# Assessing Value Capture Risks

A Primer

March 2022

U.S. Department of Transportation
**Federal Highway Administration**

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16. Abstract

Value capture refers to a set of techniques that rely on increases in property values, business activity, and economic growth linked to transportation infrastructure to help fund current or future transportation improvements. The use of value capture techniques involves a set of risks associated with value capture's reliance on increased real estate values and economic development activity. However, real estate values and economic development depend on many other factors besides the condition of nearby transportation infrastructure. Many of these factors are sources of risk that are outside the control of project stakeholders (e.g., national recession, inflation). Assessing and managing these risks is critical to maximize the likelihood that the project will generate the value and the funding expected.

This primer presents an overview of the risk management process in the context of value capture. It illustrates risks typically faced by local governments in projects funded through value capture using real-world examples. It also describes mitigation strategies that were used or could have been used to mitigate those risks. The primer concludes with a discussion on building resiliency into a project's value capture funding strategy.

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## LIST OF ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| APS | Atlanta Public Schools |
| BID | Business improvement district |
| COVID-19 | Coronavirus 2019 |
| DART | Dallas Area Rapid Transit |
| FHWA | Federal Highway Administration |
| JD | Joint development |
| LRT | Light-rail transit |
| ODOT | Ohio Department of Transportation |
| PILOT | Payments in lieu of taxes |
| PMBS | Private-label mortgage-backed security |
| SAD | Special assessment district |
| STD | Sales tax district |
| TAD | Tax allocation district |
| The Cap | The Cap at Union Station (Columbus, OH) |
| TID | Tax incremental district |
| TIF | Tax increment finance |
| TJD | Transit joint development |
| TOD | Transit-oriented development |
| TRZ | Transportation Reinvestment Zone |
| TUF | Transportation utility fee |
| TxDOT | Texas Department of Transportation |

# FOREWORD

State and Federal transportation funds are the traditional funding sources for transportation projects. However, the growth in local transportation needs has outpaced the availability of these funds, creating a funding gap. Value capture techniques have the potential to help communities narrow this funding gap, making delivery of critically needed transportation projects possible. Value capture techniques rely on increases in property values, business activity, and economic growth linked to transportation infrastructure to help fund current or future transportation improvements. The use of value capture techniques to fund transportation infrastructure is relatively new and not free of risks.

Risk is an intrinsic component of any transportation project, regardless of the funding source used to pay for them. A host of reasons may affect the cost of construction and the construction schedule, and external factors may alter travel demand forecasts. From a funding perspective, the availability of financing and cash flow to pay for the project is a vital project element that almost always involves risk. As a result, using value capture to fund a project involves its own set of risks, particularly because it depends on value creation linked to real estate and economic development. Assessing and managing risks associated with value capture is critical to maximize the likelihood that the project will generate the value and the funding expected.

This primer is based on a review of relevant literature, interviews with practitioners, case studies, and lessons learned from practicing agencies. Its audience includes two groups:

1. Practitioners from communities that do not currently use value capture techniques as a funding source for transportation projects, but who may be considering implementing one in the near future and want to learn more about specific risks associated with them.

2. Practitioners from communities that already have implemented value capture techniques but are interested in learning more about risk management in value capture.

This primer presents an overview of the risk management process in the context of value capture. Additionally, it defines four risk categories affecting value capture techniques and the types of risks that fall into each category. Moreover, this primer provides real-world examples that illustrate the types of risks faced by local governments using value capture techniques, as well as the mitigation strategies that were used or could have been used to mitigate those risks.

Next, the primer identifies and compares the risks associated with the use of each value capture technique along with the consequences they might have, if materialized, and mitigation strategies that could potentially improve the ability of local governments to control them. The primer then describes how local governments can build resiliency by incorporating means to cost-effectively deal with potential deviations in actual project outcomes. Finally, the primer provides a case example to illustrate how a local government has implemented the risk management process for systematically identifying, assessing, allocating, mitigating, and monitoring risk throughout the lifecycle of a project funded with a value technique.

# EXECUTIVE SUMMARY

The growth in local transportation needs has outpaced the availability of funding from traditional State and Federal sources, leading to a growing funding gap. Value capture funding techniques have helped communities throughout the country narrow this funding gap while accelerating the delivery of critically needed transportation projects. Value capture techniques rely on increases in property values, business activity, and economic growth linked to transportation infrastructure to help fund current or future transportation improvements.

Risks are present in any transportation project regardless of the funding source used to pay for them. The use of value capture techniques to fund transportation projects involves a set of risks associated with value capture's reliance on increased real estate and economic development activity. Real estate and economic development depend on many other factors aside from having good transportation accessibility. Many of these factors are sources of risk that are completely outside local government control (e.g., economic growth, inflation, and interest rates), or for that matter, outside the control of any other project stakeholders (e.g., State government, private developers). Effective risk management in value capture is about evaluating the uncertainties and implications of each value capture technique considered, as well as about managing impacts once a value capture choice has been made. Maximizing the probability that the project will generate the value expected and that the local government will be able to capture or use the value generated by the project builds resiliency into the project's funding strategy and helps ensure the sustainability of value capture as a funding source.

Risks that have not been identified cannot be assessed, mitigated, and monitored. In this regard, transportation agencies and local governments often rely on the risk management process to understand existing risks, quantify their potential impact on the project, and elaborate a response to them. The risk management process consists of five sequential steps:

1) Risk identification

2) Risk assessment

3) Risk allocation

4) Risk mitigation

5) Risk monitoring

Transportation projects funded with value capture may be subjected to various risks that for the purposes of this primer are grouped into four risk categories:

- **Exogenous economic risks.** Risks determined by external factors at the regional, national, or sometimes the global level, and are outside the control or influence of project stakeholders. The three most common risk types inside this category are macroeconomic risks, real estate market risks, and other local economic and demographic risks.

- **Endogenous economic risks.** Risks determined by internal factors, processes, or decisions within the control of project stakeholders that result in the project not generating the anticipated economic development, thus affecting the local government's financial standing. Common risk types in this category include economic growth impact and related risks, as well as fiscal impact risks.

- **Legal and political risks.** Includes risks associated with the legal/regulatory framework and with the political environment that may directly limit the ability of local governments and/or other project stakeholders to successfully use a value capture technique for project funding or financing. The most common risk types in this category include legal feasibility and legislative risks, as well as political climate and feasibility risks.

- **Policy and institutional risks.** Risks resulting from a local government's management or administrative actions in the implementation of a project using value capture that may unintentionally result in undesirable project outcomes or negative public perception. The risk types identified in this category include social equity (including environmental and sustainability) concerns, as well as administration and transparency risks.

Finally, the development of a resilient value capture funding strategy is key to maximizing the value generated by the transportation investment and the long-term success of value capture as a funding source. The result of building resiliency into a value capture funding strategy is also called a "risk-adjusted value capture strategy." In essence, a risk-adjusted value capture strategy is about accounting for risks and their timing early on through robust risk assessment and allocation work, along with identifying adequate mitigation measures.

# ORGANIZATION OF THIS REPORT

The use of value capture techniques to fund transportation projects involves a set of risks associated with value capture's reliance on increased real estate and economic development activity that are linked to transportation infrastructure. Transportation agencies and local governments often rely on the risk management process to understand existing risks, to quantify their potential impact on a project, and to elaborate a response to the risks. The risk management process is defined as a continuous process for systematically identifying, assessing, allocating, mitigating, and monitoring risk throughout the lifecycle of a project.

The overarching goal of this primer is to assist practitioners in understanding the typical risks associated with value capture in transportation and assessing them to build resiliency into a project's funding strategy. More specifically, the objectives of the primer include:

- Identifying typical risks that may have a bearing on different value capture techniques at different stages of a project and illustrating them with examples.

- Describing how to assess value capture risks to build resiliency into a project's funding strategy.

The following paragraphs provide an overview of the content included in each chapter of the primer to assist the reader in navigating the document.

## Chapter 1: Introduction

Chapter 1 provides the goals and objectives of this primer and the definition of the value capture techniques currently available to local governments to fund transportation projects. This chapter also introduces the concept of risk in value capture and highlights the importance of managing risks.

## Chapter 2: Risk Management in Value Capture

Chapter 2 provides an overview of the risk management process in the context of value capture. As part of this overview, this chapter also introduces the value capture risk categories and risk types used in subsequent chapters.

## Chapter 3: Exogenous Economic Risks

Chapter 3 describes the exogenous economic risk category. There are several exogenous economic risk types that value capture funding for transportation may be subject to, but the three most common include: (1) macroeconomic risks; (2) real estate market risks; and (3) other local economic and demographic risks. This chapter describes each of these risk types and provides examples that illustrate how they may impact projects relying on value capture funding.

## Chapter 4: Endogenous Economic Risks

Chapter 5 presents the endogenous economic risk category. Common risk types in this category include: (1) economic growth impact and related risks; and (2) fiscal impact risks. This chapter describes each of these risk types and provides examples that illustrate how they may impact projects relying on value capture funding.

## Chapter 5: Legal and Political Risks

Chapter 4 discusses the legal and political risk category. The most common risk types in this category include: (1) legal feasibility and legislative risks; and (2) political climate and feasibility risks. This chapter describes each of these risk types and provides examples that illustrate how they may impact projects relying on value capture funding.

## Chapter 6: Policy and Institutional Risks

Chapter 6 describes the policy and institutional risk category. The risk types identified in this category include: (1) social equity (including environmental and sustainability) concerns; and (2) administration and transparency risks. This chapter describes each of these risk types and provides examples that illustrate how they may impact projects relying on value capture funding.

## Chapter 7: Value Capture Technique Specific Risks - Comparative

Chapter 7 summarizes a comparative analysis of risks associated with each value capture technique and of potential risk mitigation strategies applicable to each risk and value capture technique. It begins with a comparison of common risks associated with each value capture technique and the potential severity of their impact if materialized. Next, it presents a risk checklist that describes potential consequences and identifies potential mitigation measures.

## Chapter 8: Building Resiliency and Developing a Risk-Adjusted Value Capture Strategy

Chapter 8 introduces the concept of resiliency and developing a risk-adjusted value capture strategy that considers potential risks in the context of their timing vis-à-vis different project phases and project stakeholders, incorporating appropriate mitigation strategies in each phase.

# 1 INTRODUCTION

State and Federal transportation funds are the traditional funding sources for transportation projects. However, the growth in local transportation needs has outpaced the availability of these funds, creating a funding gap. Value capture techniques have the potential to help communities narrow this funding gap, making delivery of critically needed transportation projects possible. Value capture techniques rely on increases in property values, business activity, and economic growth linked to transportation infrastructure to help fund current or future transportation improvements (1). Public investment in infrastructure results in increased economic activity and real estate development, which in turn leads to increasing property values and commercial activity, and subsequently generates government revenue, a portion of which may be reinvested into new infrastructure. Local governments have used value capture techniques for many years to fund different types of local infrastructure improvements. However, the use of value capture to generate funds for transportation infrastructure is relatively new. Table 1 lists the main categories of value capture techniques and defines some of the most common techniques used in transportation funding within each category.

**Table 1. Value Capture Techniques (1)**

| Category | Technique | Definition |
|---|---|---|
| **Developer Contributions** | Impact Fee | Fees imposed on developers to help fund additional public services, infrastructure, or transportation facilities required due to the new development. |
| | Negotiated Exactions | Negotiated charges imposed on developers to mitigate the cost of public services or infrastructure required as a result of the new development. |
| **Transportation Utility Fees** | Transportation Utility Fee (TUF) | Fees paid by property owners or building occupants to a municipality based on estimated use of the transportation system. |
| **Special Taxes and Fees** | Special Assessment District (SAD) | Fees charged on property owners within a designated district whose properties are the primary beneficiaries of an infrastructure improvement. |
| | Business Improvement District (BID) | Fees or levies charged on businesses within a designated district to fund or finance projects or services within the district's boundaries. |
| | Land Value Taxes | Split tax rates, where a higher tax rate is imposed on land than on buildings. |
| | Sales Tax District (STD) | Additional sales taxes levied on all transactions or purchases in a designated area that benefits from an infrastructure improvement. |
| **Tax Increment Finance** | Tax Increment Finance (TIF) | Charges that capture incremental property tax value increases from an investment in a designated district to fund or finance the investment. |
| **Joint Development** | At-Grade Joint Development | Projects that occur within the existing development rights of a transportation project. |
| | Above-Grade Joint Development | Projects that involve the transfer of air rights, which are development rights above or below transportation infrastructure. |
| | Utility Joint Development | Projects that take advantage of the synergies of broadband and other utilities with highway right-of-way. |
| **Asset Recycling** | Asset Recycling (U.S.) | In an asset recycling value capture strategy, proceeds from leases or sales of existing infrastructure are reinvested |

| Category | Technique | Definition |
|---|---|---|
| | | ("recycled") in much-needed new infrastructure improvements to spur economic development. The new infrastructure investment can include both revenue- and non-revenue generating facilities. Value Capture by Asset Recycling strategies create a continuous funding cycle that stretches lease proceeds much further and supplements traditional funding sources.[1] |
| **Naming Rights** | Naming Rights | A transaction that involves an agency selling the rights to name infrastructure to a private company. |

Risk is an intrinsic component of any transportation project, regardless of the funding source used to pay for it. A host of reasons may affect the cost of construction and the construction schedule, and external factors may alter travel demand forecasts. From a funding perspective, the availability of financing and cash flow to pay for the project is a vital project element that almost always involves risk. As a result, and particularly because it depends on value creation linked to real estate and economic development, using value capture to fund a project involves its own set of risks. Assessing and managing risks associated with value capture is critical to maximize the likelihood that the project will generate the value and the funding expected, and to ensure that value capture remains a sustainable funding source.

This chapter presents the goals and objectives of this primer, lays out the risk definitions used throughout the document, and introduces the concept of risk in value capture funding for transportation.

## 1.1 Goals and Objectives of the Primer

This primer is based on a review of relevant literature, interviews with practitioners, case studies, and lessons learned from practicing agencies. The overarching goal of this primer is to assist practitioners in understanding the typical risks associated with value capture in transportation and assessing them to build resiliency into a project's funding strategy. More specifically, the objectives of the primer include:

- Identifying typical risks that may have a bearing on different value capture techniques at different stages of a project and illustrating them with examples.
- Describing how to assess value capture risks to build resiliency into a project's funding strategy.

Building resiliency is about incorporating means to cost-effectively deal with potential deviations in actual project outcomes that may affect:

- The ability of the project to generate the value expected.
- The ability to capture or use the value generated by the project.

The primer provides references and descriptions to help identify, understand, and assess the risks most relevant to each value capture technique, and illustrates the concept of building value

[1] Additional information on asset recycling can be found in FHWA's Asset Recycling Frequently Asked Questions: https://www.fhwa.dot.gov/ipd/value_capture/defined/faq_asset_recycling.aspx.

capture resiliency into a project's funding strategy. To the extent possible, the primer provides case examples, as well as references to relevant literature on risk management, risk management tools, and project-specific analyses that interested readers may use to gain additional insight.

## 1.2 Risk Definitions

In this primer, risk is defined as the possibility of deviation in the actual project outcome from the expected project outcome, as measured by the benefits and costs accruing to each project stakeholder. Risk comprises the possibility of unexpectedly good, as well as unexpectedly bad outcomes (2). Table 2 provides other definitions used in the rest of the primer.

**Table 2. Risk Definitions**

| Concept | Definition |
|---|---|
| Risk event | Discrete occurrence that affects total project value for better or worse (3). This could be a particular outcome of a continuous variable that is different from its expected value, such as revenue streams, or a one-off event, such as critical damage to the project structure due to floods. |
| Probability or likelihood of risk event | A measure of how likely a condition or event is to occur (3). It is often expressed as a percentage, but it may also be expressed qualitatively (for example, rare, unlikely, possible, likely or almost certain). |
| Risk category | In this primer, a risk category is a set of risks that have a common source or share similar characteristics. In this primer, the risk categories used include: exogenous economic risks; endogenous economic risks; legal and political risks; and policy and institutional risks. Each risk category is further subdivided into risk types. |
| Risk type | In this primer, a risk type is simply a more specific subset of risks within a risk category. |
| Value or severity of loss | The size of the loss associated with a specific risk event, regardless of the event's probability of occurrence (4). This can be expressed either quantitatively (as a cost), or qualitatively, relative to the other project risks (e.g., insignificant, minor, moderate, major, or extreme). |
| Risk management | A continuous process to systematically identify, assess, control, mitigate, and monitor risk throughout the life of a project using a cost-benefit-justified approach (5). |

## 1.3 Risk in Value Capture for Transportation Funding

As noted earlier, risk is an inherent part of value capture because of its reliance on increased real estate and economic development activity. Real estate and economic development depend on many other factors aside from having good transportation accessibility. Many of these factors are sources of risk that are completely outside of the local government's control (e.g., economic growth, inflation, and interest rates), or for that matter, outside the control of any other project stakeholders (e.g., State government, private developers). Nevertheless, it has been noted in the risk management literature that public-sector agencies cannot be risk-averse and be successful (5). Risk is present in all infrastructure projects, and in almost every other public-sector effort aimed at increasing a community's quality of life (5). Hence, it is important to use effective risk management to balance opportunity and risk. Effective risk management in value capture is about evaluating the uncertainties and implications of each value capture technique

considered, as well as about managing impacts once a value capture choice has been made. Maximizing the probability that the project will generate the value expected and that the local government will be able to capture or use the value generated by the project builds resiliency into the project's funding strategy and helps ensure the sustainability of value capture as a funding source.

Risks that have not been identified cannot be assessed, mitigated, and monitored. Subsequent chapters in the primer describe the different risks that value capture projects may be subject to, illustrating them with examples to help practitioners identify and assess risks, and recognize actions other local governments have taken to mitigate them.

# 2 RISK MANAGEMENT IN VALUE CAPTURE

Chapter 1 introduced the importance of effective risk management in value capture. This chapter provides an overview of the risk management process in the context of value capture, describing the different steps in the process. To provide a framework in the process of risk identification, this chapter also introduces the value capture risk categories and risk types used in subsequent chapters. In response to the uncertainty associated with risks in a transportation project, transportation agencies at all levels of government often rely on the risk management process to understand existing risks, quantify their potential impact on a project, and elaborate a response to them.

The risk management process is defined as a continuous process for systematically identifying, assessing, allocating, mitigating, and monitoring risk throughout the lifecycle of a project (7). The continuous nature of the risk management process is critical, because risks will change as the project enters different phases. As presented in Figure 1, the risk management process consists of five sequential steps: 1) risk identification; 2) risk assessment; 3) risk allocation, 4) risk mitigation; and 5) risk monitoring. Each step of the process is discussed in the sections that follow in terms of the overall risk management process applied to any transportation project. Where relevant, references specific to value capture are made, but it should be emphasized that value capture is one of many aspects of a project that involves risk.

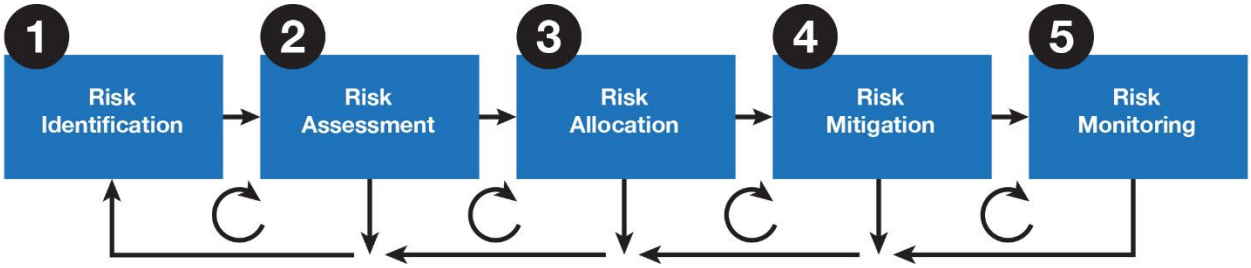



**Figure 1. Risk Management Process (4)**

## 2.1 Risk Identification

The first step in risk management is to identify potential risks. Risk identification should start at the early stages of the project and continue during the entire life of the project. There are two common approaches to identifying project risks:

1. Compare with risk checklists — Risk checklists are lists of risks that typically apply to transportation projects. Checklists may be general or specific to value capture. Chapter 7 of this primer provides risk checklists for each value capture technique.

2. Use expert knowledge — Internal and/or external experts in each aspect of a project (such as experts in planning, design, construction, installation, and operation of electromechanical equipment, law, or financing) can be consulted to help identify project risks.

These approaches are not mutually exclusive. Using a general checklist cannot substitute for detailed consideration of the risks of a particular project by internal and/or external experts. As a hybrid approach, the risk checklist can be used to develop a preliminary list of risks for the project in question. Once a preliminary risk checklist has been developed, local governments

may then convene a structured brainstorming session among experts in fields relevant to the project to produce a comprehensive list of major project risks. Unlike unstructured brainstorming, in which participants contribute ideas as they occur to them, structured brainstorming provides specific rules for participants to follow to make the generation of ideas more systematic and to ensure even participation, regardless of personality and/or ranking. This structured brainstorming process is described in Box 1 below.

**Box 1. Structured Brainstorming Process in Risk Identification**

Structured brainstorming is a frequently used technique in risk identification. It can be defined as a systematic process of liberally generating a large volume of ideas from a diverse group of experts by stimulating their individual creativity. The principle of structured brainstorming is that a group of experts of different competences and backgrounds will view the project from different perspectives and therefore identify more, and possibly other, risks than individuals or a more heterogeneous group.

How to do it:

The goal of structured brainstorming is to help identify and define major project risks. Before the exercise commences, participants need to understand the importance of postponing judgments until after the brainstorming session is completed. During the structured brainstorming process, participants write one risk previously identified in the risk checklist on a blackboard or flipchart where all participants can see it. After this, participants will:

- Write all ideas on the board and do as little editing as possible.
- Number each idea for future reference.
- Solicit one idea from each person in sequence.
- Participants who do not have an idea at the moment may say "pass."
- A complete round of passes ends the brainstorming session. The result of a brainstorming session is a list of ideas.

The list of ideas that results will lead to the final comprehensive list of project risks.

Table 3 introduces the value capture risk classification used in this primer to describe the most common risks to which value capture funding for transportation is subject. The table includes both risk categories and risk types. This table can be used as a basis or starting point to develop a project-specific value capture risk checklist. Each of these risk categories is described in more detail in the chapters that follow. The chapters also include examples that can help practitioners determine which risks are relevant to a specific project.

**Table 3. Value Capture Risk Classification**

| Risk Category | Definition | Risk Type | Description/Example |
|---|---|---|---|
| **Exogenous Economic Risks** | Risks that are determined by external factors at the regional, national, or sometimes the global level, and are in most cases outside the control or influence of project stakeholders. | Macroeconomic risks | Risks related to economic shocks and inflation at the national level. |
| | | Real estate market risks | Risks related to regional or local real estate bubbles and boom-and-bust cycles that disrupt real estate development and other economic activity within the community. |
| | | Other local economic and demographic risks | Risks related to regional or local economic shocks resulting from structural changes to the economy and employment mix, natural disasters, or other causes. |
| **Endogenous Economic Risks** | Risks determined by internal factors, processes, or decisions within the control of project stakeholders. They often result on the project not generating the economic development anticipated, affecting the local government's ability to pay the debt issued to fund the project. | Economic growth impact and related risks | Risks affecting the ability to secure funds from lenders or financial markets due to unexpected discrepancies between forecasted and actual economic development levels spurred by the project. |
| | | Fiscal impact risks | Risks affecting the local government's ability to sustain basic government services as a result of the commitments made to the project. |
| **Legal and political risks** | Risks directly affecting the ability of project stakeholders and local governments to implement value capture techniques due to legal impediments or political resistance, which in some cases is created by public resistance. | Legal feasibility and legislative risks | Risks affecting the ability of the local government to use a value capture technique on a project, or the ability to issue debt for a particular type of project. |
| | | Local political climate and political feasibility risks | Risks affecting the ability of a local government to use or pursue a value capture technique as a result of temporary events or permanent changes in political climate. They also include changes in public support/opposition to a project or to the value capture technique proposed as a result from insufficient public awareness. |
| **Policy and institutional risks** | Risks directly arising from the local government practices administering the value capture technique implemented or implementing/ selection the project. | Social equity and other environmental/sustainability concerns | Risks generated by the value capture technique used or the project selected that have a disproportionate impact on low-income or other disadvantaged communities. |
| | | Administration and transparency risks | Risk generated by the limited transparency and/or communication of risk cost, risk allocation rationale, and the risk-return decision-making. Other risks in this category include the non-disclosure of unknown project risks including the non-disclosure of unknown project risks. |

## 2.2 Risk Assessment

The next step of the risk management process is to assess the nature of each risk identified and defined in the previous step. In this step, the likelihood of occurrence and severity of loss of each risk is assessed, in most cases, qualitatively. Quantitative risk assessments are normally performed in the planning phases once the scope of the project is completely defined. A quantitative analysis of risk would require estimating the probability of loss, the value of loss, and the expected value of loss (probability multiplied by times value). Qualitative analysis mirrors this approach, by characterizing the likelihood of a risk event occurring and the severity of the loss if the risk occurs. Likelihood of occurrence and severity of loss of a risk can be qualitatively assessed by means of risk prioritization matrices. For instance, likelihood of occurrence can be characterized as: (i) nearly certain; (ii) possible; or (iii) rare. On the other hand, severity of loss can be characterized as: (i) insignificant; (ii) moderate; or (iii) major.

These characterizations can then be combined in a matrix to define the overall level of priority as low, medium, or high as illustrated in Table 4.

**Table 4. Risk Prioritization Matrix**

| | Severity of loss: Insignificant | Severity of loss: Moderate | Severity of loss: Major |
|---|---|---|---|
| Likelihood of occurrence: Nearly certain | Medium priority | High priority | High priority |
| Likelihood of occurrence: Possible | Low priority | Medium priority | High priority |
| Likelihood of occurrence: Rare | Low priority | Medium priority | Medium priority |

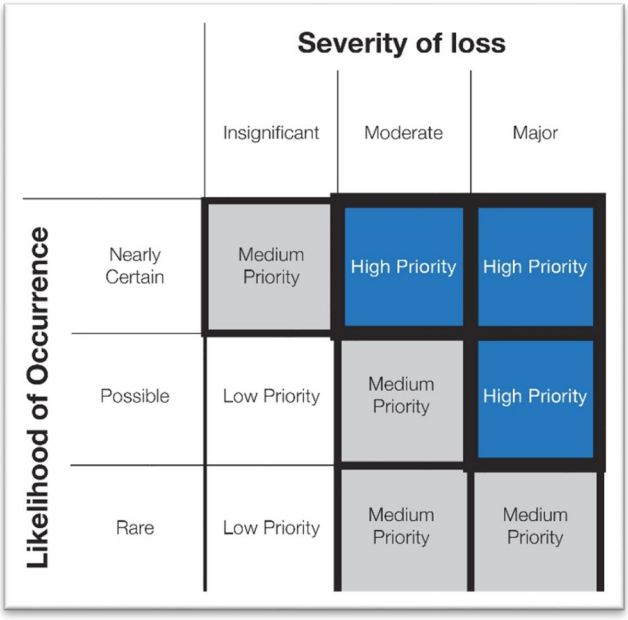



**Figure 2. Risk Prioritization Matrix**

The structured brainstorming (see Box 1) and expert consultation approaches described earlier in the risk identification step can also be applied to develop the risk prioritization matrix shown in Figure 2.

The result of this step is the characterization of each risk in terms of severity of impact, priority, proposed allocation, and potential mitigation strategies. The proposed allocation and potential mitigation strategies are preliminary and will be defined in the next steps of the risk management process. Table 5 presents a risk assessment table that could be used to summarize the results of this step.

**Table 5. Risk Assessment Table**

| Risk | Definition | Severity of Impact (low, medium, high) | Priority (low, medium, high) | Proposed allocation (retain, allocate) | Potential mitigation strategies |
|---|---|---|---|---|---|
| Risk 1 | | | | | |
| Risk 2 | | | | | |
| etc. | | | | | |

Results from this assessment will allow the parties involved in the project to properly allocate risks and define mitigation strategies. The combination of likelihood of occurrence and the severity of loss directly affects each party's willingness to accept a certain risk. Finally, it is important to note that identifying risk mitigation strategies in this step is critical to allocate risks adequately in the next step. This is because the ability to mitigate a particular risk may lead a party to accept a risk that it would otherwise not accept.

## 2.3 Risk Allocation

In this step, the risks identified and assessed in previous steps are allocated. It is important to start allocating risks in order of priority, as determined in the previous risk assessment step. In general, risks should be allocated to the party that has the ability and willingness to manage each risk (e.g., the local government itself or a private developer). To accomplish this, local governments may apply the following principles in sequential order (6):

- Principle 1: Risk should be allocated to the party best able to control the likelihood of the risk event occurring.

- Principle 2: Risk should be allocated to the party best able to control the impact of the risk on project outcomes.

- Principle 3: Risk should be allocated to the party best able to absorb the risk at lowest cost.

Following the order of those principles, a local government would generally first allocate any risk that can reasonably be controlled by either party (or both) to the party best able to control it. If a risk cannot be controlled directly, it should generally be allocated the party best able to anticipate and respond to it. Risks that cannot be controlled or responded to should be allocated to the party best able to bear the risk. In some cases, these principles may weigh against each other. For instance, a party can be best able to control the likelihood of the risk event occurring (Principle 1), but it may incur a higher cost to absorb the risk (Principle 3). In these cases, deciding on the prevailing principle may require judgment based on the experience of agency staff and its advisors. It is here that the availability of possible risk mitigation strategies could affect the relative ability and cost of parties to manage each risk.

The result of applying the allocation principles can be summarized in a risk allocation matrix. The risk allocation matrix is a management tool that defines if project risks are retained, shared, or transferred (6). A risk allocation matrix may include the following columns, as illustrated in Table 6:

- Risk: States the risk in question.

- Definition: Defines the risk in more detail.

- Preferred Allocation: States the preferred allocation of the risk as one of three choices: (i) private partner (if any); (ii) government; and (iii) shared.

- Rationale: Describes the basis or justification for the government's preferred allocation.

- Possible Mitigation Strategies: Describes measures that could be taken to mitigate or reduce the risk to either the public or private partner.

- Allocation Instrument: Describes the instrument that could be used to reflect the local government’s preferred risk allocation (e.g., a contract clause, payment mechanism, a guarantee or backstop).

In value capture, risks may be retained by the local government or may be transferred to a private partner (e.g., a private developer), users of the service, or to third parties such as

insurance providers. Risk allocation may also be achieved through ordinances, bylaws, or agreements with other government units involved in the project. Ordinances and bylaws may be used to allocate the risk between the local governments and the users (e.g., escalation provisions in street maintenance fees). Agreements may be used to allocate risks among local governments (i.e., inter-local agreements), or between local governments and the private sector (e.g., a development agreement). Ordinances, bylaws, and agreements define who will bear each risk and by what mechanism.

Table 6 shows an example of a partial risk allocation matrix for a hypothetical joint development (JD) project to develop commercial property associated with a local government-sponsored transportation project (e.g., on top of a cap built over a transportation facility, or commercial space connected to a transit station). The table includes examples of hypothetical risks being allocated to either the private developer, to the local government, or shared between both parties.

**Table 6. Risk Allocation Matrix for a Hypothetical Joint Development Project (partial)**

| Risk | Definition | Risk Category - Type | Preferred Allocation | Rationale | Possible Mitigation Strategy | Allocation Instrument |
|---|---|---|---|---|---|---|
| Low demand for commercial real estate | Risk that private developer has problems attracting or keeping tenants for commercial space. | Exogenous economic risk – real estate market risks. | Private developer | The private developer has more experience and information regarding factors influencing real estate demand. | • Engage expert advisors to conduct own due diligence during feasibility analysis.<br>• Consider only private developers with relevant geographic and project-specific experience. | Joint development contract clause holding government harmless. |
| Availability of financing | Risk that when capital is required by the private developer for the project, it is not available in the amounts or conditions expected. | Endogenous economic risk – economic growth impact and related risks. | Private developer | The private developer is responsible for selecting and securing project financing. | • Consider only private developers with solid financial background.<br>• Require developer proposals to fully document financial backing with reasonable conditionality. | Joint development contract clause requiring firm underwriter commitments. |
| Cultural or historical site findings | Risks of unforeseen costs and delays associated with the discovery during construction of a previously unknown cultural or historical site. | Legal and political risks – legal feasibility and legislative risks. | Local government | The local government generally has a better understanding of procedures required in these cases. | Research historical archives and property records and seek expert research input. | Joint development contract clause defining a clear site availability date, and liquidated damages in case of delays. |
| Change in ownership (of private developer) | Risk that a change in ownership of the private developer results in a weakening in its financial condition or other harm to the project. | Policy and institutional risks – administration and transparency risks. | Shared:<br>• Local government in terms of potential consequence of change.<br>• Developer to the extent that local government consent is required for change. | Agreement requires developer to obtain local government consent prior to change, so developer may agree or walk away. | • Consent required from local government prior to any ownership change.<br>• Local government scope of control is limited to key specific circumstances or issues of concern such as financial capacity. | Joint development contract clause requiring local government consent prior to any change in control under certain circumstances. |

## 2.4 Risk Mitigation

Risk mitigation entails the identification and implementation of a set of strategies with the objective of reducing the probability of a risk event and/or the severity of the loss in case the risk is materialized (7). During the risk allocation step, certain risks are retained by the local government while others are transferred to other parties. In the risk mitigation step, the local government should focus on risks retained, risks shared with other parties, and risks which, although they are transferred to another party, require support from the local government to be mitigated (8).

In this step, local governments can assess the costs and benefits associated with each mitigation strategy to justify their adoption. Some of the mitigation strategies were already identified in the risk allocation step. These strategies are refined during the risk mitigation step. It is important to note that to implement certain risk mitigation strategies will require coordination between two or more parties. For instance, the local government can share relevant information about local employment and migration trends so the private party can perform a comprehensive analysis to evaluate the impact of potential local economic and demographic risks in the project.

Box 2 contains examples of risk mitigation strategies that can be applied across the risks identified.

**Box 2. Examples of Risk Mitigation Strategies**

- **Reducing the level of uncertainty around key variables.** In certain value capture techniques such as TIF or SAD, future revenues are often used as collateral to issue debt to fund the project. In these cases, future revenue streams are critical. A mitigation strategy could be undertaking revenue potential assessments at different stages of the project (e.g., feasibility or planning stages) to reduce uncertainty around revenue streams.
- **Introducing equity on TUF calculations.** The local government may establish mechanisms to adapt TUF to household income and waive the fees for unemployed residents.
- **Using financial market instruments.** Local governments can offset the risk associated with certain risks by using financial hedging instruments. For example, a local government may purchase municipal bond insurance in cases of projects financed using future local government revenues as bond collateral, such as TIF, SADs, or Transportation Reinvestment Zones (TRZs).
- **Passing cost increase risks on to consumers through higher prices.** In case of value capture techniques based on fees such as TUFs funding street maintenance costs, changes resulting from increased costs could be transferred to users through fee increases tied to inflation, if the ordinance or bylaw governing the TUFs allows it.

