

**JUSTIFICATION FOR NON-COMPETITIVE PROCUREMENT**

**COMPLETE THIS SECTION IF NEW CONTRACT**

For contract(s) in this request, answer applicable questions in each of the 4 major subject areas below in accordance with the Instructions for Preparation of Non-Competitive Procurement Form on the reverse side.

Request that negotiations be conducted only with Argonne for the product and/or services described herein.  
(Name of Person or Firm)  
This is a request for  (One-Time Contractor Requisition # 35971, copy attached) or \_\_\_\_\_ Term Agreement or  
\_\_\_\_\_ Delegate Agency (Check one). If Delegate Agency, this request is for "blanket approval" of all contracts within the  
\_\_\_\_\_ (Attach List) Pre-Assigned Specification No. \_\_\_\_\_  
(Program Name) Pre-Assigned Contract No. \_\_\_\_\_

**COMPLETE THIS SECTION IF AMENDMENT OR MODIFICATION TO CONTRACT**

Describe in detail the change in terms of dollars, time period, scope of services, etc., its relationship to the original contract and the specific reasons for the change. Indicate both the original and the adjusted contract amount and/or expiration date with this change, as applicable. Attach copy of all supporting documents. Request approval for a contract amendment or modification to the following:

Contract #: \_\_\_\_\_ Company or Agency Name: \_\_\_\_\_  
Specification #: \_\_\_\_\_ Contract or Program Description: \_\_\_\_\_  
Mod. #: \_\_\_\_\_ (Attach List, if multiple)

Amy Budgen 3-7352 A Budgen DEMC 11/14/07  
Originator Name Telephone Signature Department Date

Indicate SEE ATTACHED in each box below if additional space needed:

<input type="checkbox"/> <b>PROCUREMENT HISTORY</b> see attached
<input type="checkbox"/> <b>ESTIMATED COST</b> see attached
<input type="checkbox"/> <b>SCHEDULE REQUIREMENTS</b> see attached
<input type="checkbox"/> <b>EXCLUSIVE OR UNIQUE CAPABILITY</b> see attached
<input type="checkbox"/> <b>OTHER</b>

S.S.R.B.  
DATE 12/6/07  
APPROVED [Signature]  
CONDITIONALLY  
APPROVED  
RETURN TO DEPT. ....  
DISAPPROVED....

APPROVED BY: [Signature] 11/14/07 [Signature] 12/6/07  
DEPARTMENT HEAD DATE BOARD CHAIRPERSON DATE  
OR DESIGNEE

## **OEMC Sole Source Justification Argonne National Laboratory**

### **PROCUREMENT HISTORY:**

OEMC has state-of-the-art emergency and crisis management systems, however, the department lacks the capability to mitigate response during a hazardous material incident or a terrorist attack involving a chemical or radiological (C/R) agent ("dirty-bomb").

OEMC has determined two additional priority capabilities that are needed and they include, advanced modeling and 3-D visualization (MAV). This priority evolved from a gap analysis of the OEMC's current capabilities. These new technologies will be fully integrated in the existing technologies at the 911 Center. Additionally, this project will include C/R sensor and weather networks, emergency evacuation simulator, and command and control software.

ANL is a under the auspices of the Department of Energy and the largest national research laboratory in the county. As a result they are not in competition with other private sector companies and provide services not offered by others in the market place. Argonne has developed unique technologies with a similar application that have been used in Washington D.C. (PROTECT system in Metro), Boston, New York, and the system now being installed in the pedway connecting the Daley Plaza with J.R. Thompson Center.

There have been numerous meetings at the OEMC and at Argonne National Laboratory during the past year to discuss homeland security science and technology developments including state of the art modeling and visualization tools now ready for technology transfer. The meetings also covered emergency transportation evacuation planning and development of a transportation simulator specific to Chicago. The simulator is being developed by Argonne under a separate agreement with the Illinois Terrorism Task Force. This emergency evacuation tool will be integrated with the modeling and visualization tools to be developed in this proposal. These tools and the expertise offered from Argonne scientists and engineers promise to provide the OEMC with capabilities that will help us defend the City during a WMD attack and in other crisis management situations involving accidental spills of hazardous materials.

