The views, opinions, and/or findings contained in this briefing are those of the author(s) and should not be construed as an official Department of the Army position, policy, or decision unless so designated by other official documentation.

This work was funded through the Office of the Assistant Secretary of the Army (Installations and Environment) and conducted under contract W74V8H-04-D-0005, Task N.0442.
<table>
<thead>
<tr>
<th>1. REPORT DATE</th>
<th>MAY 2007</th>
<th>2. REPORT TYPE</th>
<th>3. DATES COVERED</th>
<th>00-00-2007 to 00-00-2007</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. TITLE AND SUBTITLE</td>
<td>Addressing Buildings and Numbering Interior Areas - Tobyhanna Army Depot</td>
<td>5a. CONTRACT NUMBER</td>
<td>5b. GRANT NUMBER</td>
<td>5c. PROGRAM ELEMENT NUMBER</td>
</tr>
<tr>
<td>6. AUTHOR(S)</td>
<td></td>
<td>5d. PROJECT NUMBER</td>
<td>5e. TASK NUMBER</td>
<td>5f. WORK UNIT NUMBER</td>
</tr>
<tr>
<td>7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)</td>
<td>National Defense Center for Energy and Environment (NDCEE), Concurrent Technologies Corporation, 100 CTC Drive, Johnstown, PA, 15904</td>
<td>8. PERFORMING ORGANIZATION REPORT NUMBER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)</td>
<td></td>
<td>10. SPONSOR/MONITOR’S ACRONYM(S)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. DISTRIBUTION/AVAILABILITY STATEMENT</td>
<td>Approved for public release; distribution unlimited</td>
<td>11. SPONSOR/MONITOR’S REPORT NUMBER(S)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. SUPPLEMENTARY NOTES</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. ABSTRACT</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. SUBJECT TERMS</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. SECURITY CLASSIFICATION OF:</td>
<td></td>
<td>17. LIMITATION OF ABSTRACT</td>
<td>Same as Report (SAR)</td>
<td></td>
</tr>
<tr>
<td>a. REPORT</td>
<td>unclassified</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. ABSTRACT</td>
<td>unclassified</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. THIS PAGE</td>
<td>unclassified</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. NUMBER OF PAGES</td>
<td>22</td>
<td>19a. NAME OF RESPONSIBLE PERSON</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Why Re-Address?

- **DOD 4525-8 states** that installations shall not have one address and then building numbers, such as “44 Hap Arnold Blvd, Bldg 678,” but rather 44 7th Street, Tobyhanna, PA, 18466
- Follow USPS Street address standards.
Why Number Rooms?

- The old numbers have worn off
- People are tired of saying: “Up where the old drafting area used to be, over behind the ATM”
- People like to be found quickly when they have heart attacks.

You Are Here
What are some of the challenges on an old installation?

- Old drawings
- No drawings
- Inaccurate drawings
- Conflicting drawings
- Standard Operating Procedures do not address current requirements
- Lack of cooperation between divisions.
Addressing vs. Building Numbers

- Building numbers were assigned randomly
- Only the master planner knew for sure
- Moving around the depot became difficult and incomprehensible (numbers made no sense).
Some of the Challenges with Addressing

- Road naming
- Roads cannot go in two directions
- Road names cannot be duplicated within a township
- Streets must be named according to names and functions associated with the Depot.
New Address System by Street Number

- **Challenges ~**
  - Many entrances per building
  - Depot would like to keep same address for Headquarters building

- **Benefits ~** In sync with county 911 system
  Frontage interval system follows established guidelines (i.e., 52.8 feet increment yields maximum 200 address numbers per mile).
Some of the Challenges with Tobyhanna Depot

- Many entrances per building
- Many mail stops per building
- Many cost centers per building.
Entrees per Building

- Became a large issue with cost centers, tenants, and directorates
- Usually addressing involves one address per building
- Mail stop locations became primary.
Entrances per Building

- Find all entrances to building
- Locate all mail stops
- Locate primary personnel door
- Place address label at primary entrance.
Interior Addressing Information and Attributes

- How accurate are your areas?
- Is it easier to bring in AutoCAD® interiors and georeference them, or to create new polygon features?
- Technical challenges with copying data from one source (inaccurate polys/accurate data) to another (accurate CAD or polys/null data).