## 2.5 Risk Monitoring

Once the risks have been fully allocated and the allocation instruments are executed (if they are part of an agreement) or adopted (if allocated through an ordinance or bylaws), the local government can establish a risk monitoring process. This is a continuous process focused on tracking risk factors and performance measures, or indicators of the likelihood of occurrence and potential severity of the risk events identified. In this step, local governments perform a continuous re-assessment of exposure to each risk that allows for mitigation strategies to be modified and implemented as needed. Monitoring risks also allows local governments to identify new risks that may not have been identified previously and that may emerge during the implementation of the project. These risks can then be assessed, allocated, and mitigated if necessary. An example of a tool used by local governments in Texas to monitor property tax incremental revenue in TRZs is the TRZ Dashboard described in Box 3. The TRZ Dashboard

allows local governments to identify positive and negative trends in land development and property values within the zone, and if needed take action to mitigate negative impacts on revenue through policy actions to foster development within the zone (9).

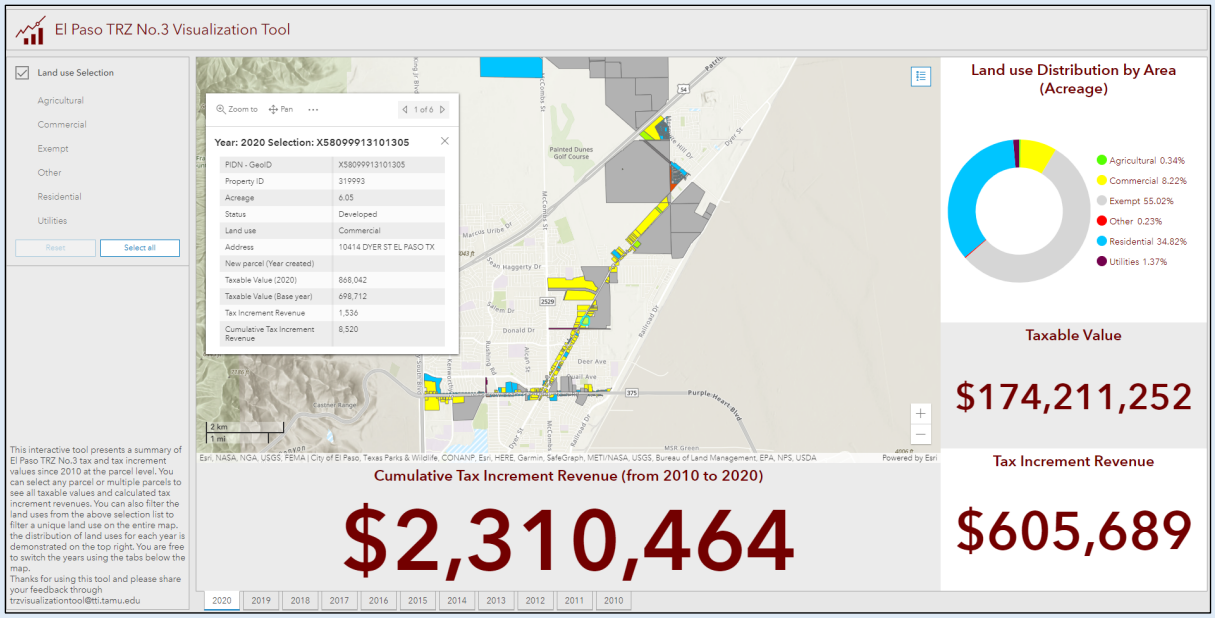
In this step, local governments can assess the costs and benefits associated with each mitigation strategy to justify their adoption. Box 2 contains some examples of risk mitigation strategies that can be applied across the identified risks.

**Box 3. TRZ Dashboard for TRZ Risk Monitoring**

Several local governments in Texas have implemented TRZs to close funding gaps of transportation projects. However, they had no tools to monitor the development spurred by the project or quantifying the revenues generated within the TRZ. The Texas Department of Transportation (TxDOT) funded the development of the TRZ Dashboard to help local governments to overcome this challenge.

The Texas TRZ Dashboard allows local governments to monitor revenues from the year in which the TRZ was established to monitor how far revenue projections were from actual realizations. Moreover, the TRZ Dashboard allows local governments to monitor trends in taxable appraised values, land use, and development status of the real properties within the TRZ to observe the dynamics of transportation infrastructure and land development. Using this risk monitoring tool, local governments can assess the risk exposure during all stages of the project, including operation, and implement mitigation strategies at any point in time to avoid the materialization of the risk or reduce the impact.

Below is a screenshot of the TRZ Dashboard's user interface that shows development and land-use changes that took place on parcels located within the City of El Paso TRZ No.3 between the base year (2009) and 2020. Several properties adjacent to the roadway changed from vacant to developed and/or were up-zoned from open space to residential and commercial uses. If a situation develops where the local government determines that, as a result of a slowdown in development activity, the likelihood that TRZ revenues may not be sufficient to service debt has grown, mitigation strategies to attract new development to the area could be implemented.




*Source: Texas A&M Transportation Institute*

# 3 EXOGENOUS ECONOMIC RISKS

This chapter discusses the exogenous economic risk category. Exogenous economic risks are risks that are determined by external factors at the regional, national, or sometimes global level, and are outside the control or influence of project stakeholders. Several exogenous economic risk types exist that value capture funding for transportation may be subject to, but the three most common are: (1) macroeconomic risks; (2) real estate market risks; and (3) other local economic and demographic risks. This chapter describes each of these risk types and provides examples that illustrate how they may impact projects relying on value capture funding.

## 3.1 Macroeconomic Risks

Macroeconomic risks result from the country's economic policy and condition of the economy. Factors that influence these risks include, among others: economic growth or downturn, inflation, significant changes in the Federal Reserve Bank policy, and Federal budget deficits (10). Examples of macroeconomic risks include economic recessions that impact employment and spending by commercial and residential developers (and the public in general), or interest rate changes that impact the cost of borrowing.[2] These risks may also materialize because of international geopolitical events, such as commercial treaties or trade disputes that change or disrupt supply chains, or pandemics and other catastrophic events that disrupt international trade and travel.

### 3.1.1 Risk Example 1: TIFs Across the Country Before and After the Subprime Mortgage Crisis

The subprime mortgage crisis that took place between 2007 and 2010 resulted from a rapid expansion of mortgage credit in the early and mid-2000s, a period when even borrowers who previously would not have qualified for mortgages were able to obtain them (11). This phenomenon contributed to (and was facilitated by) a rapid escalation of home prices. These high-risk (subprime) mortgages were a product available from lenders that repackaged them into new financial products called private-label mortgage-backed securities (PMBS) that were successfully sold to investors in financial markets. This situation led to a large increase in first-time homebuyer mortgages and a rise in homeownership across the country.

The resulting demand for housing led to the escalation of home prices, particularly in areas where supply was tight, which increased expectations for further price gains. Investors that had purchased PMBS benefited at first because increasing house prices protected them from losses. When borrowers could not make loan payments, they could simply sell their homes at a gain and pay off their mortgages or borrow more against the rising value of their home. However, when housing prices hit their peak, subprime mortgage losses started accumulating for lenders and investors in PBMS. In 2007, funding of subprime mortgages collapsed; lenders stopped making subprime and other risky mortgages. Demand for housing decreased, housing prices started to decline, fueling expectations of future declines, and further reducing housing demand. The resulting spiral decline in housing prices was so large that troubled borrowers had a difficult time selling their homes to fully pay off their mortgages. Mass foreclosures, repossessions and "short sales" (cases where lenders accepted limited losses if home were sold for less than the mortgage amount owed) ensued (11). The subprime mortgage crisis thus

[2] The 2008 housing crisis for example would be a macroeconomic risk, which we'll differentiate from the real estate market risk and the economic growth impact risks described below.

fueled a downward spiral in house prices that erased most of the gains seen during the earlier housing prices boom (11).

The subprime mortgage crisis was one of the most important factors that led to a national economic recession between 2007 and 2009. It decreased construction activity nationwide, reduced consumer wealth and spending, tightened credit markets, and made it difficult for developers and the private sector in general to raise capital from financial markets (11).

At the local government level, the sudden boom and bust in property prices was reflected in property tax revenues, and the ensuing economic recession was reflected in sales tax collections. In the aftermath of the crisis, local government revenue decreased significantly in communities across the country, affecting the delivery of basic municipal services. Value capture mechanisms that rely on land development and property values, such as TIF districts, were particularly impacted. As an example, the State of Illinois reported that revenues collected by TIFs statewide during the housing boom years increased by 382 percent, going from $5.09 billion in 2000 to $19.44 billion in 2007. The real estate market recession generated by the collapse of the subprime mortgage market in 2007 then led to a reduction in TIF district revenues statewide from $19.74 to $11.71 billion between 2009 and 2013, a 41 percent decline (12). Similar swings in property tax revenues were reported during the same period in communities across the country (13).[3]

To mitigate these risks, it is important to perform revenue-potential analyses before implementing the value capture technique.[4] These analyses should account for the possible impact in revenues of economic recessions at the national level, changes of interest rates, and catastrophic events such as floods or hurricanes. These analyses should be reviewed before using future revenues to secure a loan from a bank or lending institution.

### 3.1.2 Risk Example 2: COVID-19 Disrupted the Balance between Real Estate Demand and Supply, with Short and Long-Term Effects

The coronavirus 2019 disease (COVID-19) pandemic not only caused a devastating loss of life worldwide, but also led to an economic crisis in the United States. According to the National Bureau of Economic Research, the pandemic led the country into a recession as of March 2020. Many parts of the country issued lockdown orders and travel restrictions were put in place to prevent the spread of the disease. These measures and general concern about the virus led to a large and rapid aggregate shock on demand and supply that resulted in the sharpest economic downturn the country had faced since the Great Depression (14). Unemployment peaked at 14.7 percent in April 2020. Over the course of the pandemic, Congress approved several major laws addressing the effects of the pandemic and assisting households through loan forbearance and foreclosure and eviction moratoriums, and businesses through financial incentives to retain employees. Additionally, the Federal Reserve lowered the Federal funds rate (the overnight interbank lending rate) and implemented other policies that mitigated the short-term decline in aggregate economic conditions (14). The pandemic also had a dramatic effect in the workplace. Many companies shifted to telework or work-from-home to slow the spread of the disease and protect employees. Video calls and instant messaging applications

[3] For additional information, the National Tax Journal published an article that analyzed real estate prices in the States of Nebraska and Illinois (extensive users of TIFs) before and after the Great Recession produced by the subprime mortgage crisis: https://www.journals.uchicago.edu/doi/pdf/10.17310/ntj.2014.3.08

[4] An example of typical contents in a Texas TRZ value capture analysis is included in the Appendix.

replaced in-person meetings and breakroom conversations. Many companies, particularly in the technology and services sectors, announced that they would allow employees to work from home permanently (15).

Public and private sector policies implemented during the pandemic dramatically affected the demand and supply balance in the United States real estate market. The effects of these policies, and of the pandemic in general, in the real estate market were dramatically different for the residential and commercial real estate sectors:

- Residential real estate market demand increased because of work-from-home corporate policies and lockdown orders, which forced many households to spend more time at home and seek larger residential spaces. Additionally, the reduction in interest rates for loans, including mortgages, boosted housing demand from households not economically impacted by the pandemic. On the residential real estate supply side, lockdown orders, loss of household income, and the economic uncertainty generated by the pandemic discouraged some from listing their homes for sale, reducing housing supply. Other factors that tightened housing supply nationwide included the mortgage forbearance programs, the foreclosure and eviction moratoriums, as well as construction materials price increases. Since March 2020, housing prices nationwide have soared to record highs, with the S&P CoreLogic Case-Shiller U.S. National Home Price NSA Index jumping by 23.3 percent in September 2020 (16).[5]

- Commercial real estate demand, on the other hand, declined sharply immediately after COVID-19 was declared a pandemic in March 2020, as many businesses such as hotels, shops, malls, and offices shut down. The shift to work-from-home depressed office space demand, health concerns and lockdown orders led to high vacancy rates at hotels and shopping centers (17). Commercial property owners faced tenants experiencing revenue shortfalls, closures, and bankruptcies. This not only caused an immediate shock, but it may also lead to long-term changes in occupancy rates and market rents, and in turn, to future lower property values (18).

As a result, the impacts that the pandemic had on local government property tax rolls and sales tax revenue (and by extension on value capture techniques that rely on these taxes) were also mixed. On the residential real estate side, the growth in home values boosted municipal residential property tax appraisal rolls. This potentially benefited some value capture techniques, such as TIF districts and TRZ, special assessment districts (SADs), or land value taxes, in areas where residential real estate predominates. Increased demand for housing stimulated investment by residential real estate developers. Increased development activity may in turn boost value capture revenues from techniques such as impact fees or negotiated exactions.

Although it is too early to know what the long-term impact will be for commercial real estate, in the short term the pandemic could have a negative impact on revenues generated by value capture techniques that rely on property or sales taxes in areas where commercial property predominates. Such areas may include TIF districts or a SAD.

[5] Find more information about the impact of COVID-19 on the housing market in a note published by the Federal Reserve System: https://www.federalreserve.gov/econres/notes/feds-notes/housing-market-tightness-during-covid-19-increased-demand-or-reduced-supply-20210708.htm

The mitigation strategies that many local governments are applying to deal with the short-term negative impacts of the pandemic on commercial real estate have focused on providing property owners with flexibility in payment terms. For example, Los Angeles County in California allowed taxpayers to apply for a workout plan for missed payments. In Pennsylvania, Philadelphia County moved the commercial property tax payment deadline to July to give taxpayers extra time to make their payments (19). These strategies have helped prevent a complete halt in commercial property tax revenue.

## 3.2 Real Estate Market Risks

Real estate market risks are another type of exogenous economic risk affecting value capture techniques. Real estate market risk examples include regional or local real estate bubbles and boom and bust cycles that apply to specific types of property and/or specific local or regional markets, and that are not the result of broader national economic trends. In other words, these risks are associated primarily with the real estate market cycle, which are essentially related to imbalances between the supply of a particular type of property and the demand for such property (20). There are five main types of real estate property in terms of use, including residential, commercial, industrial, agricultural, and others (e.g., schools, government buildings) (21). The real estate cycle may vary across locations or geographic regions and is mainly driven by gross domestic product and employment and demographic changes.

In other words, real estate market risks refer to the position of specific property types in the real estate market cycle at the regional or local levels. The real estate cycles consist of four phases—recovery, expansion, hyper supply, and recession. In the phases of recovery and expansion, demand growth rates are higher than supply growth rates. In contrast, the demand growth rates are lower than supply growth rates during the phases of hyper supply and recession (22). These imbalances may occur because of overbuilding or shifting demand that renders the space less attractive to the market of most probable users for whom the space was developed.

These imbalances may be reflected in a temporary impairment in value as the market adjusts to a temporary imbalance, or in a permanent impairment as the space becomes functionally obsolete. This often takes place in the aggregate and is usually reflected in rising vacancy rates at a submarket or property type level. This phenomenon also disrupts real estate development and other economic activity within the community, and it is critical to understand it when planning and implementing value capture projects.

Furthermore, different property types may be at different points in the real estate cycle when compared to other property types (e.g., residential vs. commercial), and the same property type in one region may be at a different point in the cycle when compared to a different region, or to the Nation as a whole. Similarly, property subtypes may be at different points of the cycle than their broader property type classification. For example, at a particular point in time commercial retail property may appear in the recession part of the cycle, while commercial office property generally may appear in the growth segment. At the same time, it could be possible that when looking more closely into retail property subtypes, regional malls and factory outlets could be found in the recession part of the real estate cycle, while the neighborhood/community retail subtype is at equilibrium (23).

Real estate market risks are clearly one of the most important risks to consider in planning and implementing value capture projects. Imbalances in the real estate market directly affect revenues generated by value capture techniques relying on property taxes, such as SADs,

BIDs, land value taxes, and TIF. These risks may also delay new development, making the use of value capture category techniques such as joint development and developer contributions impossible. Fortunately, a significant amount of data sources and research is available for practitioners to use to develop a better understanding of real estate market risks in a particular location. Data sources that can be tapped into range from local appraisal district and municipal building permit databases to more specialized databases that aggregate market trends at the local, regional, and national level for different property types and subtypes. An example of the latter is the Real Estate Market Cycle quarterly report published by Dr. Glenn Mueller at the University of Denver, which analyzes occupancy movements in five property types in 54 metropolitan statistical areas (22). The examples that follow illustrate how real estate market risks may affect different value capture techniques and suggest potential mitigation measures.

### 3.2.1 Risk Example 3: Real Estate Market Risks

Interstate 670 (I-670) is a major transportation corridor that connects I-70 with I-270 across downtown Columbus, Ohio. I-670 was constructed in the 1950s and has acted as a barrier isolating the Short North Arts District and the Italian Village and Victorian Village neighborhoods from the downtown. One consequence of this barrier was that two very different real estate markets developed over time, despite their proximity. One neighborhood south of I-670 was relatively thriving as the central business district and the location of a convention center. The other, north of I-670, was struggling with much lower real estate values.

During the 1990s, different revitalization initiatives were implemented in the Short North side. As a result, the area became a vibrant place with numerous shops and restaurants. This urban renewal success was one of the main drivers for the City of Columbus to embark on a project called The Cap at Union Station (The Cap). The project commenced in 1995, when transportation agencies were seeking to widen I-670, which community groups opposed, and the City began looking for ways to reconnect the Short North with the neighborhoods north of I-670 using a hard “cap.” Although other cities had built convention centers and/or parks over urban highways (e.g., Seattle, Kansas City), what made The Cap project unique is that it was conceived as a pedestrian and retail space.