### **ESTIMATED COST**

The estimated cost to meet our requirement is \$1,300,000. (See attached task and cost proposal).

### **SCHEDULE REQUIREMENTS**

The proposed tasks are to be completed in approximately a year and a half from the contract award date (See attached task and cost proposal).

## **EXCLUSIVE OR UNIQUE CAPABILITIES**

Argonne National Laboratory has proven national and homeland security scientific expertise. They have developed unique technologies and applications for other major Cities that are not available for purchase from any other competitors. Argonne National Laboratory is unique and unquestionably predominant in the area of highly technical plume modeling, MAV visualizations and evacuation simulations. Argonne's past experience and highly specialized expertise is vital to the success of proposed program.

Specific examples of Argonne's and its collaborative partner's exclusive or unique capabilities for doing the job include experience in: 1) the design and implementation of advanced 3-D stereo scientific visualization technology and software systems, 2) development, design and application of CBR emergency response tools ranging from simple rapid urban dispersion/hazard exposure models to high-fidelity coupled urban canopy/street canyon meteorological and computational fluid dynamics codes, 3) unique supercomputing facilities to carryout computationally intense urban simulations and 3-D visualizations: "Jazz" and "BlueGene" Clusters and TerraGrid hub Connections (e.g., NCSA at UIUC) and 4) staff with unique skills and experience in computer and atmospheric sciences and development, evaluation and application hazard cloud urban dispersion models.



Richard E. Combs, Manager  
Sponsored Research Office

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Argonne National Laboratory  
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Mr. James Argiropoulos  
Chicago Office of Emergency Management  
and Communications (COEMC)  
1411 W. Madison Street  
Chicago, IL 60607-1809

NOV 08 2007

Subject: Argonne National Laboratory Proposal P-07021, "Emergency Modeling and Visualization: Urban Area Emergency Management System-Coupled Modular Science and Technology (UAM-CMOST) Tool Sets"

Dear Mr. Argiropoulos:

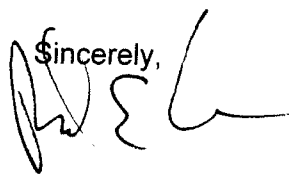
In accordance with your request, Argonne National Laboratory is pleased to submit the updated subject proposal (enclosed). It is identified by our number P-07021. We would appreciate your use of this number on all correspondence, documents, or contracts related to the proposal.

Argonne proposes to design, develop, and install an advanced emergency modeling and three-dimensional visualization system for the 911 Center. The system will be integrated with existing emergency communications and surveillance systems already in place at the Center and with an emergency transportation evacuation system to be developed under a separate State of Illinois and U.S. Department of Transportation proposal. Michael Lazaro will serve as the principal investigator.

The updated funding support requested is in the amount of \$1,300,000 at less than full cost recovery. Please note that Task 5, the Inverse Model, in the attached proposal has been eliminated to accommodate for the revised budget. The proposal covers work to be completed during a period of 12 months, beginning on the contract execution date. The project schedule included in Figure 1 of the proposal reflects a hypothetical start date of February 2008.

As you may know, U.S. Department of Energy (DOE) approval is required for the participation of Argonne staff and the use of Argonne equipment and facilities in work for other organizations. Accordingly, copies of this proposal have been sent to DOE for review and approval; this review will be completed soon, and you will be advised of the decision in writing. Should your review of this proposal be favorable, you can make funding arrangements with Mr. William Walsh, Procurement Services, 9700 South Cass Avenue, Lemont, Illinois, 60439, (630) 252-7030.

We appreciate the opportunity to prepare this proposal and look forward to conducting this work. Please contact me at the above number if you require additional information. Please direct any technical questions to Michael Lazaro at (630) 252-3447.

