Solution

TLC

	A	B	C	Aggregate	1	2	3	4	5	6	Total		
PPI_TL	140.2	140.2	140.2	140.2	140.2	140.2	140.2	140.2	140.2	140.2		Dec 19 (P	Prod Price Index for TL
Kwt	25	25	25	25.0	25.0	25.0	25.0	25.0	25.0	25.0		ton	Physical weight capacity
Kcu	2750	2750	2750	2750.0	2750.0	2750.0	2750.0	2750.0	2750.0	2750.0		ft^3	Effective cube capacity
unit cube	25	16	9									ft^3	
unit weight	90	300	120									lb	
unit value	450	875	275									$	
unit demand	16000	10000	21000									units/yr	
s	3.6000	18.7500	13.3333	9.2924	9.2924	9.2924	9.2924	9.2924	9.2924	9.2924		lb/ft^3	Density
r	2.7303	2.7303	2.7303	2.7303	2.7303	2.7303	2.7303	2.7303	2.7303	2.7303		$/mi	TL rev per loaded tr-mi
MC_TL	61.43	61.43	61.43	61.43	61.43	61.43	61.43	61.43	61.43	61.43		$	Min charge TL
qmax	4.9500	25.0000	18.3333	12.7770	12.7770	12.7770	12.7770	12.7770	12.7770	12.7770		ton	Max payload
demand pct				100	21	9	16	21	15	18			
f	720	1500	1260	3480	730.8	313.2	556.8	730.8	522	626.4		ton/yr	Annual demand
n	145.454545	60	68.7272727		57.1963636	24.5127273	43.5781818	57.1963636	40.8545455	49.0254545		per yr	
w	397.131982	163.816943	187.644861		156.162224	66.9266673	118.980742	156.162224	111.544445	133.853335		$/mi	Monetary weight
Locate	lon	lat	city										
(1)	-108.60465	38.8156298	Grand Junction, CO	(using lon-lat found by Solver without adjusting to city; adjusing for city also correct)									
dGC	725.22548	777.092379	1117.62402		976.685527	631.644113	745.925518	522.60057	811.679064	1347.94192			
d	870.270576	932.510855	1341.14882		1172.02263	757.972936	895.110621	627.120684	974.014877	1617.5303			
FTL (continuing to use FTL shipment sizes to calculate TLC)													
TC_FTL	345612.28	152761.08	251659.68		183025.66	50728.60	106500.93	97932.56	108645.95	216511.82	1,513,379	$	
a	1	1	1		0.5	0.5	0.5	0.5	0.5	0.5			Inventory fraction
v	10000	5833.33333	4583.33333	6242.81609	6242.81609	6242.81609	6242.81609	6242.81609	6242.81609	6242.81609		$/ton	Value per ton
h	0.3	0.3	0.3		0.3	0.3	0.3	0.3	0.3	0.3		1/yr	Inventory carrying rate
IC_FTL	14850	43750	25208.3333		11964.7029	11964.7029	11964.7029	11964.7029	11964.7029	11964.7029	155,597	$	
(2)	TLC_FTL 360462.279	196511.077	276868.018		194990.363	62693.3054	118465.629	109897.263	120610.652	228476.527	1,668,975	$	TLC Full Truckload
1-wk (using same location even though weights may change)													
t_max					0.01916	0.01916	0.01916	0.01916	0.01916	0.01916		yr/TL	1-wk interval constraint
n_min					52.18	52.18	52.18	52.18	52.18	52.18		TL/yr	
max(n,n_min)					57.20	52.18	52.18	57.20	52.18	52.18			
TC_1wk					183025.7	107982.5	127519.5	97932.6	138760.3	230437.0		$	
IC_1wk					11964.70	5620.84	9992.61	11964.70	9368.07	11241.68		$	
TLC_1wk	360462.279	196511.077	276868.018		194990.363	113603.36	137512.067	109897.263	148128.405	241678.664	1,779,651	$	TLC 1-wk interval constr
(3)											110,676	$	TLC incr FTL to 1-wk

Location

		x (deg)	x (rad)	y (deg)	y (rad)	d(rad)	d (mi)	w	TC
	DC	-108.605	-1.89551	38.816	0.677461				1,261,148.80
A	San Jose	-121.819	-2.12615	37.2969	0.650954	0.183364	725.2255	397.13	288,010.23
B	Richardson	-96.7081	-1.68787	32.9723	0.575475	0.196458	777.0924	163.82	127,300.90
C	Chicago	-87.6818	-1.53034	41.8376	0.730204	0.282606	1117.624	187.64	209,716.40
1	Houston	-95.3863	-1.6648	29.7805	0.519768	0.246899	976.6855	156.16	152,521.38
2	San Diego	-117.135	-2.04439	32.8153	0.572735	0.159686	631.6441	66.93	42,273.84
3	Richmond	-122.359	-2.13557	37.953	0.662405	0.188601	745.9255	118.98	88,750.77
4	Meridian	-116.397	-2.03151	43.6179	0.761276	0.132152	522.6006	156.16	81,610.47
5	Des Moines	-93.6167	-1.63392	41.5739	0.725601	0.205243	811.6791	111.54	90,538.29
6	Dearborn	-83.2115	-1.45231	42.3131	0.738503	0.340849	1347.942	133.85	180,426.52