A local developer approached the City of Columbus and expressed interest in investing in the project. In 1999, the developer signed an agreement with the City to lease the ground above The Cap and build the retail space as soon as the City could acquire the air rights above the highway after obtaining permission from the Ohio Department of Transportation (ODOT) and FHWA. Construction of The Cap over I-670 began in 2002. The developer started construction of the retail space in 2003, and the project opened to the public in October 2004 (24).

*Source: Hyde Park Restaurants*

**Figure 3. Restaurant Facade at The Cap**

*Source: Wikimedia Commons*

**Figure 4. The Cap from Above**

In terms of project funding, ODOT paid approximately $1.3 million for the construction of The Cap, and the City of Columbus paid around $325,000 to provide The Cap with access to utilities. The developer assumed the costs of building all the improvements on top of The Cap, which represented an investment of $7 million, and was financed as follows (1):

- $4.2 million in conventional loans;
- $1.3 million in mezzanine debt; and
- $500,000 in developer's equity.

The project was very successful commercially as well as in terms of spurring development and revitalization on both sides of the highway due, in part, to the increase in accessibility and walkability in the area. As a result, and after securing more tenants, the developer was able to refinance the project using a $7 million conventional loan in more favorable terms.

From a risk perspective, the City of Columbus and the developer faced significant real estate market risks associated with the project because of its unique characteristics. The Cap at Union Station presented unique challenges from a property subtype perspective because it was one of the first speculative retail projects built over a highway in the United States (25). Therefore, there was no market data or information to assess the potential demand for the property subtype and where in the real estate cycle it would likely be upon completion. Additionally, the unbalanced nature of the real estate on both sides of the highway raised concerns about the commercial attractiveness of the retail strip which could negatively impact leasing prices and increase vacancy rates, reducing the developer's leasing revenue.

Nevertheless, the City of Columbus and the developer implemented several measures that successfully helped mitigate these risks. The City conducted thorough feasibility studies to confirm that the location and nature of the project had potential to attract demand for retail space and potential qualified developers, and to ensure that the value capture technique proposed was appropriate. On the other hand, the developer conducted its own market and financial feasibility analysis, assessing the risks associated with such a unique retail property and carefully considering potential occupancy rates and the price that retail tenants would be

willing to pay. Furthermore, recognizing the challenges and uncertainty associated with such a unique property, the City provided the developer with a 10-year, 100 percent property tax abatement, which helped mitigate project risks by improving the project's economics.

## 3.3 Other Local Economic and Demographic Risks

The last type of exogenous economic risks are other local economic and demographic risks. These risks are defined as economic shocks to a particular location or region that are the result of broader structural changes to the economy and/or employment mix, natural disasters, or other causes. These risks bear a significant consideration in value capture projects because they can directly impact the value of real estate assets in considerable ways. This is because real estate assets have a fixed location and are relatively costly to alter and are therefore relatively static. Conversely, the forces that drive business decisions of commercial and industrial tenants and other space users are subject to dramatic changes, including new technologies or logistical models, or global market forces that impact capital flows, business location, and ultimately the labor force (20). For example, the structural shift from manufacturing to services as employment drivers that has gradually taken place in the U.S. and other developed nations over the past several decades and has generated pockets of unemployment in sectors of the workforce across the country. Although some communities and their labor force have been able to adapt to these challenges and new labor market demands, others have struggled. This has resulted in migration and other socioeconomic problems that have hindered economic activity and impaired real estate development as the example below illustrates.

Additionally, the static nature of real estate assets combined with their physical dimensions makes them vulnerable to several natural and man-made disasters. The past several years have seen increases in the frequency and severity of real estate losses related to natural disasters, such as hurricane-induced flooding along coastline communities and tornadoes in inland regions. On the other hand, man-made disasters range from disasters that affect the environment (e.g., large oil or other hazardous material spills), to terrorist threats, as well as unusual climate or weather patterns that cause flash flooding or other environmental degradation (20).These events can temporarily or permanently impair the local economy and real estate development in several ways. For example, mitigating future property damage through physical improvements raises the cost of construction, while expected future losses increase long-term insurance costs, reducing potential returns for developers. Aside from job losses linked to real estate development, significant job losses are likely in communities that depend on tourism or other visitors.

The materialization of this type of risks can delay or permanently impair development, thus significantly affecting revenues generated by value techniques that rely on property or sales tax growth such as SADs, TIFs, or STDs.

### 3.3.1 Risk Example 4: Unemployment and Migration at the Rust Belt

Rust Belt is an informal term used to describe a set of social and economic conditions that occurred between the 1950s and the 1970s because of a severe decline in industrial manufacturing activities in the region that extends from New York to the Midwest around the Great Lakes. This industrial decline forced the abandonment of factories that later were seen as rusty buildings due to exposure to the elements and lack of maintenance (26). The term Rust Belt currently describes communities that depended on industrial manufacturing in the past, which has almost disappeared in the present, producing a drastic economic decline.

The Rust Belt includes parts of the States of Illinois, Indiana, Michigan, New York, Ohio, Pennsylvania, West Virginia, and Wisconsin. This region experienced several booms in the coal, steel production, and manufacturing industries from the late-19th century to the mid-20th century, which demanded hundreds of thousands of blue-collar jobs. At that time, the region was known by other names such as Factory Belt, Steel Belt, or Manufacturing Belt (27). This industrial region was established in part by its proximity to the Great Lakes waterways and investments in transportation projects to create the required roadway and railway networks to satisfy economic and industrial activity needs (28).

However, the industrial manufacturing activities in the region started to decline between the 1950s and the 1970s due to the outsourcing of manufacturing jobs to other countries, which was driven mainly by the increase in the cost of labor and materials and the low productivity levels caused, in most cases, by the obsolescence of the equipment utilized (27). This new situation created unemployment and migration to other parts of the country, resulting in blight, decay, and other signs of local economic contraction in the region. In 1950, 33 percent of the population in the U.S. (not including New York City) was living in the Rust Belt. Fifty years later, in 2000, this percentage decreased to 25 percent (29). In fact, of the 15 U.S. cities that lost the most population from 1960 to 2007, 14 of them are in the Rust Belt (30).

Regarding employment, 43 percent of private sector workers, not self-employed, in the U.S. were working in the Rust Belt region in 1950. By 2000, the percentage of these workers decreased to 27 percent. The decrease in manufacturing jobs followed a similar trend. In 1950, 51 percent of manufacturing jobs were in the Rust Belt and decreased to 34 percent by 2000. Finally, this situation caused a significant decrease of the gross domestic product (GDP) of the region. The GDP in the Rust Belt represented 45 percent of the U.S. GDP in 1950 and decreased to 27 percent in 2000 (31).

Situations like these could negatively impact revenues generated by value capture techniques that rely on property or sales taxes, as it completely halted new real estate development for years. A mitigation strategy for risk of unemployment and migration could be used to conduct rigorous feasibility studies that consider local and national economic factors in the short and long term to assess scenarios and develop resilient project alternatives.

# 4 ENDOGENOUS ECONOMIC RISKS

This chapter describes the endogenous economic risk category. These risks are largely project-specific and can be defined as risks determined by internal factors, processes, or decisions within the control of project stakeholders. These risks often result in the project not generating the economic development anticipated, affecting the local government's financial and fiscal standing. Common risk types in this category include: (1) economic growth impact and related risks; and (2) fiscal impact risks.

## 4.1 Economic Growth Impact and Related Risks

Economic growth impact and related risks can impact the use of value capture techniques when prior to project implementation, potential investors or lenders perceive the project's economic development or value capture revenue forecasts unreliable or unrealistic. This may impact the ability to secure the capital needed outright, or to secure it at financially viable cost, forcing changes in project scope and/or delays in its implementation. These risks may include:

- Sub-optimal project or project location selection.
- Inadequate choice of value capture technique.
- Inexperienced developers or consultants selected.
- Incomplete or inadequate feasibility studies.

### 4.1.1 Risk Example 9: Lack of Experience with Transit Joint Development – Early Years of the Dallas Area Rapid Transit (DART) LRT Stations

During its first few years in the 1990s, the Dallas Area Rapid Transit (DART) system struggled to fund transportation projects using the transit joint development (TJD) value capture technique. A clear illustration of this situation was the Cityplace twin tower project. In this project, a developer offered to share costs for the light-rail transit (LRT) station construction. However, a downturn in the local real estate market forced the developer to pull out of the deal. Consequently, the Cityplace twin tower project was canceled (38).

The Cityplace tower is a 42-story office building that opened in 1988 in the district of uptown Dallas. In 1996, DART's LRT service started operation. However, the Cityplace LRT station did not open until 2000. Over time, the area surrounding the Cityplace tower has slowly filled in with the highly successful mixed-use West Village project that is serviced by the DART subway line and the McKinney Avenue trolley (39).

Similar situations occurred in other parts of the country during this period. Multiple planned transit oriented development (TOD) and TJD projects failed to break ground around suburban LRT stations because of unrealistic real estate market expectations (e.g., St. Louis, Pittsburgh, and Buffalo). A review of these experiences concluded that the main problem in these early TJD projects was the lack of appreciation for the complexities of TJD by both public and private sector partners (38). Over time, transit agencies and developers across the country have

acquired more experience and knowledge working with TOD/TJD, and lessons have been learned and shared, resulting in successful TJD projects.[6]

In an example like this, mitigation strategies can focus on ensuring that local government leadership is knowledgeable about the complexities and fully invested in the success of TJD, as well as supportive of policies that bolster the value proposition for developers (e.g., financial and regulatory incentives, and public investment). It is also important to work with developers with a successful track record who understand and appreciate the complexities of TJD.

## 4.2 Fiscal Impact Risks

Fiscal impact risks share many similarities with economic growth impact risks, with the primary difference between them being the timing of their materialization. While the economic growth impact risks described earlier may materialize prior to project implementation, fiscal impact risks typically materialize after project implementation. Fiscal risks impact the local government's ability to service project-related debt or to sustain basic government services as a result of commitments made to a single project, or excessive commitments made to several value capture projects. Common examples of fiscal impact risks include many of the economic growth risks listed earlier, as well as being excessively reliant on the use of value capture tools (e.g., TIF districts) overcommitting future tax revenue, and compromising the delivery of basic services.[7]

Fiscal risks materialize when, despite any of the conditions listed above, the local government manages to persuade lenders and proceed with the project, and economic growth and associated tax revenues do fall below expectations. This may force a local government to decide between servicing debt and sustaining basic government services not only at the project location, but also throughout its jurisdiction. A similar situation may develop when a local government relies excessively on value capture to fund various development projects across its jurisdiction, overcommitting its budget capacity, and effectively exacerbating its exposure to many of the risks described in this primer.

### 4.2.1 Risk Example 10: TIF Projects not Spurring Expected Economic Development

A TIF district is a delimited geographic area in which incremental property tax value revenues resulting from an infrastructure investment are captured to fund or finance the infrastructure investment. TIF districts rely on the principle that infrastructure investments spur economic development leading to an increase in property values within the district and property and sales tax revenue growth (1). Several factors drive real property value increases: three are particularly important in the context of TIF districts. First, property values may increase because of inflation. Inflation affects property values irrespectively of other real value appreciation factors. Second, property values may also increase due to "natural growth," which is mainly driven by supply and demand. Finally, property values can also increase because of the economic development generated by investments made in their vicinity (40).

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[6] TJD also entails legal risks. The National Academies of Sciences, Engineering, and Medicine published a comprehensive analysis of legal issues and risks that may be encountered by local governments using TJD: https://www.nap.edu/catalog/14588/transit-oriented-and-joint-development-case-studies-and-legal-issues.

[7] Some States like Wisconsin have established a 12-percent value cap to prevent communities from relying excessively on TIF. The law provides that a community shall not have more than 12 percent of its taxable base captured in tax incremental districts (Wis. Stat. §66.1105, §60.85, §66.106).

Several States require local governments to demonstrate that a proposed TIF district passes a "but-for" test prior to being created. The but-for test involves demonstrating that the economic development generated by the project can be expected to result in property value increases that would not occur without the investments funded by the TIF district. The but-for test prevents local governments from establishing unnecessary TIF districts in cases where development and property value appreciation will occur anyway because of inflation or natural growth (41). In such cases, the TIF district may end up diverting future tax revenues from other basic municipal services, or from other local government units, such as school districts, effectively affecting its fiscal standing. In practice, this means that TIF projects that do not pass the but-for test do not create additional revenue and are subsidized by the local governments, diverting funds that would otherwise be assigned to essential services (e.g., sewerage, electricity, etc.) to subsidize the TIF project.[8]

For instance, a study concluded that several TIF districts in the City of Chicago have not generated the economic development expected when the but-for test was completed (42). Another study published by the Lincoln Institute of Land Policy also agrees with this statement. After studying more than 30 TIFs over several decades in Chicago, it was concluded that in most cases, TIF projects have not generated the economic development expected in the But - For test. According to this study, although there are State statutes and regulations requiring the TIF pass the but-for test, in general, the requirements for passing the test are vague enough that almost any TIF with strong political support can pass the test (43).

To mitigate these risks, local governments should perform rigorous but-for test feasibility studies based on realistic expectations and that stress-test developers' assumptions. Other strategies include performing thorough analysis to ensure TIF revenues are not overcommitted and monitoring project performance to confirm that the benefits of TIF projects are realized over time.[9]

[8] For additional information on TIF analyses, including examples of "but-for," the following links offer additional insight, specialized software and training information:

- "A Resource Guide to Tax Increment Financing" by SB Friedman Development Advisors: https://www.cityblm.org/home/showpublisheddocument/10057/636130888246430000
- "How to Analyze Tax Increment Financing Projects" by PropertyMetrics: https://propertymetrics.com/blog/how-to-analyze-tax-increment-financing-tif-projects/
- "Salt Lake County TIF Policy Evaluation: Findings and Recommendations" by SB Friedman: https://slco.org/contentassets/fba12a8aa868491a9e85030ab3b3c9cc/sbf-tif-findings-and-report.pdf

[9] Information about TIF success stories with references to potential mitigation measures for TIF economic growth and fiscal risks by the Commercial Real Estate Development Association can be found in: http://www.naiopchicago.org/wp-content/uploads/2018/10/FINAL-TIF-Report-2018.pdf.

# 5 LEGAL AND POLITICAL RISKS

This chapter presents the legal and political risk category, risks that are broadly defined as those associated with the legal/regulatory framework and with the political environment that may directly limit the ability of local governments and/or other project stakeholders to successfully use value capture techniques for project funding or financing. The most common risk types in this category include: (1) legal feasibility and legislative risks; and (2) political climate and feasibility risks.

## 5.1 Legal Feasibility and Legislative Risks

Legal feasibility and legislative risks refer to the risk that legislative bodies enact changes to the statutory or regulatory framework in a way that adversely impacts either the ability of a local government to use a particular value capture technique, or the ability of a project to generate the economic development expected. These changes may apply to specific value capture technique-related statutes, as well as to regulations that influence economic development, land use, and/or real estate development. Some general examples of risks in this category include:

- Lack of clarity or adverse changes in the enabling legislation of the value capture technique prior to project implementation. Lack of clarity in the legal framework, or changes to it, may lead to legal disputes that result in project delays or the inability of the local government to use the value capture technique.

- Legislative changes affecting business or incentives used to spur private investment and development, such as changes to the Federal, State or municipal tax code, environmental regulations, planning regulations, building codes, and zoning codes.

### 5.1.1 Risk Example 5: Changes in Impact Fee Requirements: City of Phoenix Impact Fees

The City of Phoenix started using impact fees in the 1980s. At that time, impact fees were established in mostly undeveloped areas with fast development expectations. According to the City of Phoenix, impact fees generated over $34 million in revenues in fiscal year 2019-2020 (32).

In Arizona, impact fees must be used exclusively to fund projects that serve new development. The law explicitly prohibits the use of impact fee revenues to pay operations and maintenance, rehabilitation, environmental, or other non-capital expenditures.[10] Additionally, impact fees must comply with numerous common law precedents or court cases, so credit must be provided for developer facility dedications or contributions, and offsets must be provided for future homeowner or business contributions to growth-related infrastructure (via water rates, sales taxes, property taxes, etc.) (33). Moreover, Arizona requires the development of 10-year horizon impact fee plans, annual impact fee reports, and a biennial audit of the impact fee reports. Consequently, the City of Phoenix has to spend a significant amount of resources and coordination efforts across City departments to fulfill the obligations mandated by the State of Arizona.

Historically, these legal requirements have been changing and growing, generating legal risks that, if materialized, could reduce City of Phoenix's capacity for complying with State of Arizona legal requirements, and consequently, the impossibility of using this value capture technique. In

[10] AZ Rev Stat § 9-463.05 (1996 through 1st Reg Sess 50th Legis)

order to mitigate this risk, the City of Phoenix has consolidated impact fee areas (where defensible), streamlined processes, and changed various aspects of the program to reduce the administrative burdens on the development community and meet increasing State of Arizona requirements (33).

On the other hand, the possibility of impact fees being reduced or eliminated due to new statutory restrictions has limited the City of Phoenix's ability to use impact fee revenues as collateral to issue bonds. To mitigate this risk, the City of Phoenix has used property tax revenues as collateral to issue bonds and pay debt using impact fees. Similarly, the City of Phoenix has partnered with local entities such as community facility districts that have real property taxing power so they can use future property tax revenues to secure low-interest-rate financing and pay debt using impact fees (33).