Sincerely,  
  
Richard E. Combs

cc: Amy Gudgeon, COEMC  
Ronald J. Lutha, DOE-ASO

**Proposal P-07021**

**EMERGENCY MODELING AND VISUALIZATION  
Urban Area Emergency Management System-  
Coupled Modular Science and Technology (UAM-CMOST) Tool Sets  
  
**System Components A and B****

Work Proposed by:

Environmental Science Division (EVS)  
Argonne National Laboratory

Principal Investigator:

Michael A. Lazaro, EVS

Submitted to:

Jim Argiropoulos, Director of Information Services, and  
Andrew Sheils, Deputy Director of Financial Administration  
Chicago Office of Emergency Management and Communications (COEMC)  
City of Chicago  
1411 W. Madison Street  
Chicago, IL 60607-1809

November 2007

## 1 OVERVIEW

The objectives of the tasks to be carried out under this proposal are to add new science- and technology-based emergency/crisis management capabilities and enhance existing surveillance and communications capabilities at the Chicago 911 Center. The new capabilities would greatly help the Center prepare for and respond to a terrorist attack that involved the use of a chemical, biological, radiological, nuclear, or explosive (CBRNE) agent. These capabilities would also improve the Center's ability to prepare for and respond to accidents involving hazardous materials (HAZMAT) at industrial facilities or during transportation. The focus is to provide the 911 Center with advanced emergency modeling and visualization (EMAV) capabilities that could be easily integrated with technologies that are already in place. The system's modular design will provide flexibility for replacing technologies and software as they become obsolete or improving them when there are advances in science and engineering. Argonne National Laboratory will provide the technology systems, along with scientific and engineering support and training. Argonne will also establish technology and software test beds, as needed, to test, evaluate, and verify the systems before their transfer to the Center.

This investment will provide and integrate advanced EMAV system components within the existing 911 Center's technology and response infrastructure. When fully integrated, the coupled multicomponent system will add proven scientific and technological tools to augment and broaden the City of Chicago's ability to implement rapid and effective CBRNE emergency management actions. The ultimate goal is to provide science- and technology-based systems and support that will help maintain the 911 Center's national reputation for superiority in emergency management operations and help advance the Chicago Office of Emergency Management and Communications (COEMC) as a center of excellence for urban CBRNE emergency and crisis management.

This project will provide proven, previously applied technologies and refine and develop new simulation and visualization tools for the 911 Center. They will help the Center implement more realistic emergency response exercises and carry out rapid response actions in actual emergencies more effectively. The project will focus on technologies for applying accurate hazard plume dispersion model simulations and on visualization tools for rapidly conveying critical response information to the incident commander about first-responder dispatch, deployment, and response actions (e.g., setting up exclusion zones, triage). The tools will enable a clear understanding of the initial extent, evolution, and severity level of a serious incident involving CBRNE agents. The EMAV system components will make up two of the five system components envisioned for the 911 Center. The other three major components will be weather and CBR sensors, transportation evacuation simulators, and integrated crisis management command and control software. The system tool for evacuation transportation planning (STEP) is being developed under a separate Illinois Terrorism Task Force (ITTF)-funded program. The plan for the first year is to develop and install working EMAV prototypes at the 911 Center and integrate them with the video camera surveillance and communications systems already in place. A plan will also be written to integrate them with the other proposed system components as they are developed, tested, and implemented during years 2 and 3. When completed, the integrated coupled system will provide the 911 Center with an Urban Area Emergency Management System-Coupled Modular Science and Technology (UAM-CMOST) Tool Sets.

## 2 SCOPE OF WORK

The scope of work addressed in this proposal will cover five major task areas. Task 1 and Task 2 will focus on building and implementing a new three-tiered urban emergency dispersion modeling system at the 911 Center. Task 1 will cover the Tier I and II modeling system of fast-running real-time or near-real-time codes. Task 2 (Tier III modeling system) will focus on developing a coupled urban-canopy meteorological model with a high-fidelity computational fluid dynamics (CFD) code. Task 3 will improve and extend existing visualization tools in the 911 Center to support the modeling tools and capabilities developed under Task 1. Advanced visualization capability designed to support the high-fidelity modeling tools provided under Task 2 will also be developed, and support for existing visualization needs (e.g., geographic information system [GIS], CADipatch, video surveillance) at the 911 Center will be provided. Task 4 will assess and map tornado risks to high rises in Chicago.

The three-tiered modeling system, ranging from simple rapid-response tools to high-fidelity urban-canyon models, will provide hazard-zone evolution and mapping capabilities to the 911 Center. This system, when coupled to the detector network, will enhance the Center's ability to communicate with first responders and make/conduct rapid and effective emergency response decisions/actions, including decisions on emergency evacuations and/or sheltering in place.

