or Matching** means the "*portion of project costs not paid by Federal funds (unless otherwise authorized by Federal statute)*"³.
- **Donations:** "*Donations and contributions are considered synonymous and represent eligible project costs provided by a third party to a recipient or subrecipient for satisfying the non-Federal share requirements of a Federal-aid project.*"
- **Recipient or Grantee** means a "*non-Federal entity that receives a Federal award directly from a Federal awarding agency to carry out an activity under a Federal program. The term recipient*

³ US Government Publishing Office – GPO (2022) - Code for Federal Regulations - Cost Sharing or Matching. Retrieved from <https://www.ecfr.gov/current/title-2/subtitle-A/chapter-II/part-200/subpart-D/section-200.306>

does not include subrecipients⁴ and in most instances, the State DOT is the recipient of Federal-aid funds in each State. FHWA funds may be directly granted to agencies other than State DOTs, such as local governments, Indian Tribal Governments, universities, and nonprofit organizations. These direct recipients may also receive subawards of FHWA funds from another direct recipient, for example, metropolitan planning funds that are passed through a State DOT to a metropolitan planning organization.”

- **Federal program:** In the context of this study, this refers to a program funded by USDOT / FHWA as part of the BIL. The programs can be either under formula funding or discretionary funding. The set of BIL programs under USDOT is listed in Appendix 2.
- **Apportionment:** *“the distribution of funds to States as prescribed by statutory formula (typically based on the area of the State, population & other criteria).”*
- **Formula funding:** Apportionment of funds to States based on a statutory formula.
- **Discretionary funding:** Also known as competitive grants, where grants can be received based on competitive bidding as per terms set forth in the grant application forms, known as the Notice of Funding Opportunity (NOFO).

There are various combinations of matching approaches that can be engaged to meet the non-Federal share. As per 23 U.S.C.120⁵, the standard Federal share applicable to projects or activities is set at 90% of the total cost for a project on the Interstate System, excluding projects that involve adding other lanes (but including projects to add high occupancy vehicle lanes or auxiliary lanes). For projects that are not on the Interstate System, the standard Federal share is 80% of the cost. However, there may be concessions and amendments to this standard Federal share, which shall be mentioned in program-specific fact sheets. The non-Federal share of the match may include either **cash, third party in-kind** match or a **soft match**. The details are explained in subsequent sections. A standard illustration is provided below in Figure 1.

⁴ US Government Publishing Office – GPO (2022) - Code for Federal Regulations - 200.86 Recipient. Retrieved from <https://www.govinfo.gov/content/pkg/CFR-2014-title2-vol1/pdf/CFR-2014-title2-vol1-sec200-80.pdf>

⁵ US Government Publishing Office – GPO (2022) - 23 U.S.C. 120 - Federal share payable. Retrieved from <https://www.govinfo.gov/content/pkg/USCODE-2011-title23/html/USCODE-2011-title23-chap1-sec120.htm>

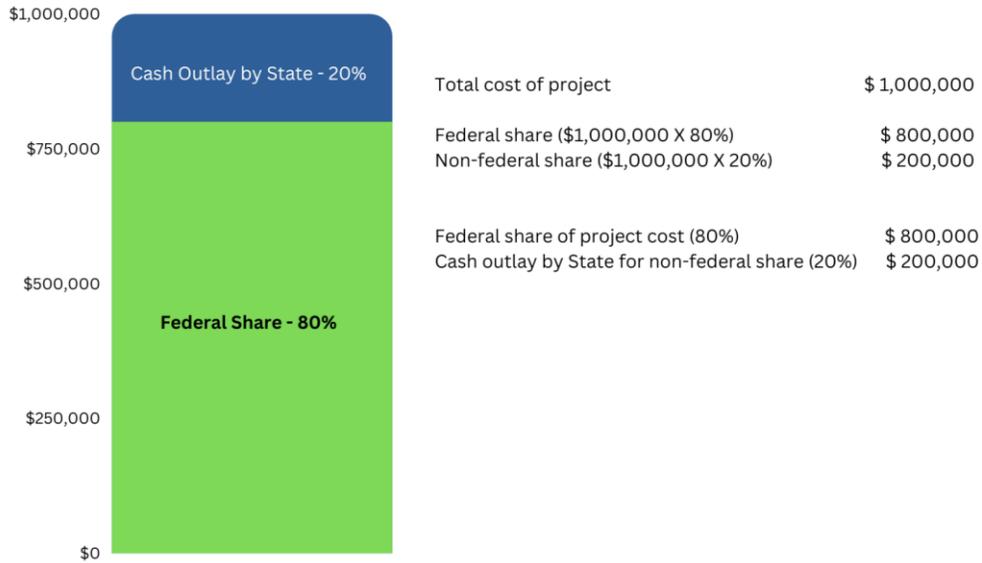


Figure 1: Illustration of Federal and non-Federal share requirement of project costs with 80/20 ratio

The details of the eligible match can be found in the NOFOs, and program requirements provided by the Federal agency. The terms and conditions of the agreement specify the proper recognition and accounting treatment of all costs used to fulfill the non-Federal share. The parties eligible to contribute under different matching strategies are summarized and explained in the following sections, under typical conditions.

Table 1: Eligibility of contributions by type

Type	Grantee	Third-party	Federal
Cash	Yes	Yes	Yes ^a
In-kind	No	Yes	No
Soft match ^b	Yes	No	No

a: Use of Federal funds permitted only under flexible match provisions for using Federal funds as a match.

b: Soft match option may include toll credits or off system bridge credits.

3.2. CASH MATCH

The cash match includes payments made by the grantee or the amount pledged in hard cash. It can come from various sources such as legislative support, loans, and other innovative financing. Cash matching also allows the use of cash spent on project-related costs. The allowable cash match must comply with the necessary, reasonable, and allowable costs under the Federal program.

The cash match can include contributions from:⁶

- The recipient or the grantee.
- The private sector, non-profit, or other partner organizations (under provisions of third-party cash contributions)
- Sources from Federal funding (under special provisions for certain Federal programs – see Section 3.5.2 of this report)

During project formulation, it is advisable to identify potential project partners, including State or local transportation agencies, which can provide direct cash funds or other resources like toll revenues or parking fees managed by the recipients. Contributions from subgrantees like LPAs can also be considered as a match and the sample illustration of this scenario is shown in Figure 2 below.

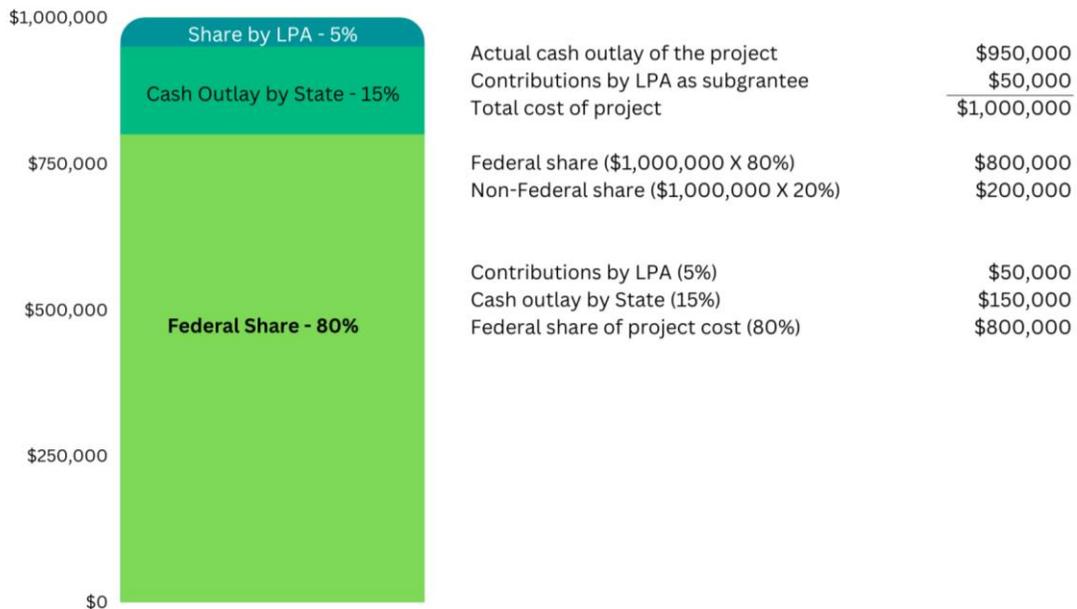


Figure 2: Illustration of Federal and non-Federal share requirement of project costs with 80/20 ratio and contributions from subgrantee

⁶ U.S. Department of Transportation (2022). "SS4A Match and Cost Share Examples". Page 2
Retrieved from https://www.transportation.gov/sites/dot.gov/files/2022-08/SS4A-Match-and-Cost-Share-Examples_2.pdf

3.3. THIRD-PARTY IN-KIND MATCH

Third party in-kind contribution refers to *“the value of non-cash contributions (i.e., property or services) that- (a) Benefit a Federally assisted project or program; and (b) Are contributed by non-Federal third parties, without charge, to a non-Federal entity under a Federal award.”*⁷ According to FHWA's definition,⁸ *“a third-party is an entity (other than a grantee/recipient, subgrantee/subrecipient, or Federal agency) that is not party to a Federal-aid project agreement, but who may have an interest in the project. As a grantee, a State cannot be considered a third party.”*

The match can come from non-profit or private sector partners, other government agencies, educational partners, or other parties offering in-kind contributions in the form of goods, services, real estate, or machinery. The use of in-kind match is permitted if the services are reasonable and authorized by specific regulations of each Federal program. It is important to note that the in-kind match can only be used once⁹ and cannot be used as a match for multiple Federal awards. A sample illustration including contributions from third party in-kind donations is shown in Figure 3 below.

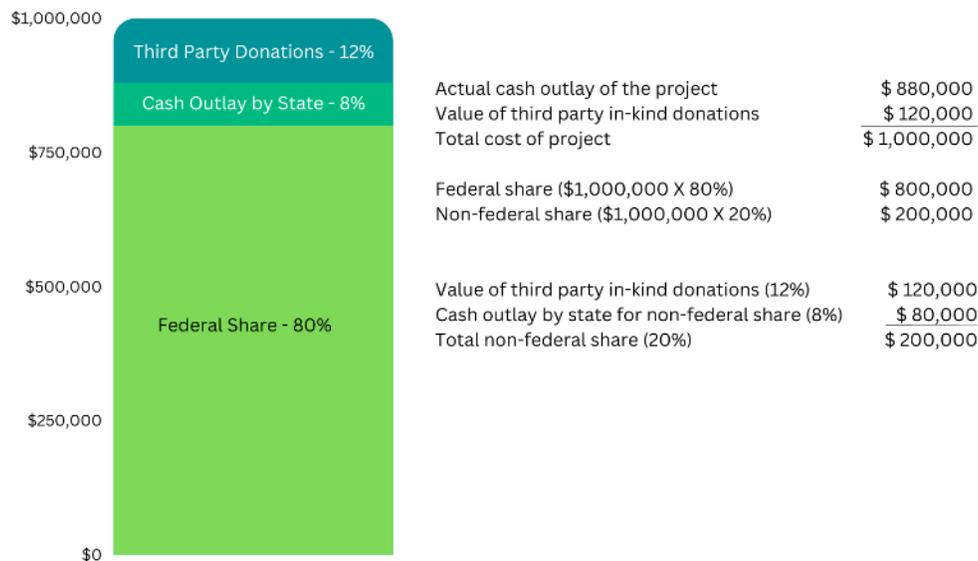


Figure 3: Illustration of Federal and non-Federal share requirement of project costs with 80/20 ratio with contributions from in-kind donations

The statutes also permit the use of non-Federal share (match) more than the required match. In this situation, each dollar of extra donation will lower the Federal share by the same amount. This is typically seen while contributions are received from third party donations or in-kind matches. The illustration

⁷ US Government Publishing Office – GPO (2022) - 200.96 Certificates of actual cost.

Retrieved from <https://www.ecfr.gov/current/title-24/subtitle-B/chapter-II/subchapter-A/part-200/subpart-A/subject-group-ECFRc5128755b305a3e/section-200.96>

⁸ Federal Highway Administration (2022). “Federal-Aid Guidance Non-Federal Matching Requirements,,” Page 4 Retrieved from https://www.fhwa.dot.gov/legsregs/directives/policy/memonfmr_tapered20190515.htm

⁹ U.S. Department of Transportation (2022). “SS4A Match and Cost Share Examples”. Page 1

Retrieved from https://www.transportation.gov/sites/dot.gov/files/2022-08/SS4A-Match-and-Cost-Share-Examples_2.pdf

of such a case is shown below in Figure 4 and this rule is consistent with the provisions in the statute spelt as - *"Notwithstanding any other provision of this title and subject to such criteria as the Secretary may establish, a State may contribute an amount in excess of the non-Federal share of a project under this title so as to decrease the Federal share payable on such project"*.

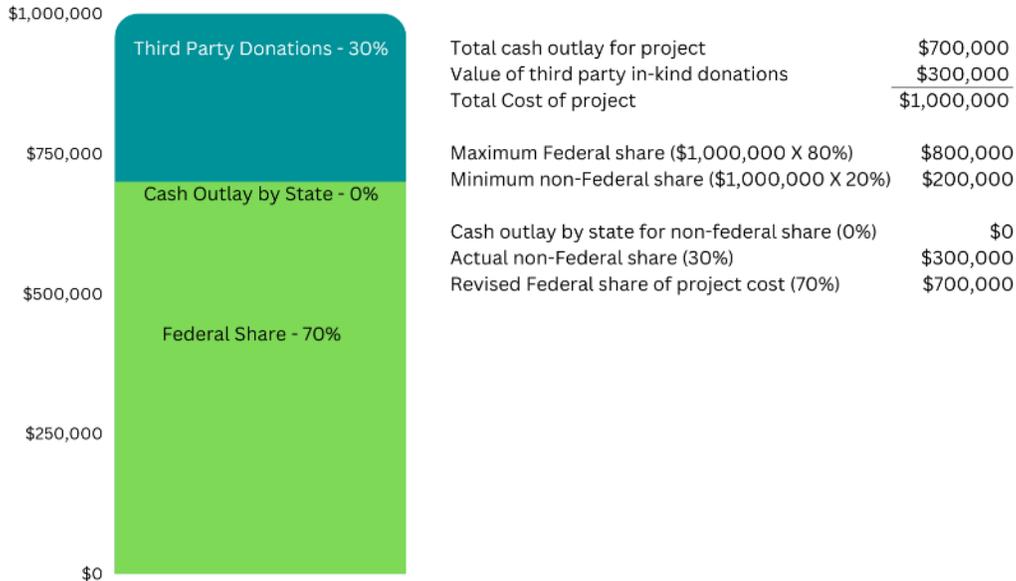


Figure 4: Illustration of Federal and non-Federal share requirement of project costs with 80/20 ratio – with higher contributions of non-Federal share

3.4. SOFT MATCH

Soft matches are an alternative method of meeting the non-Federal share of funding by utilizing Toll Credits or credits for Bridges not on Federal-Aid Highways. These credits can be applied towards matching requirements by considering previous expenses as "project costs," effectively increasing the Federal cash outlay up to 100% of project costs. The main advantage of this approach is that it eliminates the need for cash or in-kind matches to secure Federal grants.

Toll Credits¹⁰ – A State may be eligible to receive toll credits when the revenues generated from toll facilities are used to construct, repair, or maintain highways, bridges, or tunnels that serve the general interest of interstate commerce. Toll receipts, concession sales, right-of-way lease income, interest income, and even bond or loan profits backed by toll facility revenue can all be considered as sources of toll revenues. These toll credits can then be used to meet the non-Federal share requirement on projects receiving Federal grants. As of FY22, a toll credit balance of \$38.77 Billion is available across 29 States¹¹.

¹⁰ Federal Highway Administration (2022). "Federal Aid Matching Strategies – Toll Credits." Retrieved from: https://www.fhwa.dot.gov/ipd/finance/tools_programs/Federal_aid/matching_strategies/toll_credits.aspx

¹¹ Federal Highway Administration (2022). "Federal Aid Matching Strategies-Ending Toll Credits Balance by State-Federal FY20-22". Retrieved from: https://www.fhwa.dot.gov/ipd/finance/tools_programs/federal_aid/matching_strategies/TCEndBal_FY20_22.pdf

Credit for Bridges not on Federal-aid Highways¹² - In specific situations, statutes allow for the accumulation of credits through the expenditure of State or local funds on an off-system non-Federal-aid bridge project. These credits can be utilized to offset the local matching share of a subsequent bridge project. The credits are earned when the share from State and local sources exceeds 20% of the construction cost. These provisions are detailed in the guidelines for Credit for Bridges not on Federal-aid Highways.

3.5. SPECIAL PROVISIONS

Provisions for tapered match

Tapered Match is a Federal-aid matching flexibility that allows the Federal share of funding to vary¹³ throughout a project, ensuring it does not exceed the specified limit as per program conditions. States or local agencies can adjust the matching ratio during the project using the tapered match approach. For example, the Federal contribution can start at 100% and gradually decrease to 0% as the project nears completion. This method offers the advantage of not requiring immediate cash or in-kind matches to secure Federal grants. Tapered matching can be beneficial when a project sponsor initially lacks the funds for matching a Federally funded project but expects to acquire them during the project. For instance, it can enable a project to move forward with 100% Federal funds while allowing time for new tax revenues to accumulate when a new local tax has been enacted. Tapered matching can also help the transportation agency to bridge near-term gaps in matching funds. An illustration of the scenario is shown below in Figure 5.



Figure 5: Illustration of use of tapered match in Federal aid matching

¹² Federal Highway Administration (2022). "Federal Aid Matching Strategies – Off system bridge credits." Retrieved from: <https://www.fhwa.dot.gov/bridge/0650dsup.cfm>

¹³ Federal Highway Administration (2022). "Federal-aid Matching Strategies – Tapered Match." Retrieved from https://www.fhwa.dot.gov/ipd/finance/tools_programs/Federal_aid/matching_strategies/tapered_match.aspx

Tapered match may be incorporated into the project agreement for any project authorized under the provisions of title 23 U.S.C., when its approval would yield one or more of the following benefits:

- **Earlier project completion:** Utilizing tapered match, as opposed to traditional match procedures, can expedite the completion of the project.
- **Cost reduction:** Implementing a tapered match approach can lead to reduced project costs.
- **Leveraging additional non-Federal funds:** Tapered match enables the utilization of additional non-Federal funds, thereby enhancing the overall funding available for the project.

Federal funds as a match

In general, Federal funds cannot be used as a match, as stated in the Section 200.306(b) of Title 2, Code for Federal Regulations¹⁴ (CFR). There are certain exceptions for this as stated in the Statutes, *"except where the Federal statute authorizing a program specifically provides that Federal funds made available for such program can be applied to matching or cost sharing requirements of other Federal programs."*

This practice, known as Federal fund braiding,¹⁵ involves multiple funding streams coming together to finance a single project. Federal funds can serve as incoming or outgoing matches depending on whether they satisfy the match requirement of another program or are used to finance a project's match requirement. The FHWA guide for Federal-aid Matching Strategies provides examples and details of specific Federal funds that can be engaged as a match for other Federal programs¹⁶. The programs include transportation enhancement projects, Federal land management agency funds for scenic byways, funds from Federal land management agencies in general, funds from the Federal lands highway program and loans from Transportation Infrastructure Finance and Innovation Act (TIFIA).

Optimizing matching funds from program level to project level

During the BAC-CFO forum, the Colorado DOT (CDOT) presented a case study on the use of matching funds. The case study shows the changes in approach for optimizing matching funds from program level to project level. The historical approach in matching funds was to match individual CDOT programs exactly at 20%. For example, the surface treatment program which required \$225M is shared by \$180M Federal and a matching fund of \$45M from CDOT. The bridge rehabilitation program, which requires \$50M is shared by \$40M Federal funds and \$10M State funds. With the introduction of BIL, the individual programs are matched at different rates ranging from 0%-20%. The State sources, and other funding sources are adjusted at the project-level to optimize the use of the match. Therefore, rather than matching Federal funds with 20% State funds, States can utilize other non-Federal sources

¹⁴ US Government Publishing Office – GPO (2022) - Code for Federal Regulations - Cost Sharing or Matching. Retrieved from <https://www.ecfr.gov/current/title-2/subtitle-A/chapter-II/part-200/subpart-D/section-200.306>

¹⁵ Coordinating Council on Access and Mobility (CCAM) (2018). "Federal Fund Braiding Guide". Retrieved from <https://www.transit.dot.gov/sites/fta.dot.gov/files/2021-04/ccam-Federal-fund-braiding-guide-june-2020.pdf>

¹⁶ Federal Highway Administration (2022). "Federal-aid Matching Strategies". Retrieved from https://www.fhwa.dot.gov/ipd/finance/tools_programs/Federal_aid/matching_strategies/

to achieve 20% non-Federal match at the project-level. Other sources include local funds, locally directed State funding, or State funds through a Transportation Enterprise such as the Colorado Transportation Investment Office (CTIO) or Bridge and Tunnel Enterprise (BTE). A representation of the CDOT case study is shared below.

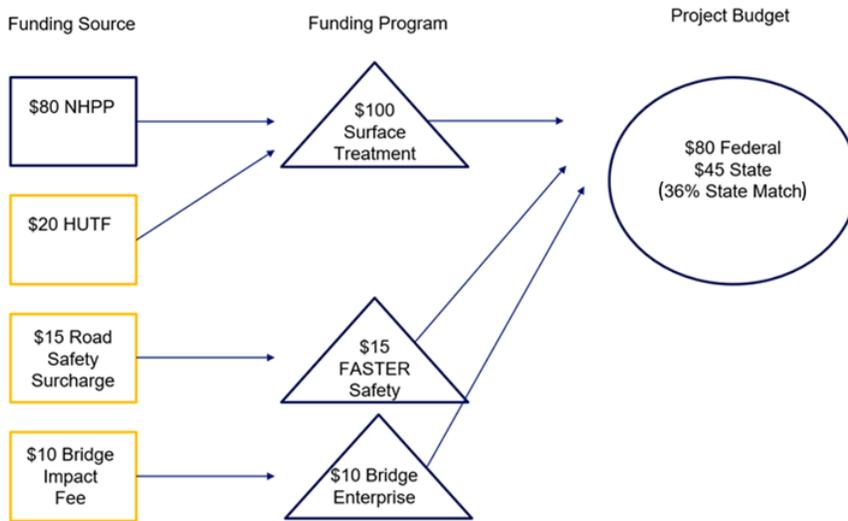


Figure 6 : CDOT Change in matching fund requirements (pre-IIJA scenario)¹⁷

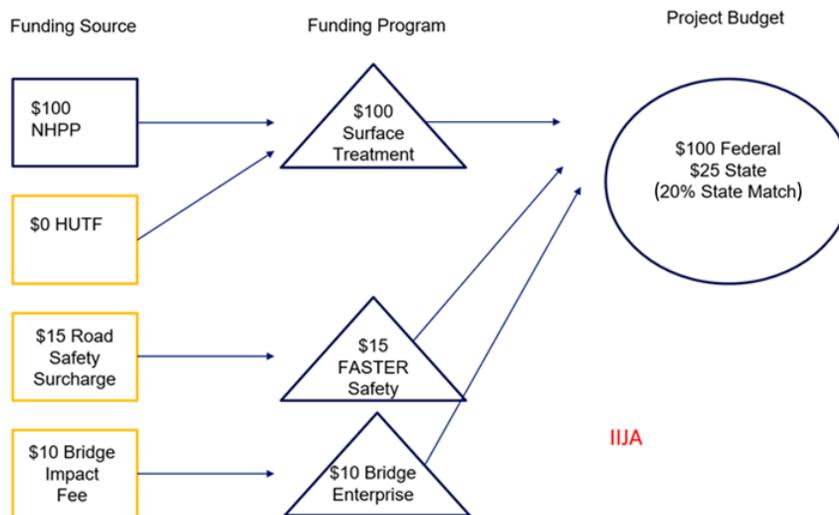


Figure 7 : CDOT Change in matching fund requirements (IIJA scenario)¹⁸

¹⁷ Colorado Department of Transportation (CDOT) (2022). "Matching Funds for New Federal Funding." Presented at the BAC-CFO Forum on Matching funds, Sept 2022.

¹⁸ Colorado Department of Transportation (CDOT) (2022). "Matching Funds for New Federal Funding." Presented at the BAC-CFO Forum on Matching funds, Sept 2022.

Planning Activities

Planning activities can contribute to the non-Federal share of project costs, following the requirements outlined in 23 CFR Part 420 for the Planning and Research Programs¹⁹. This permits the provisions for use of specific tasks, line items, products, or even the entire planning work program, as a match for the non-Federal share of the project cost. If a third party is engaged to carry out the planning activities, the cost is admissible only if the activities they undertake align with eligible transportation planning activities and contribute to the Federal aspect of the work program during the grant award period. It is crucial to explicitly identify in-kind contributions in the original planning work program/scope of work, as well as in the grant/subgrant agreement or any subsequent amendments.

Sliding Scale

States that contain Federal and nontaxable Indian lands are permitted the use of "sliding scale"²⁰ under the provisions of Title 23, U.S.C., section 120(a) and (b). This allows for an increase in the Federal share payable ranging from 90-95% for applicable Interstate projects and 80-95% for any other project, based on the location of the project. The extent of Federal and nontaxable Indian lands within the State determines the magnitude of the upward adjustment. It is important to note that this sliding scale cannot be applied to programs where the Federal law stipulates a specific Federal share.

Designated Types of Projects

According to 23 U.S.C. section 120(c), specific project types which are primarily aimed at improving safety, are eligible for 100% Federal grants. However, this higher Federal share is limited to no more than 10% of a State's combined apportionment under 23 U.S.C. section 104²¹. The recently enacted BIL provisions also include vehicle-to-infrastructure communication equipment, as eligible for this category.

Innovative Project Delivery Methods

Under the National Highway Performance Program (NHPP), Surface Transportation Block Grant (STBG) Program, and Metropolitan Planning program, projects are eligible for an increased Federal share by utilizing innovative project delivery methods. This increase in share can be up to 5% of the total project cost and thereby increasing the Federal share payable even up to 100%. There are specific limitations outlined in 23 U.S.C. 120(c)(3) that govern the extent of flexibility associated with this increased Federal share. The recent provisions introduced by the BIL have expanded the list of eligible innovations to include safety contingency funds with contractual provisions, allowing for the inclusion of safety improvements in work zones before or during roadway construction activities.