### 5.1.2 Risk Example 6: Lack of Clarity in Transportation Reinvestment Zones (TRZ) Legislation for Texas Counties

The Texas Legislature first enacted TRZs in 2007. Legislation has evolved, and changes have been introduced as a response to first implementers and their experiences with technical issues. TRZs are a value capture technique falling in the TIF category that allows a city or county to designate an area around a project as an impact zone to capture some or all of the increments in local property and sales tax revenues resulting from the growth in the zone's tax base. That incremental tax revenue is used to support funding and financing of the project (34).

County TRZs mainly provide partial funding and sometimes local matching dollars for projects in smaller communities, where the participation of the county with funding is often critical to make a project come to fruition. Between 2009 and 2020, several counties established TRZs, with four of those remaining active in 2020 (35). However, after creating the zone, State and county officials realized that counties would not be able to pledge its future revenue as collateral to secure debt to fund a project. The reason for this was that while Texas counties are explicitly allowed by the Texas Transportation Code to create TRZs, their ability to use tax increment revenue as collateral for a loan or to issue bonds has been limited.[11] Several Texas Attorney General opinions issued between 2010 and 2015 made it clear that use of county TRZ revenue as debt collateral could be constitutionally challenged (34). More specifically, the Attorney General opinions say that a county may be prevented by the Constitution's equal and uniform provision from pledging tax increment revenue from an area to repay debt issued for a project aimed at developing or redeveloping such area.[12] A proposal for a constitutional amendment to address this issue was put forward to Texas voters in 2011 but was defeated (34). However, a new constitutional amendment proposal (Proposition 2) was put to a vote and approved on November 2, 2021.[13] The amendment explicitly authorizes counties to issue bonds or notes for transportation improvements in underdeveloped areas backed by property taxes, addressing the issue that was preventing counties from effectively using TRZs.

In other words, the ambiguity in the original legal framework governing Texas County TRZs led several counties to pursue the creation of a TRZ to fund transportation improvements, which led

[11] Texas Transportation Code Sections 222.105–111
[12] The Texas Attorney General cites article VIII, section l(a) of the Texas Constitution. See letter from Texas Attorney General Ken Paxton to El Paso Representative Joseph C. Pickett dated February 26, 2015: https://www2.texasattorneygeneral.gov/opinions/opinions/51paxton/op/2015/kp0004.pdf
[13] See election results and proposition text here: https://ballotpedia.org/Texas_Proposition_2,_Authorize_Counties_to_Issue_Infrastructure_Bonds_in_Blighted_Areas_Amendment_(2021)

to the realization late in the process that they would not be able to use it as a funding source. Situations like this may result in delays and uncertainty in a project's funding strategy, as local officials scramble to find alternative funding sources. In such cases, where the legal framework for a new value capture technique is unclear or ambiguous, the risk can be mitigated by conducting a thorough independent legal feasibility assessment and approaching potential lenders that may have already assessed the new law.

### 5.1.3 Risk Example 7: Legal Risks and Reputational Issues of Using Naming Rights

Local governments and transit agencies across the U.S. have been using naming rights for transit stations and rest areas generating moderate sums of funds to pay for transportation projects. This value capture technique entails selling the rights to name an infrastructure facility to a private entity (1). However, local governments and transit agencies may incur reputational issues and legal risks if this technique is not properly used.

Reputational issues may arise from selling naming rights to a company involved in controversial topics or legal disputes, a situation that could potentially damage the image and reputation of the local government or transit agency. For instance, in Portland, Oregon, the Greater Portland Metro faced controversy over ads on its buses promoting a ballot initiative for legalizing the use of recreational marijuana (36).

Besides local government ordinances and internal local government transportation or transit agency policies, several Federal regulations restrict the use of naming rights; for example, the Highway Beautification Act of 1965 or the Fourteenth Amendment of the U.S. Constitution. In Los Angeles, the Los Angeles Metro canceled plans to sell station and other naming rights due to potential legal risks for not complying with its own policies against companies with "fraudulent, unethical, or prejudicial behavior" (37).

Potential mitigation strategies in cases like these include conducting a thorough legal feasibility study before using this funding mechanism and background checks of the companies interested in acquiring the naming rights to avoid controversy and reputation issues.

## 5.2 Local Political Climate and Political Feasibility Risks

Local political climate and political feasibility risks are those that may impact the ability of a local government to use a value capture technique, or the ability of a project to generate the economic development expected, as a result of temporary events or permanent changes in political climate. They also include changes in public support/opposition to a project or to the value capture technique proposed as a result of insufficient public awareness. These risks may include:

- Elections at the local/State/national level.
- Public support of the value capture technique or the project.
- Changes in support for enabling legislation.
- Prolonged civil unrest.

### 5.2.1 Risk Example 8: Resistance Implementing TIDs to Fund the Dulles Corridor Metrorail Project

Tax incremental districts (TIDs) are a funding technique under which a fee is charged on property owners within a designated district whose properties are direct beneficiaries of a transportation improvement (1). In general, the implementation of TIDs may face resistance from landowners and developers because it is a new tax. Moreover, real property owners within the district may argue that their neighbors outside the district or future residents are not asked to pay the fee although they are benefiting from the improvements. This can be translated as a lack of support.

The Dulles Metrorail Corridor Project is a 23-mile extension of the Metro system in the Washington, DC region. The project is being implemented in two phases by the Metropolitan Washington Airports Authority (MWAA). Phase 1 comprises 11.7 miles of rail and five stations, linking large employment centers to downtown Washington, DC. Phase 2 extends the system 11.4 miles further and adds six stations, including a station at the Dulles International Airport. Operational since July 2014, Phase 1 has been transferred to the Washington Metropolitan Area Transit Authority. The estimated cost for the two phases of the project is $5.7 billion, funded through a combination of tolls, commercial tax districts, and Federal and State grants. Value capture techniques have been used by local governments (Fairfax and Loudoun counties) to fund approximately 20 percent of this cost. This example focuses on the contribution from Fairfax County through the first of two TIDs, the Phase 1 TID (1).

To establish a TID, the Commonwealth of Virginia requires that at least 51 percent of the commercial and industrial real property owners (measured in area or real property assessed value) make a formal petition to initiate the process (33). In Phase 1 of the Dulles Corridor Metrorail Project, this challenge was overcome with the help of a group of developers who supported the idea of contributing to fund the project by means of a TID. The group was named Landowners Economic Alliance for the Dulles Extension of Rail (LEADER). This group carried out an outreach campaign to gather support from other property owners required to formulate the TID petition of Fairfax County (33).

A mitigation strategy for the risk of not having enough landowner support to create a TID in a case like this is to conduct effective outreach to property owners and other potential project beneficiaries. This process allows identifying champions in the developer/landowner community to generate awareness of the project's value generation benefits among other property owners and gain their support.

### 5.2.2 Risk Example 9: Public Support for Legislative Reforms to Allow Texas Counties to Use Transportation Reinvestment Zones

As noted in the earlier example dealing with Texas TRZs, in 2011, voters defeated a measure to amend the Texas constitution to allow counties to pledge tax increment revenue from an area to repay debt issued for a project aimed at developing or redeveloping such area, including a transportation project. Almost 10 years later, on November 2, 2021, a similar constitutional amendment explicitly authorizing counties to issue bonds or notes backed by property taxes for a transportation project was voted and approved. The amendment was backed by Texas county officials and advocacy groups, which generated a significant amount of support among

legislators and the printed media, and eventually the electorate.[14] While the measure failed in 2011, preventing counties from considering TRZs for transportation funding, the outreach efforts spearheaded by local officials in the 2021 election paid off. As a result, Texas counties will be able to consider TRZs as a tool for transportation funding.

The risk mitigation measure that Texas counties could have used for this example in 2011 is exactly what they implemented in 2021, an effective outreach campaign for State policymakers and the public.

[14] Find a summary of groups opposing and supporting the amendment here: https://ballotpedia.org/Texas_Proposition_2,_Authorize_Counties_to_Issue_Infrastructure_Bonds_in_Blighted_Areas_Amendment_(2021)

# 6 POLICY AND INSTITUTIONAL RISKS

This chapter describes the policy and institutional risk category. Policy and institutional risks arise from a local government's management or administrative actions in the implementation of a project using value capture that may unintentionally result in undesirable project outcomes and/or negative public perception. The risk types identified in this category include: (1) social equity (including environmental and sustainability) concerns; and (2) administration and transparency risks.

## 6.1 Social Equity (and Other Environmental/Sustainability) Concerns

Social equity risks in value capture refers to the probability that a value capture technique or that a project funded using value capture may result in an inequitable distribution of project impacts (i.e., burdens and benefits). Environmental and sustainability concerns are considered in this primer as subsets of social equity risks, but they are all interlinked. Environmental concerns deal with the probability that the project or the use of value capture funding may disproportionally impact disadvantaged communities. On the other hand, sustainability risks deal with the probability that the project or value capture technique used to fund it may compromise the ability to meet future transportation or other public service needs. Common risks included in this category include gentrification, lack of housing affordability, displacement of people or businesses due to right of way acquisition, noise and air quality impacts, or deterioration of historical sites, among others.

### 6.1.1 Risk Example 11: Social Equity and Legal Feasibility Risks: The Atlanta BeltLine Tax Allocation District and Gentrification

A TIF district is a delimited geographic area administered by a special authority in which incremental property tax value increases from an infrastructure investment are captured to fund or finance the infrastructure investment (1). TIF districts target underdeveloped or blighted neighborhoods, and it is critical that TIF projects spur development, boost overall property values, and consequently, property tax revenues. The economic development generated by TIF projects often involves a process where low-cost housing units within the district are cleared and then replaced with middle- and upper-income housing or commercial development. Unless mitigation measures such as affordable housing requirements are set in place, this process may disproportionally affect low-income residents, effectively removing them through gentrification and displacement. Without affordable housing provisions within a TIF district, lower-income residents who were relocated during the implementation of the project may be unable to move back once the project is complete due to a disproportioned increase in housing prices.

In Georgia, TIFs are known as tax allocation districts (TADs). The Atlanta City Council established the Atlanta BeltLine TAD in 2005. The objectives of the Atlanta BeltLine are to increase mobility, increase accessibility and connectivity among communities, increase greenspace, spur development of underdeveloped areas, and develop new housing putting special attention on affordable housing (44). This is because the risk of gentrification in the vicinity of the project started to manifest itself as early as 2003, when the Beltline was still in the early stages of planning. A 2008 analysis of home sales that took place between 2000 and 2006 assessed changes in price premiums for locations within geographical buffers around the BeltLine and compared the timing of the growth in premiums with local press coverage (45). The analysis identified that there were significant increases in premiums for homes in lower income neighborhoods in the south side sections of the BeltLIne TAD between 2003 and 2005, when

the media started covering the project planning efforts. The analysis suggests that even at its planning stages, the BeltLine project had positive effects in real estate prices within one quarter of a mile from the TAD's south side (where lower income housing prevailed). The increases in residential price premiums in these areas ranged approximately 15-30 percent over the 2002 to 2005 period. While the Atlanta BeltLine is still far from achieving its affordable housing objectives, it has continued its efforts to fight gentrification. To mitigate these risks, the City of Atlanta is implementing various affordable housing projects in the Atlanta BeltLine (46).

This example showed that it is critical to assess the risk of gentrification and incorporate adequate mitigation measures as early in the project planning process as possible, before its effects are too difficult to address. Some cities and States have developed specific guidance and policies to address and mitigate the risk of gentrification. For example, the City of Portland commissioned the development of guidance and tools to assess the susceptibility of risk of gentrification for neighborhoods and identified best practices for addressing gentrification and displacement tailored to the City's needs (47).[15] The State of Utah incorporated specific affordable housing requirements in the status governing the creation of Housing and Transit Reinvestment Zones. Similar requirements are found in the legal framework for TIF districts in California and Oregon (48). Aside from the policies and tools referenced above, there is a significant body of knowledge available online dealing with strategies to address gentrification and other social equity risks.[16]

### 6.1.2 Risk Example 12: Social Equity and Legal Feasibility Risks: The Atlanta BeltLine Tax Allocation District and School Funding

In addition to housing affordability, the implementation of the Atlanta BeltLine TAD faced other legal feasibility and social equity risks dealing with the commitment of future school district revenues for non-educational purposes. Right after the TAD was established in 2005, Atlanta Public Schools (APS) and the Fulton County Board of Commissioners voted to enter into an agreement with the City of Atlanta to use future school revenues to fund projects within the TAD (2). On February 11, 2008, the Georgia Supreme Court ruled that this agreement violated the "Educational Purpose Clause" in the Georgia State Constitution because it allows the use of public-school revenues for non-educational projects. Consequently, the Atlanta BeltLine TAD had to exclude tax increment revenues from APS from the funds used to pay non-educational projects, in the district. The City of Atlanta estimated that property revenues from public schools accounted for approximately 45 percent of total Atlanta BeltLine TAD revenues (49).

This court ruling set a precedent that created significant unforeseen revenue risks that endangered the financial standing of TADs across the State of Georgia. In order to mitigate the risk, the State of Georgia held a referendum to amend the constitution to explicitly allow TADs to use school funds for non-educational projects. House Bill 63, also known as "Redevelopment Powers Law," was passed to establish this constitutional change. However, the Atlanta BeltLine TAD revenues significantly decreased due to the impossibility of using property tax revenues from APS for several years until the Redevelopment Powers Law passed. Moreover, the Great Recession (2007-2009) caused by the subprime mortgage crisis significantly reduced property tax revenues within the TAD raising other economic growth risks. Consequently, the Atlanta

[15] Portland's guidance and tools can be accessed in the link: https://pdxscholar.library.pdx.edu/usp_fac/83/

[16] More case studies dealing with local efforts to mitigate displacement can be found in this link: https://www.urban.org/sites/default/files/publication/50791/411294-In-the-Face-of-Gentrification.PDF

BeltLine TAD lost the ability to fund investments in the district, and at the same time, make the payments in lieu of taxes (PILOTs) to APS.

In December 2013, the City of Atlanta communicated to APS that the Atlanta BeltLine TAD would be unable to make the next payment. This situation generated, again, social equity risks due to the prioritization of the payment of TAD projects over educational projects. Finally, in 2016, the City of Atlanta and the APS signed an agreement to lower the PILOT payments by 42 percent in exchange for transferring a property owned by the Atlanta Housing Authority to the school system. This agreement helped mitigate these social equity risks.

## 6.2 Administration and Transparency Risks

Administration and transparency risks arise from administrative and/or management practices and policies that result in poor communication and a perceived or real lack of transparency. In value capture, these risks tend to be more prevalent when dealing with the costs of risk, the risk-return decision-making process, and the rationale for risk allocation choices. Other risks in this category include the non-disclosure of unknown project risks including the non-disclosure of unknown project risks. Some common risks in this category include:

- Limited public information dealing with the risks associated with the value capture technique and the project.
- Failure to perform feasibility studies that assess potential project risks, or when they are performed, failure to inform the public about its findings.
- Limited transparency in negotiations with private developers or other project participants

### 6.2.1 Risk Example 13: Need for Improving of Administration and Transparency and of City of Chicago TIF Districts

The City of Chicago started using TIF value capture techniques in 1983 to fund infrastructure projects. Since then, the City has established 184 TIF districts. As of January 1, 2020, the City of Chicago had 136 active TIF districts that cover about a third of the City and generate more than $840 million in revenue every year (50). Most of these TIF districts were created between 1989 and 2011 (51). This rapid growth and the impact it had on local finances made the TIF program an increasingly controversial issue due to the limited transparency in how TIF funds were used. This was primarily because limited information was available in the public domain about the process to establish a TIF district, the criteria used to select TIF projects, and how TIF revenues were used. Furthermore, in some cases that had information available, it was not accurate. Additionally, TIF revenues were administered outside the City of Chicago budget process and no spending plan was published or debated. As a result, the administration of TIF districts was shielded from public scrutiny, generating a situation of real or perceived misuse of TIF funds, and the selection of projects not necessarily aligned with the City of Chicago economic development and transportation plans (52).

In 2011, the City of Chicago established a TIF Reform Panel that reviewed the administration of TIF districts and made recommendations to improve transparency and efficiency while achieving City of Chicago economic development goals. The main recommendations to mitigate transparency risks included (53):

- Create the City of Chicago Economic Development Plan. This plan identifies long-term development goals and objectives. The plan is a living document that should be reviewed over time to account for changes on City of Chicago priorities. This document serves as a blueprint for prioritizing projects to be funded with TIF revenues.

- Create a multiyear capital budget that identifies City infrastructure needs according to the City of Chicago Economic Development Plan and ensures that TIF investments are aligned and coordinated with other funding sources. The capital budget needs to be updated annually and should include all projects for which TIF revenues are used. The capital budget should be posted on the City website.

- Establish a dashboard to monitor TIF performance and project status. The dashboard should present, at least, basic financial information of TIF districts, performance indicators, and project information (e.g., starting and end dates, expenditures up to date, future expenditures, etc.).

- Implement standardized but-for justifications for the creation of TIF districts and selection of TIF projects.

- Increase supervision of TIF administration. The City of Chicago should appoint an internal body to monitor and report TIF practices and processes ensuring effective administration and transparency.

More recently, in February of 2020, the City of Chicago announced new reforms to increase transparency, accountability, and equity in how spending decisions are made in the TIF program. This second set of reforms included (54):

- Creation of a new TIF Investment Committee. This committee replaces an existing TIF Task Force committee that internally reviewed potential TIF expenditures. The goal of this committee is to ensure equity is at the center of its decision-making.

- Rigorous analysis of TIF proposals. The TIF Investment Committee directed the Department of Planning and Development (DPD) to adopt a more robust but-for analysis for all private applicants for TIF funds.

- Publication of new TIF Program Guide. The new guide, which will be updated annually, is aimed at providing clarity to taxpayers, researchers, and the development community on how the City operates its TIF program.

- Release of data for public review. Publish TIF spending decisions on a monthly basis, an annual report and a new online TIF Portal.

# 7 VALUE CAPTURE TECHNIQUE-SPECIFIC RISKS—COMPARATIVE

This chapter summarizes a comparative analysis of risks associated with each value capture technique and of potential risk mitigation strategies applicable to each risk and value capture technique. It begins with comparing common risks associated with each value capture technique and the potential severity of their impact if materialized. Next, it presents a risk checklist that describes potential consequences and identifies potential mitigation measures.

Table 7 provides an at-a-glance comparison of risk categories associated with each value capture technique and a qualitative assessment of the potential severity of its impact (i.e., null, low, medium, high). This matrix can be used by practitioners as a reference to compare different value capture techniques based on the risks categories that they are most sensitive to (measured in terms of the severity of risk impact), or to simply ensure that the most relevant risks for the value capture technique being used are accounted for. For example, while special assessments and tax increment financing have significant exposure across all risk categories, utility joint development only has medium-to-low exposure to exogenous economic and legal and political risks.

**Table 7. Risk Severity of Impact Comparative Matrix**

| Category | Technique | Risk Category Severity of Impact (Null – Low – Medium – High) | | | |
|---|---|---|---|---|---|
| | | Exogenous Economic | Legal and Political | Endogenous Economic | Policy and Institutional |
| **Developer Contributions** | Impact Fees | High | Low | Low | Medium |
| | Negotiated Exactions | High | Low | Low | Medium |
| **Transportation Utility Fees** | Transportation Utility Fees | Low | High | Low | High |
| **Special Taxes and Fees** | Special Assessments | High | Medium | High | High |
| | Business Improvement Districts | Medium | Medium | Low | Medium |
| | Land Value Taxes | High | Medium | High | High |
| | Sales Tax Districts | High | Medium | High | Medium |
| **Tax Increment Finance** | Tax Increment Finance | High | Medium | High | High |

| Category | Technique | Risk Category Severity of Impact (Null – Low – Medium – High) | | | |
|---|---|---|---|---|---|
| | | Exogenous Economic | Legal and Political | Endogenous Economic | Policy and Institutional |
| **Joint Development** | At-Grade Joint Development | High | Medium | Low | High |
| | Above-Grade Joint Development | High | Medium | Low | High |
| | Utility Joint Development | Medium | Low | Null | Null |
| **Naming Rights** | Naming Rights | Medium | High | Low | Medium |

Next, Table 8 through Table 17 provide a risk checklist for each value capture technique. These checklists can serve as a reference to ensure that the most common risks associated with the value capture technique are accounted for in the risk identification process. The checklists also describe the potential consequences of risks in each risk category and identify potential mitigation strategies that can be implemented to control each risk.

**Table 8. Impact Fees and Negotiated Exactions Risk Checklist**

| Risk Category/Type | Risk/Consequence | Mitigation Strategy |
|---|---|---|
| **Exogenous Economic risks** | | |
| Macroeconomic risks | Risk: Economic recession at national level.<br>Consequence: Slow down new development, reducing fee revenues. | Implement transportation projects in phases to satisfy transportation needs of ongoing developments rather than planned ones. |
| Real estate market risks | Risk: Real estate crisis.<br>Consequence: Slow down new development, reducing fee revenues. | Conduct detailed assessments of the real estate market and economic activity in the next 10 to 15 years and revise these assessments on a biannual basis. |
| Other local economic and demographic risks | Risk: Decrease in demand for residential properties due to migration.<br>Consequence: Slow down new development, reducing fee revenues. | Conduct feasibility studies that consider local economic and demographic factors in the short and long term to assess scenarios and develop resilient project alternatives. |
| **Endogenous economic risks** | | |
| Economic growth impact and related risks | Risk: Feasibility studies relies on real estate speculative assumptions.<br>Consequence: Local government is not able secure funds from the financial market. | Perform in deep feasibility studies free of speculative assumptions. |
| Fiscal impact risks | Risk: Increase in construction costs. | Perform thorough feasibility analyses that consider fluctuations on construction costs and other factors |

| Risk Category/Type | Risk/Consequence | Mitigation Strategy |
|---|---|---|
| | Consequence: Local government is unable to pay for the entire project and must use general revenue funds. | that may affect the final cost of implementing the project. |
| **Legal and political risks** | | |
| Legal feasibility and legislative risks | Risk: Unclear legislation at State level.<br>Consequence: Legal exposure. | Consult legal team to evaluate the feasibility of using this value capture technique. |
| Local political climate and political feasibility risks | Risk: Resistance from developers.<br>Consequence: Developers moving their initiatives to other areas where no fees are charged. | Hold frequent public meetings to inform about transportation projects to be funded with revenues from the fees. |
| **Policy and institutional risks** | | |
| Social equity and other environmental/ sustainability concerns | Risk: Increase in price of residential properties due to fees.<br>Consequence: Low-income families are unable to buy a house. | Waive or reduce charges to new development with a minimum percent of affordable housing units. |
| Administration and transparency risks | Risk: Lack of transparency in revenue usage.<br>Consequence: Improper use of revenues to fund projects. | Implement a continuous monitoring process to ensure the proper usage of revenues. |

**Table 9. Transportation Utility Fees Risk Checklist**

| Risk Category/Type | Risk/Consequence | Mitigation Strategy |
|---|---|---|
| **Exogenous economic risks** | | |
| Macroeconomic risks | Risk: Inflation.<br>Consequence: Increase in roadway O&M costs. | Introduce legal language that allows local government increasing fees to account for inflation. |
| Real estate market risks | Risk: Work from home policies.<br>Consequence: Increase of commercial property vacancy rates decreasing revenues from office buildings. | Perform in-deep feasibility analyses accounting from fluctuations in commercial property vacancy rates. |
| Other local economic and demographic risks | Risk: Migration to other areas.<br>Consequence: Increase of residential property vacancy rates decreasing revenues. | Perform in-deep feasibility analyses accounting from fluctuations in residential property vacancy rates. |
| **Endogenous economic risks** | | |
| Economic growth impact and related risks | Risk: Discrepancies between forecasted and actual revenues.<br>Consequence: Revenues are not sufficient to pay for the project and other funding sources need to be used. | Perform detailed revenue potential analyses at the feasibility stage and refine them once the TUF limits have been defined. |
| Fiscal impact risks | Risk: Discrepancies between expected and actual O&M costs that are funded by the TUF.<br>Consequence: Revenues are not sufficient to pay for the project and other funding sources allocated for | Consult the asset management system of the local government for expected O&M costs. |

| Risk Category/Type | Risk/Consequence | Mitigation Strategy |
|---|---|---|
| | implementing essential service projects need to be used. | |
| **Legal and political risks** | | |
| Legal feasibility and legislative risks | Risk: Unclear legislation.<br>Consequence: Legal exposure. | Perform a legal assessment before establishing the TUF. |
| Local political climate and political feasibility risks | Risk: Public resistance because the TUF is perceived as a new tax.<br>Consequence: Political resistance to implement the TUF. | Organize public awareness campaigns to inform the public about the transportation improvements funded by revenues generated by TUFs. |
| **Policy and institutional risks** | | |
| Social equity and other environmental/sustainability concerns | Risk: Lack of equity on TUF calculations that are based on of trips generated in a certain area without considering the ability-to-pay of the residents.<br>Consequence: Disproportioned impact of TUFs on low-income and disadvantaged communities. | Establish mechanisms to adapt TUF to household income and waive the fees for unemployed residents. |
| Administration and transparency risks | Risk: Usage of TUF revenues for other purposes.<br>Consequence: Legal exposure. | Implement a continuous monitoring process to ensure the proper usage of revenues from TUFs. |

**Table 10. Special Assessment Districts Risk Checklist**

| Risk Category/Type | Risk/Consequence | Mitigation Strategy |
|---|---|---|
| **Exogenous economic risks** | | |
| Macroeconomic risks | Risk: Construction cost increase.<br>Consequence: Revenues generated decline in present value. | Include escalation rates to account for changes in interest rates or inflation. |
| Real estate market risks | Risk: Real estate crisis.<br>Consequence: Decrease in property value leading to a decrease in revenues. | Perform thorough revenue analyses that consider real estate market trends and cycles at national and local level. |
| Other local economic and demographic risks | Risk: Decrease in attractiveness of commercial areas along frontage roads.<br>Consequence: Decrease in property value leading to a decrease in revenues. | Perform revenue potential analyses that consider the impact of potential decreases in retail and economic activity within the SAD. |
| **Endogenous economic risks** | | |
| Economic growth impact and related risks | Risk: Unrealistic forecast revenues.<br>Consequence: Local government is not able to secure funds from the financial market. | Perform detailed assessments of future revenue potential to avoid unrealistic revenue forecasts. |
| Fiscal impact risks | Risk: Discrepancies between forecasted and actual revenues.<br>Consequence: Revenues are not sufficient to pay for debt commitments. | Perform detailed revenue potential analyses at the feasibility stage and refine them once the SAD limits have been defined. |

| Risk Category/Type | Risk/Consequence | Mitigation Strategy |
|---|---|---|
| **Legal and political risks** | | |
| Legal feasibility and legislative risks | Risk: Lack of support from the majority of landowners.<br>Consequence: Impossibility of establishing the SAD. | Conduct effective outreach and identify champions in the developer community to generate awareness of the project's value generation benefits. |
| Local political climate and political feasibility risks | Risk: Public resistance because the SAD is perceived as a new tax.<br>Consequence: Political resistance to establish the SAD. | Conduct public meetings to generate awareness of the project's value generation benefits and seek feedback from the public. |
| **Policy and institutional risks** | | |
| Social equity and other environmental/sustainability concerns | Risk: Lack of equity in property tax valuation when income levels of property owners are not considered.<br>Consequence: Disproportionate impact on small businesses and low-income residents. | Include mechanisms to reduce or waive fees to low-income residents or small businesses not generating a certain level of profits. |
| Administration and transparency risks | Risk: Lack of transparency in project selection.<br>Consequence: Image of opacity for property owners. | Organize public meetings to inform property owners of the district about the processes followed when selecting the project and the alternatives considered. |

**Table 11. Business Improvement Districts Risk Checklist**

| Risk Category/Type | Risk/Consequence | Mitigation Strategy |
|---|---|---|
| **Exogenous economic risks** | | |
| Macroeconomic risks | Risk: Economic recession.<br>Consequence: Decrease of sales within the district decreasing revenues. | Perform detailed assessments of future revenue potential considering macroeconomic indicators. |
| Real estate market risks | Risk: Increase in commercial vacancy rates.<br>Consequence: Revenues streams decrease. | Perform detailed assessments of future revenue potential considering fluctuations in economic activity at national and local level. |
| Other local economic and demographic risks | Risk: Decrease in industrial activity at local level.<br>Consequence: Decrease in sales and consequently BID revenues. | Perform detailed assessments of future revenue potential considering local industrial activity indicators. |
| **Endogenous economic risks** | | |
| Economic growth impact and related risks | Risk: Poor revenue potential assessment.<br>Consequence: Revenues are not sufficient to pay for the project selected. | Perform detailed revenue potential analyses at the feasibility stage and refine them once the BID limits have been defined. |
| Fiscal impact risks | Risk: Increase of project costs.<br>Consequence: Revenues are not sufficient to fund the project and essential services might be affected. | Include mechanisms in the fee/levy calculation that allow the local government to increase the fees/levies to meet funding requirements under particular circumstances. |

| Risk Category/Type | Risk/Consequence | Mitigation Strategy |
|---|---|---|
| **Legal and political risks** | | |
| Legal feasibility and legislative risks | Risk: Lack of compliance with statutory requirements.<br>Consequence: Legal exposure. | Consult legal team to ensure the BID complies 100% with the statutory requirements. |
| Local political climate and political feasibility risks | Risk: Resistance from property owners.<br>Consequence: Impossibility to establish the BID. | Identify champions and conduct outreach to present the benefits of being members of the district. |
| **Policy and institutional risks** | | |
| Social equity and other environmental/sustainability concerns | Risk: Relocation of business to the district.<br>Consequence: Underutilization and underdevelopment of areas outside the district. | In areas outside the BID that are in risk of underdevelopment and underutilization, consider providing incentives to businesses to do not relocate. |
| Administration and transparency risks | Risk: Lack of transparency due to high degree of autonomy.<br>Consequence: Resistance from businesses within the district. | Perform outreach campaigns to inform businesses about how fees/levies are calculated and how revenues are spent. |

**Table 12. Land Value Taxes Risk Checklist**

| Risk Category/Type | Risk/Consequence | Mitigation Strategy |
|---|---|---|
| **Exogenous economic risks** | | |
| Macroeconomic risks | Risk: Increase of interest rates.<br>Consequence: Higher financing costs of the project. | Evaluate the possibility of obtaining funding from the State Infrastructure Bank (SIB). |
| Real estate market risks | Risk: Real estate crisis.<br>Consequence: A decrease of land price that is translated into a decrease in revenues generated. | Perform detailed revenue potential assessments that account for real estate market recessions at national level. |
| Other local economic and demographic risks | Risk: Migration to other cities.<br>Consequence: Decrease of demand for residential properties is translated into a reduction of property values and revenues. | Consider local demographic indicators in the revenue potential assessments. |
| **Endogenous economic risks** | | |
| Economic growth impact and related risks | Risk: Poor assessment to establish the land value tax rate.<br>Consequence: Revenues are not enough to pay for project debt commitments. | Perform in deep potential revenue analysis that will help to define the tax rate. |
| Fiscal impact risks | Risk: Unexpected increase in construction material prices.<br>Consequence: Revenues are not sufficient to fund the project and essential services might be affected. | Introduce language in the ordinance that allows the local government to revise the tax rates periodically to account for unexpected increases in project costs. |

| Risk Category/Type | Risk/Consequence | Mitigation Strategy |
|---|---|---|
| **Legal and political risks** | | |
| Legal feasibility and legislative risks | Risk: Current legal framework does not allow taxing land and improvements at a different rate.<br>Consequence: Impossibility of implementing land use taxes. | Consult legal team to evaluate if current legal framework allows the use of land use taxes. |
| Local political climate and political feasibility risks | Risk: Public resistance because land use taxes is a new tax.<br>Consequence: Local government may decide not to use land value taxes. | Organize outreach campaigns to inform the public about the transportation benefits that the implementation of land value taxes will generate. |
| **Policy and institutional risks** | | |
| Social equity and other environmental/sustainability concerns | Risk: Additional taxes for low-income property owners.<br>Consequence: Significant decrease of spending power in low-income communities. | Exempt low-income communities from paying land value taxes. |
| Administration and transparency risks | Risk: Poor risk management.<br>Consequence: Risks are not property identified and allocated. | Perform a thorough risk management process during the entire project life cycle. |

**Table 13. Sales Tax Districts Risk Checklist**

| Risk Category/Type | Risk/Consequence | Mitigation Strategy |
|---|---|---|
| **Exogenous economic risks** | | |
| Macroeconomic risks | Risk: Economic recession.<br>Consequence: Decrease in economic activity and revenue. | Perform detailed assessments of future revenue potential considering macroeconomic indicators. |
| Real estate market risks | Risk: Commercial attractiveness of the retail area is low.<br>Consequence: High commercial property vacancy rates that produce a decrease in revenues. | Conduct speculation-free revenue potential analyses. |
| Other local economic and demographic risks | Risk: Increase of unemployment rate.<br>Consequence: Decrease in sales and consequently in revenues. | Perform detailed assessments of revenue potential considering local employment indicators. |
| **Endogenous economic risks** | | |
| Economic growth impact and related risks | Risk: Poor project location within the district.<br>Consequence: Project is not spurring expected increase in sales generating difficulties to pay for debt commitments. | Perform detailed feasibility analyses that include the assessment of different potential project locations within the district. |
| Fiscal impact risks | Risk: Customers go to a commercial area neighboring the district.<br>Consequence: Sales decline and do not generate enough revenues to pay for debt commitments. | Define the boundaries of the district so all commercial areas that benefit from the infrastructure are included. |

| Risk Category/Type | Risk/Consequence | Mitigation Strategy |
|---|---|---|
| **Legal and political risks** | | |
| Legal feasibility and legislative risks | Risk: Lack of compliance with statutory requirements.<br>Consequence: Legal exposure. | Consult legal team to ensure the STD complies with the State statutory requirements. |
| Local political climate and political feasibility risks | Risk: Public resistance of residents within the STD due to the new tax.<br>Consequence: Political resistance that may be translated into the impossibility of establishing the STD. | Organize outreach campaigns to inform the public about the transportation benefits that the implementation of the STD will generate. |
| **Policy and institutional risks** | | |
| Social equity and other environmental/sustainability concerns | Risk: Equity issues because STD do not account for income, or vehicle miles traveled.<br>Consequence: Disproportionate impact on low-income families. | Exempt STD tax in groceries and other necessity goods. |
| Administration and transparency risks | Risk: Lack of transparency in evaluation methods for project selection and location.<br>Consequence: Resistance from businesses and the public. | Publish the methodology used to evaluate project alternatives and locations along with the results of the evaluation. |

