Cost per Delivery						
To/From	Staging Facility	Downtown	Bearden	Far West	SoKno	Powell
Brewery	$5.00	$1.00	$2.00	$5.00	$2.50	$5.50
Staging Facility		$4.25	$2.00	$3.00	$6.00	$3.00
Brewery to Staging Facility		$9.25	$7.00	$8.00	$11.00	$8.00

Forecasted Annual Demand					
Retail Area	Downtown	Bearden	Far West	SoKno	Powell
# of Deliveries	6100	7200	3500	5500	2200

To/From	Downtown	Bearden	Far West	SoKno	Powell			Capacity
Brewery	1500	0	0	5500	0	7000	<=	7000
Staging Facility	4600	7200	3500	0	2200	17500	=	17500
Total Network	6100	7200	3500	5500	2200	24500	<=	28100
	6100	7200	3500	5500	2200			
	=	=	=	=	=			
Demand	6100	7200	3500	5500	2200			

D2C Cost(Brew to retail)	$	15,250.00
Brewery to Staging Facility Cost	$	138,550.00
Total Cost	$	153,800.00

Microsoft Excel 16.0 Sensitivity Report
Worksheet: [Distr. Network Design Case.xlsx]Distr. Network Design Case
Report Created: 3/9/2024 9:11:42 PM

Variable Cells

Cell	Name	Final Value	Reduced Cost	Objective Coefficient	Allowable Increase	Allowable Decrease
C13	Brewery Downtown	1500	0	1	3	0.25
D13	Brewery Bearden	0	3.25	2	10000000000000000000000000000000	3.25
E13	Brewery Far West	0	5.25	5	10000000000000000000000000000000	5.25
F13	Brewery SoKno	5500	0	2.5	0	1E+30
G13	Brewery Powell	0	5.75	5.5	10000000000000000000000000000000	5.75
C14	Staging Facility Downtown	4600	0	9.25	0	3.25
D14	Staging Facility Bearden	7200	0	7	3	1E+30
E14	Staging Facility Far West	3500	0	8	5	1E+30
F14	Staging Facility SoKno	0	0.25	11	10000000000000000000000000000000	0.25
G14	Staging Facility Powell	2200	0	8	6	1E+30

Constraints

Cell	Name	Final Value	Shadow Price	Constraint R.H. Side	Allowable Increase	Allowable Decrease
C16	Downtown	6100	9.25	6100	3600	4600
D16	Bearden	7200	7	7200	3600	7200
E16	Far West	3500	8	3500	3600	3500
F16	SoKno	5500	10.75	5500	1500	4600
G16	Powell	2200	8	2200	3600	2200
H13	Brewery	7000	0	7000	1E+30	0
H14	Staging Facility	17500	8.25	0	1500	0
H15	Total Network	24500	0	28100	1E+30	3600

1.) What is the estimated distribution cost of the minimum cost logistics network?

Answer: $153,800

2.) You are not currently forecasting to use all your brewing capacity of 28,100 units next year. You talk to your sales and marketing team about targeting specific areas of the distribution network to increase sales. What areas would you recommend targeting?

Answer: After interpreting the sensitivity analysis objective coefficient and allowable increase, the specific target areas of the network to increase sales in Brewery Powell by$5.50 per unit sold.

3.) **Lance asks for advice about potential investments in capacity as a strategy to decrease costs long term. What advice (if any) would you give him? How much would you be willing to invest in this recommendation and why?**

Answer: Before determining anything, there must be a cost-benefit analysis that would assess current costs, demand, and the cost it would take to to pursue such investment. According to the data, D2C has reached maximum capacity at 7,000 cases. If demand were to increase, there could be potential opportunity in expanding the staging facility by a couple of more thousand. There needs to be a deep look into this before making the decision. The maximum capacity is 28100. Currently the capacity is sitting at 24,500 between the staging facility and the brewery. There is room for 3,600 more cases. Lance should look at a cost break down to assess where he could potentially reduce costs in transportation and optimizing his delivery routes. After careful consideration, analyze the return of investment for this expansion project.

4.) **Lance currently outsources transportation to a third-party company that specializes in distribution for craft breweries. The company says that he can lock in current transportation prices for the next year if he guarantees that he will ship at least 75% of forecasted annual demand in the table above. There are other transportation options that he can choose for each area. What delivery routes would you be willing to lock in a high percentage of the forecasted demand and which ones would you wait to see if you could negotiate a lower rate with other 3rd parties?**

Answer: Lance should consider locking in the routes that have a high forecasted demand where the prices may be competitive and the third-party company offers reliable service. If the routes can be locked in at a favorable price, then Lance should pursue the contract. If there are routes that have lower demand and the prices are high, Lance should seek other options. There could be potential in negitiating these contracts at a lower rate. If Lance wants to continue saving on costs with his current successful strategy, he should lock in the routes that fit the criteria and continues that reliability of his network. Other routes should be negotiated with other partners to secure better prices to have a greater return on investment.