¹⁹ US Government Publishing Office – GPO (2022) - Code for Federal Regulations - Planning and Research Program Administration. Retrieved from <https://www.ecfr.gov/current/title-23/chapter-I/subchapter-E/part-420>

²⁰ Federal Highway Administration (2022). "Sliding Scale Rates in Public Land States." Retrieved from <https://www.fhwa.dot.gov/legisregs/directives/notices/n4540-12.cfm>

²¹ US Government Publishing Office – GPO (2022) - 23 U.S.C. Sec. 104 - Apportionment. Retrieved from <https://www.govinfo.gov/content/pkg/USCODE-2011-title23/html/USCODE-2011-title23-chap1-sec104.htm>

4. POTENTIAL SOURCES FOR MATCHING FUNDS

4.1. SPECIALIZED LOCAL OPTION TAXES

These taxes include State and local sales taxes specifically designated for transportation purposes. Unlike general taxes, these specialized taxes provide assurance to voters that the funds will be used exclusively for transportation projects. In 2004, specialized taxes contributed \$15.4 billion (12% of total highway revenues) and \$9.5 billion (25%) for transit at various levels of government. To achieve funding goals, different local taxes can be implemented, including²²:

- A "Local option transportation tax" or "Transportation User Fee (TUF)" is a tax that varies across regions within a State. The revenue generated from this tax is controlled at the local or regional level and is specifically designated for transportation-related purposes.
- A "Local Option Sales Tax" is a special tax imposed and collected at the city or county level. These taxes are added to the existing base sales tax rate. The authority for allocating and spending these local sales taxes varies from State to State.
- A "Local Option Fuel Tax" is a specialized tax imposed and collected at the city or county level on motor fuel. The revenue generated from this tax is dedicated to transportation-related expenditures.
- A "Local Motor Vehicle Fee" is a tax imposed and collected at the city or county level, either as a vehicle registration fee or as annual taxes based on factors such as vehicle value, weight, age, body type, or the number of wheels.

Case Study – Local Option Taxes

Local options taxes have been adopted in one form or another in the States. Few case studies are shared below²³.

- Local Option Sales Taxes (Missouri) – In Missouri, local governments have the power, subject to approval from the voters, to impose local sales taxes for capital improvements and projects related to transportation. These local sales taxes can range from one-eighth to 1 percent in terms of the tax rate. The revenue generated from these taxes is specifically allocated for funding capital projects and initiatives related to transportation within the local jurisdiction. Few examples include the city of Poplar Bluff has an approved increase of sales tax by 0.5% which was specifically introduced to meet the matching fund requirements for upgrades to U.S. 57. The tax was intended to last for a period of 30 years.
- In the city of Washington, Missouri, a sales tax of 0.5% was implemented to generate revenue for expanding capacity along a 12-mile stretch of Highway 100. The proposal also included

²² National League of Cities (2016). "Paying for local infrastructure in a new era of Federalism". Retrieved from <https://www.nlc.org/resource/local-infrastructure-funding-report/>

²³ National Academies of Sciences, Engineering, and Medicine (2006). "Future Financing Options to Meet Highway and Transit Needs." Retrieved from <https://doi.org/10.17226/23200>

funds to resurface all city streets. The sales tax proceeds were intended to be used for servicing the debt on bonds issued for the road improvements.

- In Florida, local governments have the option to impose local gas taxes for transportation improvement projects, including transit. There are three types of local option gas taxes (LOGT): the First LOGT, which can be up to 6 cents per gallon on gasoline and diesel, the Second LOGT, which can be up to 5 cents per gallon on gasoline only, and the Ninth-Cent Gas Tax, which is 1 cent per gallon on gasoline and diesel. Out of the 67 counties in Florida, 16 counties levy the maximum rate of 11 cents per gallon as local gas tax.
- In Ohio, local governments have the authority to impose vehicle license registration fees of up to \$20, in increments of \$5. The revenue generated from these fees must be allocated for roadway and bridge projects. A study conducted in 2000 found that 67% of the counties, 52% of the municipalities, and 23% of the townships in Ohio have implemented the fees.
- Local governments in Massachusetts and Vermont heavily rely on property tax revenues to support their investments in highways. Property taxes, including local option and beneficiary charges, contribute significantly to funding local highway needs. In 2004, approximately 21% of local highway funding in these States came from property taxes.

Figure 8 below presents the practice (as of Dec 2022) in each State regarding the use of local option taxes as a source for matching funds (based on inputs from BAC survey on matching funds) or for innovative financing of projects.

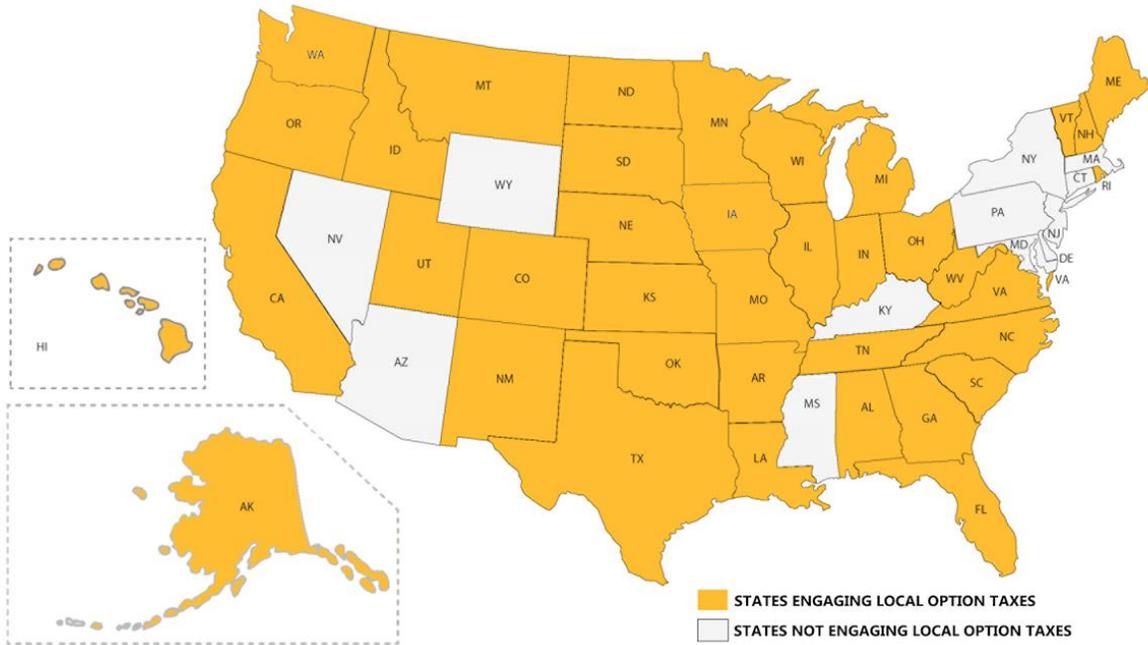


Figure 8: States engaging local option taxes.

4.2. VALUE CAPTURE METHODS

There are various methods available to generate financial value from transportation improvements to offset the costs associated with their implementation. These strategies, known as value capture, leverage localized benefits to help fund roadway and transit enhancements. Most value capture revenue is generated at the State or local level. The FHWA's Center for Innovative Finance Support (CIFS)²⁴ provides guidance in identification, quantification, and options for monetizing these benefits. CIFS not only encourages State and local agencies to identify new revenue sources to address funding shortfalls but also provides technical assistance in these areas.

Value capture techniques are commonly used in transit projects and can also be applied to fund highway improvements. In the United States, there are different forms of value capture methods in use. Some of the most prevalent methods include air rights, impact fees, joint development, land value tax, negotiated exactions, sales tax districts, special assessments, tax increment finance, and transportation utility fees.

Value capture is based on the concept of monetizing the increase in real estate values resulting from infrastructure improvements. By converting this appreciation into revenue, it becomes possible to obtain financing for current or future infrastructure projects²⁵. This approach can help bridge the funding gaps, expedite project delivery, promote economic development and redevelopment, create job opportunities, and contribute to the development of sustainable and livable communities. Additionally, it can provide environmental stewardship benefits.

Case Study - Tax Increment Financing (TIF)

Tax Increment Financing (TIF) is a value capture mechanism commonly used as a revenue tool to fund infrastructure improvements²⁶. TIF programs are authorized by State laws in all 50 States and involve the designation of a specific geographic area as a TIF district. TIF captures the increase in property taxes and sometimes other taxes that result from new development within the district. This captured revenue is then redirected to subsidize the development project, diverting it from the normal flow of revenue to local public services. The goal of TIF programs is to incentivize private investment in economically underdeveloped areas that require redevelopment.²⁷

The use of TIFs is thus relevant in areas where the socio-economic conditions are poor, and no new development is expected without intervention. The assumption is that new or improved infrastructure will stimulate private development. To finance the infrastructure improvement, a defined geographic area or district influenced by the new infrastructure is established. Tax revenues within the district are

²⁴ The website of CIFS can be accessed from - <https://www.fhwa.dot.gov/ipd/>

²⁵ Federal Highway Administration (2022). "Development Agreements and Other Contract-Based Value Capture Techniques - A Primer". Retrieved from https://www.fhwa.dot.gov/ipd/value_capture/vcsp/fhwa_hin_21_001/

²⁶ Federal Highway Administration (2022). "Value Capture – Tax Increment Financing", Retrieved from https://www.fhwa.dot.gov/ipd/value_capture/defined/tax_increment_financing.aspx

²⁷ Federal Highway Administration (2021). "Primer on Tax Increment Financing". Retrieved from https://www.fhwa.dot.gov/ipd/pdfs/value_capture/fhwa_hin_21_006.pdf

benchmarked before the project begins. Once the project is undertaken, any increase in revenues within the district is attributed to the infrastructure project. This increase, known as the "tax increment," is not deposited into the general fund but is directed into a dedicated account to fund the infrastructure project. TIF continues until the construction or financing costs of the project are paid off, which typically takes 15 to 30 years. At that point, the TIF district designation is terminated, and all revenues are deposited into the general fund.

Case Study - Transportation User Fee (TUF) in Lake Oswego²⁸

In the city of Lake Oswego, Oregon the Transportation User Fee (TUF) was implemented, and the fee is determined based on the level of traffic generated by each dwelling unit or business. The fees are assessed to residents and businesses to enable them to contribute towards transportation-related costs and infrastructure maintenance. The fee amount is typically calculated in relation to the impact on transportation systems caused by each individual dwelling unit or business. Thus, the planning agencies and public works departments can use the TUF to generate additional revenue and augment the traditional revenue streams. The city of Lake Oswego uses this technique to fund transportation projects and video link²⁹ is shared in the footnote. As defined in the municipal code of the city, the funds generated through the TUF are dedicated to the maintenance and repair of various components of the transportation infrastructure. This includes roadways, signs, signals, markings, sidewalks, and urban trails. The TUF is utilized to support activities such as annual street resurfacing and other necessary maintenance tasks that ensure the connectivity and overall condition of the region's infrastructure. By effectively managing and maintaining these public rights-of-way, the use of taxpayer funds is safeguarded.

4.3. STATE INFRASTRUCTURE BANKS

A State Infrastructure Bank (SIB) can offer loans and credit assistance enhancement products to both public and private sponsors of transportation projects. These projects can include highway construction projects under Title 23, capital projects for transit under Title 49, and railroad projects under Title 49 (Subtitle V)³⁰. The repayment requirements of Titles 23 and 49 are applicable to SIB loans, ensuring that repayments are made from both Federal and non-Federal sources. This means that SIB loans must adhere to the regulations and guidelines outlined in these titles, which govern the use of funds and repayment terms for transportation projects. The SIB serves as a financial institution dedicated to supporting the development and implementation of transportation infrastructure by providing loans and credit assistance to eligible sponsors.

²⁸ Federal Highway Administration (2022). "Innovation Profiles: Transportation Utility Fees" Retrieved from https://www.fhwa.dot.gov/ipd/finance/innovation_profiles/pdfs/Transportation_Utility_Fees_TUF_Lake_Oswego.pdf

²⁹ Federal Highway Administration (2022). "FHWA Innovative Finance Project Spotlight: Transportation Utility Fees, City of Lake Oswego." Video Retrieved from https://www.youtube.com/watch?v=u_hEftIGJcc

³⁰ Federal Highway Administration (2022). "Federal Credit Assistance Tools: State Infrastructure Banks." Retrieved from https://www.fhwa.dot.gov/ipd/finance/tools_programs/Federal_credit_assistance/sibs/

The types of assistance include:

- Funding of short-term construction or long-term debt financing
- Funding of a project fully or partially
- Offering flexible repayment terms at below-market interest rates
- Subordination to other lenders.

For smaller communities, meeting the Federal matching requirements for transportation projects can be challenging and burdensome. However, utilizing a SIB loan can help alleviate this burden. By obtaining a loan from the SIB, these communities can spread out the impact of the matching requirement over multiple years, reducing the immediate cash flow and credit impact on their existing budgets. Additionally, for communities that already have available cash or plan to use a pay-as-you-go approach for new projects, SIBs enable the use of existing funds for additional projects, work programs, or other community needs.

SIBs provide States with the opportunity to increase or optimize the use of their transportation funds while leveraging Federal resources. Alternatively, the capital within the SIB can serve as collateral for borrowing in the bond market or establishing a guaranteed reserve fund. When considering a leveraged SIB approach, States are encouraged to consider factors such as loan demand, timing of infrastructure needs, and debt financing considerations.