**Table 14. Tax Increment Finance Risk Checklist**

| Risk Category/Type | Risk/Consequence | Mitigation Strategy |
|---|---|---|
| **Exogenous economic risks** | | |
| Macroeconomic risks | Risk: Increase of interest rates.<br>Consequence: Decrease of demand for residential properties, and consequently the property values and revenues. | Perform revenue potential studies that accounts for fluctuations in interest rates. |
| Real estate market risks | Risk: Real estate crisis.<br>Consequence: Negative impact the value of the properties and new development decreasing revenues. | Perform revenue potential studies that accounts for real estate market risks at local and national level. |
| Other local economic and demographic risks | Risk: Unemployment and migration to other areas.<br>Consequence: Low real estate demand resulting in a decrease in property values and revenues. | Perform revenue potential studies that accounts for employment and demographics at local level. |
| **Endogenous economic risks** | | |
| Economic growth impact and related risks | Risk: Poor project selection.<br>Consequence: Impossibility to secure funds at a low interest rate. | Perform detailed feasibility analyses that include the assessment of different potential project locations. |
| Fiscal impact risks | Risk: TIF projects do not generated expected economic development.<br>Consequence: Funds that might be assigned to essential services should be used for the project. | Perform rigorous but-for test feasibility studies based on realistic expectations. |

| Risk Category/Type | Risk/Consequence | Mitigation Strategy |
|---|---|---|
| **Legal and political risks** | | |
| Legal feasibility and legislative risks | Risk: The but-for analysis has not been properly performed.<br>Consequence: Legal exposure and controversy. | Perform rigorous but-for test feasibility studies that are based on realistic expectations. |
| Local political climate and political feasibility risks | Risk: Political resistance against the TIF.<br>Consequence: Impossibility of implementing the TIF or modifications of its boundaries. | Identify champions in the political arena to generate awareness of the benefits that the implementation of the TIF will have. |
| **Policy and institutional risks** | | |
| Social equity and other environmental/sustainability concerns | Risk: Lack of affordable housing because of the economic development spurred by the TIF.<br>Consequence: Low-income residents are forced to leave the neighborhood. | Establish affordable housing requirements within the TIF. |
| Administration and transparency risks | Risk: Transparency issues because TIF budgeting process is separate from the municipal budget.<br>Consequence: Improper revenue use. | Implement a continuous monitoring process to ensure the proper usage of revenues from TIFs. |

**Table 15. At-Grade or Above Grade Joint Development Risk Checklist**

| Risk Category/Type | Risk/Consequence | Mitigation Strategy |
|---|---|---|
| **Exogenous economic risks** | | |
| Macroeconomic risks | Risk: Economic recession at national level.<br>Consequence: Decrease in demand for leasing commercial properties reducing developer revenues. | Conduct comprehensive feasibility studies that consider short and long-term national, regional and local trends and multiple scenarios to develop resilient project alternatives. |
| Real estate market risks | Risk: Unexpected loss of retail area attractiveness.<br>Consequence: Decrease increase of vacancy rates and decrease of developer revenues. | Conduct in speculation-free feasibility analysis that consider different project and locations. |
| Other local economic and demographic risks | Risk: Unemployment.<br>Consequence: Decrease in demand for commercial real estate and revenues for the developer. | Perform revenue potential studies that accounts for employment in the neighborhoods that surround the project. |
| **Endogenous economic risks** | | |
| Economic growth impact and related risks | Risk: Poor selection of developer.<br>Consequence: The developer is not able to secure funds from financial markets. | Work with developers with a successful track record who understand and appreciate the complexities of joint development. |
| Fiscal impact risks | Risk: Local government may be forced to pay debt commitments if developer revenues are not sufficient.<br>Consequence: The project is subsidized with general revenue funds. | Perform a continuous risk management process and allocate risk allocation adequately. |

| Risk Category/Type | Risk/Consequence | Mitigation Strategy |
|---|---|---|
| **Legal and political risks** | | |
| Legal feasibility and legislative risks | Risk: Fail in meeting Uniform Act requirements.<br>Consequence: The project is not eligible for Federal funding. | Establish protocols to comply with Federal requirements ensuring eligibility of the project for Federal funding. |
| Local political climate and political feasibility risks | Risk: Public resistance to the project due to expected traffic increase.<br>Consequence: Political opposition. | Conduct awareness campaigns to present the benefits that will be generated by the project. |
| **Policy and institutional risks** | | |
| Social equity and other environmental/sustainability concerns | Risk: Gentrification.<br>Consequence: Increase in housing prices forces migration of lower-income residents to more affordable areas. | Implement affordable housing measures to mitigate the impact that the project may have on house rental price for low-income residents. |
| Administration and transparency risks | Risk: Failure in identifying and communicating certain risks to elected officials and the public.<br>Consequence: Local government is unaware of important risks. | Perform a thorough and continuous risk management process and organize outreach campaigns to inform the public about project risks. |

**Table 16. Utility Joint Development Risk Checklist**

| Risk Category/Type | Risk/Consequence | Mitigation Strategy |
|---|---|---|
| **Exogenous economic risks** | | |
| Macroeconomic risks | Risk: Federal budget constraints.<br>Consequence: The roadway project and consequently the delivery of utilities is delayed. | Evaluate the implementation of other value capture techniques to create funds that will help to start the project. |
| **Legal and political risks** | | |
| Legal feasibility and legislative risks | Risk: Current legal framework does not allow utility JD along State corridors.<br>Consequence: Local government is not able to use utility JD. | Consult with a legal team to identify limitations in the implementation of the utility JD under current legislation. |
| Local political climate and political feasibility risks | Risk: Political resistance because of the legal complexity associated to the use of this value capture technique.<br>Consequence: Lack of political support to establish the utility JD. | Organize meetings with elected officials informing how the local government is going to comply with the legal requirements. |

**Table 17. Naming Rights Risk Checklist**

| Risk Category/Type | Risk/Consequence | Mitigation Strategy |
|---|---|---|
| **Exogenous economic risks** | | |
| Macroeconomic risks | Risk: Economic recession affecting the company acquiring the naming rights.<br>Consequence: The company is not able to pay. | Negotiate with the company so payments are made at the time the agreement is signed rather than on an annual basis. |

| Risk Category/Type | Risk/Consequence | Mitigation Strategy |
|---|---|---|
| Real estate market risks | Risk: Real estate market around the transit station is underdeveloped.<br>Consequence: No company wants to acquire naming rights for that transit station. | Consider the use of other value capture techniques to spur economic development in the area before selling the naming rights. |
| Other local economic and demographic risks | Risk: Discrepancies between expected and actual business volume of the company.<br>Consequence: The company wants to cancel the contract. | Negotiate with the company so payments are made at the time the agreement is signed rather than on an annual basis. |
| **Endogenous economic risks** | | |
| Economic growth impact and related risks | Risk: Discrepancies between expected and actual O&M costs of the transit line.<br>Consequence: Revenues are not sufficient to pay for the service. | Perform thorough revenue potential assessment and O&M cost estimation at the feasibility stage. |
| Fiscal impact risks | Risk: Discrepancies between forecasted and actual revenues.<br>Consequence: Revenues are not sufficient to pay for the project and other funding sources are used. | Perform thorough revenue potential assessment and O&M cost estimation at the feasibility stage. |
| **Legal and political risks** | | |
| Legal feasibility and legislative risks | Risk: Lack of compliance with current Federal legislation.<br>Consequence: Legal exposure. | Conduct a thorough legal feasibility assessment in the early stages of the project. |
| Local political climate and political feasibility risks | Risk: Public resistance due to the reputation issues of the company.<br>Consequence: Political resistance to the use of this technique. | Conduct background checks of the companies interested in acquiring the naming rights to avoid controversy and reputation issues. |
| **Policy and institutional risks** | | |
| Social equity and other environmental/sustainability concerns | Risk: Lack of equitable distribution of revenues generated.<br>Consequence: Investments on transit services might be relatively low in disadvantaged communities. | Implement an equitable transit improvement plan. |
| Administration and transparency risks | Risk: The name of the company acquiring the naming rights does not comply with local government internal policies.<br>Consequence: Legal exposure. | Conduct background checks of the companies before using naming rights to fund a transportation project. |

# 8 BUILDING RESILIENCY AND DEVELOPING A RISK-ADJUSTED VALUE CAPTURE STRATEGY

A resilient value capture funding strategy is key to maximizing the value generated by the transportation investment and the long-term success of value capture as a funding source. Developing a resilient value capture funding strategy is about incorporating the means to mitigate and cost-effectively deal with risk and potential deviations from expected project outcomes in each phase of the project life cycle. In the context of value capture, the focus is primarily on deviations in expected project outcomes that may affect:

- The ability of the project to generate the value expected; and/or
- The ability of the local government to capture the value generated.

The result of building resiliency into a value capture funding strategy is also called a "Risk-Adjusted Value Capture Strategy." This section introduces the concept of resiliency and developing a risk-adjusted value capture strategy that considers potential risks in the context of their timing vis-à-vis different project phases and project stakeholders, incorporating appropriate mitigation strategies in each phase.

## 8.1 Value Capture and Risk Timeline for Stakeholders

Risks in a transportation project are usually identified by reference to different project life cycle phases and/or risk categories. Figure 5 illustrates typical transportation project life-cycle phases, which in this example consist of the following: 1) project initiation; 2) preliminary engineering and design; 3) plans, specifications, and estimate (or PS&E) development; 4) letting and award; 5) construction; and 6) maintenance and operation. Running in parallel to these phases we have environmental compliance and right-of-way (ROW) and utilities processes.

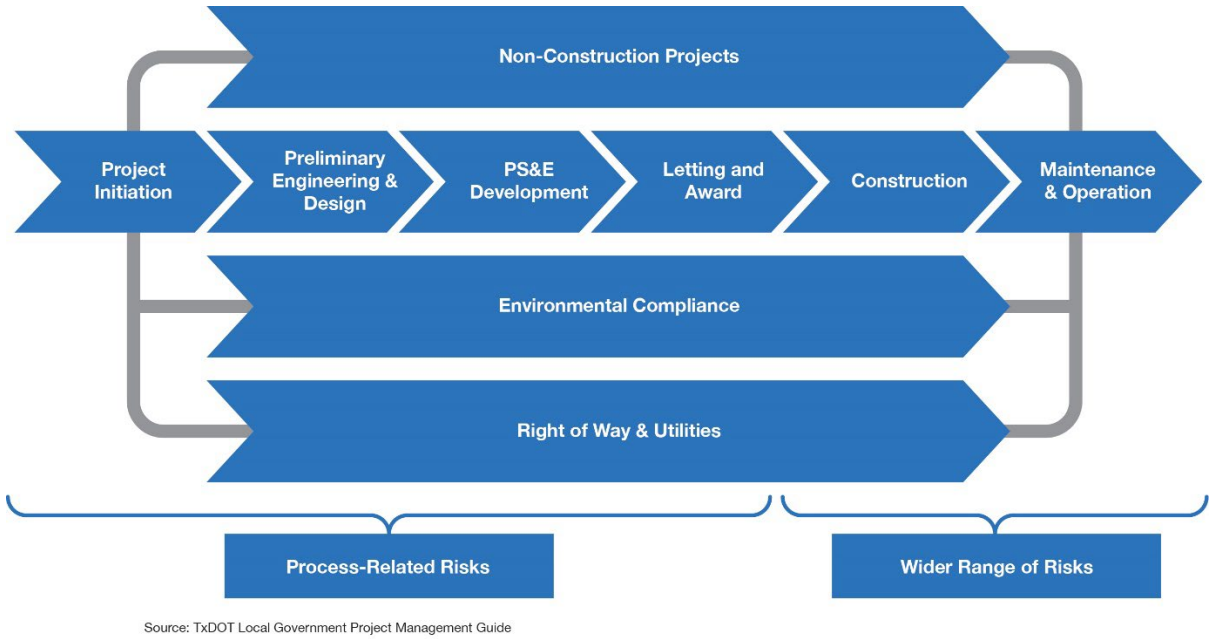


**Figure 5. Transportation Project Life Cycle Phases [Adapted from (55)]**

Risks that may have a bearing on successfully using value capture to fund a project may materialize in each of these six phases and processes. However, the actions that take place early in the project life cycle have a much greater influence on a project's outcome during than the actions taken subsequently. This is illustrated in Figure 6, where the curve labeled "influence" reflects the ability to affect the outcome of a transportation project throughout its different phases. It is much easier to affect a project's outcome during the early phases when effort and expenditures are relatively small than it is to influence it later, when cumulative expenditures and efforts are more significant. Hence, the importance of making careful plans for a successful project outcome.

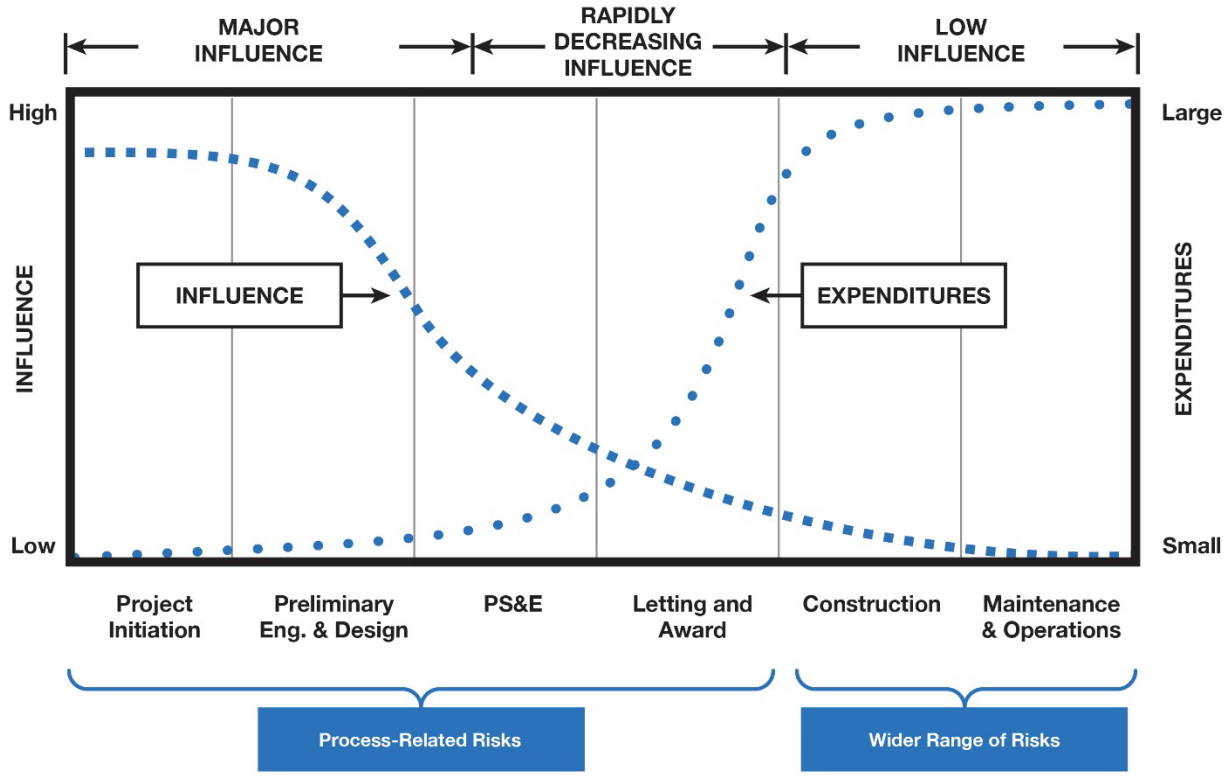


**Figure 6. Transportation Project Life Cycle and Risk Influence Curve [Adapted from (56) and (55)]**

The risks that a local government or other project stakeholders may face during the first four project phases are for the most part process-related (i.e., they depend on an adequate execution of the processes involved) and depend on a relatively narrow set of factors. For example, during the project initiation phase, a project selected through a rigorous and objective transportation planning process, justified by significant mobility or accessibility needs, is more likely to spur economic development than a project that is arbitrarily selected. Once the project has been selected, how early value capture funding is pursued will influence how much value can actually be captured—if it is done too late, when property appreciation has already taken place, the value capture will be more limited. In subsequent phases, sometimes as part of the environmental or right-of-way and utilities processes, risks that may affect project costs or schedule, or land development plans, may also materialize.

Although the first four phases occur prior to the project construction event starting, considering exposure to the associated risks is critical, and where possible, mitigated. In the project initiation

and preliminary engineering phases, poor risk assessment and risk allocation lead to more risks materializing in subsequent phases when, as noted in Figure 6, stakeholder influence is minimal. This is because risks that occur after the project contract is awarded and construction commences vary from phase to phase and depend on a much wider range of factors (many of them out of the control of the local government and other stakeholders). For example, policy and institutional risks (e.g., environmental process delays) may affect the timeline to generate the expected value capture revenues, and exogenous economic risk events may materialize after the facility opens to traffic that influence real estate demand or economic activity (e.g., an economic downturn).

Building resiliency into a value capture strategy is about accounting for these risks and their timing early on through robust risk assessment and allocation work, along with identifying adequate mitigation measures. This is the essence of a risk-adjusted value capture strategy.

## 8.2 Value Capture Risk-Adjusted Strategy through Integration and Phasing

Developing a value capture funding risk-adjusted strategy is accomplished by: 1) integrating robust risk assessment and allocation early into the project development process; and 2) strategically deciding when in the project life cycle to implement the value capture techniques selected. There are two important lessons that can be drawn from past value capture applications that illustrate the importance of developing a risk-adjusted strategy early and with a long term, project life cycle perspective (57). The first is that value capture techniques have frequently been implemented too late, after a significant amount of property appreciation has already taken place. The second is that existing properties near a new project frequently enjoy significant appreciation gains without paying their fair share of the project (57).

Because of these lessons, an effective value capture approach for a major transportation corridor project is to start early when there is a general recognition of the potential of the project to generate value, and before properly assessing, negotiating, and granting the land use prerogatives for future development (57). Assessing the monetization potential of the project's land use prerogatives for future development, based on the benefits and costs to each major stakeholder involved, prior to granting future land use prerogatives is essential to maximize the value capture potential (57). In other words, planning the value capture approach at the corridor level early on, in the project initiation phase, and well in advance of the letting and award phase is essential for stakeholders to retain the ability to take advantage of as many opportunities to capture value as possible. For example, after the ROW is acquired and the letting and award phase is concluded, a local government loses most of its negotiating leverage and incentives for developers are likely to be weaker (57).

