



Alkhorayef
Irrigation Solutions

ALKHORAYEF IRRIGATION SOLUTIONS.

**The optimum design
less power consumption ...**





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- System configuration.
- All spans 6-5/8"
- One span 8-5/8"
- Two spans 8-5/8"
- Three spans 8-5/8"
- Four spans 8-5/8"
- Five spans 8-5/8"
- Fuel consumption.
- Operation cost.



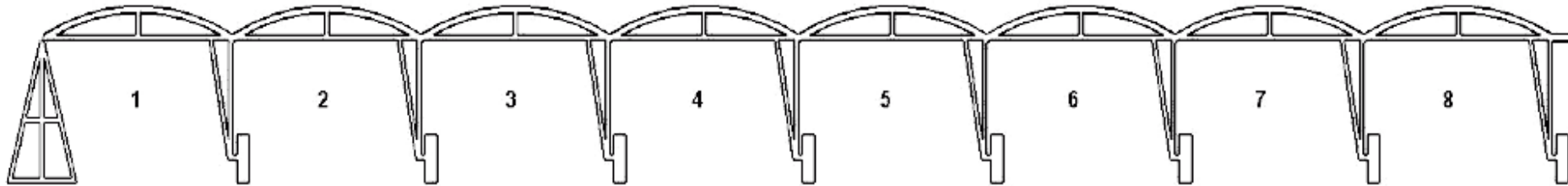
SYSTEM CONFIGURATION

Irrigated Area, Ha	63.6
Flow, GPM	1500
Maximum Water Consumption mm/day	12
Average fuel Consumption L/hr./hp	0.186
Yearly average running hrs.	5000
Fuel Cost LE / L	3.75

All pivot spans 6 (5/8)"

Pivot Pressure (calc.): 4,0 bar

Pivot End Pressure (spec.): 1,0 bar



Specified Flow: 350,0 m³/h
 Total System Length: 450,0 m
 Total Covered Area: 63,6 ha
 Flow/ha: 5,51 m³/h on Irrigated Area of 63,6 ha

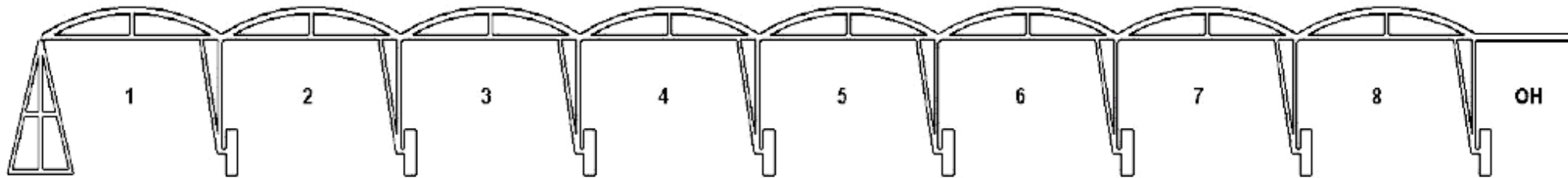
Tires: 14.9x24 - HI Float
 LRT Speed: 4,08 m/min

Flow, GPM	Area, Ha	End Pressure, PSI	Pivot Point Pressure	Friction Losses, PSI
1500	63.6	15	59	44

1 Tower 8 (5/8)'' + 7 Towers 6 (5/8)'' + OH 6m

Pivot Pressure (calc.): 3,5 bar

Pivot End Pressure (spec.): 1,0 bar



Specified Flow: 350,0 m3/h

Total System Length: 450,2 m

Total Covered Area: 63,7 ha

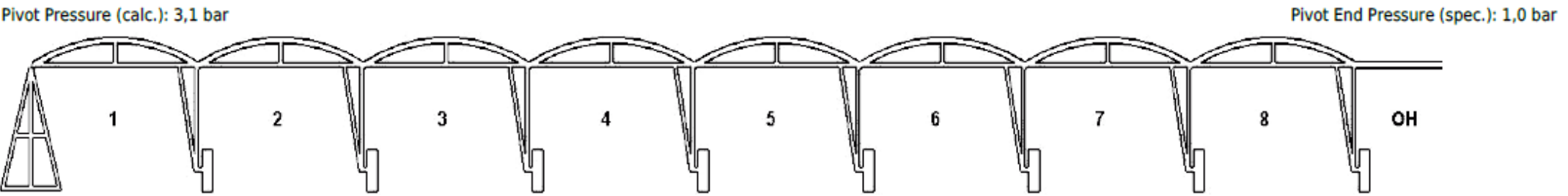
Flow/ha: 5,50 m3/h on Irrigated Area of 63,7 ha

Tires: 14.9x24 - HI Float

LRT Speed: 4,08 m/min

Flow, GPM	Area, Ha	End Pressure, PSI	Pivot Point Pressure	Friction Losses, PSI
1500	63.6	15	52	37

