Design Project II

For the second design project, we had to use different methods in order to decide how GE should improve their current locomotives. The customer (GE Transportation) has provided some requirements which we must fulfill. Pittsdelphia must continue to meet EPA requirements, but our mission was to find a cost effective solution which reduces smog while maintaining or increasing freight capacity. To do this, they asked that we evaluate the suggestions made for fleet upgrade or alternate shipping methods.

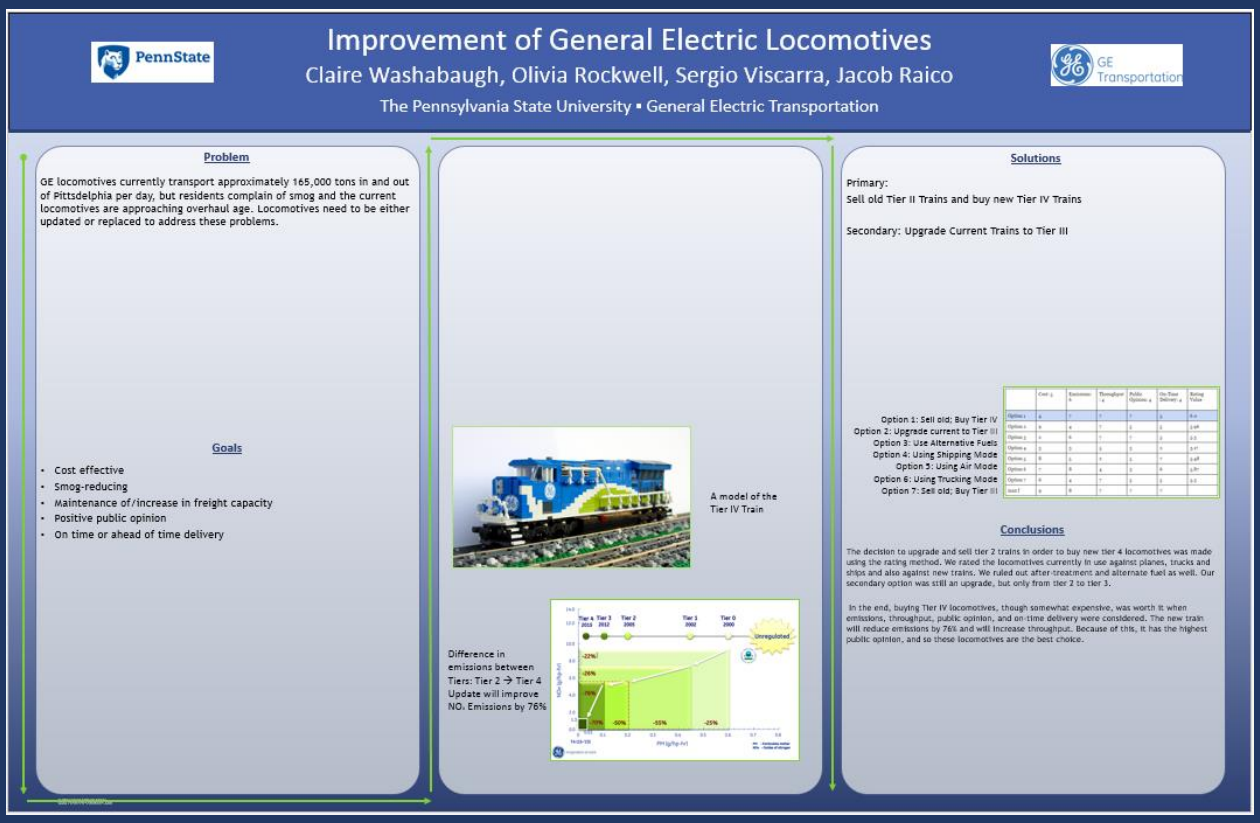
We organized our raw data for each possible solution and each criteria in a table:

	Option 1	**Option 2**	**Option 3**	**Option 4**	**Option 5**	**Option 6**	**Option 7**
Cost	>$200 mil	$42,500,000	$5.5 bil	~$250 mil	<$100 mil	<$150 mil	> $150 mil
Emissions	1.3	4.75	2	10.44	4	0.02	4.75
Throughput	+++	+++	+++	++	-	+	+++
Public Opinion	+++	+	+++	--	+	--	+
On-Time Delivery	+	+	+	--	+++	++	+

We then used the Ideal Value Method to rank each solution:

	Cost: 5	Emissions: 6	Throughput: 4	Public Opinion: 4	On-Time Delivery: 4	Rating Value
Option 1	4	7	7	7	5	6.0
Option 2	9	4	7	5	5	5.96
Option 3	2	6	7	7	5	5.3
Option 4	3	3	5	3	2	3.17
Option 5	8	5	2	5	7	5.48
Option 6	7	8	4	3	6	5.87
Option 7	6	4	7	5	5	5.3

max f	9	8	7	7	7	

In the end, Option 1 had the highest rating value and so is the best option. We made our recommendation to GE Transportation with a poster describing this process and its end result.

Our initial poster: