

Value Capture: Capitalizing on the Value Created by Transportation

Participant Workbook

Every Day Counts | Innovation Initiative | EDC-5 Summits | 2018

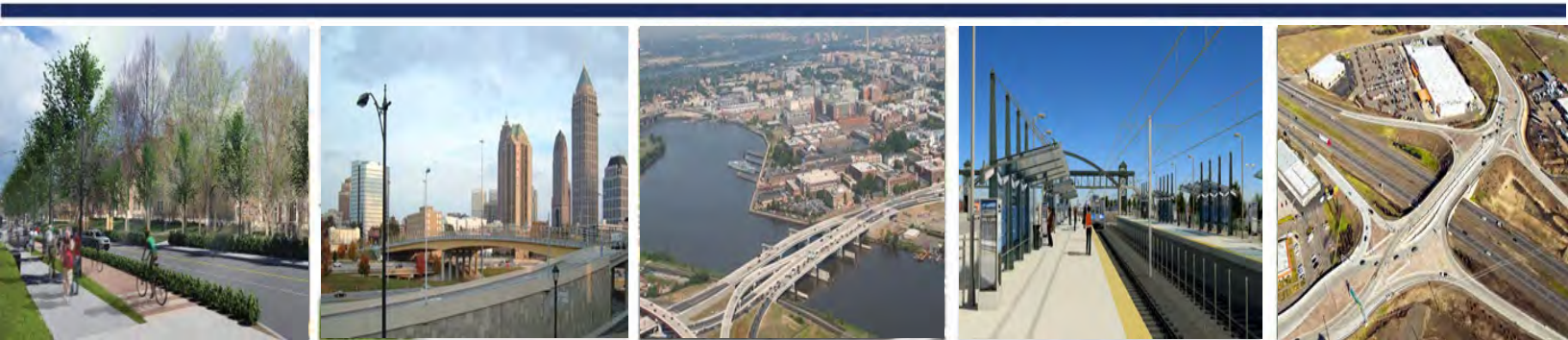
Baltimore, MD | October 18-19

Albany, NY | October 24-25

St. Louis, MO | October 29-30

Portland, OR | November 8-9

Orlando, FL | November 27-28



U.S. Department of Transportation
Federal Highway Administration

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Value Capture Breakout Session Agenda

Topic	Presenter/Facilitator
Welcome and Introductions	Sasha Page (Baltimore, Portland, Orlando) Daniel D'Angelo (Baltimore, Albany, St. Louis)
Introduction to Value Capture: What is it and why is it needed?	Stefan Natzke, FHWA (Baltimore, Portland) Lindsey Svendsen (Albany) Jill Stark (St. Louis) Katie Hulbert (Orlando)
Value Capture Overview and Benefits	Ben Hawkinson, FHWA (Baltimore) Jim Thorne (Albany) Chip Mallard (St. Louis) Kevin Moody (Portland) Janine Ashe (Orlando)
FHWA Role in Value Capture	Stefan Natzke, FHWA (Baltimore, Portland) Lindsey Svendsen (Albany) Jill Stark (St. Louis) Katie Hulbert (Orlando)
Value Capture Case Study 1: Atlanta Beltline Redevelopment Osceola County, FL Value Capture in Texas Value Capture in Florida	Catherine M. Owens, (Baltimore) Ken Atkins (Albany, Orlando) Rafael Aldrete (St. Louis) Leon Corbett (Portland)
Value Capture Case Study 2: Capitol Crossing ROW Use Agreements Assembly Square, Somerville MA Value Capture in Texas	John Duel, DC DOT (Baltimore) Eric Bourassa, (Albany) Rafael Aldrete (Orlando)
Value Capture Techniques – Do you Know?	Sasha Page (Baltimore, Portland, Orlando) Daniel D'Angelo (Baltimore, Albany, St. Louis)

How to Use this Workbook

1. **Scan through the entire workbook** prior to session start.
2. **Take notes** in the open space during the presentations by answering the thought questions posed (page 12). Relate your answers to the presentation information given.
3. **Review the maturity matrix** (page 14) for topics to focus on during the presentations. What areas most interest you? What will help your agency the most?
4. **Review the “Value Capture Mechanisms – Do you know?”** (page 34) for a description of the session activity.

5. **Scan this QR code** from your mobile device to access the **EDC-5 Value Capture website**. Or, go directly to the website:

https://www.fhwa.dot.gov/innovation/everydaycounts/edc_5/value_capture.cfm



6. **Scan this QR code** from your mobile device for additional **EDC-5 resources**. Or, go directly to the FHWA Every Day Counts website at:

<https://www.fhwa.dot.gov/innovation/everydaycounts/>

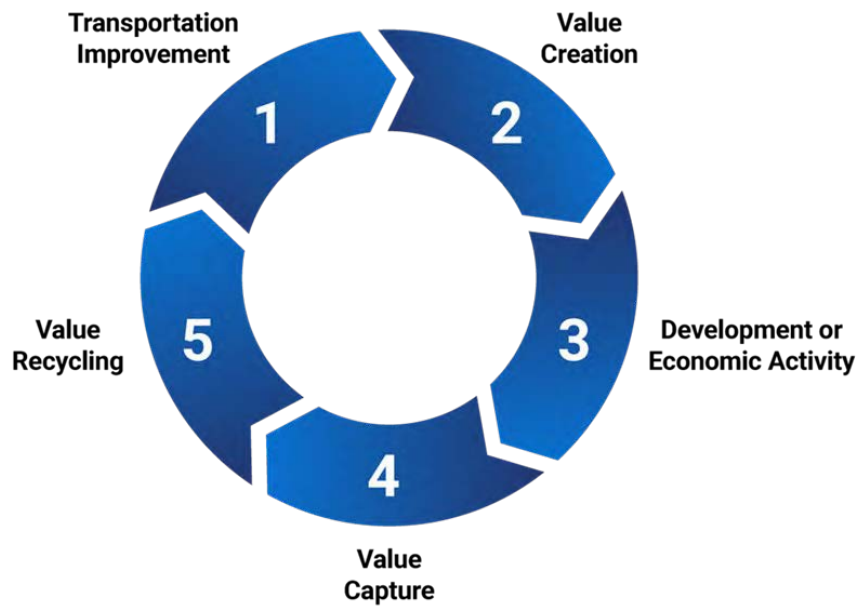


7. **Scan this QR code** from your mobile device to download the **Summit presentations and speaker biographies**. Or, go directly to the website:

https://www.fhwa.dot.gov/ipd/value_capture/resources/value_capture_resources/edc-5_resources.aspx



Value Capture Process



Background on Value Capture

Capitalizing on the Value Created by Transportation.

Public investment in transportation assets that improve access and increase opportunity benefit adjacent property owners through greater land value and other economic impacts. Many techniques are available to the public sector to share in a portion of this increased land value to build, maintain, or reinvest in the transportation system.

[Value Capture](#) begins with the value created by the access transportation provides. Value is then enhanced through private sector investment and economic development enabled by the public investment. A portion of that value created by the infrastructure can be “captured” by the public sector to reinvest in, operate, or maintain transportation infrastructure. Value Capture principles can be applied to most development scenarios, whether new infrastructure for new land development or rebuilt infrastructure in dense urban areas.

Both the planning and implementation for Value Capture rely primarily on local government initiatives. For these local public agencies, Value Capture provides the opportunity to raise funds to match Federal grants, which increasingly emphasize the importance of private and public non-Federal participation.

Benefits

- **Continuous Improvement.** Value Capture strategies can provide a sustained revenue source that can support operations and maintenance or, in some cases, the financing of the original transportation improvement.
- **Financial Equity.** Value Capture promotes equity by reinforcing the “beneficiary pays” principle of economics. When private landowners benefit from a public investment, Value Capture provides a way for a portion of the gain to directly support the public investment that enabled their benefit.
- **Environmental Sustainability.** In certain cases, Value Capture can help prevent sprawl by providing a disincentive for speculative land holding.

State of the Practice

States such as California, Colorado, Florida, Georgia, Massachusetts, Missouri, Ohio, Oregon, Pennsylvania, Texas, and Virginia, as well as the District of Columbia, are using Value Capture tools successfully. The following examples demonstrate different Value Capture applications supporting highway improvements across the United States:

- Several cities in Oregon have instituted transportation utility fees through monthly bills that fund programs paying for local road maintenance and safety projects.
- The Cap at Union Station project over I-670 in Columbus, Ohio, is an example of joint development and right-of-way use agreements to improve traffic operations and transform the void caused by I-670 into an urban streetscape with retail shops and restaurants.
- California’s Orange County Transportation Corridor Agencies (TCA) are using development impact fees to generate funds that provided seed capital for transportation facilities and continue to be an integral feature of TCA’s debt management strategy.
- In Texas, the Fort Worth City Council established transportation impact fees in July 2008 on new development projects to help fund transportation

improvements. In April 2013, the council approved a transportation impact fee increase from \$2,000 to \$3,000 on new single-family homes.

- The City of Chicago used tax increment financing districts to fund a variety of projects, including street improvements, transit stations, and neighborhood redevelopment.

There is a variety of mechanisms that may be used to derive monetary value from transportation improvements to help defray the cost of implementation.

Value Capture strategies can be used to help pay for roadway and transit improvements by leveraging localized benefits. While more common with transit projects, Value Capture techniques may also be used with highway improvements, as is the case with the San Joaquin Toll Road in southern California and E-470 outside Denver, Colorado. Most Value Capture revenue is generated at the State or local level. The FHWA Center for Innovative Finance Support encourages State and local jurisdictions to look for new revenue sources to address funding shortfalls and is available to provide technical assistance in these areas.

In addition to Value Capture mechanisms, the Center for Innovative Finance Support also provides information on other important sources of Federal, State and local revenue to support transportation investment needs, including motor fuel taxes, vehicle-related fees, and local option taxes.

Value Capture Techniques

Transportation networks and land values and other location-based economic activities are closely linked. Transportation improvements increase accessibility and thereby make surrounding locations more desirable. Transportation improvements often increase the value of nearby land, benefitting land owners and developers. Value Capture techniques harness a portion of increased property values in order to pay for the improvement or for future transportation investment. There are several different forms of Value Capture used in the United States. The most common include: air rights, impact fees, joint development, land value tax, negotiated exactions, sales tax districts, special assessments, tax increment finance, and transportation utility fees (see Table 1).

Table 1: Types and descriptions of Value Capture Techniques

Note: These techniques may vary in their application and may also be known by additional terms.

TYPE	DESCRIPTION
Impact Fees	Impact fees are one-time charges levied by local governments on new development. They are charged to developers to help municipalities recover growth-related infrastructure and public service costs. They differ from other forms of Value Capture including special assessments and negotiated exactions, in that impact fees can be used to pay for off-site services such as local roads, schools, or parks. Development impact fees are typically determined through a formulaic process, rather than through negotiations, as in developer contributions. Development impact fees are used by local governments throughout the United States to fund transportation improvements.
Special Assessments – Property Tax	Involve assessing incremental property taxes on land and buildings deriving direct benefits due to a transportation improvement. The tax levied typically represents a portion of the estimated benefit to the properties located with a designated zone in close proximity to the improvement. Special assessments - also known as benefit assessments or special taxes - are one of the most prominent forms of Value Capture in the United States. Legally, special assessments are a form of remuneration that a public agency may require from property owners to provide revenue to fund a public project which creates benefits for properties within a designated assessment district. In addition to transportation improvements, special assessments may also be used in other sectors, including water and waste water.
Sales Tax Districts	Sales tax districts are similar to special assessments in that they levy an incremental sales tax on goods sold within a designated area. The additional tax revenue is then used to support the development of infrastructure improvements. The sales tax service area can be expected to derive benefits from the infrastructure improvements it helps to fund. Sales tax districts may also be implemented on a larger scale, such as a municipality or county. The incremental sales tax rate is established by statute. Sales tax district statutes also

	identify which types of investments the resulting funds may be used to support.
Negotiated Exactions	Involve payments made by a developer as a condition for receiving municipal approvals. Negotiated exactions are determined on an ad hoc basis for individual projects, usually as part of the development approval process. They often take the form of one-time land transfers or cash payments, but may also involve construction activities, or the provision of public services. Exactions have been used to contribute to the financing of transit stations, local roads, sidewalks, streetlights, and local water and sewer lines.
Air Rights (also known as air space)	A form of Value Capture that involves the sale or lease of development rights in urban centers. Air rights are often transferred from historic properties to nearby development parcels but may also involve development above (or in some cases below) highway rights-of-way or transit facilities. Development in these locations is often built on platforms erected above the highway or transit facility or in caverns excavated below them. While there is added cost in making these preparations, air rights projects associated with transit or highway facilities is often attractive to investors because they enable the construction of new development in prime, center city locations without demolishing other properties or displacing current residents. These opportunities create new development sites in urban cores in locations that would not otherwise be able to support new construction.
Joint Development	Involves the development of a transportation project and adjacent complementary private real estate development where a private developer either implements the real estate improvement directly or gives money to a public sector sponsor to offset the costs. Joint development may involve public participation in market-oriented developments as a means to subsidize the cost of public transportation.
Land Value Tax	A levy on the value of unimproved land. It disregards the value of buildings and shifts the basis of property taxes to the assessed value of land and away from that of the improvements on it. The land value tax has also been referred to as an annual charge on the rental value of land. It may be thought of as a payment for the benefits received from municipal improvements

	such as the street and sewer systems, parks and schools.
Tax Increment Finance (TIF)	A tool that uses taxes on future gains in real estate values to pay for new infrastructure improvements. TIFs are authorized by State law in nearly all 50 States and begin with the designation of a geographic area as a TIF district. Plans for specific improvements within the TIF district are developed. The TIF creates funding for public or private projects by borrowing against the future increase in these property-tax revenues. The intent is for the improvement to enhance the value of existing properties and encourage new development in the district. TIF districts are usually established for a period of 20 to 25 years, during which time all incremental real estate tax revenues above the base rate at the time the district is established flow into the TIF.
Transportation Utility Fees	A financing mechanism that treats the transportation system like a utility where residents and businesses pay fees based on their use of the transportation system rather than taxes based on the value of property they occupy. The fees are not subject to voter approval and are based on the number of trips generated by different land uses. Utility fee rates may be determined by the number of parking spaces, square footage, or gross floor area. This approach links the costs of maintaining transportation infrastructure with the benefits derived from the mobility transportation system provides.
Parking Districts	Parking fees may be established within a district, or region-wide to fund investment. In addition, capturing land value increases resulting from smart parking, a parking management tool that helps drivers efficiently find and pay for available parking by knowing where they will park before reaching their destination.
Naming Rights	Naming Rights generate revenue by selling the right to name transportation assets to the private sector. Naming rights are an alternative means to generate revenue for transportation agencies that are looking for new sources of funding other than taxes and fees.

Value Capture Implementation Manual

FHWA is preparing an Implementation Manual for transportation asset owners. The manual will convey the business case for State Departments of Transportation, Metropolitan Planning Organizations and Local Planning Agencies to consider Value Capture, provide a review of Value Capture techniques—including the legal context for each using non-legalistic language, feature appropriate case studies illustrating both successes and challenges, and include a “how to” primer for implementing Value Capture. The Value Capture Implementation Manual is expected to be available the summer of 2019.

