Lesson Three: Should Highways be Financed and Funded by Public-Private Partnerships?

Overview: This one-day lesson introduces the concept of public-private partnerships (P3s) and facilitates understanding surrounding the potential of P3s to contribute to the financing and funding of infrastructure needs. The lesson begins with a student activity that spotlights value conflicts involved with infrastructure financing and funding decisions. Then, the lesson moves to a definition of public-private partnerships and an assessment of strengths and weaknesses for this approach to infrastructure financing and funding. The lesson concludes with a case study that asks students to look at four different approaches to the financing and funding of a new, 25-mile highway section of highway and then make a recommendation for the one that best serves the public.

Objectives: Students should be able to do the following at the end of the lesson:

1. Understand how infrastructure projects are financed and funded, as well as the distinction between these two concepts.
2. Provide a general definition of a public-private partnership.
3. Explain the major differences between traditional government approaches to highway infrastructure and that of public-private partnerships.
4. Explain at least two potential advantages of public-private partnerships for highway infrastructure improvement.
5. Explain at least two potential disadvantages of public-private partnerships for highway infrastructure improvement.

Activities:

1. Complete value Conflict Warm-Up.
2. Brief lecture defining public-private partnerships and explaining current interest in public-private partnerships in the United States.
3. Student brainstorm of potential advantages and disadvantages of public-private partnerships with the Public-Private Partnership Worksheet Draft.
4. Completion of brainstorm list with ideas from the Final Public-Private Partnership Worksheet.
5. Division of class into small groups for a Highway Financing/Funding Options Case Study.
6. Class discussion of small group Highway Financing/Funding Options Case Study Recommendations.

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1. Value Conflict Warm-Up:

Begin the class by Passing out the handout titled, Value Conflict Warm-Up. This activity intentionally postpones mention of public-private partnerships. The intent is to stimulate awareness and interest in value conflicts involved in highway building decisions before introducing complexities. This can be a brief activity if you simply ask students to mark their answers and you record total group responses on the board. But it could become a much longer and dramatic activity if you take time to explore student disagreement on one or more statements or take time class time to discus each of the eight statements.

2. Advantages and Disadvantages of Public-Private Partnerships:

Begin Part Two by passing out the handout titled, Public-Private Partnership Worksheet Draft. After going over the definition of public-private partnerships at the top of the Worksheet, briefly explain that there is increasing interest in public-private partnerships because there are tremendous needs for infrastructure spending but lack of government resources and will to meet those needs. [See Teacher Notes #1 for specific data]

The next step is to ask students to meet in pairs to brainstorm one or two potential advantages and disadvantages of public-private/partnerships and put their ideas on their worksheets. After discussing student ideas, pass out and go over a completed version of the Public Partnership Worksheet and tell students that this form will be an important asset for working on Part Three.

3. Highway Financing/Funding Options Case Study:

Pass out **"Highway Funding Options Case Study."** Students in this part will decide on the merits of using either a traditional government approach or one of three different public-private partnership approaches for the building of a new, 25-mile highway section. The key to this activity is making certain that students understand what they are asked to do and there is a small group structure that will encourage participation. Groups could be as small as two or as large as five or seven. It will be helpful to either appoint a facilitator to start the process or have each group select a facilitator before the case study analysis begins. Emphasize again that the group should discuss the strengths and weaknesses of each option before beginning to decide its recommendation-using their Completed Public-Private Partnership Worksheet to help clarify issues. Five minutes before you want to begin small group reports, remind the facilitator to select someone to make a brief report. You may want to refer to **Teacher Notes #2: Different Forms of Public-Private Partnerships** to obtain more detailed information. A total class discussion approach can effectively substitute for the small group case study activity.

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Value Conflict Warm-Up

Background: The final class activity is going to be a Highways Financing Options Case Study that asks you in a small group to evaluate four different options for funding, financing, operating, and maintaining a new, 25-mile section of highway. The activity requires you to make value judgments about the roles of government and private enterprise. This warm-up activity prepares you for that challenge.