The coupled advanced visualization technologies, such as animated stereo displays, will include details of the Chicago urban landscape (e.g., three-dimensional [3D] high-rise building layers) overlain with animated images of hazard-cloud movements through urban neighborhoods and the wind patterns that drive agents to disperse through the urban area.

### 2.1 Task Area 1: Rapid Tier I and II Hazard Response Modeling Capability: Real-Time/Near-Real-Time Applications

**Purpose:** The purpose of this task is to provide rapid CBR consequence assessment and crisis management capabilities to the 911 Center. These capabilities will be developed with the aid of proven available and fast-running models (software tools). These tools will be a part of a system of modeling tools for one component of an integrated multicomponent data assimilation/communication emergency management system.

**Description:** This task will identify, review, recommend, and install a set of software tools on the COEMC HP server network. Establishing a minimum Tier-I-level modeling capability will be a first priority. The focus will be to identify proven and practical PC-based computer codes that are easy to run and whose output results are easily understood by the Joint Operations Center (JOC) and first-responder personnel. The identified candidate models will be reviewed, tested, and evaluated on the basis of predetermined screening criteria developed with and approved by the 911 Center. The criteria could apply to items such as specific model capabilities and attributes (e.g., surface deposition, population dose, and other health exposure measures; cleanup cost and economic disruption damages), model limitations, and overall model performance levels. Given the likelihood that one model may not have all of the desired capabilities and attributes, it is conceivable that two or more codes may be recommended. The codes selected by

the 911 Center will be installed on the HP server network and/or on designated PCs. Installation will include setup, testing, and debugging, as necessary. Release scenario exercises will be prepared, and hands-on software training will be provided.

**Task Elements/Milestones:**

1. We will identify and evaluate existing simple, rapid, urban-canopy dispersion models (Tier I models) and fast, coupled, urban-canopy dispersion and diagnostic weather models (Tier II models) for emergency response preparedness and operation applications at the 911 Center. Examples of models that will be considered include RiskRDD, ASUDM, Urban-HPAC/MC-SCIPUFF/SWIFT, and QUIC/QWIC-URB.
2. We will initially install the acquired codes at Argonne to facilitate review and benchmark testing. The benchmarking will be performed by using a common sample weapon of mass destruction (WMD) scenario. Model results will be plotted and compared. Models that have not been sufficiently evaluated/tested with experimental data will be evaluated, as appropriate, with at least one observational data set (e.g., urban 2000, 2003, 2004/2005).
3. We will draft technical and model attribute review criteria and send them to the COEMC project manager for review and comment. The model review summaries and model recommendations will be provided to the project manager.
4. We will install the recommended and approved codes on designated PCs and/or the designated server at the 911 Center. The installed codes will be thoroughly tested, as will any necessary databases required as model input. Links will be established for real-time ingestion of weather data (e.g., city metropolitan station network, Web-accessed data). As necessary, code modifications will be made to allow proper links and interfaces to measured data, including those needed for system component integration (e.g., advanced visualization and display technology, CBR sensor network, emergency transportation evacuation models, data integration and decision analysis software). Code modifications, if possible (e.g., depending on source code availability), will also be made as practical to accommodate new data or enhancements (e.g., feature or capability specific to COEMC current or future operations) requested by the project manager.
5. We will develop a link between the provided Tier I and II air dispersion modeler (ADM) and the transportation evacuation modeling system being developed for Chicago under separate state funding (ITTF).
6. We will assist COMEC in its search for a qualified emergency operations ADM. Training will be provided to the ADM and other designated COEMC staff, as requested.



**Deliverables:**

- Tier I and II model review summaries and model recommendations
- Installation and testing of recommended codes on the designated 911 Center server and designated PCs
- ADM and training for ADM

## **2.2 Task Area 2: High-Fidelity Tier III Modeling (Coupled3DSimulation-Visualization System)**

**Purpose:** The purpose of this task is to develop a Chicago urban-canopy parameterized mesoscale meteorological model ( $M^3$ ) coupled to a high-fidelity micro- or building-scale computational fluid dynamics (CFD) model. This coupled modeling system will be designed to help implement unscripted CBR exercises, supplement rapid Tier I or II model simulations, and help in post-event reconstruction to aid forensic investigations and cleanup. The system will also provide for animated 3D visualizations of CBR events (see related Task 3).

