Project Bundling—Assignment #2

Solution/Answer Key

You are in a position to recommend whether the public transportation agency for which you work should use project bundling, and which projects to bundle. Your agency covers a small, but densely populated state. It is a short distance between one corner of the state and another, but the driving is difficult at certain times of the day since the traffic is heavy. Please review the list of projects below. Your legislature has approved $50,000,000 for improving the state's bridges. Decide whether to bundle, and if so, what projects you would bundle. More than one bundle is possible, and not all projects must be bundled. Please list the projects in your bundle(s) and write a short explanation for why you bundled the projects the way you did.

Proj. ID	Project	Description	Location	Estimated Cost	Funding Source
1	**Medium Bridge**	**Rehabilitate - urban**	**SE portion of state**	**$4,000,000**	**A**
2	Paving, New drainage system	Rehabilitate - urban	NW portion of state	$5,500,000	C
3	Large Bridge	Replace - urban	NE portion of state	$82,000,000	C,D
4	Paving	Widening - urban	Central port. of state	$4,900,000	C
5	**Small Bridge**	**Rehabilitate – urban**	**SW portion of state**	**$1,750,000**	**A**
6	**Large Bridge**	**Rehabilitate - urban**	**SE portion of state**	**$10,000,000**	**A**
7	Paving, Drainage	Widening – urban	NE portion of state	$38,000,000	B
8	Paving	Rehabilitate. – rural	SW portion of state	$3,500,000	C
9	Mass Transit Facility	New building - urban	Central port. of state	$20,000,000	B
10	**Small Bridge**	**Rehabilitate - urban**	**NW portion of state**	**$2,000,000**	**A**
11	**Small Bridge**	**Rehabilitate - urban**	**SE portion of state**	**$6,300,000**	**A**
12	Paving, Drainage	Widen, Resurfacing - urban	NE portion of state	$6,000,000	C
13	**Large Bridge**	**Rehabilitate – urban**	**NW portion of state**	**$8,900,000**	**A**
14	Paving, Drainage	Widening – urban	SW portion of state	$4,900,000	C
15	Large Bridge	Replace – urban	Central port. of state	$54,000,000	C
16	Paving	Widening – urban	SE portion of state	$6,600,000	C
17	**Small Bridge**	**Rehabilitate – urban**	**NW portion of state**	**$3,000,000**	**A**
18	Large Bridge	Replace – urban	SW portion of state	*$14,000,000*	*A*
19	Small bridge	Replace – rural	NE portion of state	*$7,700,000*	*A*
20	Paving, New drainage system	Rehabilitate – urban	NE portion of state	$6,300,000	C
21	**Small Bridge**	**Rehabilitate – urban**	**Central port. of state**	**$2,900,000**	**A**
22	Tunnel	Rehabilitate – rural	SE portion of state	$120,000,000	C, D, E
23	Paving, New drainage system	Widening – urban	NE portion of state	$8,000,000	C
24	Small bridge	Replace – rural	SE portion of state	*$2,700,000*	*A*
25	Large Bridge	Replace – urban	Central port. of state	$60,000,000	C
26	Paving	Widening – urban	NW portion of state	$3,900,000	C
27	**Small Bridge**	**Rehabilitate – urban**	**SW portion of state**	**$3,400,000**	**A**

28	Large Bridge	Replace – urban	SE portion of state	*$16,900,000*	*C*
29	Paving, New drainage system	Widening – urban	NE portion of state	$5,800,000	C
30	Paving	Rehabilitate – urban	NW portion of state	$2,900,000	C
31	Paving, New drainage system	Rehabilitate. – urban	SW portion of state	$5,000,000	C
32	Small bridge	Replace– rural	SW portion of state	*$2,700,000*	*C*
33	Medium bridge	Replace – urban	SE portion of state	*$11,700,000*	*D*
34	Large Bridge	Replace– rural	Central port. of state	$56,000,000	C
35	Paving, Drainage	Widening – rural	SE portion of state	$8,900,000	C
36	**Medium Bridge**	**Rehabilitate – urban**	**SW portion of state**	**$7,600,000**	**A**
37	Paving	Widening – urban	NW portion of state	$4,000,000	C
38	Small bridge	Replace – rural	SE portion of state	*$5,900,000*	*A*

* The current funding sources for the projects listed below are:
A – Funding not identified
B – State Funds
C – Traditional Federal Funds
D – No-interest Loan
E – Special Federal Funds

Solution:
Students should address the bundle project goal and provide rational for their bundles.

Goal:
Improve the state's bridges for $50 M.

Acceptable answers:

1) One statewide bridge rehabilitation bundled program.

Projects in bold text and highlighted in **yellow** - projects #1, 5, 6, 10, 11, 13, 17, 21, 27, and 36. Total price is $49.85 M.

Rationale: All projects are bridges (similar asset type), and all are in for rehabilitation (similar work type), all are in an urban setting (similar geographic setting and traffic setting), and within the $50M program cap identified by the legislature.

2) Three geographic based bridge rehabilitation bundled projects, as follows –

Projects 1,6 &11 in SE = $20,300,000
Projects 5,27, & 36 in SW = $12,750,00
Projects 10, 13,17 in NW + 21 in Central = $16,800,000
Total = $49,850,000

Rationale: Same as above, except instead of one statewide bundle, the program is divided into three smaller bundles to increase local contractor involvement, specific geographic similarities, and improved regional traffic management.

Other observations/rationale:

A mix of small, medium, and larger bridges provides opportunity for different size subcontractors.

A Statewide program, or statewide coverage with three bundles, is more likely to get approval of the legislature as all parts of the state will benefit from the improved infrastructure.

Instructor notes:

1. Explain, in real life situations, more information will be available to help refine the bundle, such as bridge condition ratings, traffic volumes, importance of structure (e.g. serves a hospital or major employer), restrictions on construction (e.g. night-time only), environmental constraints, etc.
2. An assumption you need to make is the cost is all inclusive of design, construction, inspection, and any permits or right-of-way needed. In real life additional cost breakdown is often available.
3. There may be other bundles that students identify that are acceptable – if their rationale is explained, and it meets the goal of "improving the state's bridges for $50 M."
    a. For example, the two rural bridge replacements (#19 at $7.7 M and #38 at $2.9 M) could be included to cover the "rural" needs, if $10.6 M of urban rehabilitation bridge projects were removed from the bundle.
    b. For example, bridge replacements (italics/highlighted in *green*) - #18, 19, 24, 28, 32, 33, and 38. Total price $49 M. Not as ideal as it does not address as any areas of the state, and funding for three of them (#28, 32 and 33) has already been identified.