Sometimes different drawings off as much as 10’
Room Data to be Collected

1\textsuperscript{st} iteration
- Cost center, division, and office
- Use
- CatCode

2\textsuperscript{nd} iteration (while correcting CAD data)
- Ceiling height
- Door swing, type, size
- Floor type.
Room Numbering Considerations

Consistency
- Between buildings on the depot
- Between floors of buildings
- Signage

Flow
- Clockwise/Counterclockwise
- Main “traffic patterns”
- Entrance/exits
- Door swing

Distinct floor plans require different schemas
- Wings
- Corridor shape
- Rooms
Exterior Areas to be Addressed

- Overhead and cargo doors
- Driveways
- Parking spaces
- Bus Stops
- Route numbers
- Mail stops.
Data Integration

- Graphical Data sources:
  - CAD Files – Interior Layouts, Site Maps, Project Drawings/Plans/As-builts
  - Base Map From Flyover – CAD files in (originally) tiled layers
  - Environmental Coverages (asbestos project coverages)

- Non-graphical (tabular) Data sources:
  - Building Evaluation database
  - IFS (Integrated Facility System) Real Property Records
  - Asbestos testing and inspection data.
External Addressing Features

- Addressing will include:
  - Mail stops
  - Emergency exits
  - Room and suite numbers
  - Elevators and stair locations
  - Corridors and hallways
  - Fire extinguishers and sprinkler pits
  - Telephones
  - Substations and electrical rooms.
Publicize and Standardize

- Data will utilize both GIS and CAD sources
- Updates must be provided to Department of Public Works (DPW).
Future Use of Room Numbering and Addressing

- Standardized numbering and addressing will enable the integration of business practice functionality in IFS and job order tracking

- Safety Applications – Enhanced 911 response, phone schematic, automatic alarm triggers to interior room numbers, emergency lights mapped and tracked

- Ease of personnel location – Room numbering and cost center areas.
Building Usability Throughout the Depot

- Standard Operating Procedures
- Plant Engineering Department (PED), Environmental Management Division (EMD), and Department of Public Works (DPW) coordination
- Specialized training
- Server-side applications for business processes.
Future of GIS at TYAD

- GIS visibility is growing
- Ease of use promoted throughout the installation
- Shared methodology and simplified Graphical User Interfaces (GUIs) for location purposes.
Increased Use of Several Extensions

- 3D Analyst
- Spatial Analyst
- Data Interoperability
- Survey Analyst

- Development Using ArclMS™ – ArcGIS™ Server.
# Contact

<table>
<thead>
<tr>
<th>Technical Monitor:</th>
<th>Contractor:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Theresa Hincken</td>
<td>Kathleen Cullinane</td>
</tr>
<tr>
<td>Master Planner</td>
<td>Senior GIS Coordinator/Analyst</td>
</tr>
<tr>
<td>Tobyhanna Army Depot</td>
<td>Tobyhanna Army Depot</td>
</tr>
<tr>
<td>AMSEL-TY-EL</td>
<td>AMSEL-TY-EL</td>
</tr>
<tr>
<td>11 Hap Arnold Blvd.</td>
<td>11 Hap Arnold Blvd.</td>
</tr>
<tr>
<td>Tobyhanna, PA  18466-5078</td>
<td>Tobyhanna, PA  18466-5078</td>
</tr>
<tr>
<td>Phone: 570-895-6018</td>
<td>email: <a href="mailto:cullinak@ctc.com">cullinak@ctc.com</a></td>
</tr>
<tr>
<td></td>
<td>Phone: 570-895-7037</td>
</tr>
</tbody>
</table>

TYAD onsite support provided by: NDCEE, operated for the DoD by Concurrent Technologies Corporation
100 CTC Drive
Johnstown, PA  15904-1935