State-of-Practice

As this is a new initiative introduced in EDC-5, the first effort to track progress is to establish a baseline for implementation.

For each EDC-5 initiative FHWA will use the following guidelines for evaluating **Innovation Implementation Stages**:

Not Implementing	This innovation has not been used anywhere in the state* but the state is still considering or the state* is not interested in pursuing the innovation.
Development	The state* is developing an implementation process, collecting guidance and best practices, and building support.
Demonstration	The state* is testing and piloting the innovation.
Assessment	The state* is assessing the performance of the innovation and adjusting any processes for full deployment.
Institutionalized	The state* has adopted the innovation as a standard process or practice and uses it regularly on projects.

* State is all-inclusive (e.g. state agency, local municipalities, contractors, consultants).

Additional Resources

In order to assist States with implementation of Value Capture, FHWA sponsored this Regional Summit to share information about benefits, lessons learned, and how to find additional information and resources.

Additionally, FHWA is serving as a Value Capture information clearinghouse for DOTs, LPAs, and other transportation asset owners interested in Value Capture by sharing case studies and other information, providing technical assistance, and developing training materials. Additional information on Value Capture can be found on the EDC-5 website and on the FHWA Office of Innovative Program Delivery's Center for Innovative Finance Support website:

https://www.fhwa.dot.gov/innovation/everydaycounts/edc_5/value_capture.cfm

https://www.fhwa.dot.gov/ipd/value_capture/

Presentation Thought Questions

Consider the following questions as you document key points during the presentations.

1. Why should transportation agencies take advantage of value capture?
2. Does your State, municipality, or other jurisdiction use any of the Value Capture techniques described?
3. How does your State, municipality, or other jurisdiction compare with the case studies presented?
4. Does your organization have buy-in from its leadership in moving forward with Value Capture to capitalize on the value created by your transportation assets?
5. What types of projects might you consider as a result of hearing the presentations?
6. Is your State, municipality, or other jurisdiction planning on piloting a Value Capture project or program in the next 12 months?
7. How can Value Capture techniques be combined with other initiatives, such as Project Bundling or ACMs, to maximize benefits?
8. How could your State, municipality, or other jurisdiction benefit from a Value Capture Peer Exchange or Regional workshop?
9. Where can you go to find resources for Value Capture?
10. What content would you like to see in a Value Capture Implementation Manual?

Value Capture Maturity Matrix Tool

This maturity matrix tool is designed to allow users to assign ratings to an organization's current practices. The tool will help assess activities, identify actions, priority areas for improvement, establish a baseline, allow for monitoring of changes over time, and facilitate sharing of practices among transportation professionals.

Consider the elements of the assessment tool during the session and complete the handout worksheet; revisit your responses annually to monitor implementation of Value Capture. This tool can be shared with others within your organization or completed in a facilitated team meeting.

Scoring

Using the following guidelines, score each of the ten questions in the Value Capture Maturity Matrix (page 15) on a scale of 1 to 10.

Phase	Rating and Characteristics
Initiation	<p><i>Agency has acknowledged the need for this item (scoring range: 1-2)</i></p> <ul style="list-style-type: none"> • Does agency management acknowledge the need for a particular item? • Has exploratory research taken place to assess the benefits of this item? • Does management support further development of this item's requirements?
Development	<p><i>Agency has developed a plan or approach to address this item (scoring range: 3-4)</i></p> <ul style="list-style-type: none"> • Has the agency developed a plan or approach to address the item's requirements? Has the agency started to investigate the feasibility of implementation? • Does the agency have standards and guidance to enable the item's implementation? • Does the agency have the approvals necessary for implementation? • Are resources in place to support the adoption of this item?
Plan Execution / Demonstration	<p><i>Agency is executing or has executed a plan or approach to address this item (scoring range: 5-6)</i></p> <ul style="list-style-type: none"> • Is the agency implementing/carrying out the requirements of this item? • Has the agency allocated financial or staff resources necessary for the item's execution? • Have appropriate personnel been trained to execute the item's requirements? • Has a process owner been established?

Assessment	<p><i>Agency has assessed this item's performance and its success in achieving agency goals and objectives (scoring range: 7-8)</i></p> <ul style="list-style-type: none"> • Has the agency assessed how well this item performs in advancing projects, reducing costs, time, and improving quality? • Has the agency assessed the process for carrying out this item? • Has the agency implemented appropriate changes to the requirements of this item based on performance assessments?
Adoption / Institutionalization	<p><i>Agency has institutionalized this item into its project execution process and culture (scoring range: 9-10)</i></p> <ul style="list-style-type: none"> • Has the agency integrated the requirements of this item into quality improvement processes? • Are the requirements of this item integrated into agency culture? • Are the requirements of this item included as part of the employee performance rating system?

Using the following table, score each statement based on the above rating guidelines and record the score in the box to the right of each question. For example, if the agency has implemented a Value Capture project but is not yet evaluating the process to generate ideas for improvement, consider assigning a rating of 5. A rating of 6 or above means that the agency has implemented the item in the statement.

Value Capture Maturity Matrix

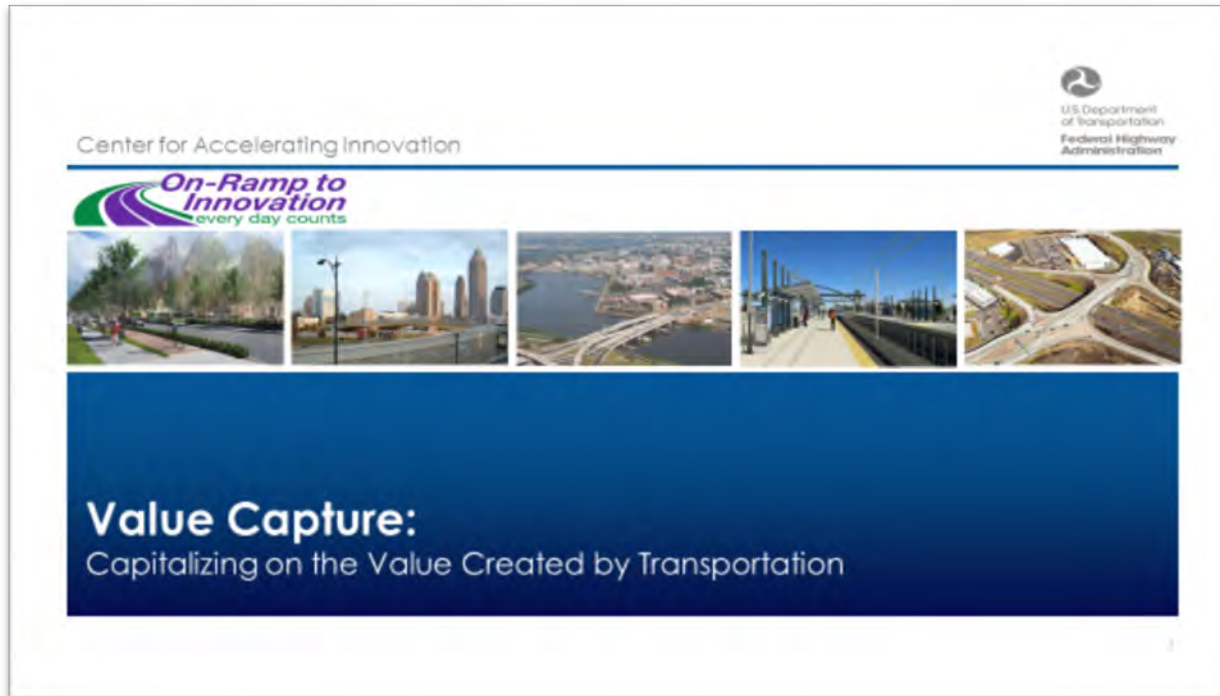
Organization: _____

Name/Title/email: _____

Please complete the loose page version of this maturity matrix and turn it in to the session facilitator, and keep the workbook version for future use.

Value Capture Statements: My Agency...	Rating (1-10)
1. Has implemented Value Capture on a project.	
2. Has used multiple techniques to capture value on projects.	
3. Has a formal decision making process to determine when it is appropriate to use Value Capture.	
4. Has executive (and political) support for Value Capture initiatives.	
5. Has partnered with other agencies (e.g. with LPAs) on a Value Capture project.	
6. Has analyzed agency data on the benefits of Value Capture.	
7. Has utilized Value Capture to achieve agency goals.	
8. Has recognized value capture as an effective strategy to address agency risks (e.g. to overcome funding shortfalls).	
9. Has partnered with stakeholder groups to develop a Value Capture program (e.g. legislature, local public agencies, MPOs).	
10. Has reviewed Value Capture case studies from other agencies to better understand the breadth of Value Capture.	


FHWA Presentation



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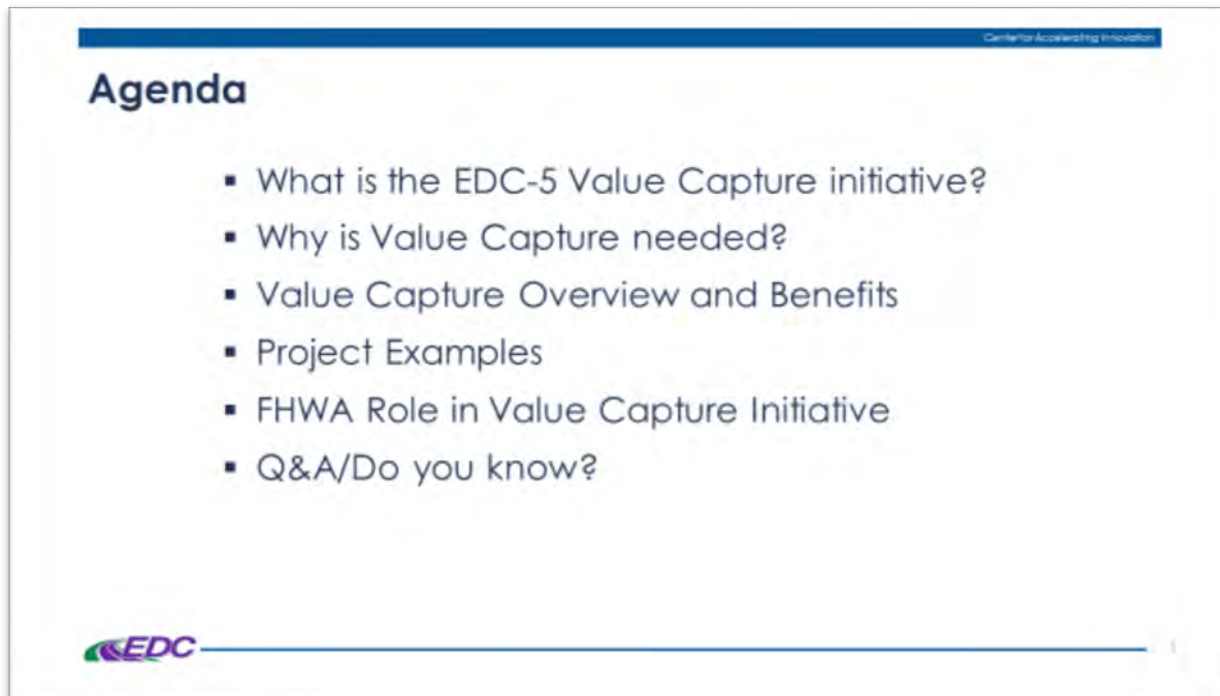
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Value Capture:
Capitalizing on the Value Created by Transportation

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Agenda

- What is the EDC-5 Value Capture initiative?
- Why is Value Capture needed?
- Value Capture Overview and Benefits
- Project Examples
- FHWA Role in Value Capture Initiative
- Q&A/Do you know?

EDC

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What is the EDC-5 Value Capture initiative?

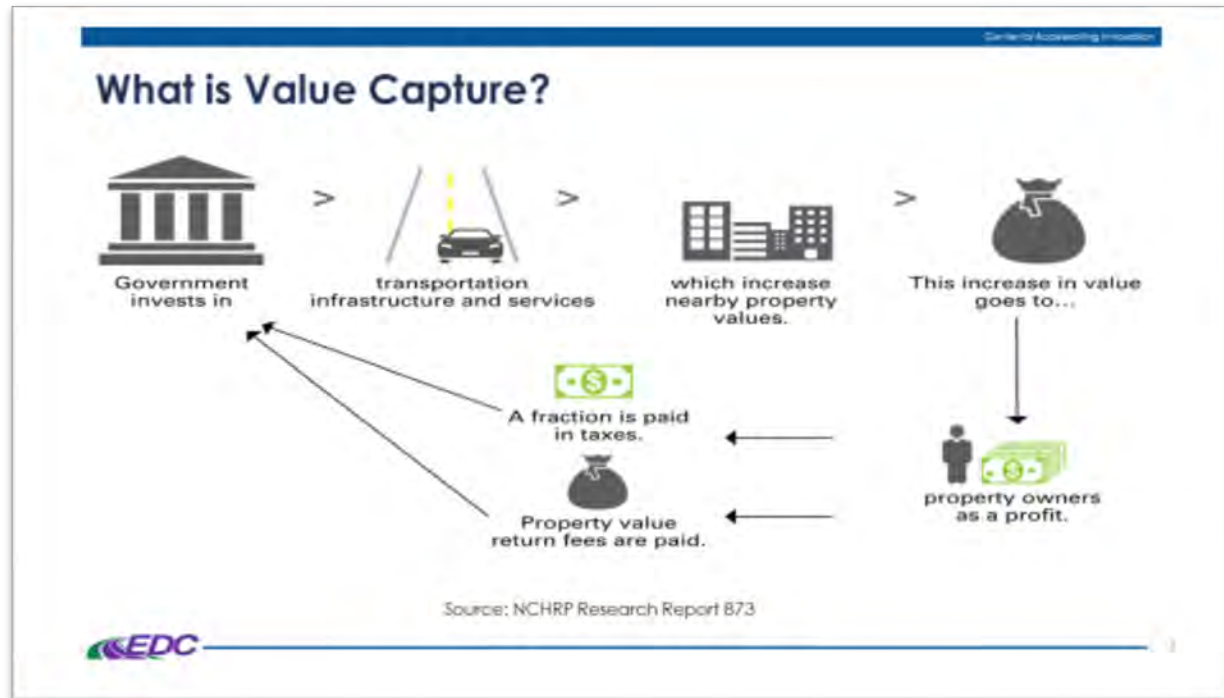
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EDC 5 Value Capture Initiative

Promotes the use of value capture mechanisms as part of a mixed funding and innovative finance strategy to accelerate project delivery and provide equitable funding for sustainable transportation investments



EDC



Center for Accounting Innovation

Example: Value Capture Funds Corridor Improvement

Virginia Route 28 Transportation Improvement District


- District formed in 1987 jointly by Loudon and Fairfax Counties
- Maximum tax rate of \$0.20 per \$100 of assessed value
- Raises ~ \$23 million in revenue
- \$138 million, 14 - mile widening from two to six lanes completed in 1991
- District and State share project costs 75/25

https://www.fhwa.dot.gov/ipd/project_profiles/va_route28.aspx

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Why is Value Capture needed?