**Description:** We propose to develop a multiscale tiered-resolution nested-grid simulation capability by integrating a mesoscale atmospheric model with a CFD code to derive diurnal flow patterns in urban canyons under the influence of varying atmospheric conditions. The proposed coupled modeling system design will allow for a more precise and conceivably more accurate simulation of a CBR agent's flow in an urban canyon than can be provided by Tier I or II models. The design will also incorporate computationally efficient procedures (e.g., supercomputer parallelization schemes) and allow for integrated field sensor data assimilation. The proposed Tier III modeling system, when fully implemented, will provide analysts with enhanced capability to advise incident commanders and post-response officials on critical decisions involving population evacuation/sheltering, contamination mapping/cleanup, and reentry/reuse. It will provide the needed special capability in highly vulnerable and densely populated urban centers, such as the Chicago Loop (e.g., Sears Tower, Daley Plaza, JRT Center, Millennium Park), Near North Side (e.g., Magnificent Mile, River North, Streeterville), and the south and west loop neighborhoods (e.g., Union Station, Medical Center, Museum Campus, Burnham Park) where critical infrastructure protection and counterterrorism are important national homeland security goals.

The overall task effort can be broken up into six general parts: (1) review existing urban-canopy parameterizations in MM5 and review alternative or improved urban-canopy surface-roughness and surface-energy flux parameterization schemes most suitable to Chicago's building morphology and surface-energy balance (i.e., urban heat island); (2) adapt a mesoscale meteorological model (MM5 or WRF) to incorporate parameterization of Chicago urban-canyon physics and thermodynamics; (3) couple the mesoscale model with a CFD code (e.g., Fluent, STAR-CD, or an open source code); (4) if feasible, accommodate data assimilation routines and coordinate with local authorities in deploying an automated sensor network; and (5) develop link

between the new Tier III coupled modeling system (M<sup>3</sup>-CFD) and the transportation evacuation modeling system being developed for Chicago under separate state funding (ITTF).

During the first year, we will be developing and testing a modeling system prototype. We anticipate that this task can be leveraged with internal Argonne seed money support.

#### **Task Elements/Milestones:**

1. We will thoroughly review urban-canopy model parameterization schemes, beginning with the most current scheme incorporated in the urban MM5 model (uMM5). A large number of available parameterizations for calculating the shortwave and longwave radiation within the canopy and the exchange of energy between the canopy and the atmosphere will be reviewed for use in the selected M<sup>3</sup>. Parameterizing the energy budget on the basis of these approaches within the meteorological model will be necessary and will be performed.
2. On the basis of the review of the literature and uMM5, we will adapt an M<sup>3</sup> (MM5 or WRF) to incorporate the parameterization of Chicago urban-canyon physics and thermodynamics. Computer-assisted design (CAD) and GIS building data from COEMC will be used in combination with other databases (e.g., University of Utah's urban morphology database) to account for urban-canopy roughness influences. At a minimum, parameterization schemes will be developed to account for shortwave radiative heating at street level, between buildings, and on building surfaces and for longwave radiation cooling (albedo) from these surfaces. Anthropogenic contributions (e.g., heat exhausts from automobiles, building heating, ventilation, and air conditioning [HVAC] systems) to Chicago's energy budget will be identified and, to the extent possible, incorporated into the M<sup>3</sup> code.
3. We will couple the developed urban-canopy parameterized M<sup>3</sup> to the selected CFD code. The linked codes will become the first prototype of Chicago's new coupled Tier III modeling system (M<sup>3</sup>-CFD). A number of input/output (I/O) computational approaches exist to accomplish this task. We propose to use the interface toolkits developed at Argonne to write the appropriate user-defined functions required for seamless coupling of the codes. These toolkits will also be used to write the output interface for stereo 3D visualization software to be used with the advanced visualization technology to be installed at the 911 Center (see Task 3).
4. We will write an interface to link the M<sup>3</sup>-CFD modeling system to the transportation evacuation modeling system being developed for Chicago under separate state funding (ITTF).

5. We will connect the modeling system prototype to the 911 Center by establishing and testing a fast communications link between Argonne and the Center via the existing I-Wire system (the Illinois connection with the national TeraGrid network connecting through the Chicago Hub).
6. If feasible during the proposed work schedule, we will develop routines as needed to accommodate near-real-time data assimilation for both meteorological and CBR sensor data.