Task: Use the scale below to state your opinion about the following eight statements.

A = Agree B = Uncertain C = Disagree

_____ 1. If the government doesn't have money to build a highway, the highway should not be built. I am not going to use it anyway.

_____ 2. When the government is unable or unwilling to pay for a needed highway, it should seek private funding.

_____3. Government highway projects are often over budget, inefficient, and not on time. There is no financial reward for good work and no financial loss for poor work.

_____4. A state highway is a necessary public good that should be available free for all citizens to use whether they are rich or poor.

_____5. I think the public will get more value for their money if they limit the role of government in highway design and maintenance and encourage private enterprise.

_____6. I think new highways should be funded by the drivers who use the highway with tolls rather than general tax funds. It is only fair.

_____7. I like the idea of turning over the ownership of state highways to private companies to take advantage of their industrial expertise and on time delivery record.

____ 8. Government should raise taxes high enough to obtain the revenue needed to provide high quality, free highways for all citizens.

Public-Private Partnership Worksheet Draft

Definition: Public-Private Partnerships (PPP) are contractual agreements between a government agency and a private sector entity that allows for greater private sector participation in the delivery of public infrastructure projects.

The private role in a PPP might include planning, financing, funding, designing, construction, operation and maintenance.

Task: Meet with a partner and brainstorm potential advantages and disadvantages for Public-Private Partnerships. Try to come up with at least two advantages and two disadvantages.

Potential Advantages of Public-Private Partnerships Include:

-
-
-
-
-

Potential Disadvantages of Public-Private Partnerships Include:

-
-
-
-
-

Final Public-Private Partnership Worksheet

The combination of enormous infrastructure needs and scarce government financial resources has led to increased interest in a method for financing and managing public infrastructure called Public-Private Partnerships. Public-Private Partnerships (PPPs) are contractual agreements between a government agency and a private sector entity that allows for greater private sector participation in the delivery of public infrastructure projects. The private role in a PPP might include planning, financing, designing, construction, operation, and maintenance.

There are many variations of PPPs, some being very complex arrangements. Below are three examples to illustrate different forms:

1. A city government contracts with a private company to build and manage a city water treatment plant. The city owns the plant but leaves the management and maintenance completely to the private company.
2. A state government contracts with a private construction company to finance, build, and maintain a section of a state highway.
3. A city government contracts with a private construction company to build a sports facility and manage its maintenance.

Potential advantages of PPPs for infrastructure development include:

1. Ability to obtain funding unavailable to government through taxation.
2. Incentive to complete projects on time without repeated cost escalations.
3. If managing project maintenance, strong incentive to do high quality construction.
4. May offer greater technological innovation.
5. Can transfer some or all project risk from pubic sector (government) to the private sector.
6. Don't have to raise taxes or divert government funds from other social needs.

Potential disadvantages to PPPs for infrastructure development include:

1. May be more expensive because government has lower borrowing costs.
2. May be more expensive because the private organization needs to earn a profit to compensate for assuming project risk.
3. Project may cause political protest because of opposition to profits from public infrastructure.
4. Some PPPs have failed, gone into bankruptcy, forcing government to take over project, and assume all risk.
5. There may be conflict between public interest and desire for maximum profit.

Highway Funding Options Case Study

Tasks: You are a member of a small consulting group hired to select one of the options listed below for the state government to use to build a new, 25-mile section of highway. In your group, discuss the strengths and weaknesses of each option and then vote on one to recommend. Also, select someone to present your recommendation and your reasoning to the class.

Background: Public-private partnerships have recently become an option for the building and managing of new roads. This case study includes four possible options for building a new section of highway. One is a traditional government option and three are variations of public-private partnership approaches.

Option A: Traditional Government
Government uses revenue from taxes to finance, fund, build, and maintain the new section of highway which will not have tolls. There is some uncertainty because tax revenue is dependent on the strength of the economy and the need for legislative approval.