1

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The Case for Value Capture

- Federal funding availability
- Local project funding
- Untapped revenue source
- Equitable
- Sustainable economic development


FHWA Roles in Value Capture Tools

- FHWA seeks to improve consideration of **all** revenue and finance options in the project development process
- FHWA seeks **to build capacity for consideration and implementation** of revenue options/value capture tools
- USDOT's Build America Bureau offers **innovative financing** through the TIFIA and RRIF programs that can leverage value capture monies

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Value Capture Overview & Benefits

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What is Value Capture?



1 Transportation Improvement

2 Value Creation

3 Development or Economic Activity

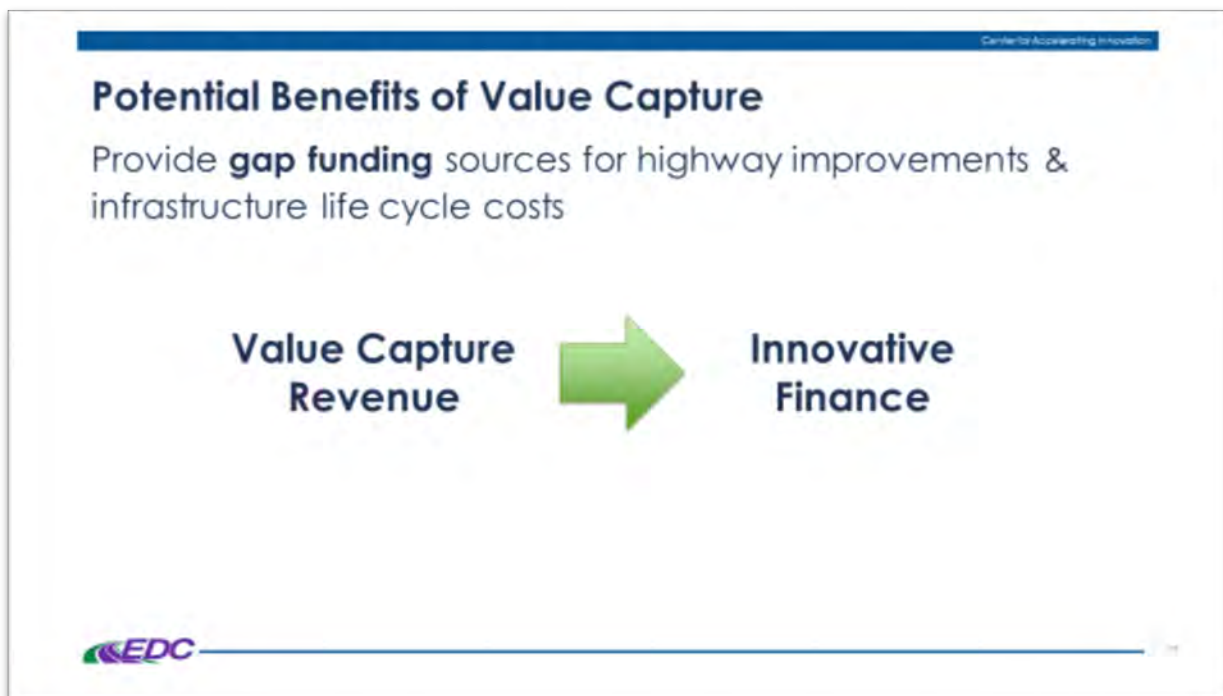
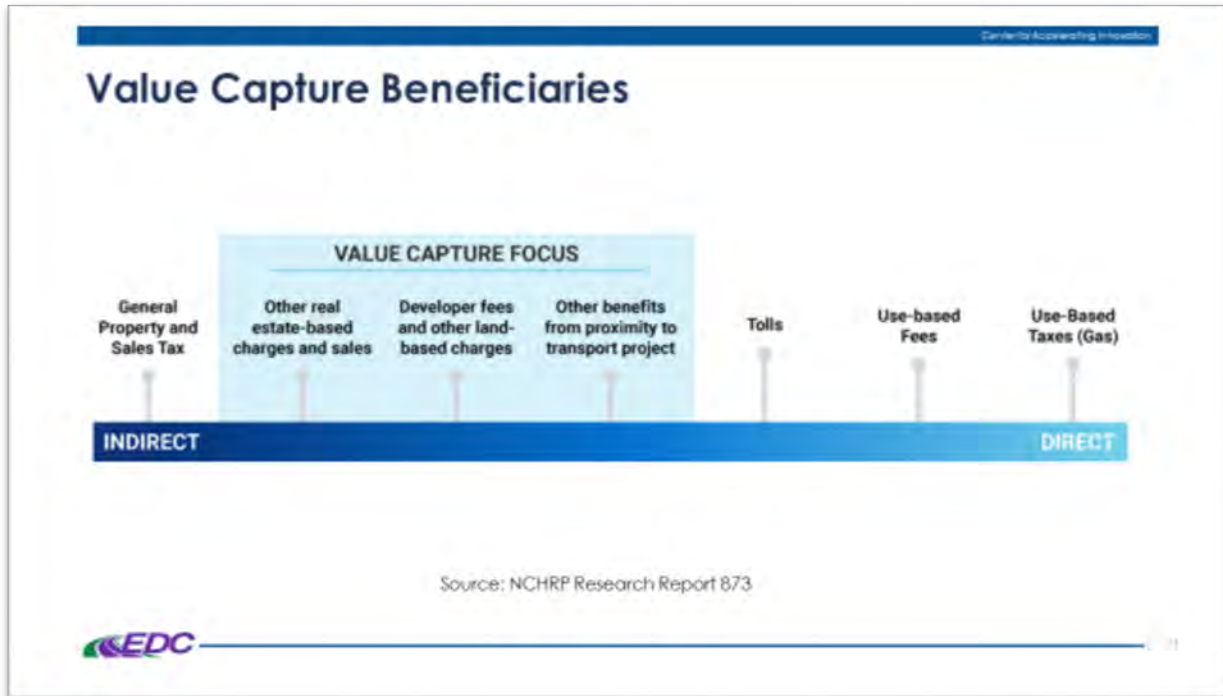
4 Value Capture

5 Value Recycling

Source: NCHRP Research Report 873

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Potential Benefits of Value Capture

- Facilitate access to **ongoing revenue stream** to Local Public Agencies
- **Accelerate** project delivery & safety Improvements
- Induce **private investment**



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Value Capture Mechanisms

How is the Value Captured?

- Developer Contributions
 - ✓ Impact fees
 - ✓ Negotiate Exaction and Ongoing developer contributions
- Transportation Utility Fees (TUFs)
- Special Tax and Fee Approaches
 - ✓ Special assessment district
 - ✓ Sales tax district
 - ✓ Business improvement district
 - ✓ Land value tax



How is the Value Captured? (cont.)

- Incremental Growth Approaches
 - ✓ Tax increment financing (TIF)
 - ✓ Transportation reinvestment zones (TRZ)
- Joint Development
 - ✓ ROW Use Agreements
 - Concessions, leasing
 - Airspace (above or below)
 - Parking
 - Fiber-optic leasing
 - Pipelines or other utilities not addressed by Utility Accommodation Policies or State Law



How is the Value Captured? (cont.)

- Advertising Rights and Sales
 - ✓ Naming rights
- Other
 - ✓ Transportation Corporation (TC)
 - ✓ Section 63-20 Corporation



Challenges

- Every jurisdiction is different
- Must target projects with economic benefits for leveraging
- Stakeholder involvement process can be lengthy, due to:
 - ✓ Coordination between multiple jurisdictions
 - ✓ Discussions with private developers and property owners
 - ✓ Establishing project location and design
 - ✓ Considering legal issues
- Securing political support



Challenges (cont.)

- Perceived as another tax
- Requires accuracy of activity and real estate projections:
 - ✓ If I build it, will they come?
 - ✓ If I build it, will developers build on nearby property?
- Identify the magnitude benefits & boundary of value capture mechanism



Ingredients of a Successful Value Capture Project

- Identified in long-term planning/capital improvement program – primarily local
 - ✓ Incorporated early in the project development process
 - ✓ Right technique selected for the right project
- Integrated funding and finance strategy
- Community support generated through effective outreach



Value Capture Summary

Value Capture is...

- A set of powerful funding tools that can help address funding gaps. (USDOT supports Value Capture)
- Can be part of the mix of funding sources for transportation improvement solutions
- Can accelerate project delivery, save time and money when done properly



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Federal Roles

FHWA Roles in Value Capture

- Build capacity among partners
- Assemble VC Implementation Team
- Interact with key stakeholders
- Develop VC Implementation manual
- Develop clearinghouse for VC resources
- Conduct various peer exchanges, training, and technical assistance activities
- Funding



Value Capture Implementation Team

Co-Leads

- Thay Bishop, FHWA Office of Innovative Program Delivery
- Stefan Natzke, FHWA Office of Planning, Environment, and Realty

Members

- Jennifer Ahlin, Virginia Department of Transportation
- Janine Ashe, FHWA District of Columbia Division
- John Duel, FHWA Office of Planning, Environment, and Realty
- Ben Hawkinson, FHWA Transportation Policy Studies
- Kathleen Hulbert, FHWA Infrastructure Office
- Chip Millard, FHWA Freight Management & Operation
- Diane Mobley, FHWA Chief Counsel Office
- Kevin Moody, FHWA Resource Center
- Ben Orsbon, South Dakota Department of Transportation
- Jill Stark, FHWA Office of Planning, Environment, and Realty
- Lindsey Svendsen, FHWA Office of Planning, Environment, and Realty
- Jim Thorne, FHWA Office of Planning, Environment, and Realty
- Marshall Wainright, FHWA Resource Center



VCIT Focus Areas

- **Communication** – Developing the tools to help FHWA staff and others promote Value Capture to local public agencies (Value Capture Guidebook)
- **Technical assistance** – Providing technical assistance to local public agencies interested in pursuing Value Capture (Peer Program)
- **Clearing House ([website](#))** – Identification of best practices and lessons learned and promoting further discussion on innovative funding options for local public agencies, lessons learned from past and current efforts, etc.



Key Stakeholders

- State Department of Transportations
- Federal Agencies (HUD, USDA, FTA)
- Metropolitan Planning Organizations (MPOs, RTPOs)
- Local & Tribal Governments
- Transportation Providers (Transit Operators)
- Business Communities
- Developers
- Community residents



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Value Capture Activities

- Webinars
- Workshops
- Peer Exchanges
- Case Studies
- Sponsorships (local, regional, & national events)
- Technical Assistance
- Website (Clearinghouse)



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Implementation Plan
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Value Capture Clearinghouse


- Currently under development
- Value Capture Manual "How to" implement value capture under development
- Clearinghouse for best practices/lessons learned
 - ✓ Resources:
https://www.fhwa.dot.gov/ipd/value_capture/resources/value_capture_resources/default.aspx
 - ✓ Project Profiles:
https://www.fhwa.dot.gov/ipd/project_profiles/
 - ✓ Value Capture Mechanism Factsheets:
https://www.fhwa.dot.gov/ipd/fact_sheets/

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Case Studies

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Questions & Answers

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Do you know? Value Capture Techniques

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Thank You

https://www.fhwa.dot.gov/innovation/everydaycounts/edc_5/index.cfm

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Value Capture Techniques – Do you know?

After the presentations, the facilitator will conduct a “game” to reinforce several of the techniques available to capture value based on actual case studies.

In this game:

- The attendees will be separated into groups of six to eight people; attendees will be asked to sit with people they do not work with or do not know;
- The facilitator will briefly describe the three cases and the purpose of the exercise;
- Based on a real project, the name of which is disguised, the case descriptions will describe the following:
 - ✓ Nature of transportation improvement sought;
 - ✓ Key players, usually the transportation agency, the local government, and the developer/development community;
 - ✓ A description of the funding plan and the funding “gap” that value capture could address;
 - ✓ Any challenges to realizing the project and/or the financing, including opposition from certain groups, short political election cycle, requirements to provide additional amenities, such as affordable housing;
- Each table will be required to figure out which value capture technique(s) are appropriate to fill the funding gap;
- On a poster paper, each team will write down:
 - ✓ Value capture mechanisms to be used;
 - ✓ How this fits into the overall funding plan, including schedule, support from other agencies, legal issues (i.e. need to pass legislation); and
 - ✓ Any other issues they felt had to be resolved to successfully to integrate value capture mechanism;
- Each table will elect a speaker who will briefly come to the front of the room and present their plan; this plan will be compared with the other plan from the other group that had the same case;
- Following this, the facilitator will tell the assembled group the real name of the case and what actually happened and compare that with the suggested approaches.

Value Capture Implementation Team Members

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Appendix: Value Capture Techniques–Fact Sheets

Value Capture Revenue Tools – An Introduction

Asset Recycling

Development Impact Fees

Joint Development

Land Value Taxes

Naming Rights

Negotiated Extraction

Right-of-Way Use Agreements

Sales Tax Districts

Solar Energy

Special Assessments

Tax Increment Financing

Transit Oriented Development

Transportation Reinvestment Zones

Transportation Utility Fees



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QUICK FACTS

Transportation improvements often increase the value of nearby land; value capture techniques harness a portion of the increased property values to help pay for the improvement or future transportation investment.

Special assessments are incremental property taxes assessed on land receiving a direct benefit as a result of a transportation improvement.

Authorized by law in nearly all 50 States, tax increment financing is a value capture revenue tool that uses future gains in real estate taxes to pay for new infrastructure improvements.

Development impact fees are one-time charges levied on new development in order to provide new or expanded infrastructure needed to serve the development.

Developer contributions are voluntary payments made to local governments by private businesses and developers to support the cost of implementing transportation improvements.

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VALUE CAPTURE

Value Capture Revenue Tools: An Introduction

Transportation networks and urban land values are closely linked. Transportation improvements increase accessibility and thereby make surrounding locations more desirable. Transportation improvements often increase the value of nearby land, benefitting land owners and developers. Value capture techniques harness a portion of the increased property values in order to pay for the improvement or for future transportation investment. There are several different forms of value capture used in the United States. The most common include: special assessments, tax increment financing, development impact fees, and developer contributions. These techniques may vary in their application and they may also be known by additional terms. Generic descriptions of these different value capture techniques are provided below. For additional information, view the FHWA IPD [Value Capture page](#).

VALUE CAPTURE TECHNIQUES

SPECIAL ASSESSMENTS

Special assessments are incremental property taxes assessed on land receiving a direct benefit as a result of a transportation improvement. The tax levied typically represents a portion of the estimated benefit to the properties located within a designated zone in close proximity to the improvement. Special assessments – also known as benefit assessments or special taxes – are one of the most prominent forms of value capture in the United States. Legally, special assessments are a form of remuneration that a public agency may require from property owners to provide revenue to fund a public project which creates benefits for properties within a designated assessment district. In addition to transportation improvements, special assessments may also be used in other sectors, including water and waste water.

