

IV

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G	H	I	J
1	<b>Why Build Extra Capacity You Don't Need?</b>			If so, where should you put it?						
2	<b>Values of Decision Variables</b>									
3		Bennington	Tractown	used	Capacity	ExtraUnused				
4	Hooperman	0	60	60	60	0				
5	Wizcity	0	60	60	60	0				
6	DoogieCorners	120	130	250	250	0				
7										
8	provided	120	250							
9	Needed	120	250							
10										
11	<b>Cost/profit Coefficients</b>									
12		Bennington	Tractown							
13	Hooperman	27	10							
14	Wizcity	19	8							
15	DoogieCorners	17	7							
16										
17	<b>Costs/profits</b>									
18		Bennington	Tractown							
19	Hooperman	0	600							
20	Wizcity	0	480							
21	DoogieCorners	2040	910							
22										
23				Total	4030					
24										

The Solver Parameters dialog box is open, showing the following settings:

- Set Target Cell:  $\$E\$23$
- Equal To:  Max  Min  Value of: 0
- By Changing Variable Cells:  $\$B\$4:\$C\$6$
- Subject to the Constraints:
  - $\$B\$8 \geq \$B\$9$
  - $\$C\$8 \geq \$C\$9$
  - $\$D\$4 \leq \$E\$4$
  - $\$D\$5 \leq \$E\$5$
  - $\$D\$6 \leq \$E\$6$

10

What is the Solution? Who provides what to whom and what is the total cost?

**Microsoft Excel 8.0e Sensitivity Report**  
 Worksheet: [EXPANL.pb.xls]Sheet1  
 Report Created: 10/18/2000 11:23:40 PM

**Adjustable Cells**

Cell	Name	Final Value	Reduced Cost	Objective Coefficient	Allowable Increase	Allowable Decrease
$\$B\$4$	Hooperman Bennington	0	7	27	1E+30	7
$\$C\$4$	Hooperman Tractown	60	0	10	1	2
$\$B\$5$	Wizcity Bennington	0	1	19	1E+30	7
$\$C\$5$	Wizcity Tractown	60	0	8	1	1E+30
$\$B\$6$	DoogieCorners Bennington	120	0	17	1	20
$\$C\$6$	DoogieCorners Tractown	130	0	7	3	1

**Constraints**

Cell	Name	Final Value	Shadow Price	Constraint R.H. Side	Allowable Increase	Allowable Decrease
$\$B\$8$	provided Bennington	120	20	120	0	60
$\$C\$8$	provided Tractown	250	10	250	0	60
$\$D\$6$	DoogieCorners used	250	-3	250	60	0
$\$D\$5$	Wizcity used	60	-2	60	60	0
$\$D\$4$	Hooperman used	60	0	60	1E+30	0

20

There is adequate capacity. Should you expand a plant? If so, which one would be best to expand? How much would it save, per unit of extra capacity? How much expansion could you have at that savings?

10

How much would the cost of Hooperman-Bennington have to decrease before the optimum would shift to another corner?

this box for grade

total=40