**Background:**

The City of Talent plans to add solar panels at the current City Hall site. The purpose is to produce enough energy to supply both City Hall and the Depot. Currently, City Hall uses

500 KwH of energy a month and the Depot uses 43,390 KwH of energy a month. There are two options for locations, as described below.

Option A: Place solar panels on fixed structures over existing parking spaces.

Option B: Use the open field behind City Hall. Solar panels will be on mounted on poles that can rotate for continual alignment with the sun.

**Important Information:**

* True south (180 degrees) is ideal orientation for solar panels
* The solar panels need to have a 32 degree tilt
* There is a commercial incentive of $25K for fixed (ground mounted or on a structure) systems. There is not an incentive for tracking systems.
* The site meets the minimum 75% TSFR requirement to apply for the commercial incentive
* The PV Watts website can be used to estimate the output of a system.
* The average installation cost for commercial is $2.18 / watt.
* Ground mounts (in the field) are estimated to cost $3.00 / watt
* Costs for parking structures can be found at Absolute Steel (see data sheet).The full cantilever and T-frame are options for mounting solar panels.
* The City used SunPower E20 panels on the community center. A more economical solar panel are Q-cells. See data sheets for sizes.
* Current power usages are outlined on the attached e-mail.

**Criteria and Limitations:**

Both Options:

* Generate 100% of month energy needs for both City Hall and the Depot.

Specific to Option A:

* Maintain existing parking arrangement.
* Utilize necessary structures for solar panels as shade for parking.
* Solar panels must be aligned so that vehicles can park under the panel structures.

Specific to Option B:

* Panels must be far enough apart to allow full rotation of the panel.
* In order to provide access for maintenance vehicles, there must be a twelve foot access lane for the length of the field.
* Pervious areas that are covered by solar panels must be calculated

**Project Requirements:**

1) Estimate the number of solar panels that will be required for both options. Estimates will account for productivity changes that result from alignment requirements and sun exposure.

2) Create preliminary cost estimates for both options based on estimated number of solar panels. Project estimated payback times for both options. Multiple cost estimates should be created to reflect “If\_\_\_\_, then\_\_\_\_” options for multiple layouts. Cost estimates should also include percent of total energy proposed.

3) Evaluate both options based on criteria and priorities.

4) Based on determined benefits and drawbacks of each plan, determine which plan you would like to present to the City as the best option.

5) Create a scaled drawing of your chosen site at 1”= 8’- 0”

6) Use the plan drawing to show the specific layout for the number of required solar panels.

7) Create a plan view of the site that shows specific placement of panels (the size of the panel should be accurate).

Note: For Option B, the poles must be located as well as the solar panels. A dashed line will be used to indicate space needed for rotation.

8) Draw a to-scale elevation of your solar panel that demonstrates that the optimal angle allows for vehicle access.

9) Revise cost estimate to reflect your proposed plan. Include estimate for payback time.

10) Compile plan and cost estimate for presentation to the City. Your proposal will include your cost estimate, a summary that explains your reasoning for your proposed plan (include discussion about how and why your plan best meets the criteria and priorities established by the City).