TAX INCREMENT FINANCING

Tax Increment Financing (TIF) is a value capture revenue tool that uses future gains in real estate taxes to pay for new infrastructure improvements. TIFs are authorized by State law in nearly all 50 States and begin with the designation of a geographic area as a TIF district. Plans for specific improvements within the TIF district are developed. The TIF creates funding for public or private projects by borrowing against the future increase in these property-tax revenues. The intent is for the improvement to enhance the value of existing properties and encourage new development in the district. TIF districts are usually established for a period of 20 to 25 years, during which time all incremental real estate tax revenues above the base rate at the time the district is established flow into the TIF. The proceeds from the TIF can be used to repay bonds issued to cover up-front project development costs. Alternatively, they can be used on a pay-as-you-go basis to fund individual projects. In some States, private developers may self-finance infrastructure improvements, with the municipality reimbursing them from the tax increment as tax proceeds are received. In many States, areas must be blighted in order for TIF districts to be established. The intent is for the TIF to be used to channel funding toward improvements in distressed, underdeveloped, or underutilized areas where development might otherwise not occur. Thousands of TIF districts have been established around the U.S. in smaller and mid-sized cities. The strategy is commonly used by local governments to promote housing, economic development, and redevelopment in established neighborhoods. Although TIF has not been used extensively to fund transportation infrastructure, some State laws specifically authorize the use of TIF for transport purposes.

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DEVELOPMENT IMPACT FEES

Development impact fees (DIFs) are one-time charges levied on new development in order to provide new or expanded infrastructure needed to serve the development. The fees are typically paid prior to the completion of construction, with the amount based on the cost of the facility and the nature and size of the development. Impact Fees differ from other forms of value capture in that they can be used to fund off-site improvements such as local roads, schools, or parks. Development impact fees are typically determined through a formulaic process, rather than through negotiations as done for developer contributions. Local governments throughout the country are increasingly using impact fees to shift more of the costs of financing public facilities from the general taxpayer to the beneficiaries of those new facilities. Impact fees can be an effective tool in ensuring that infrastructure systems are able to accommodate growth where and when it is anticipated. Many States require that municipalities demonstrate a “rational nexus” between the fee and the needs created by the expanded development, as well as the benefit the infrastructure improvements provide to the new development. Transport-related DIFs are used by numerous public entities throughout the United States. Roughly half of all U.S. States have enacted enabling legislation for impact fees. Some also have additional language governing how development impact fee programs are implemented.

DEVELOPER CONTRIBUTIONS

Developer contributions are voluntary payments made by to local governments by private businesses and developers to support the cost of implementing transportation improvements. Under the right conditions, the benefits of public improvements can be used to attract private contributions to transportation improvement projects. Also known as proffers, developer contributions involve a private firm or individual benefiting from the project, giving money, land, or other services to the project sponsor to help expedite project implementation.¹ Developer contributions often involve improvements to highway entrance and exit ramps that provide improved access to facilities or land owned by the donors, or possibly the extension or expansion of an existing road.

Developer contributions may change the anticipated schedule for advancing transportation improvements into construction. If an agency receives an offer of money or other contribution in-kind for a project, it must weigh the benefits of receiving the private contribution and accelerating the implementation of the project in question against the possible delays in implementing other improvements it had intended to advance instead. This is an issue of project programming and prioritization, and it is up to the project sponsor and regional planning officials to weigh the pros and cons introduced by the proffer and decide whether or not it is in the region’s best interest to accept the offer.



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TOLLING AND PRICING

The Center for Innovative Finance Support’s Federal tolling and pricing program focuses on the use of tolling and other road user charges as a revenue source to fund highway improvements and the use of variably priced tolls as a tool to manage congestion.

VALUE CAPTURE

The Center for Innovative Finance Support’s Value Capture Strategies explores strategies for tapping into the added value the transportation improvements bring to nearby properties as a means to provide new funding for surface transportation improvements.



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¹ 23 CFR 710.505 addresses the requirements for Real property donations.



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QUICK FACTS

Asset recycling allows public agencies to leverage existing infrastructure to help fund new infrastructure by leasing existing toll highway facilities to private sector investors.

Investing in already-established infrastructure is often more attractive to private investors because of the lower risk in investing in an asset with a proven revenue history compared to investing in new toll highways.

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VALUE CAPTURE

Asset Recycling

Asset recycling is a value capture mechanism by which public entities derive revenue to invest in new transportation infrastructure by leasing existing toll highway facilities to private sector investors. Given that existing toll facilities have a proven revenue-generation history, investing in asset recycling projects is attractive

to private investors because it offers a stable return and far less risk than investing in new toll facilities. In addition to generating new revenue in the form of lease payments, asset recycling also enables project sponsors to transfer the ongoing maintenance and operating costs to the private sector. In many cases, asset recycling projects also require private sector investors to make capital improvements or expand the capacity of the leased facilities. Although asset recycling does not involve increasing public debt, it does require that sponsoring agencies cede all or a portion of the revenue generated by recycled toll facilities for the duration of the lease period.

Asset recycling has been used extensively in Australia, where the national government established an AU\$5 billion incentive program in 2013. The Australian program provides State governments with an additional 15 percent in national funding of the capital raised from recycled assets. Between 2013 and 2016, a total of AU\$15 billion was raised in Australia from recycling existing transportation power-generation assets. The State of New South Wales also created [Infrastructure NSW](#) to act as an independent body in overseeing the asset recycling process. Infrastructure NSW has funded three new highway projects using revenue generated by its asset recycling program: Newell Highway, an AU\$78.8 million, 28-kilometer facility in an important freight corridor; an AU\$52.5 million, 9.8-kilometer extension of Princes Highway; and the AU\$30.4 million, 12-kilometer New England Highway bypass route.

To help support the use of asset recycling in the United States, the Administration's infrastructure plan calls for allowing private companies to use private activity bonds to raise funding to make lease payments for recycled assets, providing access to tax-exempt debt asset recycling. This may provide the impetus to launch new asset recycling projects in the United States.

PROJECT EXAMPLES

INDIANA TOLL ROAD

In 2005, the Indiana Finance Authority issued a procurement for the lease of the Indiana Toll Road, a 157-mile section of I-90 extending across northern Indiana from Ohio to Illinois, where it provides onward connections to the city of Chicago. The 75-year lease concession was awarded to the Indiana Toll Road Concession Company, LLC (ITRCC), an even partnership between Cintra of Spain and Macquarie of Australia, in exchange for a payment of \$3.8 billion. ITRCC formally assumed operational responsibility for the Indiana Toll Road in June 2006.



Source: The Elkhardt Truth

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As part of the concession, ITRCC pledged to spend \$200 million on capital improvements to the Toll Road during the first 3 years of the lease and approximately \$4.4 billion over the life of the concession. By leasing the facility, the State was able to retire \$225 million in debt. It allocated the remainder of the lease proceeds to fund infrastructure projects throughout the State included in the Major Moves program, a 10-year, \$10.8 billion program to improve and expand Indiana's highway infrastructure.

In March 2015, the Indiana Finance Authority awarded a new \$5.725 billion, 66-year lease concession to IFM Investors following the 2014 bankruptcy of ITRCC. Nearly all of the proceeds were used to compensate creditors holding ITRCC's debt. IFM Investors plans to invest \$260 million in capital improvements over the first 5 years of the concession to address deteriorating pavement, bridges, and travel plazas.

PUERTO RICO PR-22 AND PR-5 LEASE

In 2011, the Puerto Rico Public-Private Partnerships Authority and the Puerto Rico Highways and Transportation Authority awarded to Autopistas Metropolitanas de Puerto Rico, LLC, a partnership between Goldman Sachs Infrastructure Partners and Abertis Infraestructuras, a 40-year lease for the PR-22 and PR-5 toll highways. In addition to making a \$1.08 billion lease

payment, the concessionaire was also responsible for completing \$356 million in upgrade and safety improvements to the highways, \$56 million of which was spent in the first 3 years on "accelerated safety improvements." Toll revenues were to be shared equally by the Government of Puerto Rico and the concessionaire throughout the lease period. The Government of Puerto Rico used roughly 90 percent of the lease payment to defease \$902 million in outstanding tax-exempt toll-revenue debt.

PR-22 (also known as the José de Diego Expressway) is a 52-mile, four- and six-lane toll highway that stretches westward from San Juan to Arecibo along Puerto Rico's northern coast. The road was constructed over a period of 10 years beginning in 1971 and is the island's most heavily traveled. PR-5 (Rio Hondo Expressway) is a 2.5-mile eastward extension of PR-22 to Puerto Rico's second most populous city (Bayamon) that opened in 2006.

In August 2013, the concessionaire opened to automobiles during rush hours two 10-kilometer, reversible dynamic toll lanes on PR-22 between San Juan and Toa Baja. Toll prices vary by level of traffic congestion. In 2016 the Government of Puerto Rico extended the lease concession by 10 years in exchange for an additional \$115 million payment from the concessionaire. The concessionaire's revenue share was also increased from 50 percent to 75 percent of future toll revenues.



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QUICK FACTS

Development impact fees are one-time charges on new development to help municipalities pay for new infrastructure needed to accommodate that development.

Impact fees differ from other forms of value capture because they can be used to pay for off-site services such as local roads, schools, or parks.

Development impact fees are determined according to a formulaic process.

Impact fees must meet the requirements of a rational nexus test that demonstrates a link between the costs imposed by the fee and the services provided as a result of the fee.

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Foothill/Eastern and San Joaquin Toll Roads.

VALUE CAPTURE

Development Impact Fees

Development Impact Fees are one-time charges levied by local governments on new development. They are charged to developers to help municipalities recover growth-related infrastructure and public service costs. They differ from other forms of value capture including special assessments and negotiated exactions, in that impact fees can be used to pay for off-site services such as local roads, schools, or parks. Development impact fees are typically determined through a formulaic process, rather than through negotiations as done for developer contributions. Development impact fees are used by local governments throughout the United States to fund transportation improvements.¹



CALCULATING IMPACT FEES

There are two common methods for calculating the impact fees for infrastructure improvements.² The inductive method involves identifying the capacity and cost capacity of a generic facility, such as a road or fire house, and then uses those figures to calculate the cost of expanding infrastructure capacity as it is needed as new development takes place. With roads, for example, additional lane capacity would need to be added as certain population or square footage and land use thresholds are reached, with the new development paying its pro-rata share of the additional infrastructure.

The deductive method calculates the impact fee in a more tailored fashion. It determines the additional demand that population growth and/or new commercial and industrial development will place on infrastructure systems based on the amount and type of development that is specified in master plans, or facility plans for the development in question. Independent engineering analysis is done to determine what new infrastructure systems are needed and the costs are then distributed across the base of undeveloped property. The impact fees calculated by deductive method reflect the specific costs of the infrastructure to be developed and are based on local geography and required levels of service. For this reason the deductive impact fee calculation method requires much more detailed informational inputs compared to the inductive method.

THE RATIONAL NEXUS TEST

Development impact fees are used throughout the United States, particularly in regions with high demographic growth rates. They began to be widely used in the 1970s and 1980s. They are most prevalent in places with resistance to using general revenue sources to pay for growth-related costs. The legal foundation for impact fees, as well as negotiated exactions, rests on the “rational nexus” test. This involves demonstrating that amount of the impact fee is commensurate with the new infrastructure provided by the fee. There must be a rational link between the new services and the fees the new developers are being asked to pay.

Once impact fees are collected, they should be spent in a timely fashion on the new infrastructure improvements. Impact fees are often combined with other revenue sources to implement improvements, but by law they cannot generate excess revenue above and beyond their apportioned cost of the improvements they fund.

FOOTHILL/EASTERN AND SAN JOAQUIN TOLL ROADS

The Foothill/Eastern Transportation Corridor (F/ETC) and San Joaquin Hills Transportation Corridor (SJHTC) are a system of four toll roads extending across 51 miles in Orange County, California.

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Development impact fees levied on developers of residential and commercial properties are used to supplement toll revenues for debt service payments. In 1987, California Senate Bill 1413 was passed providing the Transportation Corridor Agencies (TCA) the authority to construct toll facilities and to issue non-recourse bonds for their construction backed by future toll revenues and development impact fees. Construction of the \$3.2 billion system extended from 1993 through 1998.

The TCA charges developers of residential and commercial properties a one-time development fee, contributing towards the construction costs of the transportation facilities. Residential developments are charged a flat fee per unit, while commercial developments are charged per square foot of new buildings. Residential fees are dependent on several factors including fee zone (two zones for SJHTC and F/ETC each based on proximity to the roadways) and the nature of housing (single family vs. multifamily). The fee rate schedule increases each year on July 1st by 2.667% for SJHTCA and 2.206% for F/ETCA.

The development fees were crucial in providing seed capital for the early stages of the roads, especially during the environmental review and design periods. The development fees were successful due to the high level of new development in Orange County in the 1990s and through the mid-2000s. Although revenues from development fees dropped with the 2008 recession, local officials have worked to maintain the fees, allowing developers to pay the fee upon the completion of the project rather than making it contingent on the issuance of a building permit.

CITY OF FORT WORTH TRANSPORTATION IMPACT FEE

Chapter 395 of the Texas Local Government Code describes the procedure that cities in Texas must follow in order to implement impact fees. It defines an impact fee as, "A charge or assessment imposed by a political subdivision against new development in order to generate revenue for funding or recouping the costs of capital improvements or facility expansions necessitated by and attributable to the new development."

The City of Fort Worth, Texas has used impact fees since 1989 to fund public water and wastewater improvements. In July 2008 the Fort Worth City Council expanded the use of impact fees with a new ordinance establishing a transportation impact fee. The city assesses impact fees on new development projects and to help fund transportation improvements that will be needed as new development occurs in Fort Worth.

State law mandates that municipalities review impact fee rates and programs every five years. In April 2013 as a result of such a review, the Fort Worth City Council approved an increase in the transportation impact fee on new single-family homes from \$2,000 to \$3,000. At Fort Worth's current growth rate, nearly six miles of new arterial roads are needed annually in order to serve new developments. The increased impact fee will provide funding for approximately 1.5 miles of arterial roads per year.³ The City assesses the transportation impact fee at the time final plats are approved, but the fee is not collected until a building permit is issued.

Fort Worth has a total of 27, six-square-mile Service Areas in which transportation impact fees may be collected. All fees collected within a given Service Area must be spent on eligible improvements within the same Service Area. In 2013, impact fees were levied in 19 of the 27 Service Areas. The remaining eight did not have an impact fee because no capacity-related transportation improvement projects had been designated.⁴

Projects eligible for funding through Fort Worth's transportation impact fee program are identified in a Transportation Improvements Plan. Only those capacity improvements included in the City's adopted Master Thoroughfare Plan are included in this document. Eligible improvements may include the addition of lanes, intersection improvements, or the extension of a new road. Resurfacing or other maintenance activities do not qualify as capacity improvements under impact fee law in Texas.



¹ Noncompliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended and its implementing regulations in 49 CFR Part 24 can jeopardize federal funding.

² [http://www.impactfees.com/publications%20pdf/impact_fees-Practical_Guide1\].pdf](http://www.impactfees.com/publications%20pdf/impact_fees-Practical_Guide1].pdf)

³ <http://blogs.star-telegram.com/politex/2013/02/fort-worth-city-council-raises-transportation-impact-fees.html>

⁴ http://fortworthtexas.gov/uploadedFiles/Transportation_Impact_Fees/2013_Transportation_Impact_Fee_Study_-_Reduced_10-23-12.pdf



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QUICK FACTS

- Joint development encourages private contributions toward transportation infrastructure improvements.
- Joint development projects are public transportation improvements that are co-located with commercial, residential, mixed-use, or other non-transit real estate development.
- Joint development projects to increased revenue for real estate owners, decreased public costs for constructing and operating transportation improvements, and enhanced amenities for transit riders.
- Common joint development arrangements include air-rights development, ground leases, station interface or connection improvements, cost sharing arrangements, and incentive agreements.