**Deliverable:**

- Report on the progress of the Chicago prototype model in including next steps

### **2.3 Task Area 3: Advanced Visualization Next-Generation Emergency Response Wall (ViNGER-Wall)**

**Purpose:** The purpose of this task is to bring the latest advances in 3D visualization and animation technology and software products to the 911 Center. This technology, ViNGER-Wall, will be integrated with the communications and video surveillance technologies already in place and with the advance hazard emergency preparedness modeling technology proposed for the Center under this task order.

**Description:** Nearly one-third of the human brain is devoted to processing visual information. Vision is the dominant sense for the acquisition of information from our everyday world. It is therefore no surprise that visualization, even in its simplest forms, remains the most effective means for converting large volumes of raw data into insight. In emergency preparedness, visualization is crucial in a number of ways. When applied during the initial development of a complex scientific simulation, such as in hazard plume modeling, it can quickly verify the correctness of the model. When tightly integrated with the model itself, it can be used to observe the results of the simulation while it is being computed, hence making insightful information more immediately available. Furthermore visualizations can be used to explain complex data in ways that are easier for nonscience experts, such as the incident commander, the mayor, the press, and the general public, to understand.

This study proposes to build an advanced display wall (Visualization Next-Generation Emergency Response Wall or ViNGER-Wall) and advanced visualization software to enable insightful interpretation of data that are relevant to hazard emergency preparedness modeling, such as street canyon flow, the horizontal and vertical spread of hazardous plumes in a city, and the velocity and trajectory of debris in a tornado.

The ViNGER-Wall will be based on the GeoWall, a robust technology invented by the Electronic Visualization Laboratory (EVL) at the University of Illinois at Chicago (UIC) in 2001. The GeoWall is a 3D stereoscopic computer graphics display that consists of a single high-performance graphics PC driving two projectors equipped with passive polarized filters. The user sees 3D by wearing comfortable lightweight glasses similar to those found at 3D-IMAX theaters.

Since 2001, more than 500 GeoWalls have been deployed in the United States at national centers (e.g., the U.S. Geological Survey's EROS Data Center and Argonne National Laboratory), universities, and museums (e.g., Adler Planetarium; SciTech Museum in Aurora, Illinois). An international consortium has been operating for the past five years to support GeoWall users ([www.geowall.org](http://www.geowall.org)).

The GeoWall has been specifically targeted as the technology of choice for hazard emergency preparedness because the applications that have been identified in this proposal (hazard cloud modeling, tornado simulations) all involve data that is inherently three-dimensional and composed of abstract shapes that are difficult to disambiguate on standard 2D computer screens. The structures of these abstract shapes, however, become immediately apparent when displayed on the GeoWall. This display enables viewers to understand far more complex visualizations than could normally be understood if they were displayed on standard 2D screens. The GeoWall achieves this by taking advantage of the fact that humans are born with two eyes to see a 3D world, not just one eye.

**Task Elements/Milestones:**

1. We will develop ViNGER-Wall specifications and identify a suitable vendor from which the 911 Center may order the display system. This vendor will be available to supply the Center with additional units should it choose to deploy the systems further. It will also be able to provide the Center with long-term support for the display, if needed.
2. Argonne and UIC will work together to develop innovative new ViNGER-Wall visualizations for CBR hazard cloud forecasting. We will emphasize the real-time display of data from the simulation as they become available. We will also develop an intuitive way to observe multiple simulation results that are running simultaneously to allow the viewer to monitor the progress of multiple possible scenarios.

3. An emergency response-simulation results portal (ER-SRP) will be developed and placed at EVL. It will use EVL's high-speed 10-gigabit link over the State of Illinois's I-Wire network to connect to Argonne's simulation clusters. The ER-SRP will make the results accessible to the 911 Center over a public (and encrypted, if necessary) Internet connection. This will allow the 911 Center to evaluate the efficacy of a possible future high-speed direct network peering with I-Wire.
4. We will develop an intuitive user-interface to enable interaction with the visualization and its various parameters. We will augment conventional 2D mouse-based interaction with a 3D interaction device to make it easier for the operator to rapidly manipulate the visualizations.