During the formation of SIBs, they initially receive funding from Federal-aid surface transportation funds and matching funds from the State. A few States have also established SIBs or separate SIB accounts funded solely by State funds. As loans or credit assistance are repaid to the SIB, its original capital is replenished, enabling it to support a new set of projects. SIBs follow a formal selection process to determine the allocation of loans. Typically, a committee is assigned to review and prioritize projects. The selected projects align with both State and local transportation needs and acknowledge local and regional transportation planning efforts. Other considerations in project selection often include the project's economic benefits, the creditworthiness and financial stability of the project sponsor, as well as factors like innovation and environmental sustainability.

Figure 9 below presents the practice in each State (as of Dec 2022) regarding the functioning of SIBs (based on inputs from BAC survey on matching funds and publicly available data).

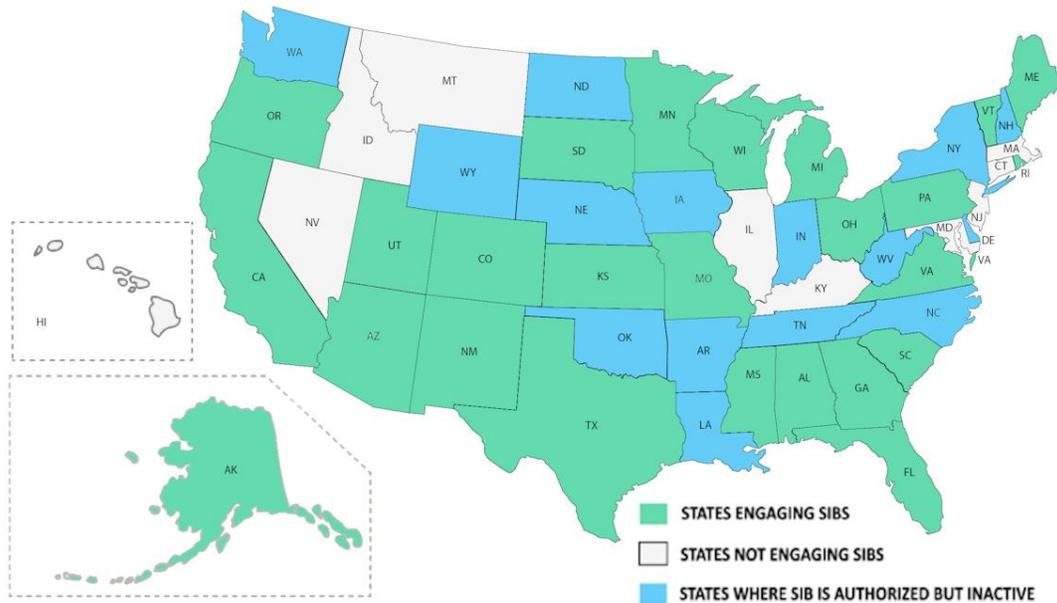


Figure 9: States engaging State Infrastructure Banks

Case Study – Florida’s State Infrastructure Bank³¹

Florida is one of the most active States in terms of its State Infrastructure Bank (SIB) program, with significant loan activity amounting to \$1.2 billion through 75 agreements. Approximately 68% of this activity is facilitated through the State-capitalized account. The popularity of the SIB program in Florida is evident from the high volume of financing, and State officials actively inform local partners about the option of SIB financing for their projects.

While the Federal account of Florida's SIB has not been capitalized since 2004, the State account receives a substantial annual funding of \$10 million from State fuel and excise taxes. State officials have leveraged this capitalization by utilizing it to issue bonds, thereby expanding the pool of funds available for lending. Eligible projects for SIB financing in Florida are limited to those that are part of the State Highway System or contribute to intermodal connectivity, enhancing accessibility and mobility for people, cargo, and freight. Florida has established guidelines for selecting projects to receive SIB funding. These guidelines prioritize projects with a higher net present value of repayments, ensuring they have secure funding sources and safeguards to repay SIB loans. The State also considers projects that foster public-private partnerships, incorporate innovative technologies, contribute to environmental preservation or protection, and promote intermodal transportation. These criteria help Florida make informed decisions about which projects are most deserving of SIB support.

³¹ Brookings-Rockefeller: Robert Puentes and Jennifer Thompson (2016), “Banking on Infrastructure: Enhancing State Revolving Funds for Transportation” Retrieved from <https://www.brookings.edu/wp-content/uploads/2016/06/12-State-infrastructure-investment-puentes.pdf>

4.4. TIFIA CREDIT ASSISTANCE

The Transportation Infrastructure Finance and Innovation Act (TIFIA) program offers Federal credit assistance to support the financing of significant surface transportation projects at both national and regional levels³². This assistance is provided in the form of direct loans, loan guarantees, and standby lines of credit. TIFIA aims to improve access to capital markets for transportation projects, offering more flexible repayment terms and potentially more favorable interest rates compared to private capital markets. Through TIFIA, for every dollar of Federal funds, up to \$10 in TIFIA credit assistance can be availed. This means that TIFIA plays a critical role in attracting additional investment and financing for transportation projects, maximizing the impact of Federal funds in supporting infrastructure development and expansion.

TIFIA’s low interest rate can offer an even larger advantage. As of Sept 2022, a 30-year standard TIFIA interest rate is lower compared to 30-year AA-municipal bond rates by approximately 0.46%, while TIFIA Rural Project Initiative (rural TIFIA) provides loans at half of Treasury rate at almost 2.23% below AA-municipal bond rates. There are significant advantages to TIFIA loans compared with municipal loans. TIFIA loan interest rates are locked at financial close and drawable on a sculpted basis, whereas municipal bonds require rolling issuances to match spending (which exposes State DOT to risks of high interest rates).

Figure 10 presents the practice in each State (as of Dec 2022) regarding the use of TIFIA as a source for matching funds or innovative financing of projects (based on inputs from BAC survey on matching funds and publicly available data).

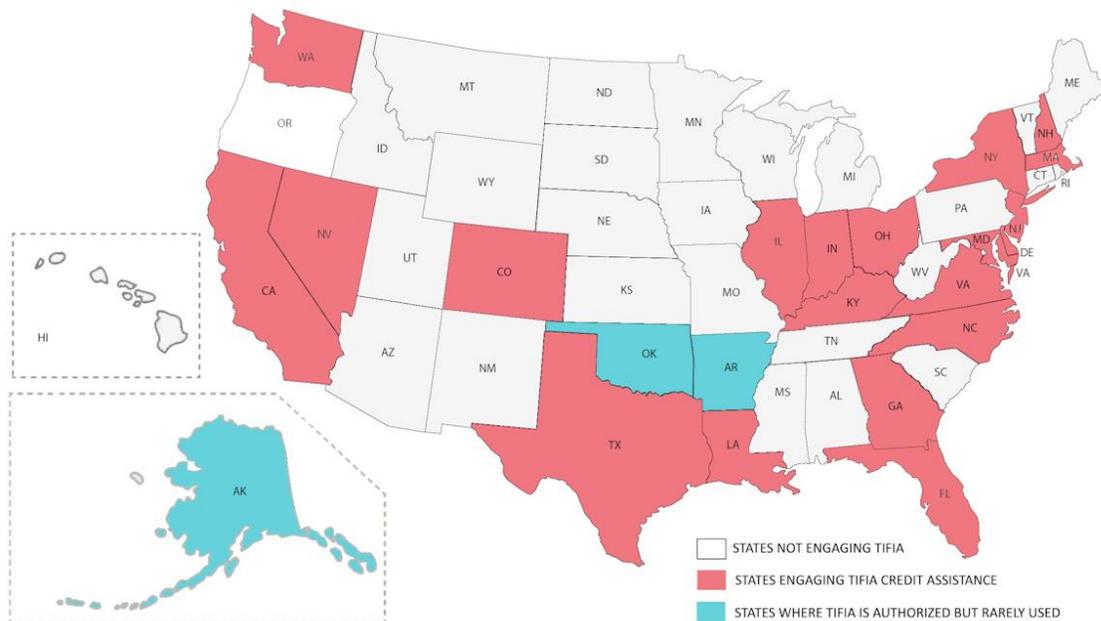


Figure 10: States engaging TIFIA Credit Assistance

³² U.S. Department of Transportation (2022). "TIFIA Credit Program Overview". Retrieved from <https://www.transportation.gov/buildamerica/financing/tifia/tifia-credit-program-overview>

The TIFIA loans permit interest deferral during construction, while municipal bond interest must be capitalized and paid semi-annually commencing upon issuance. TIFIA transaction costs are also lower than bond-related transaction costs such as underwriters' fees. In the case of rural TIFIA loans, TIFIA fees are waived. TIFIA interest is accrued only on drawn proceeds, and it also allows sculpted amortization of the principal, providing greater flexibility in repayment.

The Bipartisan Infrastructure Law allows up to 75 years repayment period. The funds are deferrable for five years after substantial completion of a project, and it involves no prepayment penalty. Eligible applicants include State and local governments, transit agencies, railroad companies, special authorities, special districts, and private entities.

Case Study – Louisiana DOT

For example, by using TIFIA instead of municipal bonds for the \$260 million financing for Act 443 projects, Louisiana DOT saved approximately \$45 million in interest costs, and by accelerating the projects to commence earlier by five years, the LaDOT saved approximately \$300m-\$410m in inflation related costs³³. *"Financing tools, such as TIFIA, are helping us move one step closer to improving infrastructure resiliency throughout Louisiana,"* said DOTD Secretary Shawn D. Wilson. *"As a State that has seen its fair share of 100-year storms more frequently in the last few years, TIFIA provides an opportunity to construct infrastructure projects that enhance safety and provide seamless links across corridors, congestion mitigation relief, and a sense of hope in Louisianans as we work to move our State forward."*

4.5. PUBLIC-PRIVATE PARTNERSHIPS

Public-private partnerships, or PPPs/P3s, are agreements between public agencies (such as State or local governments) and the private sector to deliver public infrastructure. They involve financial contributions and risk-sharing from both partners, with the government overseeing the infrastructure while the private sector provides capital and handles operations. PPPs enable increased private-sector involvement in transportation projects from start to finish, including development, operation, and financing. By involving the private sector early on, governments can benefit from innovation, efficiency, and additional capital to tackle challenging transportation issues.³⁴

The BIL gives State DOT's the opportunity the chance to attract private sector investment and participation in the development of new infrastructure, while also providing a means to secure funding for these projects. This model has gained popularity as State laws have evolved to allow greater involvement of private entities in public infrastructure development. The provisions under BIL further facilitates public-private partnerships by expanding the ways in which States and localities can utilize private funding, including access to private activity bonds issued by the government to support project

³³ Louisiana Department of Transportation and Development (2022). "Matching Funds for New Federal Funding." Presented at the BAC-CFO Forum on Matching funds, Sept 2022.

³⁴ Congressional Research Service (2021). "Public-Private Partnerships (P3s) in Transportation". Retrieved from <https://sgp.fas.org/crs/misc/R45010.pdf>

financing.³⁵ Figure 11 presents the practice in each State (as of Dec 2022) regarding the use of P3's as a source for innovative financing of projects (based on inputs from BAC survey on matching funds and publicly available data).

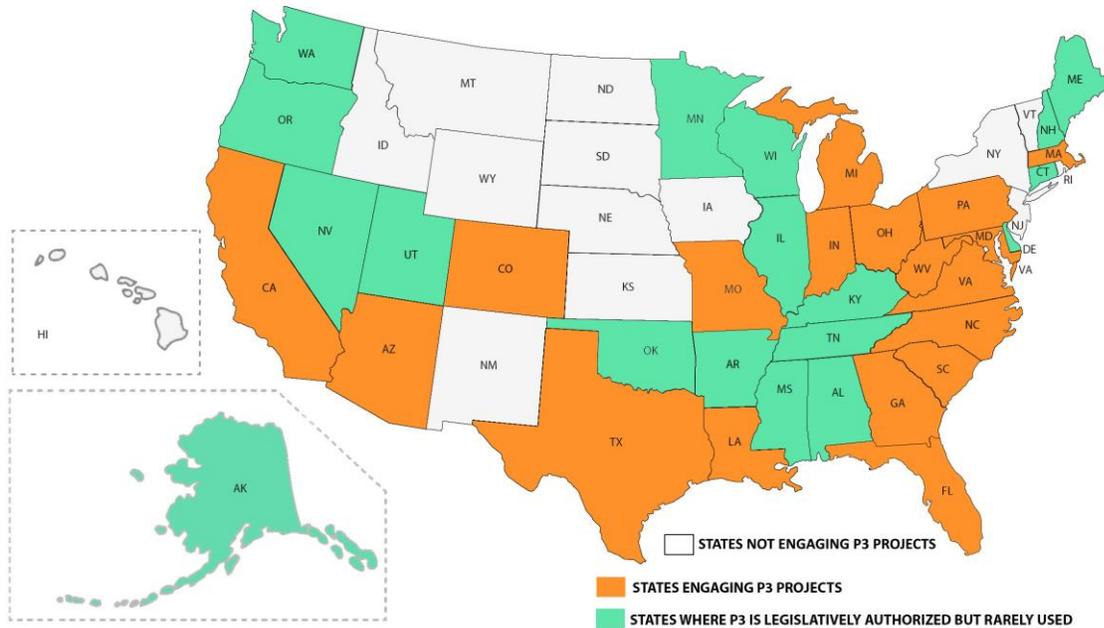


Figure 11: States engaging P3 Projects

Policymakers see that P3s can unlock more Federal funds for infrastructure by engaging them as a match for availing the Federal grants. The potential advantages of engaging P3s may include³⁶:

- Smaller communities and public entities face limited opportunities and tough competition for funds, but private investments can help access more Federal grants.
- P3s can be leveraged to supplement available Federal, State, or local funding, enabling the delivery of larger projects.
- Private partners can enhance the attractiveness of project proposals and P3s increase the likelihood of receiving approval for infrastructure projects.
- Private entities benefit from participating in P3s by contributing to their communities, gaining reputational benefits, and meeting Environmental, Social, and Governance (ESG) goals.
- The Value for Money analysis provisions of the BIL incentivize the acceptance of P3 projects by highlighting long-term life cycle benefits.
- BIL expands the scope of the TIFIA program to include transit-oriented development (TOD) and airport upgrades, both of which have historically favored P3 development due to their public/private nature.

