



# Public Safety Building Cooling Tower Project





# Public Safety Building HVAC Requirements and Configuration

- The Public Safety Building was designed in 2005.
- The design included a groundwater Geothermal system that would be used to cool the air at the facility.
- A Geothermal Field is a system of underground wells filled with circulating water used to diffuse heat . This diffusion must occur all year long but is very demanding in the warmer months because of the extra stress of IT and communications equipment emanating heat being compounded by higher ambient temperatures.
- The Public Safety system has 220 wells each dug to a depth of 260 feet. They are centrally tied together by an underground vault.
- Use of Geothermal Technology greatly reduces carbon footprint.



# Current Cooling Issues at the Public Safety Building

- In the summer of 2011, we experienced severe system failures at the 911 call center and various offices in the building caused by excessively high temperature of the groundwater in the wells.
- This rendered the system ineffective at cooling the air at the Public Safety Building. It also put function and welfare of the equipment at risk in a life-critical environment.
- Special Services engaged the expertise of an outside engineering firm, Delaware Engineering and Design Corporation (DEDC), who evaluated the current system and determined that the high loop temperature could be resolved by additional linear footage of geothermal well.
- Based on the site layout, there is not enough availability of property to install this additional well space.



# Cooling Tower Project Overview

- As a result, DEDC recommended the installation of a Cooling Tower to augment the performance of the existing well field.
- This approach would also allow for future , unrealized heat load capacity.
- DEDC provided the estimate of \$475,000 to \$495,000 for the purchase and the installation of the new cooling tower. This is an estimate derived before engineering work is done. *Once the specification and design are complete, we will advertise and accept responsible proposals.* The exact price will not be known until then.
- The goal during installation of this equipment is not to interfere with the critical operation of the building.
- We will be able to install the cooling tower we spec out in a virtually seamless fashion, not interrupting operations of the Emergency Operations Center (EOC).

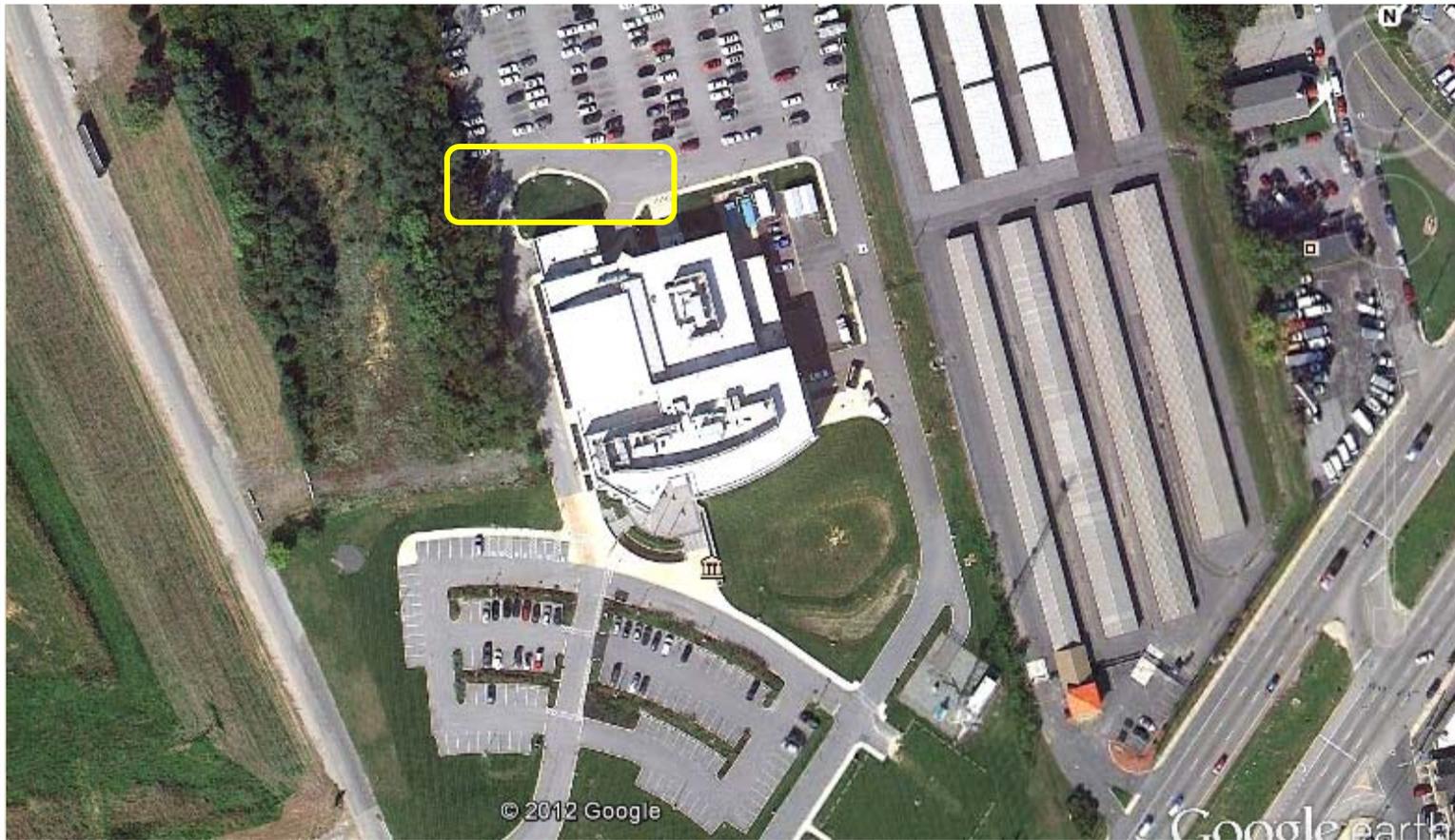


# Cooling Tower Project Overview

- The cooling tower will be used primarily to augment cooling ability of the existing geothermal system. The tower will only be activated when the geothermal's capacity is exceeded.
- The cooling tower will be sized to handle the entire building to provide the level of redundancy and a "back-up" cooling system that is needed for a 24/7 life critical operation.
- These two provisions will insure the most efficient use of the cooling tower while at the same time keeping the EOC at temperatures safe to insure operability of the equipment and insuring backup/redundancy.



# Location of New Cooling Tower





# Cooling Tower Project Funding

- Because of the need to continue uninterrupted service of a life-critical operation, the Cooling Tower installation will be funded by the County Executive's existing contingency fund.
- No ordinance or resolution is required to use this funding since it is coming from the County Executive's contingency, already approved in the budget.

# Questions??