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West Dublin/Pleasanton Station.

VALUE CAPTURE

Joint Development

Joint Development involves the development of a transportation project and adjacent complementary private real estate development where a private developer either implements the real estate improvement directly or gives money to a public sector sponsor to offset the costs. Joint development may involve public participation in market-oriented developments as a means to subsidize the cost of public transportation. There are generally two forms of joint development:

- Revenue-sharing arrangements: where the public sector infrastructure provider receives a share of the revenue from complementary real estate development; and
- Cost-sharing arrangements: where the private sector contributes directly to the provision or maintenance of the transportation infrastructure.

Joint development is most common at transit stations. The public agency that either owns an asset or is undertaking an improvement may solicit the involvement of a private sector partner. Alternatively, a private enterprise that owns land or a building may seek to partner with a public agency to develop transportation enhancements that will benefit their property as well as the traveling public. Joint development projects are generally beneficial to both parties and may lead to increased revenue for real estate owners, decreased costs for operating or construction public transportation systems, increased transit ridership, and enhanced amenities for transit riders. Common joint development arrangements range from air-rights development to ground leases, station interface or connection improvements, cost sharing arrangements, and incentive agreements. In addition to transit, joint development agreements have also been used in the implementation of highway improvements and parking projects.

Joint development may also involve public sector land-banking to prepare for transportation infrastructure construction, a public entity's sale of development or property rights in exchange for cash, or the public-private coordination of large-scale transportation and real estate developments. When joint development involves private funding of public transportation improvements, it is a form of public-private partnership.

PORTLAND AIRPORT MAX

The 5.5 Airport MAX extension of Portland's existing Red Line light rail has four stops and brings passengers from downtown to the airport in 38 minutes.¹ This project was a partnership between Bechtel, a private contractor; the Port of Portland; the City of Portland; and TriMet, the Portland region's transit agency. The project began as a result of an unsolicited offer by Bechtel to implement the airport extension 10 years ahead of its planned schedule. The three public organizations formed a working group and negotiated the following cost sharing responsibilities together with Bechtel. The City of Portland contributed \$23.8 million toward the light rail construction to pay part of the cost of a 2.9-mile segment using tax increment financing bonds. TriMet contributed \$45.5 million toward the same segment using monies from its general fund which is primarily funded through a .64% payroll tax and self-employment tax. The Port of Portland, which operates the Portland International Airport, was responsible for the development of the rail station inside the airport terminal as well as a 1.2-mile



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rail segment leading out of the airport. Its \$28.3 million contribution was funded through a Passenger Facility Charge of \$3.00 for passengers departing from Portland.

The city, transit authority, and port also agreed to bypass the requirements for a competitive bidding process and awarded Bechtel a sole-source, \$125 million design-build contract for the construction of the light rail extension. In addition, Bechtel received \$500,000 from each of the three agencies for preliminary engineering studies, which Bechtel also matched.

In addition, the Port gave Bechtel the development rights and an 85-year lease to 120 acres of land in the Portland International Center to create a development which would be known as Cascade Station and include two stops on the Airport Max line. In place of rent, Bechtel paid for a 1.4 mile segment of the rail line, including two stations and an overpass, at a cost of \$28.2 million. Bechtel also negotiated for an option to renew the lease at market rents for 14 years following the initial period, making the lease term 99 years. Bechtel partnered with Trammel Crow, a real estate development company, to develop Cascade Station. The two companies formed the Cascade Station Development Company. Trammel Crow brought real estate development experience to the partnership, and took on the primary role in developing and leasing the Cascade Station development. TriMet is responsible for operating and maintaining the Airport MAX Red Line extension.

West Dublin/Pleasanton San Francisco Bay Area Rapid Transit (BART) station is in the median of I-580, near the freeway's junction with I-680. It is the first infill station for the system and fills what had been a 10-mile gap between Castro Valley and Dublin/Pleasanton stations in the far southeast section of the region.

WEST DUBLIN/PLEASANTON STATION

In November 1999, BART and Orix Real Estate Equities and Jones agreed to enter public/private venture to build the West Dublin/Pleasanton station in Alameda County. The station is located in the median of I-580 near the junction with I-680 and is an infill station filling what had been a 10-mile gap between the Castro Valley and Dublin/Pleasanton Station. Jones Lang LaSalle contributed \$20 million towards the \$106 million station and planned to construct 210 housing units, office space, and a hotel within walking distance. An additional \$6.9 million was provided by the Alameda County Congestion Management Agency and \$4 million from grant from the Tri-Valley Transportation Council. The remainder of the cost was covered by bonds issued by BART leveraging a combination of long-term lease proceeds from private developers, BART fare and parking revenues generated at the station, and taxes generated by the new private development on BART land collected by the cities of Dublin and Pleasanton.



West Dublin/Pleasanton Station.



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VALUE CAPTURE

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U.S. Department of Transportation
Federal Highway Administration



CENTER FOR INNOVATIVE FINANCE SUPPORT

QUICK FACTS

The land value tax is a levy on the value of unimproved land that shifts the basis of property taxes away from buildings and improvements to the assessed value of land they are located on.

The land value tax is well suited to cities where there is a need to build new infill projects but where high taxes on improvements discourage new development.

The intent of the land value tax is to incentivize owners of vacant land to develop those parcels or sell them to others that will.

The land value tax is a payment for the benefits received from the transportation system and municipal investment in other infrastructure.

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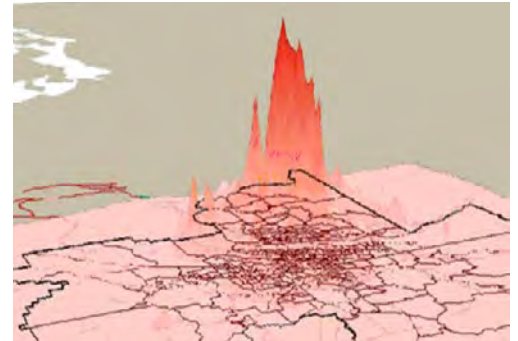


Altoona, a city of 46,300 in central Pennsylvania.

VALUE CAPTURE

Land Value Taxes

The Land Value tax is a levy on the value of unimproved land. It disregards the value of buildings and shifts the basis of property taxes to the assessed value of land and away from that of the improvements on it. The land value tax has also been referred to as an annual charge on the rental value of land. It may be thought of as a payment for the benefits received from municipal improvements such as the street and sewer systems, parks, and schools. The 19th century American writer and political economist Henry George was a proponent of the land value tax and believed that when the locational value of land was improved by public works, the “economic rent” of the land was the most logical source of public revenue.¹



The land value tax is intended to encourage development.

A TOOL TO ENCOURAGE DEVELOPMENT

The land value tax is intended to encourage development and discourage speculative land investment. The land value tax is well suited to established cities and smaller growing cities where there is a need to build new mixed-use infill projects, but high taxes on improvements discourage new development. A land value tax is levied in 16 cities and two school districts in Pennsylvania, together with other taxes on buildings. In 2011, the City of Altoona in central Pennsylvania became the first and only city in the United States to rely on a land value tax alone. Outside the United States, the land value tax is used in such diverse places as Denmark, Estonia, Hong Kong, Singapore, New South Wales, and Mexico.

The land value tax is levied on land only and not on any improvements on it such as buildings, drainage, agricultural crops, or other works. If there were a vacant parcel in a row of homes, all the properties would be taxed at the same rate including the vacant lot. Land valuations are based on optimum use of the land within existing planning regulations. If properties are rezoned, then they should be reassessed to reflect the type of development the change allows. Unlike property tax rolls which increase as new construction and development takes place, the tax base does not grow with the land value tax. Therefore, regular reassessments are essential with the land value tax if municipalities need additional tax proceeds.

ALTOONA LAND VALUE TAX

Altoona, a city of 46,300 in central Pennsylvania, is the only municipality in the United States that relies completely on land value taxes. The land value task was adopted in 2002 and was phased in over an eight-year period. The city experienced a decline of its rail-based economy as a hub between Philadelphia and Pittsburg in the mid-20th century, but local employment levels began to rebound in the 1990s. Local leaders have adopted the land value tax as part of a strategy to engender a more diverse and stable local economy. In its first year, the tax was levied on 20 percent of assessed land values and the corresponding rate on buildings was reduced to 80 percent. The land value tax rate was increased by 10 percent per year while building taxes were reduced by 10 percent annually until 2011, when there was a 100 percent tax on land and 0 percent on buildings.

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The assessed value of all land in Altoona is one-seventh that of the assessed value of land and buildings combined.² As a result, the city has increased its tax rate by a factor of seven in order to generate the same amount of revenue. Taxes are reduced for property owners whose land represents less than one-seventh of their total assessed value. Conversely, those for whom land values represent more than one-seventh of their total assessed value have seen their taxes increase. Taxes on approximately 72 percent of all residential property parcels have been reduced. Increases have been the most dramatic for those who own vacant or underdeveloped parcels. Taxes on agricultural land have not been changed under the new land value tax regime.



The intent of the land value tax has been to incentivize owners of vacant land to develop those parcels or sell them to others that will. It is also hoped that home owners who had let their property deteriorate before in order not to incur higher taxes would also be incentivized to make improvements to homes and commercial buildings. Before the land value tax was introduced in 2002, 84 percent of the property tax collected in Altoona was levied on buildings; since 2011 the tax on buildings has been entirely eliminated. Given land in Altoona is a fixed resource, unlike improvements on the land which increase as development occurs over time, the only way that they city can increase its tax revenues under the new tax regime is by increasing the assessed value of land. Current land value assessments are based on frontage and location, with per-foot values decreasing the farther a property is from downtown Altoona.

The effects of the land value tax are not clear at this juncture. The Center for the Study of Economics reports that median incomes in Altoona increased by 19 percent from 2000 to 2010, which is much higher than the U.S. median income which rose only 4.2 percent over the same period.³ Vacancy rates are also above the national average with 10.8 percent of housing units in Altoona vacant in 2011 compared to 12 percent nationally. Land values have also increased 25 percent between 2002 and 2010, while building values have increased 21 percent creating a total gain of 22 percent in property values.⁵ Although these figures are healthy, they cannot be attributed to the land value tax. The Altoona Mirror quotes the executive director of the Greater Altoona Economic Development Corporation as saying that he “can’t point to any particular example of the land value tax influencing a development decision.” When asked if the land value tax had accelerated construction projects, his response was, “I don’t know. Maybe.”⁶

¹ www.henrygeorge.org/pchp11.htm

² www.altoonamirror.com/page/content.detail/id/555412.html

³ Ibid.

⁴ <http://www.urbantoolsconsult.org/upload/Land>

⁵ Ibid.

⁶ www.altoonamirror.com/page/content.detail/id/555412.html



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Federal Highway Administration



CENTER FOR INNOVATIVE FINANCE SUPPORT

QUICK FACTS

- Naming rights involve selling the right to name transportation assets to the private sector.
- One of the most common applications of naming rights within the transportation sector involves transit stations.
- Naming rights is strategy to help transportation agencies generate additional revenue to support their operations.

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VALUE CAPTURE

Naming Rights

Naming rights generate revenue by selling the right to name transportation assets to the private sector. Naming rights are an alternative means to generate revenue for transportation agencies that are looking for new sources of funding other than taxes and fees. One of the most common examples of selling naming rights is within the context of professional sports. Because most professional sports arenas, stadiums, fields, and tracks are publicly owned, there are many instances where they have been renamed by banking, telecom communications, and other private firms. For example, MetLife, Inc. pays \$16 million per year to name the football stadium used by the New York Giants and New York Jets, and Citibank and AT&T each pay \$20 million per year for the stadiums used by the New York Mets and the Dallas Cowboys, respectively.

THE SOUTHEASTERN PENNSYLVANIA TRANSPORTATION AUTHORITY AT&T STATION

In June 2010, the Southeastern Pennsylvania Transportation Authority (SEPTA) approved a 5-year contract to change the name of Pattison Station on the Broad Street line to AT&T Station, generating over \$5 million. The agreement expands AT&T's partnership with SEPTA as the only wireless carrier that provides cell phone coverage underground on the Broad Street and Market-Frankford lines. The partnership provides SEPTA with additional revenue and also includes station beautification efforts and improved communications, including digital displays and signage.



Source: https://commons.wikimedia.org/wiki/File:Barclays_Center_September_2012.jpg

Atlantic Avenue-Barclays Center Station Brooklyn, NY.

ATLANTIC AVENUE-BARCLAYS CENTER STATION

As part of the Atlantic Yards project in Brooklyn, NY, the developer Forest City Ratner is paying the Metropolitan Transportation Authority \$200,000 per year for the next 20 years to rename the Pacific Street-Atlantic Avenue Station as the Atlantic Avenue-Barclays Center Station. Forest City Ratner also constructed a new entrance to the station, providing access to the \$1.0-billion Barclays Center arena and the adjacent Atlantic Yards development. The Atlantic Avenue-Barclays Center Station is the busiest transit hub in Brooklyn, with access to nine subway lines and the Long Island Rail Road.

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Atlantic Avenue Barclays Center Station Brooklyn, NY.

CHICAGO TRANSIT AUTHORITY CORPORATE PARTNERSHIP PROGRAM

The Chicago Transit Authority (CTA) Corporate Partnership Program establishes partnerships with well-established sponsors to create innovative branding and promotional opportunities. Sponsors can choose to promote their brands in multiple CTA assets through advertisements, or by having their name or logo installed at a CTA station. Revenue generated from the program is used to help offset costs for transit operations and maintenance, expanded service, and new projects. Current partners include MillerCoors, which sponsors the CTA's Free Rides on New Year's Eve, promoting safe and responsible celebration of the holiday by providing free rides.



Southeastern Pennsylvania Transportation Authority AT&T Station, Philadelphia, PA.

Source: SEPTA <http://www.septa.org/medialibrary/short/2017/12/15.html>



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U.S. Department of Transportation
Federal Highway Administration



CENTER FOR INNOVATIVE FINANCE SUPPORT

QUICK FACTS

- Negotiated exactions involve payments made by a developer as a condition for receiving municipal approvals.
- Negotiated exactions are determined on an ad hoc basis for individual projects, usually as part of the development approval process.
- Negotiated exactions may involve cash payments, land transfers, or construction activities.
- Negotiated exactions work best in situations where private development and public transportation improvements are mutually beneficial.

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VALUE CAPTURE

Negotiated Exaction

Negotiated Exactions involve payments made by a developer as a condition for receiving municipal approvals. Negotiated exactions are determined on an ad hoc basis for individual projects, usually as part of the development approval process. They often take the form of one-time land transfers or cash payments, but may also involve construction activities,



or the provision of public services. Exactions have been used to contribute to the financing of transit stations, local roads, sidewalks, streetlights, and local water and sewer lines.