³⁵ <https://qz.com/2100641/us-infrastructure-bill-presents-new-opportunity-for-public-private-partnerships/>; Website data retrieved on 20th Dec 2022

³⁶ [https://www.bdo.com/insights/advisory/public-private-partnerships-\(p3s\)-can-unlock-more-Federal-funds-for-infrastructure](https://www.bdo.com/insights/advisory/public-private-partnerships-(p3s)-can-unlock-more-Federal-funds-for-infrastructure) website data retrieved on 20th Dec 2022

- The BIL provides competitive grant funding of \$20 million annually for State and local governments to retain professional services firms for exploring, evaluating, and planning P3 projects and asset concession agreements.

Model for engagement of private sector participation

Financial constraints are not the only issue faced by State DOTs and local agencies in applying for grants or engaging Federal funds for rolling out the projects. The lack of project management expertise and sufficient labor to implement the projects are always a problem faced by local public agencies. P3 projects are widely perceived as a solution to these problems. The engagement of the private sector from the preliminary stages of the project can potentially help in effectively availing Federal grants and thus the successful roll out of the projects. The model shown below is suggested for involving active participation from private sector partners in infrastructure development.

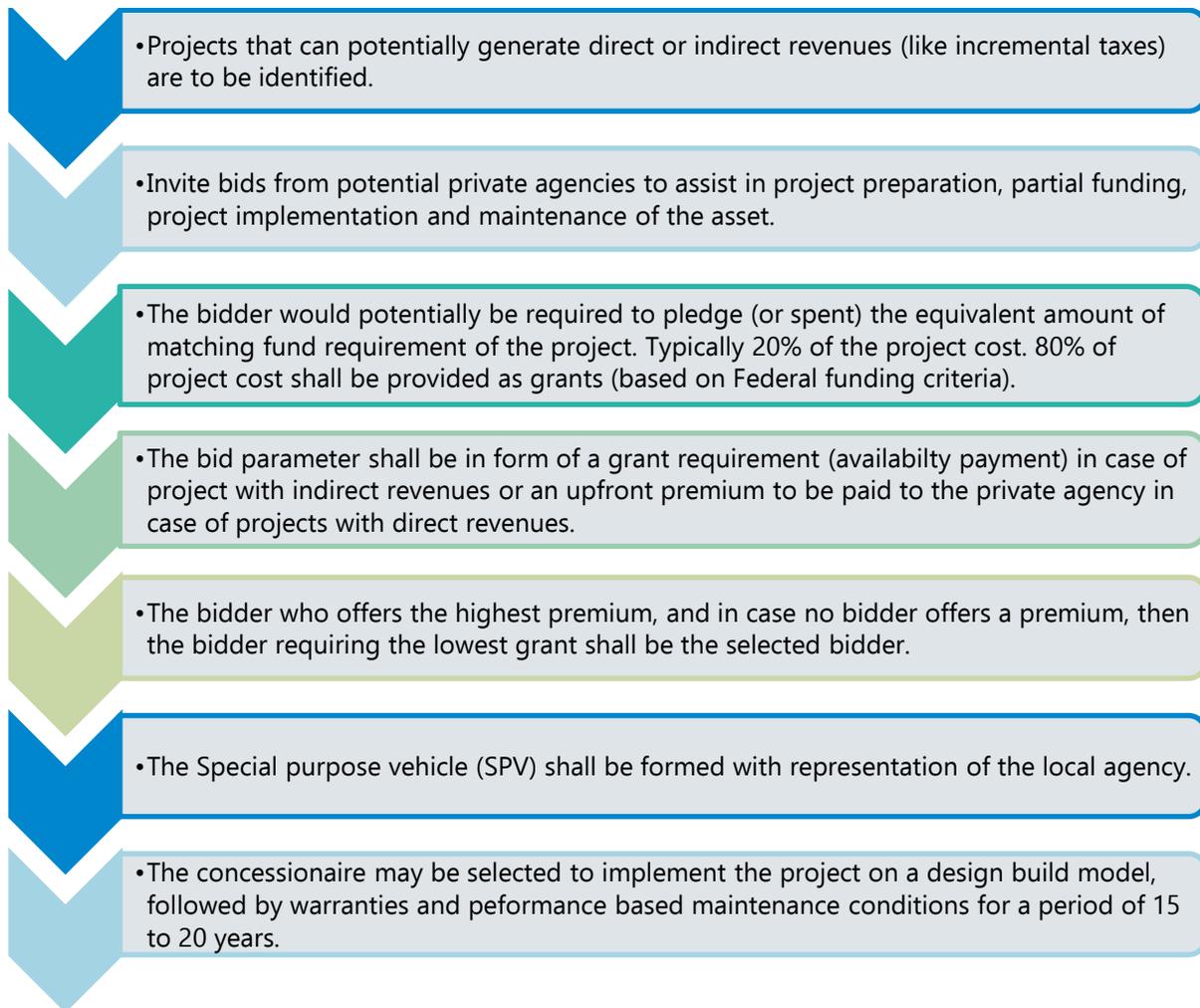


Figure 12: Illustration of model for engagement of private sector participation

It is recommended that State DOTs prepare a standardized bid document based on this model. This document should include key requirements to assist counties and local communities in efficiently preparing bids well in advance of seeking funding. The bid document should also incorporate incentives for local contractors who have the potential to act as developers.

4.6. LEGISLATURE SUPPORT

The support from the legislature is crucial in meeting the Federal aid match for project implementation and is the primary source of matching funds. A few case studies were discussed during the BAC-CFO forum and the insights are shared in this section. The Louisiana Department of Transportation has emphasized the significance of its State Budget Partition Plan, which outlines funding requirements for a minimum of five years. Additionally, the legislature has utilized State transportation trust funds, primarily generated from excise tax on fuels and vehicle sales tax (to be implemented starting 2024). The legislature also allows for refinancing of existing bonds, resulting in substantial interest savings or structural improvements.

In South Carolina, the General Assembly has allocated special funds for matching under the BIL, accessible to both State agencies and local public agencies. As per the provisions stated in the Executive Budget for the State of South Carolina for FY23, a minimum of \$100 million in recurring funds has been allocated to match BIL grants to the South Carolina Department of Transportation (SCDOT)³⁷. Additionally, the House Ways & Means has provided an additional \$120 million in recurring funds to match BIL grants to SCDOT. With the assistance of these funds, SCDOT will have sufficient State matching funds to apply for an additional \$250 million in Federal funds each year from BIL for the next five years. These Federal matching funds will enable SCDOT to expedite the completion of local and regional projects aimed at relieving traffic congestion, repairing, or replacing over four hundred bridges, and repaving and resurfacing of local and secondary roads.

5. FRAMEWORK FOR ESTIMATION OF MATCHING FUNDS

The framework for the proposed tool for estimating and optimizing matching funds is described in this section. This model tool can be utilized by State DOTs and LPAs to estimate and optimize a portfolio of projects seeking Federal grants. **A publicly usable program is under development by the BAC team and would be released as an addendum to this report.** The following is a step-by-step approach for the optimal utilization of matching funds:

- **Step 1:** Identify all State projects (**n** in number) that require funding. It is recommended to prepare a project database and prioritize the projects based on criteria set forth by each State agency. The list should include project type, cost, and eligibility criteria as per the provisions of BIL and other Federal programs. It is also important to consider parameters such as in-kind

³⁷ South Carolina (2022) "Executive budget for the State of South Carolina". Retrieved from <https://governor.sc.gov/sites/governor/files/Documents/Executive-Budget/FY23%20Executive%20Budget%2001102022.pdf>

contributions, applicable Federal funds, toll credits or soft match provisions, value capture options, potential revenue generation, and potential P3 structuring.

- **Step 2:** List all Federal programs (**m** in number) that provide funding, along with their details. This should include eligible project types, eligible recipient types, funding mechanisms (formula vs. discretionary), and match (cost-share) requirements.
- **Step 3:** Match the project (i) to the Federal program/s (j) based on the corresponding eligibility criteria. This will enable the State transportation agencies to understand which Federal program(s) are eligible for each project.
- **Step 4:** Optimize the portfolio. This entails selecting the most suitable Federal program for each project, considering the match requirement to allocate the maximum number of projects to a program and access the maximum funds available.
- **Step 5:** Identify the amount of non-Federal share (matching funds) required for each project (M_i). This is the amount of funding that the State transportation agency needs to provide for the project.
- **Step 6:** Permissible deductions (D_i) can be made from the non-Federal share. These deductions can include in-kind contributions, toll credits, and other forms of matching funds that the State transportation agency can contribute. Deducting these permissible deductions from the non-Federal share can reduce the overall cash requirement for the project.
- **Step 7:** After the permissible deductions have been made, the next step is to calculate the total cash required by the State for each project ($C_i = M_i - D_i$).
- **Step 8:** The ultimate step is to calculate the total cash requirement for the year 2023 by summing up the cash required for each project. This will give State transportation agencies an understanding of their budgetary requirements and allow them to plan and manage their funds more effectively.

The project-program pairing, and allocation problem (portfolio optimization) can be broadly summarized as follows:

- **Objective Function** – Minimize the residual, which represents the unallocated funds among the total available USDOT funds. This is calculated as the difference between the total grant amount available and the Federal share payable once the projects are allocated to a program.
- **Decision variable** – Each project (**n** number of projects) can be allocated to one of the USDOT programs (**m** number of programs) or left unallocated if a suitable match is not found.
- **Constraints** – The critical set of constraints includes ensuring that the total allocation of funds does not exceed the maximum allowable for each program, and each project is assigned based on its eligibility criteria. Each project can only be allocated to one program. Bound constraints are also applied to the decision variables, restricting them to values between 0 and **m**.

The flowchart below summarizes the framework for estimation of matching funds.

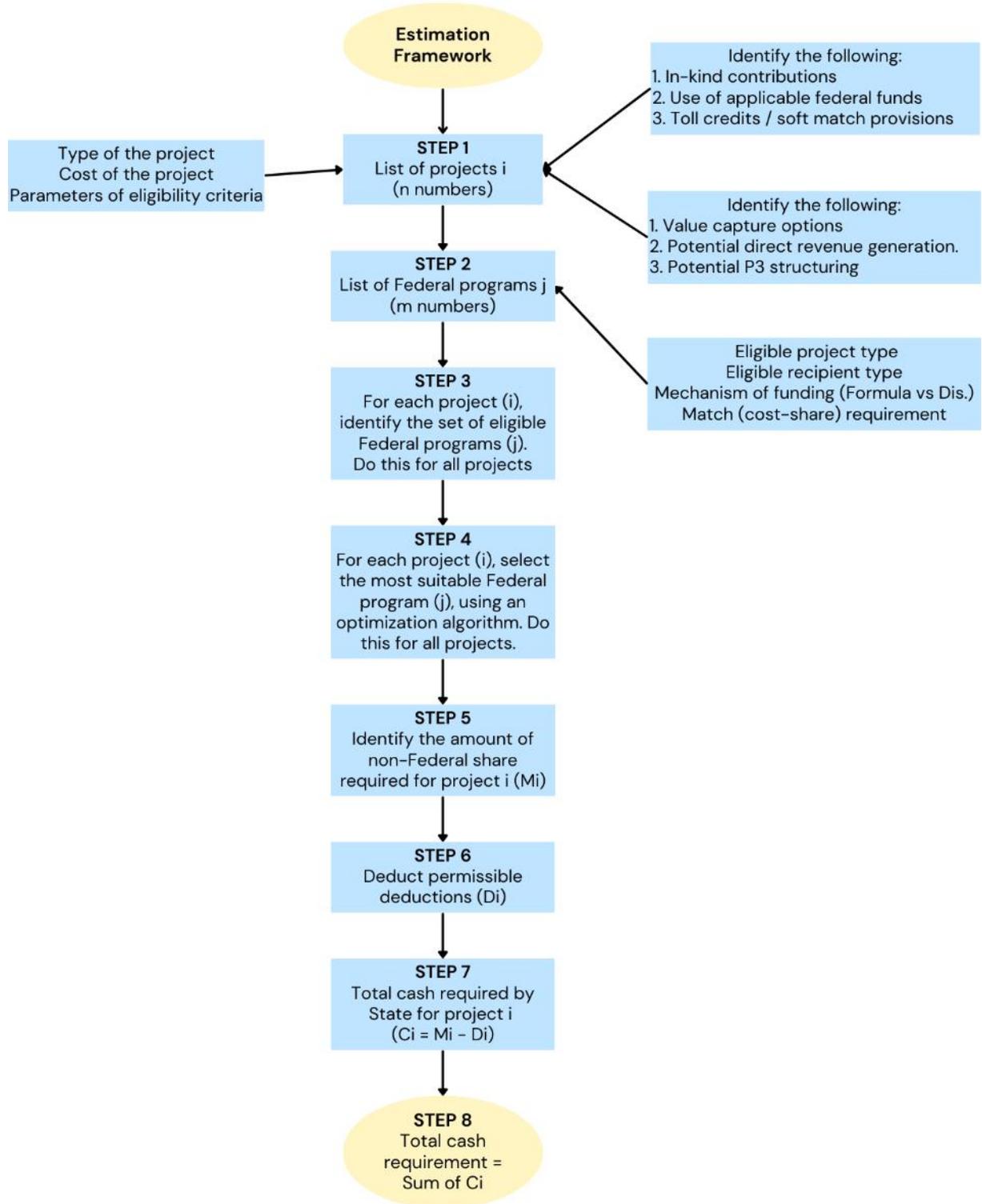


Figure 13: Flowchart for estimation of matching funds

Numerical example of the demonstration of the framework

The following example is used to illustrate the tool.