2 Towers 8 (5/8)'' + 6 Towers 6 (5/8)'' + OH 12m

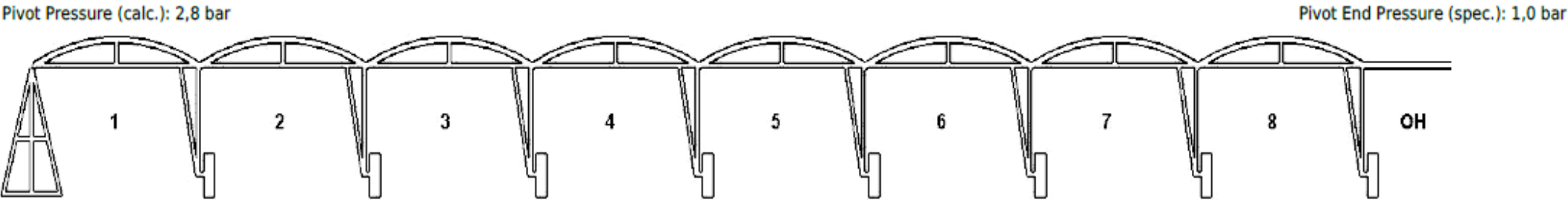


Specified Flow: 350,0 m3/h
Total System Length: 450,2 m
Total Covered Area: 63,7 ha
Flow/ha: 5,49 m3/h on Irrigated Area of 63,7 ha

Tires: 14.9x24 - HI Float
LRT Speed: 4,08 m/min

Flow, GPM	Area, Ha	End Pressure, PSI	Pivot Point Pressure	Friction Losses, PSI
1500	63.6	15	46	31

3 Towers 8 (5/8)'' +4 Towers 6 (5/8)'' + OH 18m



Specified Flow: 350,0 m3/h
Total System Length: 449,9 m
Total Covered Area: 63,6 ha
Flow/ha: 5,50 m3/h on Irrigated Area of 63,7 ha

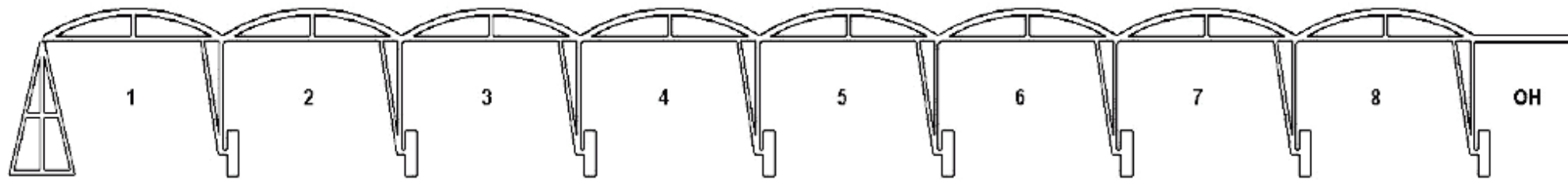
Tires: 14.9x24 - HI Float
LRT Speed: 4,08 m/min

Flow, GPM	Area, Ha	End Pressure, PSI	Pivot Point Pressure	Friction Losses, PSI
1500	63.6	15	41	26

4 Towers 8 (5/8)'' + 4 Towers 6 (5/8)'' + OH 22m

Pivot Pressure (calc.): 2,5 bar

Pivot End Pressure (spec.): 1,0 bar



Specified Flow: 350,0 m³/h

Total System Length: 450,2 m

Total Covered Area: 63,7 ha

Flow/ha: 5,50 m³/h on Irrigated Area of 63,7 ha

Tires: 14.9x24 - HI Float

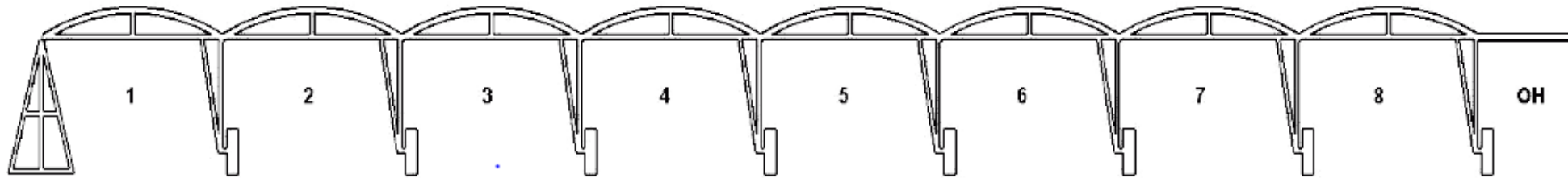
LRT Speed: 4,08 m/min

Flow, GPM	Area, Ha	End Pressure, PSI	Pivot Point Pressure	Friction Losses, PSI
1500	63.6	15	37	22

5 Towers 8 (5/8)" + 3 Towers 6 (5/8)" + OH 24m

Pivot Pressure (calc.): 2,2 bar

Pivot End Pressure (spec.): 1,0 bar



Specified Flow: 350,0 m3/h

Total System Length: 450,2 m

Total Covered Area: 63,7 ha

Flow/ha: 5,41 m3/h on Irrigated Area of 63,7 ha

Tires: 11.2x24 - Standard Tire

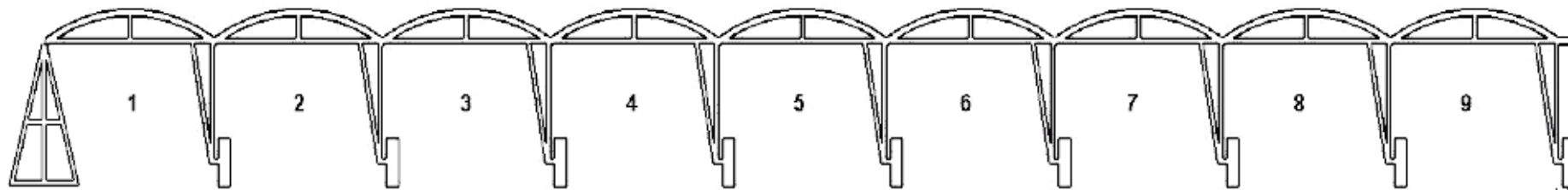
LRT Speed: 3,84 m/min

Flow, GPM	Area, Ha	End Pressure, PSI	Pivot Point Pressure	Friction Losses, PSI
1500	63.6	15	32	17

6 Towers 8 (5/8)'' + 3 Towers 6 (5/8)''

Pivot Pressure (calc.): 1,9 bar

Pivot End Pressure (spec.): 1,0 bar



Specified Flow: 350,0 m3/h

Total System Length: 452,6 m

Total Covered Area: 64,4 ha

Flow/ha: 5,44 m3/h on Irrigated Area of 64,3 ha

Tires: 14.9x24 - HI Float

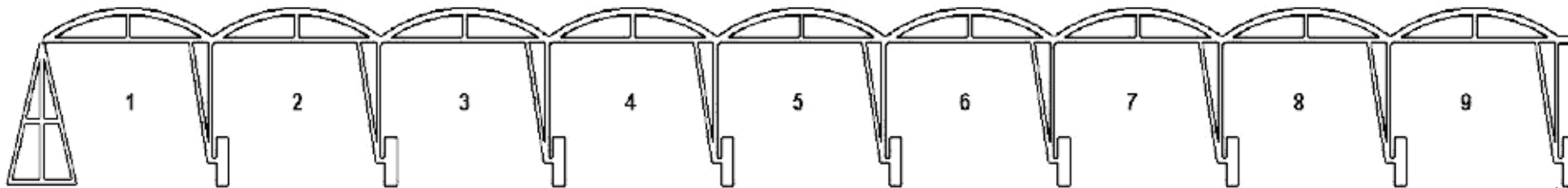
LRT Speed: 4,08 m/min

Flow, GPM	Area, Ha	End Pressure, PSI	Pivot Point Pressure	Friction Losses, PSI
1500	63.6	15	28	13

7 Towers 8 (5/8)'' + 2 Towers 6 (5/8)''

Pivot Pressure (calc.): 1,8 bar

Pivot End Pressure (spec.): 1,0 bar



Specified Flow: 350,0 m³/h

Total System Length: 452,6 m

Total Covered Area: 64,4 ha

Flow/ha: 5,44 m³/h on Irrigated Area of 64,3 ha

Tires: 14.9x24 - HI Float

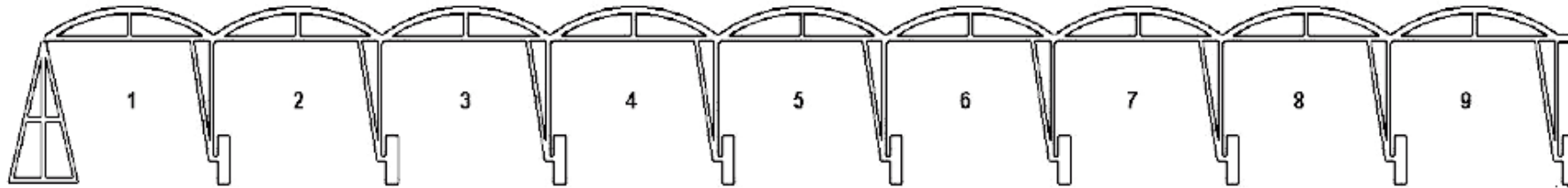
LRT Speed: 4,08 m/min

Flow, GPM	Area, Ha	End Pressure, PSI	Pivot Point Pressure	Friction Losses, PSI
1500	63.6	15	26	11

8 Towers 8 (5/8)'' + 1Tower 6 (5/8)''

Pivot Pressure (calc.): 1,8 bar

Pivot End Pressure (spec.): 1,0 bar



Specified Flow: 350,0 m³/h

Total System Length: 452,6 m

Total Covered Area: 64,4 ha

Flow/ha: 5,44 m³/h on Irrigated Area of 64,3 ha

Tires: 14.9x24 - HI Float

LRT Speed: 4,08 m/min

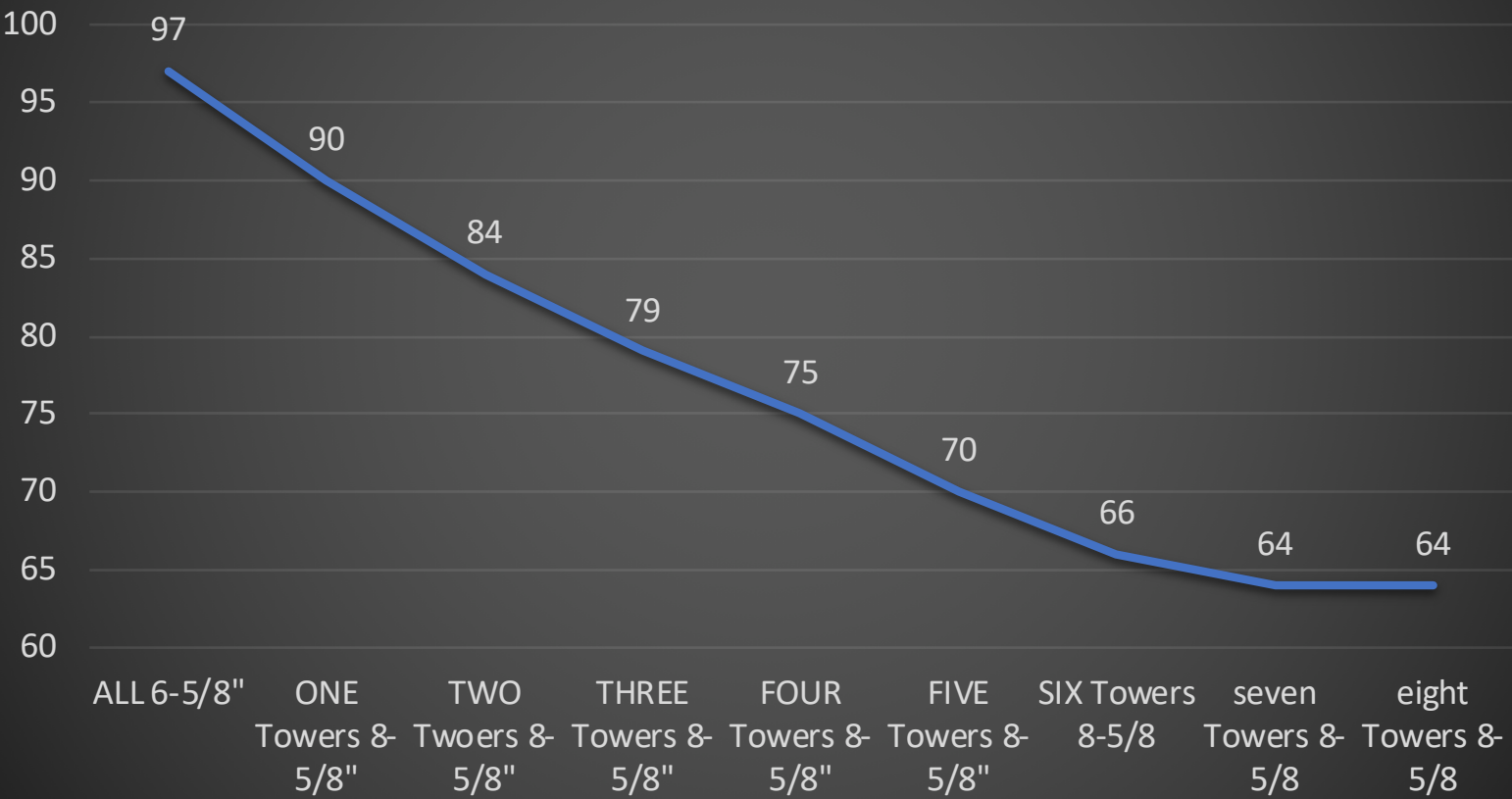
Flow, GPM	Area, Ha	End Pressure, PSI	Pivot Point Pressure	Friction Losses, PSI
1500	63.6	15	26	11

From Pipe 6" (5/8) TO Pipe 8" (5/8) with Mainline
Frictions

SYSTEM SPECS	ALL 6-5/8"	ONE TOWER 8 5/8"	TWO TOWER 8 5/8"	THREE TOWER 8 5/8"	FOUR TOWERS 8 5/8"	FIVE TOWERS 8 5/8"	Six TOWERS 8 5/8"	Seven TOWERS 8 5/8"	Eight TOWERS 8 5/8"
PIVOT PRESSURE(psi)	59	52	46	41	37	32	28	26	26
MAINLINE 10" (500M) +FRICTION LOSSES(psi)	38								
PUMP REQUIRED PRESSURE (TDH) (psi)	97	90	84	79	75	70	66	64	64
REQUIRED HORSE POWER AT PUMP@-75% Eff.	113.1667	105	98	92.16667	87.5	81.66667	77	74.66667	74.66667
Aver. Fuel Consumption L/hr (.186)	21.16217	19.635	18.326	17.23517	16.3625	15.27167	14.399	13.96267	13.96267
Fuel Consumption Cost in LE/year	396790.6	368156.3	343612.5	323159.4	306796.9	286343.8	269981.3	261800	261800
Fuel Consumption Cost Variance		28634.38	53178.13	73631.25	89993.75	110446.9	126809.4	134990.6	134990.6
		7%	13%	18%	22%	28%	32%	33%	33%