In cases when a planned development is large and will be constructed over many years, the developer and local jurisdiction may enter into a development agreement that also includes negotiated exactions. These agreements often involve the negotiated dedication of land and facilities by developers under a formal agreement or contract.¹

In some settings, developer exactions are also referred to as cash proffers or developer contributions. Exactions are similar to development impact fees, but the contribution is negotiated between developers and the local jurisdiction rather than determined according to the predetermined, formulaic process used with impact fees. In some cases the exaction may be required in order for the developer to gain planning approvals. In others the exaction may be voluntary, or may hinge on the public sectors' agreeing to modify a public project in ways that would benefit the complementary private development.

Exactions are an attractive strategy for deriving additional investment in needed infrastructure in high-growth areas and where a jurisdiction's fiscal capacity is limited. They work best in situations where the private development and the public transportation improvements are mutually beneficial. A typical example might involve a private developer agreeing to contribute to a new transit station. In this case, the transit station would provide improved access to the development, and the development would generate additional transit trips.

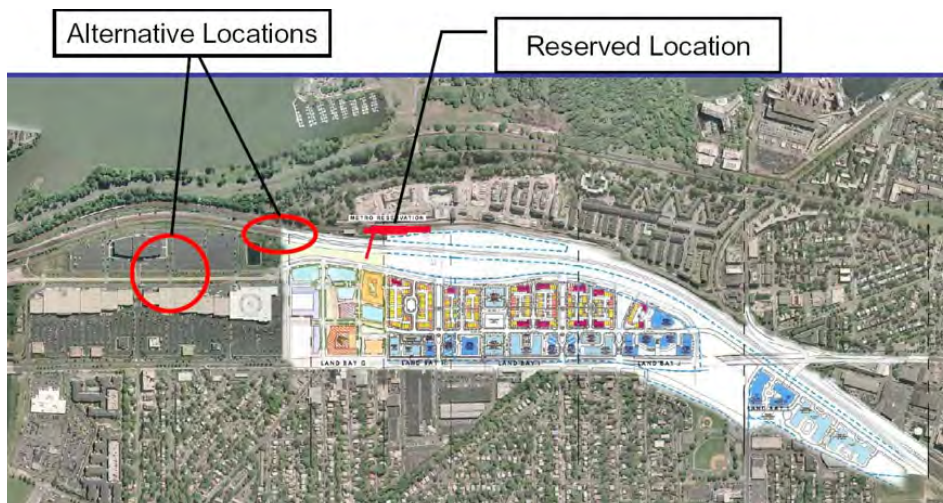
POTOMAC YARD

The Potomac Yard was once one of the busiest rail road yards on the east coast. Decommissioned in 1989, the 295-acre site is located on the banks of the Potomac River in Alexandria, Virginia. Redevelopment plans for the site have been under way since the 1980s and include a new infill rail transit station on the Washington Metropolitan Transportation Authority's (WMATA's) yellow and blue lines as a catalyst for further development.

In 2010, the largest landowner at Potomac Yard approached the City of Alexandria with a request to redevelop a retail shopping center into a 7.5 million square foot transit-oriented development including residential, retail, hotel, and office space. The City was well-positioned to negotiate for funding from the developer, and secured the developer's equity contribution of \$10 per square foot for all development within a ¼-mile of the proposed station in exchange for approving a rezoning plan. Assuming that 4.9 million square feet of gross floor area will be built, this agreement will generate a \$49.0 million negotiated exaction.

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Potomac Yard.

At the outset of deliberations, the City reiterated a need to fund the station without tapping into the existing tax base and without any capital assistance from WMATA. Given these constraints, the City also committed to establishing two special assessment tax districts in the study area. They include a high-density redevelopment district where a special assessment of \$0.20 per \$100.00 of assessed value would be levied on commercial properties; and a low-density tax district where a special assessment of \$0.10 per \$100.00 of assessed value would be levied on all properties. The high-density special assessment was established in 2011 and is currently funding the planning activities. The low-density special assessment will be established once the station opens.

The City committed to issuing \$275.0 million in general obligation bonds to finance the costs associated with the station. Debt service will be paid back using funds from the Potomac Yard Metrorail Fund, which will include net new tax revenues, revenue from two special tax districts, developer contributions, and other anticipated sources such as regional funding and additional developer contributions. Developer contributions provided through the negotiated exaction will be used during the development ramp up period to cover the up-front gap in net new tax and special assessment revenues.

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¹ Negotiated exactions are addressed in FHWA's Real Estate Acquisition Guide for Local Public Agencies and 23 CFR 710.505. Failure to adhere to the requirements of Title 23 could jeopardize Federal funding.



CENTER FOR INNOVATIVE FINANCE SUPPORT

QUICK FACTS

ROW Use Agreements involve the sale or lease of development rights above, below, or adjacent to highway alignments and transit facilities.

The amount of built space that can be constructed on a ROW Use Agreement parcel is determined by the site's zoning designation.

Although ROW Use Agreement projects have the added cost of decking over highways or excavating below transit stations, they are attractive to developers, because they enable construction in prime center city locations without demolishing or displacing other properties.

ROW Use Agreement projects involving highway or transit facilities create development sites in urban cores in locations that would otherwise not be able to support new construction.

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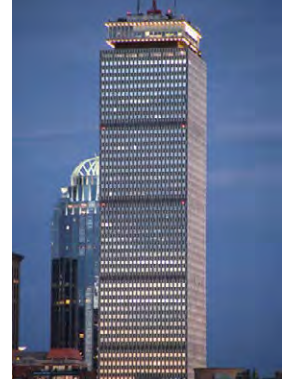


West Dublin/Pleasanton Station, Dublin, CA.

VALUE CAPTURE

Right-Of-Way Use Agreements

Right-of-Way (ROW) Use Agreements are a form of value capture that involves the sale or lease of development above, below, or adjacent to transportation ROWs or real properties.¹ In active real estate markets, development rights are often transferred from historic properties to nearby properties. This practice can also be applied to highway or transit ROWs. When this is the case, new developments are often built on platforms erected above the highway or transit facility or in caverns excavated below them. Although there is added cost in making these preparations, ROW Use Agreements associated with transit or highway facilities are often attractive to investors because they enable the construction of new development in prime, center city locations without demolishing other properties or displacing current residents. These opportunities create new development sites in urban cores in locations that would otherwise not be able to support new construction.



The Prudential Center in Boston, MA.

Highway and transit agencies in the United States have used four models for extracting value from ROW Use Agreements:²

- One-time, up-front lease payments.
- Long- and short-term leases that provide access to land and development space for a specified period of time, usually with renewal options.
- Direct sale in which the public sponsor sells the land and development rights outright to a private developer, who then provides a long-term or perpetual easement to the transit agency or highway authority through or below the property.
- Sale of the development rights above the property with a grant of easement, in which the land owner gives a non-possessory interest to the developer to use the development rights and to have access to the ground for construction.

Bonds may be required to protect the public agency in the event that the private sector investor fails to complete or abandons the improvement.

The amount of built space that can be constructed on a ROW Use Agreement parcel is determined by the site's zoning designation. Zoning designations identify both the type of development that is permissible to construct and the amount of space that can be developed using a floor area ration (FAR) designation. The FAR is the ratio of total amount of allowed built floor area to the square footage of the parcel. When the floor area built on a parcel is less than the maximum permitted, the unused floor area may be transferred to nearby parcels through ROW Use Agreements. Many cities allow development rights to be transferred from smaller landmark properties to nearby parcels, thereby increasing the gross floor area that may be built there under the zoning code.

With development rights projects above highway ROWs, the full FAR is available for transfer to the development partner, because there is no preexisting built space above the site. This may not be the case with air rights projects associated with transit stations in which the development may occur directly above the transit station or on nearby parcels. In some situations, there may be no existing zoning designations for transportation ROWs. In this case, the site first needs to be zoned for the development to take place. Larger projects may also involve site-development agreements in which the local jurisdiction may agree to alter preexisting zoning designations to allow the proposed development project to occur. ROW Use Agreement projects are also helpful to local jurisdictions

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in that they enable private development that would not otherwise occur, thereby increasing local tax rolls.

The Prudential Center in Boston, MA, is one of the earliest and largest ROW Use Agreement projects above an Interstate highway. This mixed-use development with a 750-foot office tower and residential and commercial space was built above an exit ramp from Boston Extension of the Massachusetts Turnpike in 1957, at a cost of \$200 million. Other notable air rights projects have been built above I-5 in Seattle, WA; I-35 in Duluth, MN; I-670 in Columbus, OH; and FDR Drive in New York City.



Interstate 395 Air Rights Development.

I-395 ROW USE AGREEMENT DEVELOPMENT

The Capitol Crossing project is an infill ROW Use Agreement development project that is being constructed above a recessed section of I-395 in the District of Columbia between E Street and Massachusetts Avenue and between 2nd and 3rd Streets, NW, near the U.S. Capitol. The \$1.3-billion project will involve the construction of 2.2-million square feet of space on a platform to be installed above the recessed section of I-395. The 7-acre site extends across three city blocks and is the largest undeveloped tract in downtown Washington, DC. The construction program will include four office buildings with ground level retail, parking, and one residential building.³

The idea of decking over I-395 dates back to 1989 but took over 2 decades to coalesce.⁴ The District Department of Transportation (DDOT) and the Federal Highway Administration initiated an environmental assessment of the project in 2001 and gained a Finding of No Significant Impact the following year. The project has also gained the approval of the District of Columbia Zoning Commission. DDOT has awarded the rights to develop the project to Property Group Partners (PGP). PGP paid the District of Columbia \$11 million at the time of closing and will make additional payments totaling up to \$109 million as the project is implemented.⁵ The project will re-connect F and G streets, which are currently severed by the highway between E Street and Massachusetts Avenue.

MASSACHUSETTS TURNPIKE ROW USE AGREEMENT PARCELS 12 AND 15

In March 2013, the Massachusetts Department of Transportation (MassDOT) designated ADG Scotia II LLC as the developer of two ROW Use Agreement parcels located above the Massachusetts Turnpike (I-90) at the Boylston Street intersection in the Back Bay section of Boston. ADG Scotia has proposed to deck over the parcels and will build a 400-foot hotel and residential tower with two floors of retail on one of the sites. The second will house a mid-rise residential building straddling the turnpike, which will also provide two floors of ground level retail. Together, the two sites will include a 270-room hotel, 230 housing units, and 50,000 square feet of retail space to be built at a cost of \$360 million.⁶

MassDOT will execute a 99-year lease agreement with ADG Scotia, and the company will make upfront payments early in the lease period, as well as annual rent payments. These payments will provide MassDOT with a present value of \$18.5 million in rent for the two parcels in the form of fixed payments early in the lease period, combined with annual rent payments.⁷ MassDOT began the procurement process in 2008 but put the project on hold because of the financial crisis. The project was reinitiated in 2011 and was procured through a transparent process with significant involvement by the Boston Redevelopment Authority, a citizens' advisory committee, and members of the public and the Back Bay neighborhood.

In September 2014, MassDOT and the Massachusetts Bay Transit Authority (MBTA) issued a request for proposals seeking a development partner to implement a ROW Use Agreement project on Parcel 13, which is located above the Massachusetts Turnpike and the MBTA Hynes Station, across Boylston Street from Parcels 12 and 15.⁸

¹ Part 710 of Title 23 (23 CRF 710) ensures the prudent use of Federal funds in the acquisition, management, and disposal of real property and requires that private developers pay fair market value to obtain air rights.

² Using the Economic Value Created by Transportation to Fund Transportation, Sharada R. Vidali, National Cooperative Highway Research Program synthesis 459, Transportation Research Board: Washington, D.C., 2014, p. 24.

³ Property Group Partners, Capitol Crossing Project Web site: www.pgp.us.com/properties/capitol-crossing-dc/

⁴ Washington Business Journal, December 2, 2012, www.bizjournals.com/washington/breaking-ground/2012/12/property-grouppartners-%20acquires-air.html?page=all

⁵ Ibid.

⁶ MassDOT Blog, March 4, 2013, <http://blog.mass.gov/transportation/massdot-highway/massdot-designates-developer-air-rights-parcels-12-15/>

⁷ Ibid.

⁸ "State seeks developers for air rights above MBTA Hynes Station in Back Bay," Thomas Grillo, Boston Business Journal, September 3, 2014, https://www.bizjournals.com/boston/real_estate/2014/09/state-seeks-developers-for-air-rights-above-mbta.html

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QUICK FACTS

Sales tax districts are special districts that are levied taxes to help pay for the transportation infrastructure that services the area.

Sales tax districts are established by statute and have set sales tax rates on all purchases made within the district with details on where the generated revenue is allocated.

This value capture financing tool is popular in States such as Missouri, Kansas, Illinois, and Georgia.

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VALUE CAPTURE

Sales Tax Districts

Sales tax districts levy an incremental sales tax on goods sold within a designated area that derives benefit from a transportation improvement. The resulting revenue is used to support the development of the infrastructure improvement. Sales tax districts may be established at the municipal or county level, but they are more commonly implemented in smaller local areas.

Statutes establishing sales tax districts normally specify the rate of the incremental sales tax and the types of projects their proceeds may support. Unlike other special assessment districts, there is no formal process for establishing the rate of the incremental sales tax. The revenue raised by the tax, however, should reflect the value the area derives from the transportation improvements funded by the district.

It is helpful to distinguish sales tax districts from local option sales taxes. Local option sales taxes are normally collected at the county or municipal level, whereas sales tax districts are more often—but not always—confined to smaller zones that benefit from a specified transportation improvement. Although municipal governments rely on property taxes for a majority of their tax income, local sales tax districts have the potential to generate significant revenues.

PROJECT EXAMPLES

MISSOURI TRANSPORTATION DEVELOPMENT DISTRICTS

In Missouri, transportation development districts may be used to levy sales tax increments between 1/8 percent and 1 percent to provide funding for transportation projects. These taxes were originally collected at the district or local authority level; however, House Bill 191 of 2009 now requires that sales tax increments are collected at the State level by the Missouri Department of Revenue.



Transportation development districts may be formed by a petition of registered voters, property owners, or a local or multijurisdictional transportation authority. The petition must be approved by a circuit court. Transportation development districts may be used for the following purposes:

- Funding, promoting, planning, designing, constructing, improving, maintaining, and operating transportation projects.
- Creating a board of directors to administer the district's legislative and executive powers.
- Working in collaboration with the Missouri Highways and Transportation Commission and other local transportation authorities to provide revenue for transportation improvement projects.

Missouri has 205 transportation development districts that generate over \$70 million in annual revenue to support local transportation needs.

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LAWRENCE, KS TRANSPORTATION DEVELOPMENT DISTRICTS

Lawrence, KS, has established three transportation development districts that levy an additional one-cent sales tax to cover transportation-related expenses associated with development projects. Local developers provide upfront funding and are then reimbursed over time as the incremental tax revenue is generated. In April 2008, the city approved a 22-year transportation development district to pay for up to \$11 million in transportation-related public infrastructure expenses associated with the construction of the 11-floor, 99-room Oread Hotel. In October 2008, the city approved another 22-year transportation development district to pay for \$6.8 million in public infrastructure expenses associated with the Bauer Farms retail development. In 2014, the city approved a third transportation development district to provide \$3 million to support the development of a new hotel and retail complex at the intersection of 9th and New Hampshire. The first \$850,000 in incremental sales tax revenues will be used to cover bond costs for a parking garage and the rest will reimburse developer-paid transportation infrastructure expenses.