Step 1: List of State projects

The table below shows a sample set of hypothetical fifty (50) number of projects that are seeking Federal grants.

Table 2: Sample list of fifty projects with costs in State XXXXVVV

Project Code	Project Name (Hypothetical)	Project Cost (\$)
P1	Intersection Safety Improvement Project at State Route 32 and County Road 50	\$14,497,411
P2	Electric Vehicle Charging Infrastructure Expansion along Interstate 70	\$6,522,317
P3	Roadway Resurfacing and Rehabilitation on State Route 9	\$13,465,581
P4	Bridge Deck Replacement on Interstate 465 over White River	\$6,636,260
P5	Highway Widening and Capacity Enhancement on Interstate 65 between Indianapolis and Lafayette	\$57,620,825
P6	Freight Rail Access Improvement Project at the Port of Indiana-Burns Harbor	\$31,171,941
P7	Bicycle and Pedestrian Pathway Network Expansion in the Downtown Area of Indianapolis	\$21,512,393
P8	Intersection Signalization Upgrade at the exit of Interstate 69 towards West 3rd Street in Bloomington	\$31,288,578
P9	Roadway Reconstruction and Safety Enhancements on State Route 135 in Greenwood	\$44,759,103
P10	Transit System Modernization Project in the Fort Wayne Metropolitan Area	\$50,660,003
P11	Interstate 65 Bridge Rehabilitation over the Wabash River	\$32,333,779
P12	Railway-Highway Crossings Safety Upgrades on State Route 231 in Crown Point	\$6,749,187
P13	Interstate 69 Expansion and Realignment from Bloomington to Indianapolis	\$45,161,979
P14	Interstate Pavement Preservation Program on Interstate 80/94	\$4,426,789
P15	Bridge Replacement on Interstate 37 in Hamilton County	\$54,033,383
P16	Traffic Signal Synchronization Project on Interstate 41 in Vigo County	\$46,521,886
P17	Carbon Reduction Initiative for Government Fleets along Interstate 65 in the City of Lafayette	\$12,016,967

Project Code	Project Name (Hypothetical)	Project Cost (\$)
P18	Highway Lighting Upgrade with LED Technology on Interstate 74	\$25,767,974
P19	Intersection Roundabout Construction at State Route 37 and Smith Valley Road	\$55,961,623
P20	Traffic Incident Management Program on Interstate 465	\$9,775,013
P21	Transit Bus Fleet Expansion for Emissions Reduction in the City of Evansville	\$10,879,556
P22	Bicycle and Pedestrian Safety Education Campaign near Interstate 70 crossings in the City of Westfield	\$8,619,748
P23	Roadway Rehabilitation and Sidewalk Construction on US-30 (part of the Lincoln Highway) in Warsaw	\$57,884,443
P24	State Route 37 Bridge Replacement over the White River in Hamilton County	\$22,773,415
P25	School Zone Safety Improvements on State Route 231 in Jasper	\$2,003,725
P26	Intelligent Transportation System Deployment on Interstate 465	\$52,854,224
P27	Intersection Access Management Study at State Route 32 and Allisonville Road, near Interstate 69, in Hamilton County	\$38,861,120
P28	Resilient Highway Operations and Emergency Response Planning along Interstate 465 in the City of Carmel	\$7,169,280
P29	State Highway Bridge Preservation Program on State Route 46	\$46,432,014
P30	Metropolitan Transportation Planning Study for the Indianapolis Metropolitan Area	\$6,669,721
P31	Resilient Transit Operations Enhancement in the City of Fishers	\$19,774,781
P32	County Road Safety Improvement Project in Boone County	\$46,707,764
P33	I-65 Bridge Rehabilitation Project in Lake County	\$47,929,516
P34	Public Transportation Facility Upgrades in the City of Lafayette	\$52,706,187
P35	Alternative Fuel Vehicle Fleet Transition for the Indianapolis Public Transportation Corporation	\$12,550,073
P36	Interstate 465 Reconstruction Project in Marion County	\$16,751,451
P37	Highway Intelligent Work Zone Systems on Interstate 69	\$36,762,843
P38	Freeway Incident Management Program on Interstate 65	\$46,194,434
P39	Highway Maintenance and Preservation Program on State Route 32 and Interstate 74	\$23,210,661

Project Code	Project Name (Hypothetical)	Project Cost (\$)
P40	Highway Safety Education and Awareness Campaign on State Route 135 (near Interstate 65) in Johnson County	\$47,998,016
P41	US-30 Bridge Widening and Reconstruction over the Wabash River in Allen County	\$11,251,559
P42	Interstate 74 Expansion and Interchange Reconstruction in Dearborn County	\$54,074,710
P43	Transit-Oriented Development near Interstate 69 in the City of Bloomington	\$42,513,731
P44	Highway Safety Audit and Remediation on Interstate 69 between Bloomington and Evansville	\$37,951,929
P45	County Road Bridge Rehabilitation near Interstate 469 in Allen County	\$57,972,784
P46	Rural Highway Safety Improvements on State Route 3 in Rush County	\$6,606,357
P47	Intersection Collision Reduction Program at State Route 37 and Greenfield Avenue	\$46,011,102
P48	Traffic Congestion Mitigation Initiatives on Interstate 65 in Lake County	\$16,660,206
P49	Highway Corridor Planning and Analysis Study on US-30 (part of the Lincoln Highway) in Whitley County	\$37,772,910
P50	Congestion Pricing Pilot Program in the City of Fort Wayne, near Interstate 69	\$13,568,748

Step 2: List of Federal programs

The table below shows a sample set of ten (10) Federal programs under formula funding for a particular year allotted to the sample State. The matching fund requirement (MFR) varies based on whether the project is an Interstate project or a non-Interstate project. The MFR for interstate projects are marked as MFR(I).

Table 3: Sample list of USDOT programs with matching fund requirements (MFR) and maximum fund available under each program

No.	MFR	MFR (I)	USDOT Program Name	Short Code	Max eligible fund
J1	20%	10%	National Highway Performance Program	NHPP	\$691,872,473
J2	20%	10%	Surface Transportation Block Grant Program	STBG	\$336,586,609
J3	10%	10%	Highway Safety Improvement Program	HSIP	\$70,506,306
J4	10%	10%	Railway-Highway Crossings Program	RHCP	\$7,945,421
J5	20%	10%	Congestion Mitigation and Air Quality Improvement Program	CMAQ	\$51,336,381
J6	20%	10%	Metropolitan Transportation Planning Program	MPO	\$6,904,797

No.	MFR	MFR (I)	USDOT Program Name	Short Code	Max eligible fund
J7	20%	10%	National Highway Freight Program	NHFP	\$33,045,246
J8	20%	10%	Carbon Reduction Program	CRP	\$30,012,306
J9	20%	10%	Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT)	PROTECT	\$34,126,142
J10	20%	10%	Bridge Formula Program	BFP	\$74,542,768
				Total	\$1,336,878,449

Step 3: Match the eligible programs to the projects.

In the following list, each project is evaluated for eligibility with all applicable programs. A value of 1 indicates a match between the project theme and program, while a value of 0 indicates no match.

Table 4: List of projects matched with eligible Federal programs.

Project Code	J1 NHFP	J2 STBG	J3 HSIP	J4 RHCP	J5 CMAQ	J6 MPO	J7 NHFP	J8 CRP	J9 PROTECT	J10 BFP
P1	1	1	1	1	0	0	1	1	0	1
P2	1	1	1	0	0	0	1	1	1	0
P3	1	1	1	1	0	1	1	0	0	1
P4	1	1	0	1	1	1	0	1	0	1
P5	1	1	1	0	1	0	1	1	0	1
P6	1	1	0	1	0	0	1	1	0	1
P7	1	1	0	1	1	0	0	1	1	0
P8	1	1	1	1	1	0	0	1	1	0
P9	1	1	0	0	1	1	1	0	0	0
P10	1	1	0	1	1	1	0	0	1	0
P11	1	1	1	1	0	1	0	1	1	0
P12	1	1	0	1	1	0	0	0	0	1
P13	1	1	1	1	0	0	0	1	0	1
P14	1	1	0	1	1	0	1	0	1	0
P15	1	1	0	0	0	0	1	0	0	0
P16	1	1	1	0	1	0	0	1	1	0
P17	1	1	1	0	0	1	1	1	1	0

Project Code	J1 NHPP	J2 STBG	J3 HSIP	J4 RHCP	J5 CMAQ	J6 MPO	J7 NHFP	J8 CRP	J9 PROTECT	J10 BFP
P18	1	1	0	0	0	0	1	0	0	0
P19	1	1	0	0	1	1	1	0	0	0
P20	1	1	1	1	1	1	1	1	0	0
P21	1	1	0	1	1	0	1	0	0	1
P22	1	1	0	1	1	1	0	0	1	0
P23	1	1	1	0	1	0	0	0	1	0
P24	1	1	0	0	0	0	0	0	0	1
P25	1	1	1	1	1	0	0	0	1	0
P26	1	1	1	1	0	1	0	1	0	0
P27	1	1	1	1	0	1	1	0	0	0
P28	1	1	0	0	0	0	1	0	1	0
P29	1	1	0	0	1	1	1	1	0	0
P30	1	1	1	0	1	1	0	1	0	1
P31	1	1	0	0	0	1	0	1	1	0
P32	1	1	1	1	0	1	0	1	1	0
P33	1	1	0	1	1	1	0	1	0	1
P34	1	1	0	1	1	0	0	1	1	0
P35	1	1	0	1	0	1	1	1	0	1
P36	1	1	0	1	1	1	0	0	1	0
P37	1	1	0	0	0	1	1	1	0	0
P38	1	1	1	1	1	0	1	0	1	0
P39	1	1	0	1	0	0	0	0	1	0
P40	1	1	0	1	1	1	1	0	0	0
P41	1	1	1	1	1	0	0	1	0	1
P42	1	1	1	0	1	0	1	0	1	0
P43	1	1	0	0	1	0	1	1	1	0
P44	1	1	0	1	1	1	0	0	0	0
P45	1	1	1	1	0	0	0	0	1	0
P46	1	1	1	0	0	0	0	0	0	0
P47	1	1	1	1	0	0	0	0	1	0
P48	1	1	0	0	0	1	1	0	0	1
P49	1	1	0	1	1	1	0	1	0	0
P50	1	1	0	0	1	1	1	0	0	1

Steps 4 to 7: Optimize the portfolio, identify the matching fund requirements, and cash match.

A Genetic Algorithm model is engaged to minimize the residuals from each USDOT program to ensure maximum funds are received by the State. Upon optimization, the corresponding match requirement is identified and accordingly the State cash requirement is identified. The following results are obtained.

Table 5: Results from GA Optimization

Project Code	Project Cost	Assigned USDOT Program Code	MFR	State Share (Total including in-kind match)	State share (in cash: less in-kind match)	Federal Share
P1	\$14,497,411	HSIP	10%	\$1,449,741	\$579,896	\$13,047,670
P2	\$6,522,317	CRP	20%	\$1,304,463	\$847,901	\$5,217,853
P3	\$13,465,581	STBG	20%	\$2,693,116	\$2,154,493	\$10,772,465
P4	\$6,636,260	NHPP	20%	\$1,327,252	\$796,351	\$5,309,008
P5	\$57,620,825	NHPP	10%	\$5,762,082	\$5,185,874	\$51,858,742
P6	\$31,171,941	NHFP	20%	\$6,234,388	\$5,610,949	\$24,937,553
P7	\$21,512,393	CMAQ	20%	\$4,302,479	\$3,226,859	\$17,209,915
P8	\$31,288,578	NHPP	10%	\$3,128,858	\$625,772	\$28,159,720
P9	\$44,759,103	STBG	20%	\$8,951,821	\$6,266,274	\$35,807,282
P10	\$50,660,003	STBG	20%	\$10,132,001	\$5,572,600	\$40,528,003
P11	\$32,333,779	NHPP	20%	\$6,466,756	\$2,910,040	\$25,867,023
P12	\$6,749,187	RHCP	10%	\$674,919	\$877,394	\$6,074,268
P13	\$45,161,979	NHPP	10%	\$4,516,198	\$0	\$40,645,781
P14	\$4,426,789	NHPP	10%	\$442,679	\$309,875	\$3,984,110
P15	\$54,033,383	NHPP	10%	\$5,403,338	\$540,334	\$48,630,045
P16	\$46,521,886	STBG	10%	\$4,652,189	\$1,395,657	\$41,869,697
P17	\$12,016,967	CRP	10%	\$1,201,697	\$600,848	\$10,815,270
P18	\$25,767,974	NHPP	10%	\$2,576,797	\$1,030,719	\$23,191,177
P19	\$55,961,623	NHPP	20%	\$11,192,325	\$3,917,314	\$44,769,298
P20	\$9,775,013	HSIP	10%	\$977,501	\$195,500	\$8,797,512
P21	\$10,879,556	CMAQ	20%	\$2,175,911	\$870,365	\$8,703,645
P22	\$8,619,748	CMAQ	10%	\$861,975	\$344,790	\$7,757,773
P23	\$57,884,443	STBG	10%	\$5,788,444	\$1,736,533	\$52,095,999
P24	\$22,773,415	BFP	20%	\$4,554,683	\$4,326,949	\$18,218,732
P25	\$2,003,725	HSIP	10%	\$200,372	\$320,596	\$1,803,352
P26	\$52,854,224	NHPP	20%	\$10,570,845	\$4,228,338	\$42,283,379
P27	\$38,861,120	NHPP	10%	\$3,886,112	\$1,165,834	\$34,975,008
P28	\$7,169,280	PROTECT	10%	\$716,928	\$0	\$6,452,352
P29	\$46,432,014	NHPP	20%	\$9,286,403	\$4,643,201	\$37,145,611
P30	\$6,669,721	MPO	20%	\$1,333,944	\$533,578	\$5,335,777