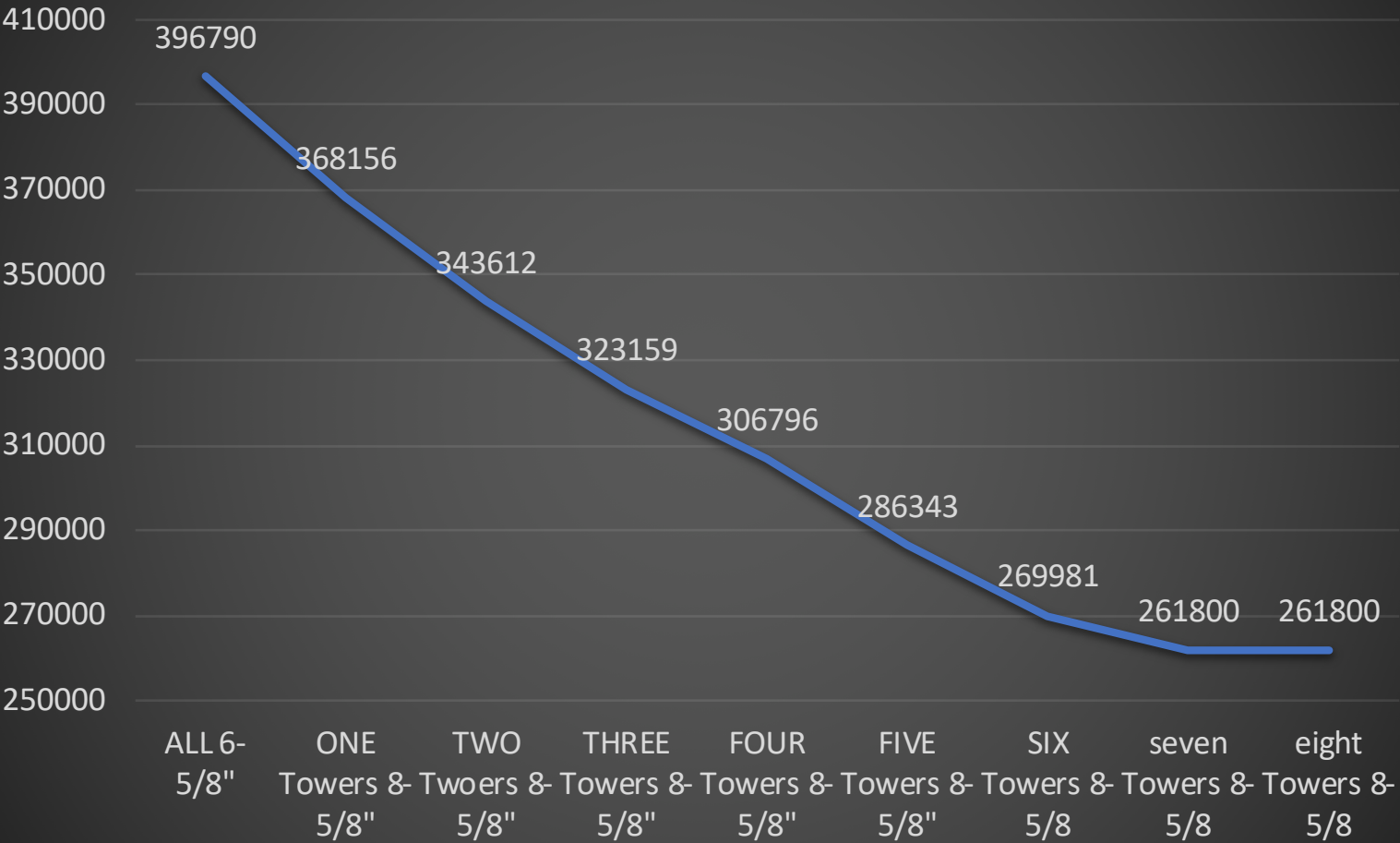


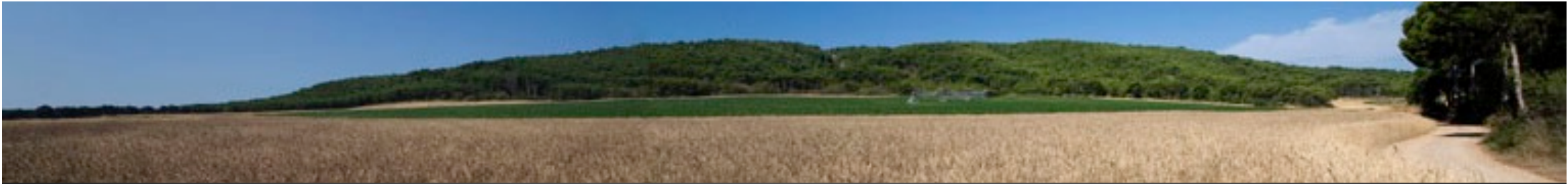
Pivot pressure



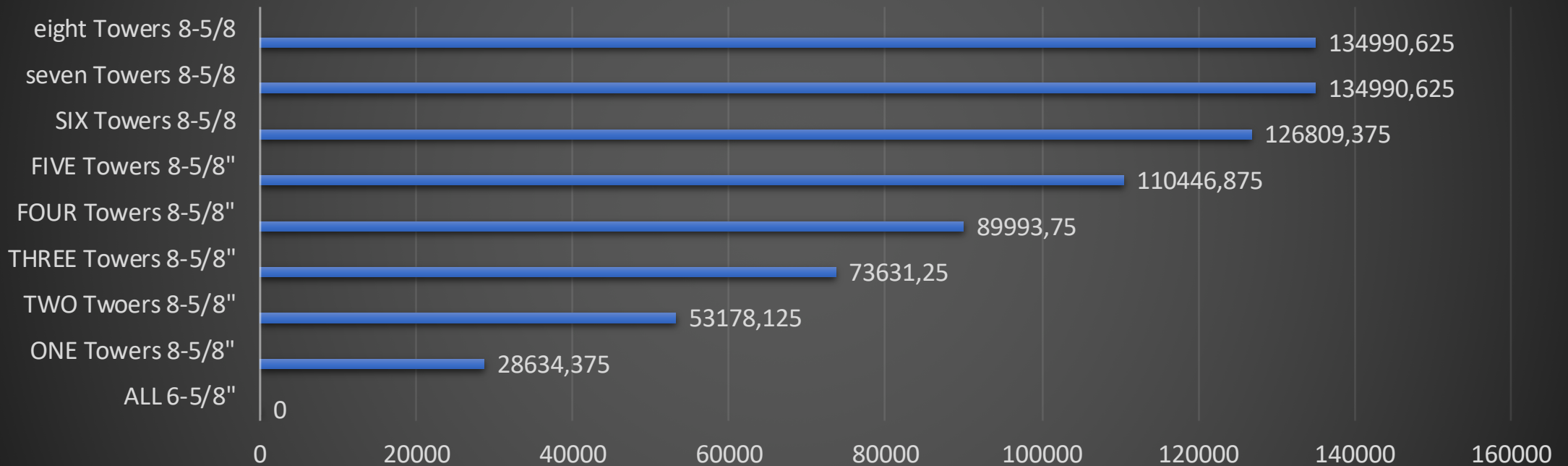


Fuel Consumption Cost in LE/year





Saving of operation cost

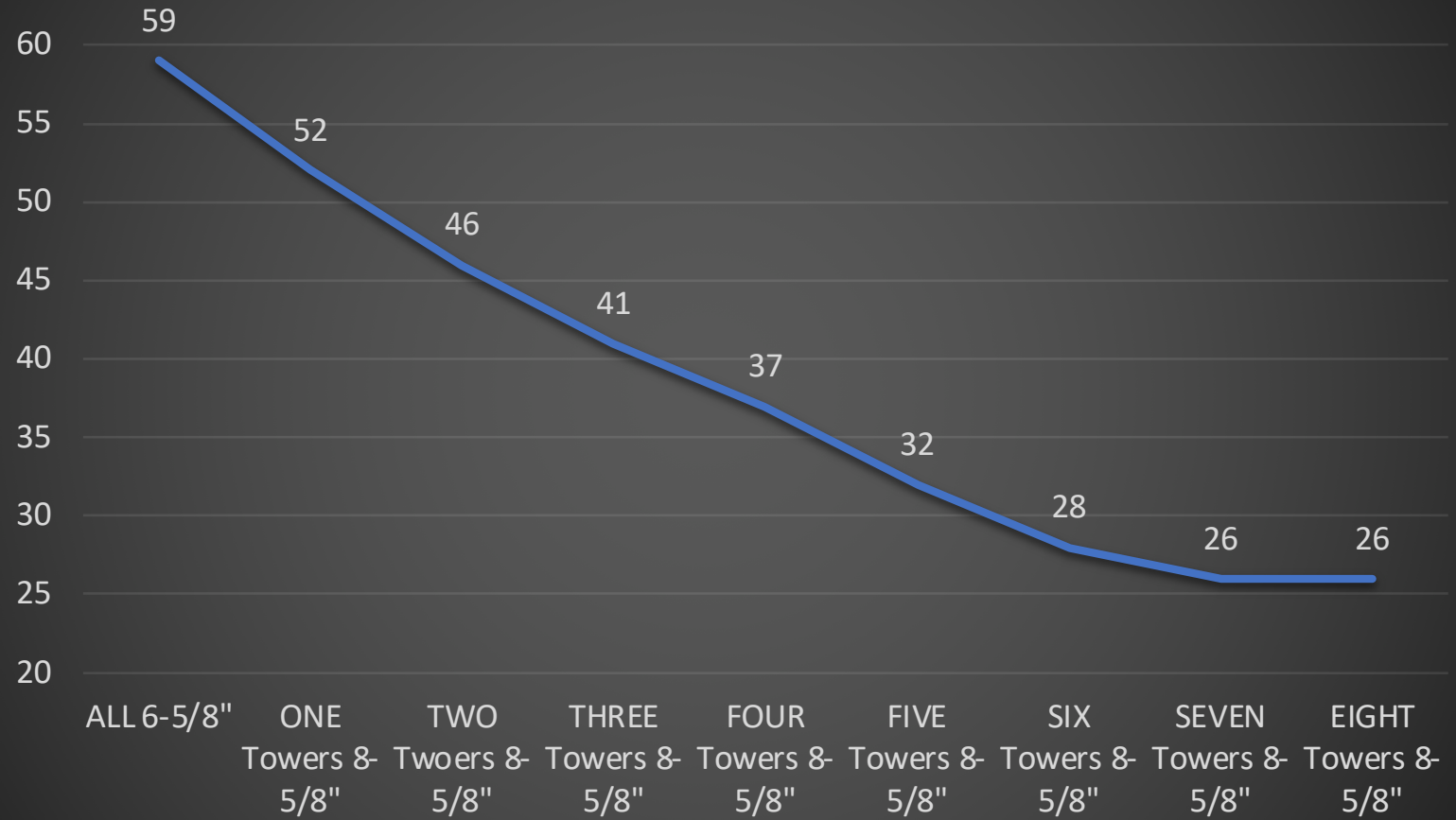


From Pipe 6" (5/8) TO Pipe
8" (5/8) without Mainline

SYSTEM SPECS	ALL 6-5/8"	ONE TOWER 8 5/8"	TWO TOWER 8 5/8"	THREE TOWER 8 5/8"	FOUR TOWERS 8 5/8"	FIVE TOWERS 8 5/8"	Six TOWERS 8 5/8"	Seven TOWERS 8 5/8"	Eight TOWERS 8 5/8"
PIVOT PRESSURE(psi)	59	52	46	41	37	32	28	26	26
REQUIRED HORSE POWER AT PUMP@-75% Eff.	68.83	60.66	53.66	47.83	43.16	37.33	32.66	30.33	30.33
Aver. Fuel Consumption L/hr (.186)	12.87	11.34	10.03	8.94	8.07	6.98	6.10	5.67	5.67
Fuel Consumption Cost in LE/year	241346.9	212712.5	188168.8	167715.6	151353.1	130900	114537.5	106356.3	106356.3
Fuel Consumption Cost Variance		28634.38	53178.13	73631.25	89993.75	110446.9	126809.4	134990.6	134990.6
		13%	23%	30%	39%	46%	54%	56%	56%