The Oread Hotel, Lawrence, KS.



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QUICK FACTS

Solar energy systems can be located on or above many DOT-owned properties, including rights-of-way, rest areas, parking lots, and rooftops.

Solar development models include:

- Procuring and owning directly.
- Engaging a private partner (third-party ownership).
- Hosting a third-party developer.

Private partners can access tax incentives that are not available to government entities, providing additional value to public project sponsors.

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VALUE CAPTURE

Solar Energy

Solar photovoltaic technology provides a promising option for deriving value from highway rights-of-way and other land owned by State departments of transportation (DOTs). Solar power installations can be sited on or above highway alignments and interchanges, rooftops, or elevated structures above parking lots or other DOT owned facilities. Solar power projects can reduce State DOT energy costs and generate new revenue streams from private sector developers who pay to use State-owned land. They also allow DOTs to tap into other Federal, State, and local incentives associated with the generation of clean, renewable electric power.



MassDOT solar project along Route 44.

Source: <https://blog.mass.gov/transportation/greendat/canver-solar-project-along-route-44/>

There are three development models that State DOTs have used to develop solar power facilities:

DIRECT PROCUREMENT AND OWNERSHIP

With the direct procurement and ownership model, the State DOT procures and owns the solar energy system for its useful life. The State DOT also uses the electricity that the system generates and sends any excess power to the grid. The State DOT receives a return on its investment by reducing the amount of energy it purchases and reaps any benefit of net-metering credits if excess production is sent back to the grid.

THIRD-PARTY OWNERSHIP

With third-party ownership, the solar power system is financed, built, owned, operated, and maintained by a private partner. Solar developers may include national companies or smaller local groups. The most common third-party ownership arrangement is a power purchase agreement (PPA). With PPAs, the State DOT purchases power from the private partner. The energy is purchased at an agreed-upon rate per kilowatt-hour, which is set below normal utility rates, providing a cost savings to the DOT.

The third-party ownership model is often appealing because the State DOT does not incur upfront capital expenditures. In addition, private owners can also access the different Federal, State, and local tax incentives available to renewable energy system owners. Unlike the public sector, private developers must pay taxes on the income derived from the solar facilities, so the tax incentives enable them to derive greater value from their investment than what would be available to a State DOT. This, in turn, allows the private partner to sell the electric power generated by the solar system below the effective rate that a public agency could achieve through direct ownership.

HOSTING A THIRD-PARTY DEVELOPER

With the third-party developer model a State DOT allows a third-party developer or utility to install and operate a solar power system on its property. Also known as *hosting*, with this type of arrangement the electricity flows to either an external offtaker or the grid. The State DOT essentially serves as the landlord for the system, with the system owner making lease payments to the State DOT over the length of the lease. In most cases, the State DOT would not have any obligations

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beyond allowing the owner to access, operate, and maintain the system. This model may be a good choice for State DOTs that have land that is well-suited to solar power generation but not proximate to DOT facilities necessitating electric power.

MASSACHUSETTS DOT HIGHWAY RIGHT-OF-WAY SOLAR

Massachusetts DOT (MassDOT) developed five solar power arrays along their highway system. Solar power development sites include service plazas, interchanges, and highway embankments. Completed in 2015, the sites generate a total 2.5 megawatts, which is enough to power the equivalent demand of 410 homes.



E-470 solar array.

Source: <https://www.e-470.com/Pages/AboutUs/E-470s-Solar-Project.aspx>

The projects serve as a reliable source of value to MassDOT, providing both energy cost savings and lease revenue, while supporting agency and State goals. The PPA rate the State pays for the electricity from a project is less than it would pay if it purchased the power from local utilities. These energy savings are projected to be at least \$15 million over the 20-year contract period. Should retail prices of energy rise above what is anticipated, then MassDOT's savings will increase further. Based on its positive experience from its initial solar projects, MassDOT has additional solar installation under development.

E-470 PUBLIC HIGHWAY AUTHORITY TOLL ROAD SOLAR PROJECT

In 2012, the E-470 Public Highway Authority completed one of the largest solar power projects located in a highway right-of-way in the United States. The project consists of 22 sites along a 17-mile stretch of the 47-mile orbital corridor around Denver, CO.

Twenty-one of the sites provide power to road surveillance cameras, streetlights, variable message signs, toll-collection equipment, toll plazas, and maintenance facilities along the corridor. The last site is located at the E-470 administrative headquarters, where an array of panels is installed on the roof and directly powers the building. Any excess power is sent to Xcel Energy's electricity grid.

The E-470 Authority developed the project on a public-private partnership (P3) basis, executing a 20-year solar PPA with Adamas Energy Investments (now C2 Energy Capital). The 20-year PPA locked down a fixed energy cost rate of 6.13 cents per kilowatt-hour for the first 6 years and then established a fixed annual increase for the remaining 14 years. The PPA rates are lower than the comparable rates available from Xcel Energy. Adamas Energy provided \$2.8 million in capital funding for the project and retained \$750,000 in Federal tax credits and \$180,000 in Xcel Energy rebates.

In its first year of operation, the system produced over 1 million kilowatt-hours of electricity, saving the E-470 Authority approximately \$20,000 in energy costs. The project provided 100 percent of the electrical needs for two toll plazas, the primary maintenance facility, and 18 toll ramps, as well as 13 percent of the electrical needs of the E-470 Authority's headquarters building. In 2013, it was estimated that the system delivered 47 percent of E-470's overall power needs. Over 20 years, the E-470 Authority estimates that the project will enable it to save over \$1 million in electricity costs and reduce its carbon dioxide emissions by almost 17,000 metric tons. The project has also enabled the E-470 Authority to install two solar-powered road surveillance cameras, eliminating the need to install \$150,000 of conduits.



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QUICK FACTS

- Special assessments are compulsory levies against property owners to finance specified public improvements.
- Special assessments can only be used to fund local improvements which provide benefits within the designated assessment zone.
- The special assessment is only charged to those properties that receive a “special benefit” from the improvement.
- The amount of the charge bears a direct relationship to the value of the benefits the property receives.
- Special assessments are fees, not taxes. As a result, some jurisdictions use special assessments to finance needed improvements if they have reached caps on tax levels and need additional funding.

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South Lake Union (SLU) Streetcar project

VALUE CAPTURE

Special Assessments: An Introduction

Special assessments are a form of value capture. They involve assessing incremental property taxes on land and buildings deriving direct benefits as a result of a transportation improvement. The tax levied typically represents a portion of the estimated benefit to the properties located with a designated zone in close proximity to the improvement. Special assessments – also known as benefit assessments or special taxes – are one of the most prominent forms of value capture in the United States. Legally, special assessments are a form of remuneration that a public agency may require from property owners to provide revenue to fund a public project which creates benefits for properties within a designated assessment district. In addition to transportation improvements, special assessments may also be used in other sectors, including water and waste water.



APPROVALS

Special assessments are authorized in all 50 States either under explicit enabling legislation or by State constitutional provisions. In addition, the establishment of special assessment districts requires some type of landowner or voter approval.

HOW SPECIAL ASSESSMENTS WORK

Property owners within the district are assessed a portion of the benefit accruing to their property as a result of the improvement. The special benefit can be determined in a variety of ways ranging from the anticipated increase in property value; the size of a property owner’s frontage or acreage; or the proximity of the property to an improvement. Property owners either pay the assessment immediately, or allow a lien to be placed on their property and repay the assessment over a prescribed timeframe, typically ten or twenty years. Most often, the special assessment is collected at concurrently with owners’ property tax payments.

SPECIAL ASSESSMENTS AND TRANSPORTATION IMPROVEMENTS

The major limitation on the use of special assessments is that they must finance improvements that provide local benefits within the assessment zone. They cannot be used to fund improvements that benefit the larger community. This poses challenges when using special districts to finance transportation improvements because the transportation system is an open system, making it difficult to establish a district that includes all those who benefit from a road or rail line, while excluding those who do not. For this reason, special assessments are more likely to be used on closed systems, such as water and sewer improvements.

Special assessment districts for transportation improvements are often larger than those for other kinds of improvements, because the benefits of transportation projects typically accrue across a broader geographical base. Many States have passed new enabling legislation that allows special districts to be used to finance a broader range of facilities than in the past. These districts are known by such names as improvement districts, road districts, metropolitan districts, and building

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authorities. In most cases, the districts serve the same general purpose as the traditional special assessment district, but they often are not limited to the use of assessments on property, and may also levy footage charges or acreage fees.

SOUTH LAKE UNION STREETCAR PROJECT SEATTLE, WASHINGTON

The South Lake Union (SLU) Streetcar project is a 2.6-mile streetcar line connecting the South Lake Union neighborhood with Downtown Seattle, Washington. The project includes three rail cars, the installation of tracks, signals, 11 stops, and construction of a maintenance facility. The SLU Streetcar garnered strong political and financial support from local businesses and property owners who agreed to establish a special property tax levy through the formation of a local improvement district that funded approximately 47 percent (\$25 million) of the \$53.5 million project cost. The improvement district was approved by 98 percent of district property owners. Property tax rates ranged from 8 percent for parcels located directly near the alignment to 1 percent for parcels located along the outer boundary of the LID. Service on the SLU Streetcar began in 2007.

ROUTE 28 HIGHWAY TRANSPORTATION IMPROVEMENT DISTRICT NORTHERN VIRGINIA

In 1987, the Virginia General Assembly gave localities the ability to create special tax districts to finance transportation improvements. The same year, property owners along the Route 28 corridor in Fairfax and Loudon counties agreed to form the Route 28 Transportation Improvement District, a first of its kind in the Commonwealth. The two counties enacted a special levy of \$0.20 per \$100 valuation on all commercial and industrial property inside the 10,204 acre district along the Route 28 corridor. Bonds were issued in 1988 to fund construction, serviced by the special district's tax revenue, and guaranteed by the Commonwealth. Phase 1, which included widening to six lanes along the Route 28 corridor and three major interchanges, was completed in 1991.

In 2002, Clark Construction Group and its subsidiary, Shirley Contracting Company LLC, joined in a Public-Private Partnership (P3) with VDOT to replace six at-grade signalized intersections with grade-separated interchanges, with ultimate plans for the construction of ten total interchanges and the widening the 14-mile corridor to eight lanes. In 2006, following the completion of six interchanges, VDOT awarded the Clark/Shirley Team a contract to construct four interchanges, which were completed by the end of 2009. Six additional interchange and roadway improvements have since been awarded and are anticipated to be complete by 2016.



Pacific Boulevard Ground Breaking: Route 28



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QUICK FACTS

- TIFs are authorized by State law in nearly all 50 States creates funding for public or private projects by borrowing against the future increases in property-tax revenues.
- The improvements supported by TIF revenues enhance the value of existing properties and encourage new development in the district.
- Thousands of TIF districts have been established around the U.S. in cities of all sizes.
- Although TIFs have not been used extensively to fund transportation infrastructure, some State laws specifically authorize the use of TIF for transport purposes.

CONTACT

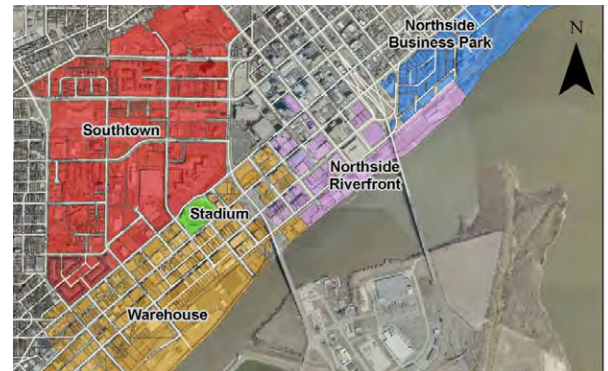
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VALUE CAPTURE

Tax Increment Financing

Tax Increment Financing (TIF) is a value capture revenue tool that uses taxes on future gains in real estate values to pay for new infrastructure improvements. TIFs are authorized by State law in nearly all 50 States and begin with the designation of a geographic area as a TIF district. Plans for specific improvements within the TIF district are



Tax Increment Financing Districts.

developed. The TIF creates funding for public or private projects by borrowing against the future increase in these property-tax revenues. The intent is for the improvement to enhance the value of existing properties and encourage new development in the district. TIF districts are usually established for a period of 20 to 25 years, during which time all incremental real estate tax revenues above the base rate at the time the district is established flow into the TIF.

The proceeds from the TIF can be used to repay bonds issued to cover up-front project development costs. Alternatively, they can be used on a pay-as-you-go basis to fund individual projects. In some States, private developers may self-finance infrastructure improvements, with the municipality reimbursing them from the tax increment as tax proceeds are received. In many States, areas must be blighted in order to for TIF districts to be established. The intent is for the TIF to be used to channel funding toward improvements in distressed, underdeveloped, or underutilized areas where development might otherwise not occur.

Thousands of TIF districts have been established around the U.S. in cities of all sizes. The strategy is commonly used by local governments to promote housing, economic development, and redevelopment in established neighborhoods. Although TIF has not been used extensively to fund transportation infrastructure, some State laws specifically authorize the use of TIF for transport purposes.

TIF IMPLEMENTATION PROCESS

Implementing TIF financing is complicated and involves the creation of a special district and a public agency to administer it. The following steps are involved in the process:

1. A finding of necessity is prepared that establishes the need for the TIF and formalizes the boundaries of the district. This finding is normally a detailed study that demonstrates that the district meets the criteria contained in the State's enabling legislation.
2. A redevelopment agency is created by resolution or ordinance. This agency may be the governing body of the municipality, or it may be a new agency appointed by the governing body.
3. A development plan is prepared and approved by the agency and the city.
4. The base year is declared following adoption of the plan.
5. The redevelopment agency solicits developers and enters development agreements to implement the improvements.

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TIF FINANCING FOR THE TRANSBAY TERMINAL

The \$4.2 billion Transbay Transit Center in San Francisco is a new multi-modal transportation center that will accommodate nine transportation systems under one roof. In addition to the new terminal, the project will also extend the Caltrain commuter rail line 1.3 miles from its current terminus into downtown San Francisco and also redevelop 40 acres of land to relieve blight and encourage revitalization. Land that is publicly owned will be sold to private developers who will construct 2,600 new homes, parks, and a retail main street. The project area is separated into two zones. Zone 1 includes 12 city-owned blocks that have been rezoned for residential uses. These have been sold to private developers and now generate real estate tax revenues. Zone 2 covers the remainder of the project area including the new Transit Center and is zoned primarily for office space. The new tax revenues generated by the redevelopment are being captured in a TIF that is being used to service debt payments on a \$171 million TIFIA loan for the construction of the transit center. This is the first TIFIA loan secured by value capture revenues from real estate taxes on surrounding transit oriented development.



The Transbay Transit Center in San Francisco, CA.

ANNAPOLIS JUNCTION TOWN CENTER AT SAVAGE STATION AND EXPANDED SIB AUTHORITY IN MARYLAND

The State of Maryland has an approved master agreement for the development of approximately 12 acres at the Savage MARC commuter rail station in Howard County. The development team, a joint venture of Petrie-Ross, Somerset Construction and OA Partners, will combine an adjoining 6-acre site to create an 18-acre mixed-use development. The project will include approximately 425 apartments; 100,000 square feet of office space; 17,000 square feet of retail space; a hotel; and a 700-space commuter parking garage, financed with TIF funding from Howard County.