Project Code	Project Cost	Assigned USDOT Program Code	MFR	State Share (Total including in-kind match)	State share (in cash: less in-kind match)	Federal Share
P31	\$19,774,781	PROTECT	20%	\$3,954,956	\$1,581,982	\$15,819,824
P32	\$46,707,764	NHPP	20%	\$9,341,553	\$2,802,466	\$37,366,211
P33	\$47,929,516	BFP	10%	\$4,792,952	\$1,917,181	\$43,136,565
P34	\$52,706,187	STBG	20%	\$10,541,237	\$5,270,619	\$42,164,950
P35	\$12,550,073	CRP	20%	\$2,510,015	\$2,008,012	\$10,040,058
P36	\$16,751,451	NHPP	20%	\$3,350,290	\$0	\$13,401,161
P37	\$36,762,843	NHPP	10%	\$3,676,284	\$2,205,771	\$33,086,558
P38	\$46,194,434	NHPP	20%	\$9,238,887	\$923,889	\$36,955,547
P39	\$23,210,661	NHPP	20%	\$4,642,132	\$0	\$18,568,529
P40	\$47,998,016	NHPP	10%	\$4,799,802	\$2,399,901	\$43,198,214
P41	\$11,251,559	BFP	20%	\$2,250,312	\$675,094	\$9,001,247
P42	\$54,074,710	NHPP	10%	\$5,407,471	\$2,703,736	\$48,667,239
P43	\$42,513,731	STBG	10%	\$4,251,373	\$2,975,961	\$38,262,358
P44	\$37,951,929	NHPP	10%	\$3,795,193	\$1,518,077	\$34,156,736
P45	\$57,972,784	STBG	10%	\$5,797,278	\$5,797,278	\$52,175,505
P46	\$6,606,357	NHPP	20%	\$1,321,271	\$0	\$5,285,086
P47	\$46,011,102	HSIP	10%	\$4,601,110	\$0	\$41,409,992
P48	\$16,660,206	STBG	10%	\$1,666,021	\$0	\$14,994,185
P49	\$37,772,910	NHPP	10%	\$3,777,291	\$1,510,916	\$33,995,619
P50	\$13,568,748	CMAQ	10%	\$1,356,875	\$0	\$12,211,873
Total				\$213,838,520	\$95,105,717	\$1,286,161,480

The remaining or unallocated amount (residual) in each Federal program after the allocation of project-program pairings is as follows:

Table 6: Residuals under each program after project allocation

Program Code	Name	Program Max	Federal share payable	Residual	Number of projects
J1	NHPP	\$691,872,473	\$691,499,803	\$372,670	22
J2	STBG	\$336,586,609	\$328,670,444	\$7,916,165	9
J3	HSIP	\$70,506,306	\$65,058,526	\$5,447,780	4
J4	RHCP	\$7,945,421	\$6,074,268	\$1,871,153	1
J5	CMAQ	\$51,336,381	\$45,883,206	\$5,453,175	4
J6	MPO	\$6,904,797	\$5,335,777	\$1,569,020	1
J7	NHFP	\$33,045,246	\$24,937,553	\$8,107,693	1
J8	CRP	\$30,012,306	\$26,073,182	\$3,939,124	3
J9	PROTECT	\$34,126,142	\$22,272,176	\$11,853,966	2
J10	BFP	\$74,542,768	\$70,356,545	\$4,186,223	3
		\$1,336,878,449	\$1,286,161,480	\$50,716,969	50

Using the Genetic Algorithm model to minimize the residuals from each USDOT program, the user could ensure that the transportation agencies receive the maximum amount of funds for which they are eligible. This optimization process analyzes the various Federal programs and funding mechanisms available from the USDOT and matches them with eligible projects of the State, based on parameters such as project type, cost, and eligibility criteria.

6. RECOMMENDATIONS ON THE USE OF MATCHING FUNDS

The following guidelines are indicatively presented, on a strategic level, as recommendations to yield the best value for money from the identification of matching funds. The recommendations may be engaged by State DOTs or Local public agencies to minimize their cash requirements by identifying the possible in-kind match and use of P3s.

- Prepare the pipeline of projects well in advance and prioritize the projects to be implemented under BIL. Select only those projects which have received all clearances and are ready to be implemented. Projects pending other statutory clearances such as environmental and social impact studies, may be deferred to future years of funding.
- Clearly identify all such in-kind contributions that could be attributed to the project. These could reduce the cash match requirement.
- Identify whether the project is revenue generating or non-revenue generating. Revenue generating projects could be categorized into direct revenue generation (like electricity projects, water supply projects or broadband) or indirect revenue generation (mostly associated with economic benefits and tax revenues).
- If the project is a direct revenue generating model, consider structuring a P3 model where the private partner can finance the matching fund requirement and the project can be developed as a P3 (refer to Section 4.5 of this report for the framework).
- If the project is an indirect revenue generating model, consider structuring the project for various value capture methods defined by FHWA / USDOT. Participation of private agencies can be engaged based on availability payment concession options. Adoption of various local option taxes can also be explored in this stage.
- The use of loans from SIBs or TIFIA options can be engaged based on the financing options and the cost of debt.
- Engage the use of available toll credits if any of the above steps are deemed not feasible.
- Engage a rolling program in the State legislature that ensures a constant flow of matching funds.

The agencies can employ good practices to engage in the best use of matching funds and to reduce the direct burden on State legislature and budgetary funds. Table 6 presents synthesized suggestions received from the CFO forum for State DOTs and LPAs, highlighting the most effective utilization of matching funds.

Table 7: Suggestions for best use of matching funds

Suggestion	Details
Seek project-specific grants	Identify project specific grants and donations that are intended for the purpose.
Create robust project-selection criterion	Select the projects to be included in a particular annual plan based on a robust framework suitable for each State or local public agency.
Select appropriate partners and identify in-kind match	Explore thoroughly all in-kind match options for each project. In advance of obtaining Federal funding, efforts should be made to identify suitable partners who can contribute in-kind matches.
Do not attempt to overmatch	Strive to keep the match level within the prescribed requirement of the program. When a grantee meets its match goal, the identification of funds may be stopped.
Reduce early-year cashflow pressure	Attempt the option of tapered match wherever possible. In case of loans availed, employ proper financing techniques that reduce or delay the payment of debt service.
Foster effective stakeholder engagement	The options for value capture methods can be maximized with effective stakeholder engagement from the preliminary stages of the project. Engagement across a range of stakeholders can determine the success of transportation projects that rely on value capture financing.

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8. GLOSSARY OF ACRONYMS

Acronym	Term
AIP	Airport Improvement Program
BAC	Build America Center
BIL	Bipartisan Infrastructure Law
BTE	Bridge and Tunnel Enterprise
CFO forum	Chief Financial Officers of State DOTs Forum
CFR	Code of Federal Regulations
CIFS	Center for Innovative Finance Support, FHWA
DOT	Department of Transportation (State)
FS	Florida Statute
FHWA	Federal Highway Administration
HUTF	Highway User Trust Fund
IJA	Infrastructure Investment and Jobs Act
LPA	Local Public Agency
MOE	Maintenance of Effort
MPO	Metropolitan Planning Organization
NHS	National Highway System
NOFO	Notice for Funding Opportunities
PPPs or P3s	Public-Private Partnerships
RAISE	Rebuilding American Infrastructure with Sustainability and Equity
SIB	State Infrastructure Bank
SS4A	Safe Streets and Roads for All
STIP	State Transportation Improvement Plans
TEA	Transportation Equity Act
TIF	Tax Increment Financing
TIFIA	Transportation Infrastructure Finance and Innovation Act
TIO	Transportation Investment Office
TOD	Transit-Oriented Development
TTAP	Tribal Technical Assistance Program
TUF	Transportation User Fee
USC	United States Code
USDOT	US Department of Transportation

9. QUICK REFERENCE

- BIL – Federal share fact sheet
https://www.fhwa.dot.gov/bipartisan-infrastructure-law/fedshare_fact_sheet.cfm
- Federal-Aid Guidance Non-Federal Matching Requirements
https://www.fhwa.dot.gov/legsregs/directives/policy/memonfmr_tapered20190515.htm
- Federal Aid Matching Strategies
https://www.fhwa.dot.gov/ipd/finance/tools_programs/Federal_aid/matching_strategies/
- Federal Aid Matching Strategies – Toll Credits
https://www.fhwa.dot.gov/ipd/finance/tools_programs/Federal_aid/matching_strategies/toll_credits.aspx
- Federal Aid Matching Strategies – Off system bridge credits
<https://www.fhwa.dot.gov/bridge/0650dsup.cfm>
- Federal Aid Matching Strategies - Tapered Match
https://www.fhwa.dot.gov/ipd/finance/tools_programs/Federal_aid/matching_strategies/tapered_match.aspx
- Value Capture Methods
https://www.fhwa.dot.gov/ipd/value_capture/
- Value Capture Strategy Primers
https://www.fhwa.dot.gov/ipd/value_capture/vcsp/
- Tax Increment Financing
https://www.fhwa.dot.gov/ipd/value_capture/vcsp/fhwa_hin_21_006/
- State Infrastructure Banks
https://www.fhwa.dot.gov/ipd/finance/tools_programs/Federal_credit_assistance/sibs/
- TIFIA Credit Assistance
https://www.fhwa.dot.gov/ipd/finance/tools_programs/Federal_credit_assistance/tifia/
- Public Private Partnerships (P3s)
<https://www.fhwa.dot.gov/ipd/p3/>

APPENDIX 1 – SURVEY QUESTIONNAIRE

BAC Research study on State of practice of matching funds – 2022

State studied: XXXXX Department: XXXXX DOT

Please identify from the list below, the financial sources engaged at XXXX State DOT since 2017 (during any of the past 5 years) as a match for Federal grants.

	Type	Whether authorized by State Legislature? (Yes/ No)	Whether used as a match? (Yes/ No)	Comments (if any)
1	Direct budget support from State legislature for use as match			
2	Specialized local option taxes ³⁸			
3	Toll credits			
4	TIFIA credit assistance			
5	Value capture methods ³⁹			
6	State Infrastructure Bank			
7	Public Private Partnerships			
8	Others, please specify			
a)				
b)				

Suggestions or concerns you may wish to share regarding matching techniques:

Please indicate any technical support (related to project funding & financing) required in your State DOT for implementing the Bipartisan Infrastructure Law.

³⁸ Specialized local option taxes includes all such special purpose taxes engaged for a short period to raise funds. The types may include "Local option transportation tax", "Local Option Sales Tax," "Local Option Fuel Tax" or "Local Motor Vehicle Fee." Only those funds appropriated for transportation infrastructure development may be mentioned in under this category.

³⁹ Value capture techniques harness a portion of the increased property values to pay for the improvement or for future transportation investment. The most common include advertising, naming rights, sponsorships, air rights, impact fees, joint development, land value tax, negotiated exactions, sales tax districts, tax increment finance, or transportation utility fees. Refer: https://www.fhwa.dot.gov/ipd/value_capture/

APPENDIX 2 – LIST OF BIL PROGRAMS UNDER USDOT

Note:

- The following list is based on the US Government publication titled – “*A Guidebook to the Bipartisan Infrastructure Law for State, Local, Tribal, and Territorial Governments, and other partners*,” V2 published in May 2022. For latest details and accurate information refer to the respective program documentation published by the Federal agencies from time to time.
- The column – “Federal / non-Federal cost share requirement” is the ratio of Federal share payable to non-Federal share requirement under typical conditions. Refer FHWA BIL Federal share fact sheet website - [https://www.fhwa.dot.gov/bipartisan-infrastructure-law/fedshare fact sheet.cfm](https://www.fhwa.dot.gov/bipartisan-infrastructure-law/fedshare%20fact%20sheet.cfm) or program specific documentation for more information on adjustments or options for increase to Federal Share.