Option B: Performance Based Private Contract
Government contracts with a private company to build and maintain the new section of highway. Performance standards are set with financial bonuses if the company exceeds standards and penalties if it fails. The private company cannot charge tolls. Government pays for everything and assumes all the traffic demand risk.

Option C: Tolls with Guaranteed Private Contract
Government and a private company contract to share the risk of building and maintaining the new section of highway. Government agrees to provide additional financial support if cost estimates prove to be too low. Tolls will be charged to users of the highway with government regulation of the toll price over time. If highway use is too low for the private company to make a reasonable profit, government will reimburse the private company.

Option D: Tolls with No Guaranteed Private Contract
Government contracts with a private company to finance, fund, design, build, operate and maintain the new section of highway for 35 years. Private tolls collected from the users of the road will finance the design, building, operating and maintaining of the highway. No government money will be used. The private company will use the laws of supply and demand to set the toll prices. All risk for success or failure rest with the private company. After 35 years, the government takes back control of the highway section from the private company.

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Information about Infrastructure Needs in the United States

- According to the American Society of Civil Engineers, in 2013, nearly a third of America's roads were in poor or mediocre condition. An estimated $170 billion in capital investments annually would be required to bring about significant improvement.

- The Federal Highway Administration estimates that $107 billion is needed on an annual basis to maintain and improve the country's roads and highways, far above the $91 billion currently spent. More than $100 billion is wasted in time and fuel each year because 42% of America's major urban highways are congested and due to the roadside repairs.

- The Brookings Institute writes, the United States has huge unpaid bills coming due for its infrastructure. A generation of investments in world-class infrastructure in the mid-twentieth century is now reaching the end of its useful life. Cost estimates for modernizing run as high as $2.3 trillion or more over the next decade for transportation, energy, and water infrastructure."

- Stephen Flynn, author of ***The Edge of Disaster: Rebuilding a Resilient Nation***, writes, "Somehow as a nation, we've come to see infrastructure as something can't afford - as a cost rather than an investment. We're like a generation that was fortunate enough to inherit the family mansion but then decided not to do any of the upkeep. The plumbing's falling apart, the wiring's gone bad. But we won't do anything to fix it."

Different Forms of Public-Private Partnerships

Overview: In general terms, a Public-Private Partnership (PPP) refers to a contractual agreement formed between a government agency and a private sector entity that allow for greater private sector participation in the delivery of public infrastructure projects. Compared with traditional procurement models, the private sector assumes a greater role in the planning, financing, design, construction, operation, and maintenance of public facilities. In the traditional model, a State Transportation Agency (like CalTrans in California) designs the project with its own engineer-employees and accepts competitive bids from private construction firms to build the project according to its design.

Some of the most common PPP models used for new projects include:

1. **Design-Build-Transfer:** Under this model the public sector contracts with a private partner to design and build a facility in accordance with the requirements it sets. Upon completion the public sector assumes responsibility for operating and maintaining the facility.
2. **Design-Build-Maintain:** This model is similar to Design-Build except that the private proponent also maintains the facility. The public sector retains responsibility for operations.
3. **Design-Build-Operate:** Under this model, the private sector designs and builds a facility. Upon completion, the title for the new facility is transferred to the public sector, while the private sector operates the facility for a specified period.
4. **Design-Build-Operate-Maintain Transfer:** This model combines the responsibilities of sign-build procurement with the operations and maintenance of a facility for a specified period by a private sector partner. At the end of that period, the operation of the facility is transferred back to the public sector.
5. **Build-Own-Operate-Transfer:** The public sector grants a franchise to a private partner to finance, design, build and operate a facility for a specific period of time. Ownership of the facility is transferred back to the public sector at the end of that period.
6. **Build-Own-Operate:** The public sector grants the right to finance, design, build. operate and maintain a project to a private entity, which retains ownership the project. The private entity is not required to transfer the facility back to the public sector.
7. **Design-Build-Finance-Operate/Maintain:** Under this model, the private sector designs, builds, finances, operates Sandor maintains a new facility under a long-term lease. At the endowment of the lease term, the facility is transferred to the public sector.