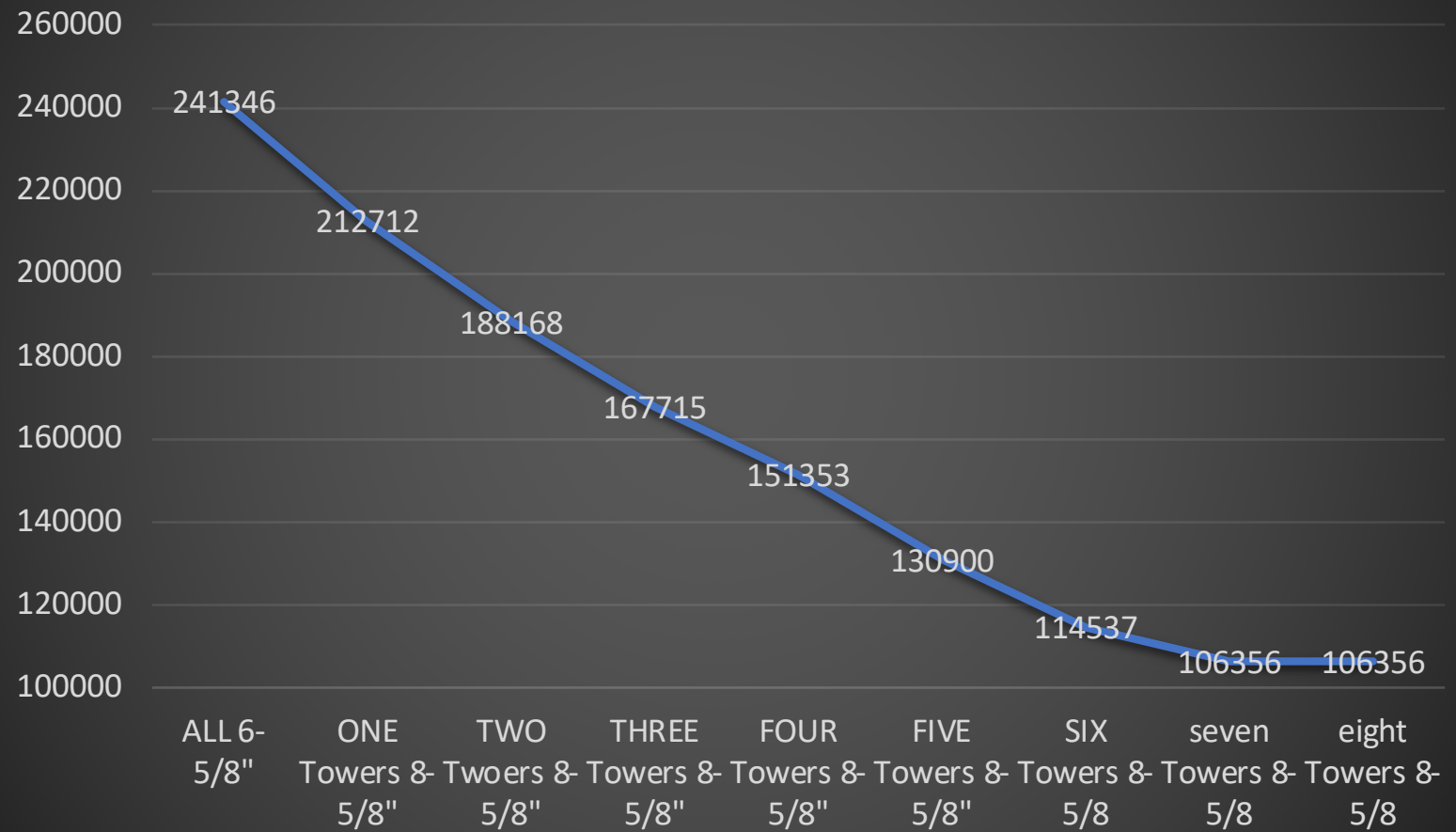


Pivot pressure (PSI)



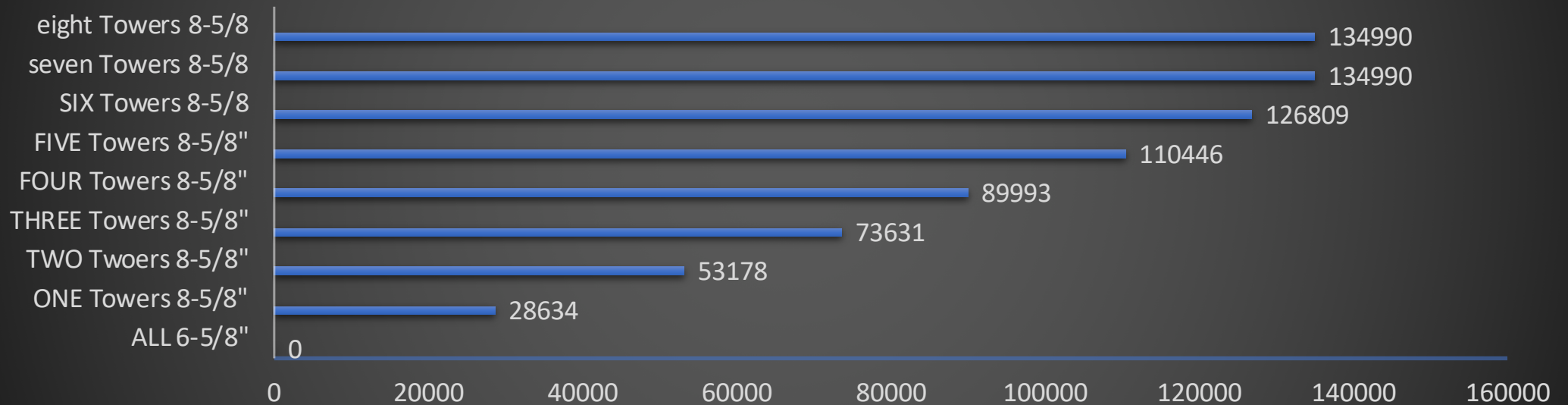


Fuel Consumption Cost in LE/year





Saving of operation cost



The extra cost of a larger pipe will be recovered quickly from lower fuel costs

RETURN ON INVESTMENT

	All 6"5/8	5X8"5/8 +3X6"5/8 +24OH	7X8"5/8 +2X6"5/8
Pivot Point Press.	59PSI 4BAR	32PSI - 2.2BAR	26PSI - 1.76 BAR
Friction Loss	44	17	11
REQUIRED HORSE POWER	113	81	75
Price	\$55,000	\$60,000	\$65,000
Extra Investment, \$/system		\$5,000	\$10,000
Fuel Cost \$/year	\$13,750	\$7,500	\$6,000
Savings in Fuel Cost \$/year		\$6,250	\$7,750
Payback Period, years	Year 1 Year2	\$6,250 > \$5,000 \$12,500 > \$ 5,000	\$7,750 < \$10,000 \$15,500 > \$10,000



THANK YOU



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