The implication from a risk-adjusted value capture strategy standpoint is that developing a strategy to strengthen and preserve negotiating leverage early in the project initiation phase is key to reduce overall risk exposure in value capture monetization (i.e., the potential value capture revenue to fund the project) (57). In the long term, this value capture approach could be multi-layered, based on the project life cycle phase and the characteristics of the corridor's influence area at that time. For example, initially considering value capture techniques that have the least new impact on stakeholders and lowest risks (e.g., a TIF district, which does not impose new taxes), and following with techniques that involve new charges and increasing risks (e.g., SADs or impact fees) (57). This risk-adjusted approach allows stakeholders to better bear the financial burden that the selected value capture technique(s) selected may impose on them.

Thus, developing a risk-adjusted strategy entails creating a value capture approach that identifies: 1) what value capture techniques to use; 2) when in the project life cycle to use them; 3) where in the project's influence area to apply them; and 4) how to implement them (57). A risk-adjusted value capture approach addresses how multiple techniques are to be integrated and phased over the project's life cycle and based on an underlying framework that takes into account: 1) equity, that is, those who benefit the most pay the most, and the costs do not disproportionally impact vulnerable stakeholders; and 2) risk, that is, risks are allocated according to the principles outlined in section 2.3 (i.e., risks are borne by the party best able to control the likelihood and/or the impact of the risk materializing, or by the party best able to absorb it at the lowest cost) (57).

In the transportation corridor example discussed earlier in this section, private real estate development along the new or improved corridor can be further stimulated initially through government-sponsored value capture techniques (e.g., a TIF district followed by a SAD, if needed) (57). As initial development builds-out, the risk to new development would gradually decrease, and the developer's willingness to pay for exactions or contributions would increase accordingly. Establishing a transparent risk-adjusted value capture implementation approach encompassing the entire project life cycle early on would help streamline the value capture implementation process, reduce value capture risk, and maximize value capture potential (57). Pursuing such a comprehensive risk-adjusted implementation approach is particularly beneficial in projects that use multiple value capture techniques and stakeholders, which involve a complex web of regulatory and institutional requirements (57).

# REFERENCES

1. **Federal Highway Administration.** *Value Capture: Capitalizing on the Value Created by Transportation. Value Capture Implementation Manual.* Washington, DC: U.S. Department of Transportation, 2019.

2. **Irwin, T.** *Government Guarantees: Allocating and Valuing Risk in Privately Financed Infrastructure Projects.* s.l.: The World Bank. Washington DC, 2007.

3. **Molenaar, Keith, Anderson, Stuart and Schexnayder, Cliff.** *Guidebook on Risk Analysis Tools and Management Practices to Control Transportation Project Costs.* Washington, D.C.: National Cooperative Highway Research Program, 2010. NCHRP Report 658.

4. **Aldrete Sanchez, Rafael M., Tucker, Richard L. and McCullough, B. Frank.** *Feasibility Evaluation Model for Toll Highways.* Austin: Southwest Region University Transportation Center, 2005. SWUTC/05/467502-1.

5. **HM Treasury.** The Orange Book: Management of Risk - Principles and Concepts. *Guidance: Orange Book.* [Online] 2020. [Cited: September 25, 2021.] https://www.gov.uk/government/publications/orange-book.

6. **Federal Highway Administration.** *Guidebook for Risk Assessment in Public Private Partnerships.* 2013.

7. **National Research Council.** *The Owner's Role in Project Risk Management.* Washington, DC: The National Academies Press, 2005.

8. **Walewski, John and Gibson, G. Edward.** *International Project Risk Assessment: Methods, Procedures, and Critical Factors.* Austin: Center Construction Industry Studies, The University of Texas at Austin, 2003.

9. **Aldrete, Rafael M., et al.** *Tools for Port TRZs and TRZs for Multimodal Applications.* 2017. Report 0-6890-1.

10. **Dorozik, Leon, Strąk, Tomasz and Miciuła, Ireneusz .** Risk Assessment Methodology in Public Financial Institutions. [ed.] Jorge Rocha, Sandra Oliveira and César Capinha. *Risk Management and Assessment.* s.l.: IntechOpen, 2020.

11. **Duca, John.** Subprime Mortgage Crisis: 2007-2010. *Federal Reserve History.* [Online] Federal Reserve Bank, November 22, 2013. [Cited: September 28, 2020.] https://www.federalreservehistory.org/essays/subprime-mortgage-crisis.

12. **TIF Reform Task Force.** *Final Report of the TIF Reform Task Force.* Springfield: Illinois General Assembly, 2018.

13. *The Housing Crisis, Foreclosures, and Local Tax Revenues.* **Alm, James and Leguizamo, Sebastian.** s.l.: Elsevier Science Direct, 2018, Regional Science and Urban Economics, Vol. 70, pp. 300-311. ISSN 0166-0462.

14. **Congressional Research Service.** COVID-19 and the U.S. Economy. *Congressional Research Service Reports.* [Online] May 11, 2021. [Cited: September 28, 2020.] https://crsreports.congress.gov/product/pdf/R/R46606. R46606.

15. **Siripurapu, Anshu.** The Economic Effects of Working From Home. *Council on Economic Relations.* [Online] Council on Economic Relations, July 16, 2020. [Cited: September 28, 2021.] https://www.cfr.org/in-brief/economic-effects-working-home.

16. **Standard & Poors Dow Jones Indices.** S&P CoreLogic Case-Shiller Home Price Indices. *S&P Down Jones Indices.* [Online] S&P Global. [Cited: September 29, 2021.] https://www.spglobal.com/spdji/en/index-family/indicators/sp-corelogic-case-shiller/sp-corelogic-case-shiller-composite/#overview.

17. **Yarbrough, J.** INSIGHT: Covid-19 Fallout Could Lead to Lower Commercial Property Taxes. [Online] July 14, 2020. https://news.bloombergtax.com/daily-tax-report-state/insight-covid-19-fallout-could-lead-to-lower-commercial-property-taxes.

18. **Greg, David.** Unpaid Property Taxes Leap in New York City as Tenants and Landlords Struggle. [Online] August 27, 2021. https://www.thecity.nyc/2021/2/23/22298066/unpaid-property-taxes-new-york-city-tenants-landlords-covid.

19. **Carroll, Peter.** Sizing the Risk of Property Tax Revenue Disruption to Municipalities. [Online] May 4, 2020. https://www.corelogic.com/intelligence/buy-stories/sizing-the-risk-of-property-tax-revenue-disruption-to-municipalities/.

20. **DeLisle, James R.** Fundamentals of Real Estate: A Behavioral Approach - Chapter 4: Real Estate Risk Management. *Personal website of Professor James R. DeLisle, Ph.D.* [Online] [Cited: September 20, 2021.] https://jrdelisle.com/jrd_text/.

21. **Texas Comptroller of Public Accounts.** *Texas Property Tax Assistance Property Classification Guide.* s.l.: Texas Comptroller of Public Accounts, 2014.

22. **Mueller, Glenn R.** *Predicting Long-Term Trends and Market Cycles in Commercial Real Estate (No. 388).* s.l.: Wharton School Samuel Zell and Robert Lurie Real Estate Center, University of Pennsylvania, 2001.

23. **Wieland, David.** Assessing Three Types of Risk In Real Estate. *Forbes.* [Online] Forbes, August 5, 2020. [Cited: October 25, 2021.] https://www.forbes.com/sites/forbesrealestatecouncil/2020/08/05/assessing-three-types-of-risk-in-real-estate/?sh=76dd141e6a30.

24. **Urban Land Institute (ULI).** The Cap at Union Station. *ULI Development Case Studies.* 2005.

25. —. *Union Station Los Angeles, California, A Strategy for Renewing the Union Station District.* 2011.

26. **Chen, James.** Investopedia. *Rust Belt.* [Online] September 20, 2021. [Cited: November 3, 2021.] https://www.investopedia.com/terms/r/rust-belt.asp.

27. **Shvili, Jason.** WorldAtlas. *Rust Belt States.* [Online] July 7, 2021. [Cited: November 3, 2021.] https://www.worldatlas.com/geography/rust-belt-united-states.html.

28. **McClelland, Edward and McClelland, Ted.** *Nothin' But Blue Skies: The Heyday, Hard Times, and Hopes of America's Industrial Heartland.* s.l.: Bloomsbury Publishing USA, 2013.

29. **Millsap, Adam A.** Forbes. *The Rust Belt Didn't Adapt and It Paid the Price.* [Online] January 9, 2017. [Cited: November 04, 2021.] https://www.forbes.com/sites/adammillsap/2017/01/09/the-rust-belt-didnt-adapt-and-it-paid-the-price/?sh=301072a67a3d.

30. **Troncale, Bernard.** WHICH WAY FORWARD? *AL.com.* March 29, 2019, 2019.

31. *Competitive Pressure and the Decline of the Rust Belt: A Macroeconomic Analysis.* **Alder, Simeon, Lagakos, David and Ohanian, Lee.** w20538, Cambridge, MA : National Bureau of Economic Research, 2014.

32. **City of Phoenix.** Annual Development Impact Fee Report FY 2019-20 (Pre-Audit). *City of Phoenix.* [Online] September 11, 2020. [Cited: April 2, 2021.] https://www.phoenix.gov/pddsite/Documents/Impact%20Fee%20Report%20FY%202019-20.pdf.

33. **Federal Highway Administration.** *Capital Improvement Programming: Using Value Capture to Fund Transportation Capital Improvements.* 2021. Report No. FHWA-HIN-21-002.

34. **Aldrete, Rafael M., et al.** *Transportation Reinvestment Zones: Texas Legislative History and Implementation.* s.l.: Transportation Policy Researh Center, Texas A&M Transportation Institute, 2016. PRC 15-36 F.

35. **Federal Highway Administration.** *Transportation Reinvestment Zones: Using Value Capture to Fund Transportation Capital Improvements.* Federal Highway Administration. Washington, DC: Federal Highway Administration, 2021.

36. **Billings, Randy.** Portland Buses to Display Marijuana Ads Despite Objections. *Portland Press Herald.* October 2, 2013.

37. **Nelson, Laura J.** Transit Officials Backtrack on Controversial Policy to Sell Naming Rights for Metro Stations. *Los Angeles Times.* February 27, 2017.

38. **Cervero, Robert, Ferrell, Christopher and Murphy, Steven.** Transit-Oriented Development and Joint Development in the United States: A Literature Review. [Online] 2002. http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rrd_52.pdf. TCRP research results digest, (52).

39. **Doty, Mark.** Unbuilt Dallas. *American Institute of Architects Dallas.* [Online] [Cited: September 10, 2021.] https://www.aiadallas.org/v/columns-detail/Unbuilt-Dallas/qj/.

40. **López-Ghio, Ramiro, Salazar Echavarría, Carlos and Schloeter, Luis.** *Tax Increment Financing for Urban Projects. An Alternative to Fund Infrastucture in Latin American Cites?* s.l.: Inter-American Development Bank, 2020. IDB-MG-672.

41. **Minnesota Legislature.** Minnesota House Research Department. *The But-For Test.* [Online] October 2015. [Cited: October 7, 2021.] https://www.house.leg.state.mn.us/hrd/issinfo/tif/butfor.aspx.

42. *Does Chicago's Tax Increment Financing (TIF) Program Pass the 'But-For' Test? Job Creation and Economic Development Impacts Using Time-Series Data.* **Lester, William T.** 4, s.l.: Urban Studies, 2014, Vol. 51.

43. **Merriman, David.** *Improving Tax Increment Financing (TIF) for Economic Development.* s.l.: Lincoln Institute of Land and Policy, 2018. ISBN 978-1-55844-378-5.

44. **Atlanta BeltLine.** *The Atlanta BeltLine 2030 Strategic Implementation Plan : FINAL REPORT.* Atlanta: City of Atlanta, 2013.

45. *Large Redevelopment Initiatives, Housing Values and Gentrification: The Case of the Atlanta Beltline.* **Immergluck, Dan.** 8, s.l.: SAGE Publishing, 2009, Urban Studies Journal, Vol. 46, pp. 1723-1745.

46. **Atlanta BeltLine, Inc.** Affordable Housing. [Online] 2021. [Cited: September 30, 2021.] https://beltline.org/category/programs/affordable-housing-programs/.

47. **Bates, Lisa K.** Gentrification and Displacement Study: Implementing an Equitable Inclusive Development Strategy in the Context of Gentrification. *Urban Studies and Planning Faculty Publications and Presentations.* [Online] May 2013. [Cited: November 12, 2021.] https://doi.org/10.15760/report-01.

48. **Federal Highway Administration.** Frequently Asked Questions – Transportation Reinvestment Zones and Tax Increment Reinvestment Zones. *Value Capture: Capitalizing on the Value Created by Transportation.* [Online] July 2020. [Cited: May 1, 2021.] https://www.fhwa.dot.gov/ipd/value_capture/defined/value_cap_faq_tr_tir_zones.aspx.

49. **McRae, Dan.** Quick Takes: TADs–What to Do After the BeltLine Case. [Online] Seyforth Shaw Attorneys LLP, February 21, 2008. [Cited: October 1, 2021.] https://www.danmcrae.com/quicktakes/qt_08-feb21.pdf.

50. **Department of Planning and Development.** *Tax Increment Financing, Program Guide.* s.l.: City of Chicago, 2020.

51. **Jacobs, Joel.** How Chicago's Controversial TIF Program Took Over a Third of the City. *MEDILL Reports Chicago.* [Online] Northwestern University, February 22, 2020. [Cited: November 12, 2021.] https://news.medill.northwestern.edu/chicago/how-chicagos-controversial-tif-program-took-over-a-third-of-the-city/.

52. **Kerth, Rob and Meiffren, Celeste.** *Cleaning up Tax Increment Financing, Rethinking Chicago's Troubled Redevelopment Program.* s.l.: Illinois PIRG Education Fund, 2012.

53. **Tax Increment Financing Reform Panel.** *Findings and Recommendations for Reforming the Use of Tax Increment Financing in Chicago: Creating Greater Efficiency, Transparency and Accountability.* s.l.: City of Chicago, 2011.

54. **City of Chicago.** Mayor Lightfoot Announces Major Reforms to the City's Approach to Allocating Tax Increment Financing (TIF) Funds. *Chicago: Office of the Mayor.* [Online] City of Chicago, February 5, 2020. [Cited: November 13, 2021.] https://www.chicago.gov/city/en/depts/mayor/press_room/press_releases/2020/february/TIFReforms.html.

55. **Texas Department of Transportation.** Local Government Project Management Guide. *Texas Department of Transportation.* [Online] August 19, 2021. [Cited: November 12, 2021.] https://ftp.txdot.gov/pub/txdot/lgp/procedures/guide.pdf.

56. **Construction Industry Institute.** *Pre-project Planning Handbook.* Austin: Construction Industry Institute, 1995. CII Special Report.

57. **Federal Highway Administration.** *Value Capture: Making the Business and Economic Case - A Primer.* Washington, DC: U.S. Department of Transportation, 2021.

58. **Dregne, Matthew P.** Managing the Risks of Tax Increment Financing. *The Municipality Magazine.* June, 2018.

59. *Protecting Low Income Residents During Tax Increment Financing Redevelopment.* **Erickson, Kristen.** s.l.: WASH. U. J. L. & POL'Y 203, 2011, Vol. 36.

60. **Dworkin, Julie.** *Tax Increment Financing (TIF) Funding and Affordable Housing: An Analysis of Current Tax Increment Financing Resources and City of Chicago TIF-Funded Housing 1995-2008.* s.l.: Chicago Coalition for the Homeless, 2009.

61. **Dabrowski , Ted and Klingner, John.** *Chicago Tax Increment Financing Districts Take Nearly $500 Million in Yearly Tax Revenues Away from Other Local Governments.* s.l.: Illinois Policy Institute, 2017.

62. **Atlanta BeltLine, Inc.** Atlanta BeltLine. *A Committed Team Making the Vision a Reality.* [Online] 2021. [Cited: September 7, 2021.] https://beltline.org/atlanta-beltline-inc-team/.

63. **Arizona State Legislature.** 9-463.05.

64. **Frost, Douglas and Dovalina, Ray.** *City of Phoenix Impact Fees.* January 22, 2021.

65. **Aldrete, Rafael M.** Capturing the Value of Transportation to Finance Transportation: Case Studies from Texas. *NACTO Designing Cities Regional Conference.* Phoenix, 2013.

# APPENDIX: CONTENTS OF A TEXAS TRZ VALUE CAPTURE STUDY

The Texas Department of Transportation generally seeks the inclusion and consideration of certain content items in TRZ capacity analysis submissions to the state infrastructure bank (58). These items are listed below:

- Clear overview of the zone, map, zone delineation, parcel listing (if available)
- List of Participating local governments considering a TRZ for the project (city, multiple cities, etc.)
- Assumptions of the study:
    - The percentage of the property tax value increment in the Zone that is under consideration by the local government
    - Number of years included in the analysis
    - Assumed base year of establishment of the TRZ
- Parcel analysis, including zoning types considered and current breakdown of zoning included in the potential TRZ (e.g., residential, commercial, etc.)
- The netting out of existing properties that would not contribute to the revenues (i.e., other TIRZ, TIF, abatement agreements, or tax-exempt property)
- 30 years of revenue estimates, including a cash flow table in both nominal and NPV figures
- Historical property value growth trend analysis, based on Central Appraisal District data
- Multiple economic growth models (i.e., pessimistic, base, and optimistic revenue estimate scenarios)