S. No	Name of the USDOT program	Total Amount	Sector	Mechanism of funding	Federal / non-Federal cost share requirement
1	National Highway Performance Program	\$148,000,000,000	Roads & Bridges	Formula	80 / 20
2	Surface Transportation Block Grant Program	\$72,000,000,000	Roads & Bridges	Formula	80 / 20
3	Bridge Formula Program	\$26,675,000,000	Roads & Bridges	Formula	80 / 20
4	Tribal Transportation Facility Bridges (Bridge Formula Funding Set-Aside)	\$825,000,000	Roads & Bridges	Formula	100 / 0
5	Congestion Mitigation and Air Quality Improvement Program	\$13,200,000,000	Roads & Bridges	Formula	80 / 20
6	Bridge Investment Program	\$12,200,000,000	Roads & Bridges	Discretionary	50/50 (Large projects) 80/20 (others)
7	Grants for Planning, Feasibility Analysis, and Revenue Forecasting (Bridge Investment Program Set-aside)	\$100,000,000	Roads & Bridges	Discretionary	80 / 20 typical 90 / 10 (off-system)
8	Local and Regional Project Assistance Grants (RAISE)	\$7,500,000,000	Roads & Bridges	Discretionary	60/40 up to 80/20
9	Nationally Significant Freight and Highway Projects (INFRA)	\$7,250,000,000	Roads & Bridges	Discretionary	60/40 (Large projects) 80/20 (others)

S. No	Name of the USDOT program	Total Amount	Sector	Mechanism of funding	Federal / non-Federal cost share requirement
10	State Incentives Pilot Program (Set-aside within - INFRA)	\$750,000,000	Roads & Bridges	Discretionary	50 / 50
11	National Highway Freight Program	\$7,150,000,000	Roads & Bridges	Formula	80 / 20
12	Carbon Reduction Program	\$6,419,999,998	Roads & Bridges	Formula	80 / 20
13	National Infrastructure Project Assistance (Megaprojects)	\$5,000,000,000	Roads & Bridges	Discretionary	75 / 25 (new compacts) 50 / 50 (existing)
14	Tribal Transportation Program	\$2,966,800,000	Roads & Bridges	Formula	100 / 0
15	Metropolitan Planning	\$2,280,000,000	Roads & Bridges	Formula	80 / 20
16	Rural Surface Transportation Grant Program	\$2,000,000,000	Roads & Bridges	Discretionary	80 / 20
17	Federal Lands Transportation Program (funds for National Park Service)	\$1,731,187,250	Roads & Bridges	Federal Spending	100 / 0
18	Federal Lands Access Program	\$1,487,875,000	Roads & Bridges	Formula	100 / 0
19	Transportation Infrastructure Finance and Innovation Act (TIFIA)	\$1,250,000,000	Roads & Bridges	Loan	80 / 20
20	Appalachian Development Highway System	\$1,250,000,000	Roads & Bridges	Formula	100 / 0
21	National Culvert Removal, Replacement, & Restoration Grant	\$1,000,000,000	Roads & Bridges	Discretionary	80 / 20
22	Reconnecting Communities Pilot Program	\$1,000,000,000	Roads & Bridges	Discretionary	80 / 20
23	Puerto Rico Highway Program	\$900,995,000	Roads & Bridges	Formula	80 / 20
24	Advanced Transportation Technologies & Innovative Mobility Deployment	\$900,000,000	Roads & Bridges	Discretionary	80 / 20
25	Highway Research & Development Program	\$310,000,000	Roads & Bridges	Grant	80 / 20
26	Nationally Significant Federal Lands and Tribal Projects	\$275,000,000	Roads & Bridges	Discretionary	90 / 10

S. No	Name of the USDOT program	Total Amount	Sector	Mechanism of funding	Federal / non-Federal cost share requirement
27	Congestion Relief Program	\$250,000,000	Roads & Bridges	Discretionary	80 / 20
28	Intelligent Transportation Systems Program	\$250,000,000	Roads & Bridges	Grant	80 / 20
29	Territorial Highway Program	\$239,505,000	Roads & Bridges	Formula	100 / 0
30	Tribal Transportation Facility Bridge (Set-aside)	\$200,000,000	Roads & Bridges	Discretionary	100 / 0
31	Federal Lands Transportation Program (Funding for U.S. Fish & Wildlife Service)	\$180,000,000	Roads & Bridges	Federal Spending	100 / 0
32	Federal Lands Transportation Program (For other Federal Land Management Agencies)	\$153,637,750	Roads & Bridges	Discretionary	100 / 0
33	Federal Lands Transportation Program (Funding for U.S. Forest Service)	\$130,000,000	Roads & Bridges	Federal Spending	100 / 0
34	Accelerated Implementation and Deployment of Adv. Digital Cons. Management Systems (Set-aside)	\$100,000,000	Roads & Bridges	Discretionary	80 / 20
35	Strategic Innovation for Revenue Collection (Set-aside)	\$75,000,000	Roads & Bridges	Grant	80 / 20
36	Accelerated Implementation and Deployment of Pavement Technologies (Set-aside)	\$60,000,000	Roads & Bridges	Grant	80 / 20
37	National Motor Vehicle Per-Mile User Fee Pilot (Set-aside)	\$50,000,000	Roads & Bridges	Grant	80 / 20
38	Disadvantaged Business Enterprises	\$50,000,000	Roads & Bridges	Discretionary	100 / 0
39	On-the-Job Training Program	\$50,000,000	Roads & Bridges	Discretionary	Varies
40	Tribal High Priority Projects Program	\$45,000,000	Roads & Bridges	Discretionary	100 / 0
41	Highway Use Tax Evasion Projects	\$20,000,000	Roads & Bridges	Discretionary	100 / 0
42	Federal-State Partnership for Intercity Passenger Rail Grants	\$36,000,000,000	Rail	Competitive Grant	80 / 20
43	Amtrak National Network Grants	\$15,750,000,000	Rail	Grant	100 / 0
44	Amtrak Northeast Corridor Grants	\$6,000,000,000	Rail	Grant	100 / 0

S. No	Name of the USDOT program	Total Amount	Sector	Mechanism of funding	Federal / non-Federal cost share requirement
45	Consolidated Rail Infrastructure and Safety Improvement Grants	\$5,000,000,000	Rail	Competitive Grant	50 / 50 (typical) up to 80 / 20
46	Restoration & Enhancement Grant Program	\$250,000,000	Rail	Competitive Grant	Varies
47	Urbanized Area Formula Grants	\$33,390,947,107	Public Transportation	Formula	Varies
48	State of Good Repair Formula Grants	\$21,640,412,832	Public Transportation	Formula	Varies
49	Capital Investment Grants	\$8,000,000,000	Public Transportation	Competitive Grant	80 / 20
50	Formula Grants for Rural Areas	\$4,109,463,374	Public Transportation	Formula	Varies
51	Bus and Bus Facilities Formula Grants	\$3,161,294,400	Public Transportation	Formula	Varies
52	Enhanced Mobility of Seniors and Individuals with Disabilities	\$2,193,105,343	Public Transportation	Formula	Varies
53	Ferry Service for Rural Communities	\$2,000,000,000	Public Transportation	Grant	Varies
54	Bus and Bus Facilities Competitive Grants	\$1,966,392,169	Public Transportation	Competitive Grant	Varies
55	All Stations Accessibility Program	\$1,750,000,000	Public Transportation	Grant	80 / 20
56	Rail Vehicle Replacement Grants	\$1,500,000,000	Public Transportation	Competitive Grant	80 / 20
57	Metropolitan Transportation Planning Program	\$799,441,834	Public Transportation	Formula	80 / 20
58	University Transportation Centers (UTC) Program	\$500,000,000	Public Transportation	Grant	50 / 50
59	Strengthening Mobility and Revolutionizing Transportation (SMART) Grants	\$500,000,000	Public Transportation	Competitive Grant	100 / 0
60	Public Transportation on Indian Reservations Formula	\$183,250,437	Public Transportation	Formula	Varies
61	Statewide Transportation Planning	\$167,001,389	Public Transportation	Formula	80 / 20
62	Urbanized Area Passenger Ferry Program	\$150,000,000	Public Transportation	Grant	Varies
63	Appalachian Development Public Transportation Assistance Program	\$137,437,828	Public Transportation	Formula	Varies

S. No	Name of the USDOT program	Total Amount	Sector	Mechanism of funding	Federal / non-Federal cost share requirement
64	Research, Development, Demonstration and Deployment Projects	\$132,218,677	Public Transportation	Competitive Grant	80 / 20
65	Rural Transportation Assistance Program	\$91,552,911	Public Transportation	Formula	100 / 0
66	Pilot Program for Transit Oriented Development	\$68,864,631	Public Transportation	Competitive Grant	80 / 20
67	Public Transportation on Indian Reservations Competitive	\$45,812,610	Public Transportation	Competitive Grant	Varies
68	Transit Cooperative Research Program	\$34,432,315	Public Transportation	Grant	100 / 0
69	Public Transportation Technical Assistance and Workforce Development	\$27,545,852	Public Transportation	Agreement	80 / 20
70	Pilot Program for Enhanced Mobility	\$24,102,620	Public Transportation	Competitive Grant	80 / 20
71	National Rural Transportation Assistance Program	\$13,743,783	Public Transportation	Agreement	100 / 0
72	Airport Infrastructure Grants	\$15,000,000,000	Airports	Grant	25 / 75
73	Airport Terminal Program	\$5,000,000,000	Airports	Grant	80 / 20 (large) 95 / 5 (others)
74	Facilities and Equipment	\$5,000,000,000	Airports	Contract	100 / 0
75	Port Infrastructure Development Program Grants	\$2,250,000,000	Ports	Grant	80 / 20
76	Construction of Ferry Boats and Ferry Terminal Facilities	\$912,000,000	Ports	Formula	80 / 20
77	Reduction of Truck Emissions at Port Facilities	\$400,000,000	Ports	Competitive Grant	80 / 20
78	America's Marine Highway Program Grants	\$25,000,000	Ports	Grant	80 / 20
79	Highway Safety Improvement Program	\$15,557,499,996	Safety	Formula	90 / 10
80	Safe Streets and Roads for All	\$5,000,000,000	Safety	Competitive Grant	80 / 20
81	Railroad Crossing Elimination Grants	\$3,000,000,000	Safety	Competitive Grant	80 / 20
82	Motor Carrier Safety Assistance Program	\$2,432,500,000	Safety	Formula	85 / 15

S. No	Name of the USDOT program	Total Amount	Sector	Mechanism of funding	Federal / non-Federal cost share requirement
83	Highway Safety Programs	\$1,992,000,000	Safety	Formula	80 / 20
84	Motor Carrier Safety Operations and Programs	\$1,925,000,000	Safety	Admin Expenses	100 / 0
85	National Priority Safety Programs	\$1,874,500,000	Safety	Formula	80 / 20
86	Railway-Highway Crossings Program	\$1,225,000,000	Safety	Formula	100 / 0
87	Natural Gas Distribution Infrastructure Safety and Modernization Grants	\$1,000,000,000	Safety	Competitive Grant	100 / 0
88	Highway Safety Research & Development	\$970,000,000	Safety	Grant	100 / 0
89	Crash Data	\$750,000,000	Safety	Competitive Grant	80 / 20
90	Vehicle Safety and Behavioral Research	\$548,500,000	Safety	Grant	100 / 0
91	High Priority Activities Program	\$432,500,000	Safety	Grant	85 / 15
92	Wildlife Crossings Pilot Program	\$350,000,000	Safety	Grant	80 / 20
93	Commercial Driver's License Implementation Program	\$297,500,000	Safety	Grant	85 / 15
94	High-Visibility Enforcement	\$201,600,000	Safety	Contract	100 / 0
95	National Driver Register	\$36,000,000	Safety	Competitive Grant	100 / 0
96	Commercial Motor Vehicle Enforcement Training & Support Grant Program	\$25,000,000	Safety	Grant	100 / 0
97	Low or No Emission (Bus) Grants	\$5,624,550,890	Electric	Grant	Varies
98	National Electric Vehicle Infrastructure Formula Program	\$5,000,000,000	Electric	Formula	80 / 20
99	Charging and Fueling Infrastructure Grants (Community Charging)	\$1,250,000,000	Electric	Competitive Grant	80 / 20
100	Charging and Fueling Infrastructure Grants (Corridor Charging)	\$1,250,000,000	Electric	Competitive Grant	80 / 20

S. No	Name of the USDOT program	Total Amount	Sector	Mechanism of funding	Federal / non-Federal cost share requirement
101	Electric or Low-Emitting Ferry Program	\$250,000,000	Electric	Grant	Varies
102	Low or No Emission Vehicle Component Assessment Program	\$26,169,974	Electric	Grant	50 / 50
103	Safety-Related Activities (Set-aside)	\$17,500,000	Electric	Competitive Grant	100 / 0
104	Commercial Motor Vehicle Operators Grant Program	\$16,500,000	Electric	Competitive Grant	85 / 15
105	Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) - Formula	\$7,299,999,998	Resilience	Formula	80 / 20
106	Promoting Resilient Operations for Transformative, Efficient, and Cost-Saving Transportation (PROTECT) - Discretionary	\$1,400,000,000	Resilience	Competitive Grant	80 / 20
107	Hazardous Materials and Emergency Preparedness Grants	\$234,125,000	Resilience	Grant	80 / 20
108	Growing State Apportionments	\$2,055,665,467	Others	Grant	Varies
109	Growing States and High-Density States Formula	\$1,822,948,622	Others	Grant	Varies
110	Bureau of Transportation Statistics	\$132,500,000	Others	Grant	Varies
111	Training & Education	\$127,500,000	Others	Grant	50 / 50 (T.A. centers) 100 / 0 (Others)
112	Asset Concessions	\$100,000,000	Others	Grant	100 / 0
113	Technology & Innovation Deployment Program	\$90,000,000	Others	Grant	80 / 20
114	Prioritization Process Pilot Program	\$50,000,000	Others	Grant	80 / 20
Total		\$564,814,080,057			



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