Maryland's Sustainable Communities Tax Increment Financing Designation and Financing Law, which became effective October 1, 2013, expands TIF authority to enable counties and municipalities to finance a broader range of infrastructure improvements in sustainable communities for:

- Historic preservation and rehabilitation;
- Environmental remediation, demolition, and site preparation;
- Parking lots, facilities, and structures of any type for public or private use;
- Highways and transit services that support Sustainable Communities;
- Schools;
- Affordable or mixed income housing; and
- Stormwater management and storm drain facilities.



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QUICK FACTS

Transit-oriented development (TOD) provides compact, mixed-use development with housing, commercial and retail space, and other amenities—all in close proximity to transit stations.

TOD provides a high-quality walking environment and encourages transit ridership.

TOD focuses on developing cohesive communities with business clusters and entertainment centers to counter the effects of urban sprawl.

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VALUE CAPTURE

Transit-Oriented Development (TOD)

Transit-oriented development (TOD) is compact, mixed-use development near transit facilities that provides high-quality walking environments. It usually includes new residential development, office space, and other service amenities that are within a half-mile of public transportation and easily commutable by other means, such as walking and biking. TOD typically creates sustainable neighborhoods that provide a convenient, affordable, and active lifestyle.



Source: Metro Transit

Lake Street Transit Village, Minneapolis, MN.

There are two broad types of TOD, both of which are developed around transit systems. Urban TOD is located in or near city centers in close proximity to main light rail, heavy rail, or express bus routes. It features high-density residential and commercial developments and employment clusters. Neighborhood TOD is located along the feeder lines or bus routes further away from the urban core. Although neighborhood TOD areas also feature mixed-use properties, population densities are not normally as high as with urban TOD.

The potential benefits of TOD may include:

- Increased land values.
- New prime retail spaces for businesses to attract customers.
- Increased higher-density development and up-zoning.
- Increased foot traffic and visibility to customers for businesses.
- New development subsidies to improve and maintain community infrastructure.

By increasing access to public transit, TOD facilitates growth in transit ridership and a corresponding reduction in vehicular traffic and parking demand in TOD areas. TOD is also often used with other value capture strategies, including joint development and special assessment districts.

Planning for TOD has focused on forecasting the benefits that such developments bring to transit investments. The impetus for this dates back to the focus on the metropolitan planning organization (MPO) process laid out in the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991 and the Transportation Equity Act for the 21st Century (TEA-21) of 1998. TEA-21 mandated that the MPO process “protect and enhance the environment, promote energy conservation, and improve the quality of life,” and also stipulated that it should include land use analysis and growth management strategies to achieve specific development goals. In addition, the legislation tied funding for New Starts transit projects to their performance in these areas. Together these dynamics have led MPOs around the country to include TOD in their regional plans and have made public funding available to support community infrastructure costs.

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PROJECT EXAMPLES

HENNEPIN COUNTY, MN

In 2003, the Hennepin County Board of Commissioners created a TOD program to support the redevelopment and construction of new transit lines and encourage transit ridership. To date, the county has awarded more than \$29 million in funding to urban and suburban TOD projects along major transit corridors, including the Metro Transit Blue, Green, and Red lines. The Lake Street Transit Village is a transformational TOD project in the Corcoran neighborhood near the Lake Street/Midtown station on the Blue Line in south Minneapolis. It opened in 2017 and combines a new county Human Services Center, retail space, and more than 500 units of housing immediately west of the Lake Street/Midtown station. Additional housing will be phased-in over time. The development complements a new \$45 million senior housing project located near the station and the Midtown Farmer's Market, which attracts over 66,000 annual visitors. The Lake Street Transit Village is one of many transit-oriented communities to be developed in the Minneapolis–St. Paul region in the past 15 years.

DAVIS SQUARE, SOMERVILLE, MA

Davis Square is located in Somerville, MA, north of Cambridge at the terminus of the Massachusetts Bay Transportation Authority (MBTA) Red Line. Prior to the extension of the Red Line, the area had been in decline. Officials and local residents established the Davis Square Task Force to develop plans to revitalize the neighborhood using the creation of the new MBTA station as a catalyst for development.

The plan called for repurposing existing buildings, new construction, improving streets and parking, and creating pedestrian amenities. The city worked with State and Federal agencies to raise funding for the following TOD improvements:

- Redeveloping streets and sidewalks, street lighting, and fencing and landscaping with assistance from the Federal Highway Administration's Urban Systems program.
- Using Community Development Block Grants to fund a storefront- and façade-improvement program.
- Redeveloping 100,000-ft² of the Buena Vista office and retail complex through the Urban Development Action Grant.
- Reusing an abandoned freight railroad right-of-way for bike and pedestrian pathways to provide access to the Alewife MBTA station.
- Building a parking structure with over 2,600 parking spaces at the Alewife MBTA station, together with traffic-calming measures to help mitigate traffic and car usage.

Together these improvements transformed Davis Square into one of the first transit-oriented communities in the United States.



Alewife MBTA station, Cambridge, MA.



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QUICK FACTS

Transportation Reinvestment Zones (TRZs) are a financial tool that establishes designated areas around transportation projects to help capture property tax increments.

TRZs are established in unproductive or underdeveloped areas that derive direct benefits from the transportation improvement.

Unlike tax increment financing, TRZs do not levy any new taxes.

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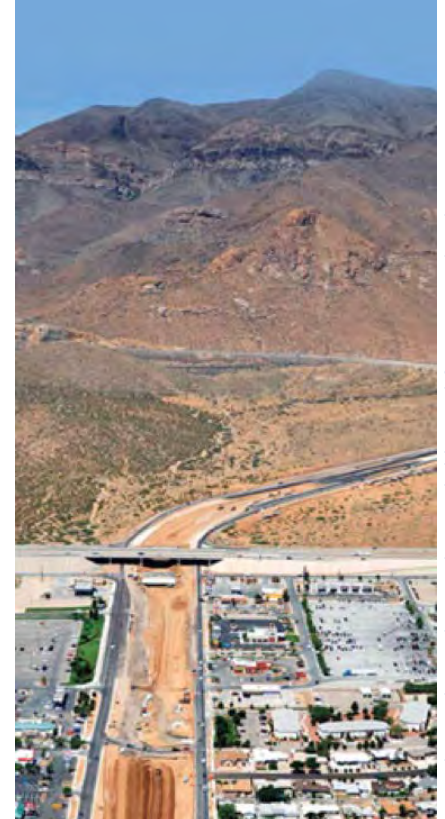
Transportation Reinvestment Zones

Transportation reinvestment zones (TRZs) are designated areas located around transportation projects created to encourage development and capture property tax increments to help fund the improvements. TRZs can be used to capture both present and future economic growth created as a result of the transportation improvements, and they may be used in conjunction with other value capture methods. TRZs do not raise tax rates; rather, they allow sponsors to issue debt by leveraging new property tax revenues generated within the TRZ. In order to be designated as a TRZ, the land involved must be underdeveloped and receive direct benefits from the transportation improvement. Benefits may include improved access, public safety, and congestion reduction. Unlike tax increment financing, TRZs do not involve new taxes and they do not normally necessitate a board of directors. TRZs are a useful tool that can be used to support a broad range of transportation projects.

ESTABLISHING A TRZ PROJECT

Although there are differences in State legislative requirements for establishing and operating TRZs, they generally follow the same framework:

1. Boundaries for the zones must be established and a benchmark year should be designated when the collection of the tax increment would begin.
 2. The sponsoring entity should conduct a feasibility study to determine the terms and conditions of the value capture.
 3. Public hearings are conducted prior to implementing the TRZ to get feedback from the public.
 4. The financing details of the TRZ will be determined and a mechanism is established to issue TRZ-backed debt.
 5. A monitoring system is established to oversee the TRZ and track increment taxes collections
- Depending on the State, there are different mechanisms used to collect funds generated by TRZs. Texas uses a pass-through financing program, requiring communities to pay some project costs upfront. This money is repaid from future revenues generated by the TRZ. In Texas, TRZs may be established at the municipal or county level. Municipal TRZs are established by a city, with the tax increment defined as the value captured multiplied by municipal property tax rate. County TRZs are set up with the county and define the tax increment as the value captured multiplied by the county's annual property tax.



Source: <https://tti.tamu.edu/researcher/texas-legislature/defines-transportation-reinvestment-zones/>

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PROJECT EXAMPLES

I-10 AND LOOP 375 TRZ, EL PASO, TX

In 2008, the city of El Paso established the first TRZ in Texas to support the development of the I-10 and Loop 375 highway projects. Over the course of its lifetime, the TRZ is expected to generate about \$70 million in funds from the areas surrounding the highways. The TRZ set 2008 property tax levels as a

baseline and uses any incremental tax revenue to support the development of the highways, which are also an important part of El Paso's comprehensive mobility plan.



Source: <https://www.tylertexasonline.com/tyler-texas-toll-loop-49.htm>

TOLL 49, SMITH COUNTY, TX

In Smith County, TX, a TRZ was established to help fund the expansion of the Lindale Relief Route portion of Toll 49 being developed by the North East Texas Regional Mobility Authority (NET RMA, a local toll authority). NET RMA established the TRZ and is directing 50 percent of the incremental tax revenue to the Toll 49 project and the remaining revenue for other county needs, including maintenance and improvements of the Smith County road system. Based on its initial financial studies, NET RMA forecasts that the TRZ will generate between \$12.9 million and \$16.9 million annually over the next 25 years to support the Toll 49 project. If the TRZ fails to meet those forecasts, NET RMA will use other funds to support the Toll 49 project. If the generated revenue is much less than projected, Smith County is not liable for the difference or for any debt assumed by NET RMA.

FM 110 HAYS COUNTY, TX

In 2013, Hays County, TX, approved its first TRZ to support the construction of FM 110, an 11.25-mile highway in San Marcos, to the southwest of Austin. The project will encourage growth on the eastern side of I-35 and relieve traffic from the contested I-35 corridor. Hays County plans to allocate 50 percent of the tax revenue generated from the TRZ to repay \$48 million in debt leveraging future tax proceeds. The city of San Marcos anticipates that tax proceeds could increase by as much as \$71.3 million in the project area. Once the debt has been repaid, the city and county can terminate the TRZs and retain all the incremental property tax revenue.



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ALTERNATIVE PROJECT DELIVERY

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TOLLING AND PRICING

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VALUE CAPTURE

The Center for Innovative Finance Support's Value Capture Strategies program explores strategies for tapping into the added value the transportation improvements bring to nearby properties as a means to provide new funding for surface transportation improvements.



U.S. Department of Transportation
Federal Highway Administration



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QUICK FACTS

- With transportation utility fees, residents and businesses are charged fees based on their use of the transportation system in lieu of real estate taxes based on property values.
- Transportation utility fees differ from other types of impact fees in that they are levied on all property occupants, not just property owners.
- Transportation utility fees are paid on an ongoing monthly basis like a utility bill.
- Transportation utility fees have been subjected to legal challenges that they are a tax rather than a fee.

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VALUE CAPTURE

Transportation Utility Fees

Transportation utility fees are financing mechanisms that treat the transportation system like a utility. Residents and businesses are charged fees based on their use of the transportation system rather than charged taxes based on the value of the property that they occupy. Transportation utility fees are not subject to voter approval and are based on the number of trips generated by different land uses. Utility fee rates may be based on number of parking spaces, square footage, or gross floor area. This approach links the costs of maintaining transportation infrastructure with the benefits derived from mobility and access to a transportation system.



The first transportation utility fees in the United States were implemented in Oregon in the 1980s, and they have been used successfully in cities with small populations in Washington, Idaho, Utah, Colorado, Texas, Missouri, and Florida. The fees are used primarily by local governments to fund roadway maintenance. They are also known as *street maintenance fees*, *road use fees*, *street utility fees*, and *pavement maintenance utility fees*.

Transportation utility fees differ from other types of impact fees in that they are levied on all property occupants—owners and renters alike—rather than on property owners alone. They are also paid on an ongoing monthly basis like a utility bill and not in annual or quarterly installments the way real estate taxes are collected. Given that use of the transportation system is not metered in the same way as home electricity or sewer utilization, the fee is calculated on estimated trip generation for different on-land uses. Sixteen out of 25 transportation utility fee programs specify the use of trip generation rates prepared by the Institute of Transportation Engineers.¹

LEGAL CHALLENGES

Transportation utility fees have faced legal challenges in the United States in terms of whether they should be considered a fee or a tax. The revenue-generating authorities granted to cities by state constitutions vary, but in general, a city's power to tax is much more limited than is its power to charge fees. Taxes often require voter approval; thus, if utility fees are determined to be a tax as a result of a legal challenge, referendum requirements may be triggered. Fees are also collected to compensate the public entity for services rendered rather than for raising revenue. The fees are charged in exchange for a particular governmental service used by the party paying the fee. Fees are voluntary because residents have the option of not utilizing the public service and thereby avoiding the charge. Because transportation fees are levied based on assumed trip levels, some occupants and businesses must pay for trips that were not actually taken. This argument could be interpreted as illegal, because these fees are not voluntary. This issue arose in Austin, TX, where transportation utility fees can be waived if property owners can demonstrate that they do not drive or own a car. There have been four instances in the United States in which legal challenges have led to the removal of transportation utility fees.²

¹ Carole Turley, "Promises and Pitfalls of Transportation Utility Fees," TRB Fifth International Conference on Transportation Finance, July 2014.

² Oregon City 2012 Pavement Maintenance Utility Fee Annual Report, p. 3.

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OREGON CITY PAVEMENT MAINTENANCE UTILITY FEE

Oregon City, OR, a city with a population of 32,000 and located 13 miles south of Portland, OR, has a 135-mile street network with a reconstruction value of approximately \$1 million per mile. Historically speaking, maintenance needs for the street network have been paid from the state motor fuel tax, but the city's annual pavement maintenance costs far exceeded the shared revenues received from the State Highway Fund. This situation was exacerbated by the expansion of the local street network and continued population growth. After several years of deficits, the City Commission asked the Public Works Department and a citizens' committee on transportation funding to identify a sustainable funding source for street maintenance in 2007. The committee concluded that a pavement maintenance utility fee would be the most equitable and stable source of funding and recommended an annual revenue goal of \$1.5 million for the ongoing maintenance of the city's streets.

Oregon City adopted the pavement maintenance utility fee on May 21, 2008, with the passage of local Ordinance 08-1007. The pavement maintenance utility fee is collected from residences and businesses within the city limits on a monthly basis and is issued as part of the city's utility bill. Residential customers are charged for maintaining local streets, whereas commercial entities are charged for maintaining arterials. Maintenance of collector streets is equally shared.

The fee was phased in over a 5-year period from 2008 to 2012. Since being fully implemented, the monthly utility fee has been increased by 3 percent per year. Single family residential properties are charged \$12.26 per month, whereas multi-family residential units are charged roughly 70 percent of that amount. The fee for the city's 555 non-residential customers is based on the size and type of the development. Five business groups were established based on similar trip generation rates per square feet of gross floor area. Monthly charges for non-residential customers are calculated by multiplying the number of daily trips generated by \$0.216.



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