

Project Bundling—Class Assignment #1

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 large, but sparsely populated state. It is a significant distance between one corner of the state and another, but the driving is easy, since, except for two urban areas, the traffic is light. In other words, one can drive from one corner of the state to another as quickly as in a small, but highly populous state. Please review the list of projects in your State Work Plan below. Recommend one bundle with a limit of \$35,000,000. You want to spend as much of the \$35,000,000 as possible, because your funding source will retain anything you do not spend. Explain your answer.

ID #	Project	Description	Location	Estimated Cost
1	Small Bridge	Replace - urban	SE portion of state	\$6,750,000
2	Paving, Drainage	Widening - rural	NW portion of state	\$4,500,000
3	Large Bridge	Replace - rural	NE portion of state	\$72,000,000
4	Paving	Widening - rural	Central portion of state	\$3,900,000
5	Small Bridge	Rehabilitate - rural	SW portion of state	\$1,750,000
6	Large Bridge	Rehabilitate - rural	SE portion of state	\$12,000,000
7	Paving, Drainage	Widening - rural	NE portion of state	\$33,000,000
8	Paving	Rehabilitate - rural	SW portion of state	\$1,000,000
9	Mass Transit Facility	New building - urban	Central portion of state	\$20,000,000
10	Small Bridge	Repair - rural	NW portion of state	\$1,300,000
11	Small Bridge	Replace - urban	SE portion of state	\$6,300,000
12	Paving, Drainage	Widen, Resurface - rural	NE portion of state	\$5,000,000
13	Large Bridge	Replace/Repair - rural	NW portion of state	\$7,900,000
14	Paving, Drainage	Widening - rural	SW portion of state	\$3,900,000
15	Large Bridge	Replace - rural	Central portion of state	\$49,000,000
16	Paving	Widening - rural	SE portion of state	\$5,600,000
17	Small Bridge	Rehabilitate - rural	NW portion of state	\$2,000,000
18	Large Bridge	Rehabilitate - rural	SW portion of state	\$15,000,000
19	Paving, Drainage	Widening - rural	NE portion of state	\$5,300,000
20	Small Bridge	Widening - urban	Central portion of state	\$4,900,000
21	Tunnel	Widening - urban	SE portion of state	\$90,000,000
22	Paving, Drainage	Widening - rural	NE portion of state	\$7,000,000
23	Large Bridge	Replace - rural	Central portion of state	\$56,000,000
24	Paving	Widening - rural	NW portion of state	\$2,900,000
25	Small Bridge	Rehabilitate - rural	SW portion of state	\$3,400,000
26	Large Bridge	Rehabilitate - rural	SE portion of state	\$13,900,000
27	Paving, Drainage	Widening - rural	NE portion of state	\$4,800,000
28	Paving	Rehabilitate - rural	NW portion of state	\$1,900,000
29	Paving, Drainage	Widen, Resurface - rural	SW portion of state	\$4,000,000
30	Large Bridge	Replace/Repair - urban	Central portion of state	\$61,000,000
31	Paving, Drainage	Widening - urban	SE portion of state	\$9,900,000
32	Small Bridge	Replace - rural	SW portion of state	\$7,600,000
33	Paving	Widening - rural	NW portion of state	\$3,000,000

Explain your answer:

100% - Bundle by project type - all small bridges –
\$34 M allows for \$1 M in contingencies, cost overruns.

Any other bundle that meets the requirements and is well-explained, such as defining an objective with the bundle (e.g. improve bridges, or improve pavements, or focus on a geographic area). Keep in mind that “your funding source will retain anything you do not spend,” so the farther a bundle is from \$35 M, the lower the grade.

For example, other possible acceptable solutions could be:

By Project Type:

“Paving” – ID # 4, 8, 16, 24, 28, 33 - \$18.3 M and select “Paving, Drainage” projects - ID # 2, 19, 27 - \$15.1 M;	Total \$33.4 M
“Paving, Drainage” – ID # 2, 12, 14, 19, 22, 27, 29 - (all except the two largest projects ID # 7, 27)	Total \$34.5 M

By Work Type:

“Rehabilitate – rural” Bridges – ID # 5, 6, 17, 25, 26 (all except ID #18)	Total \$33.05 M
“Widening – rural” Paving and “Paving, Drainage” projects – ID # 2, 4, 14, 16, 19, 22, 27 - \$35 M (all except ID # 7, 24)	Total \$35 M

By Geographic area:

“NE portion of state” and “Paving, Drainage” – ID # 12, 19, 22, 27 – \$22.1 M and “SE portion of state” and “Paving, Drainage” – ID #31 - \$9.9 M;	Total \$32 M
“SW portion of state” all bridges – ID # 5, 18, 25, 32 –	Total \$27.75 M
“NW Portion of state” all work types – ID # 2, 10, 13, 17, 24, 28, 33 –	Total \$23.5 M