**Deliverables:**

- A working ViNGER-Wall system deployed at the 911 Center
- Visualization software specific to CBR hazard cloud forecasting deployed on the ViNGER-Wall system
- An ER-SRP that will gather simulation results from Argonne's simulation cluster and cache them for rapid access on the ViNGER-Wall at the 911 Center

## **2.4 Task Area 4: Mapping of Chicago High-Rise Tornado Risk and Response Planning**

**Purpose:** The purpose of this initial study is to assess the potential for tornado damage from a direct strike to high-rise structures (>15 floors) in Chicago. Once tornado impacts are assessed (e.g., severe, moderate, or low) and mapped, a sheltering plan can be developed to protect the people who work or live in the city's high-rise structures.

**Description:** This study proposes to categorize the major structures in the Chicago metropolitan area and then map the city by using a GIS. For example, structures could be categorized by their height, number of occupants, construction type, and age. Then a specific building could be selected to represent each building category. The architect/engineer of that building would be contacted and asked to provide a brief description of the structural damage to the high-rise category that would be expected to result from each of the six (F0-F5) tornado wind speed ranges (as defined in the Fujita tornado damage scale). A new high-rise category damage scale (e.g., low, moderate, high) would be developed in consultation with the building architects/engineers. (The Fujita damage scale was developed primarily for low-rise or single-family homes, vehicles, and trees.) With these results, the impact of tornadoes on the City of Chicago could be mapped.

Finally, emergency preparedness actions could be developed on the basis of the mapped impacts by building category.

**Task Elements/Milestones:**

1. We will develop a simple scheme to group buildings into categories on the basis of one or more of their parameters, such as height, width, shape, construction type, age, and number of occupants. The 911 Center's 3D GIS building shape files will be used to map buildings by the designated categories.
2. We will acquire, review, and map the National Oceanic and Atmospheric Administration's (NOAA's) National Climatic Data Center (NCDC) tornado database records over the past 50 years. The tornado records contain the date, time, state, county, latitude, and longitude of initial touchdown and lift-up point, path length, path width, and F-scale rating. The intensity of tornadoes is determined from the F-scale rating. The F-scale wind speed ranges are shown in Table 1. F-scale wind speeds are the fastest one-quarter mile winds at 10 meters above the ground in open terrain. Historical tornado touchdowns by F-Scale categories will be mapped onto a grid and overlain on the building map produced in task element 1 (TE-1).
3. We will identify one or two representative buildings for each building category. The building architects/engineers will be identified and consulted to assess building damage on the basis of design wind-speed calculations for the structural design in question. We will ask if damage assessments based on one or more wind-speed categories identified in Table 1 can be made or provided. It would then be easy to use a GIS to identify potential descriptive damage levels to a building in each category by tornado strength.

**TABLE 1 F-Scale Category Wind Speeds**

F-Scale Category	Damage Description	Wind Speed <sup>a</sup> (in mph)
F0	Light	40–72
F1	Moderate	73–112
F2	Considerable	113–157
F3	Severe	158–206
F4	Devastating	207–260
F5	Incredible	261–318

<sup>a</sup> These are the fastest one-quarter mile wind speeds. mph = miles per hour.

4. We will use the historical tornado record to calculate the tornado hazard probability or the probability of exceeding wind speed  $u_i$  in one year. A tornado hazard probability model will be used to perform these calculations. Examples include the Probabilistic Tornado Wind Hazard Model (LLNL 2000) and the Institute for Disaster Research (IDR) model developed at Texas Tech University (McDonald and Lu 1995). The computed hazard probabilities can then be related to damage risks based on the building categories derived in TE-1. The risk damages will then be mapped in the GIS system.
  
5. By using the assessed wind damage risk calculated in TE-4, we will develop emergency preparedness plans in consultation with the Chicago Fire Department and designated 911 first responders. Given that the primary threat associated with tornadoes is not the wind but the debris carried by the wind, the best protection from flying debris injuries is to seek shelter. The safest action, assuming the building is not completely destroyed by winds, is to seek a place where exposure to flying debris is minimal (as a general rule, keep as many walls between you and a tornado as possible). Specific emergency preparedness factors to be considered include these:
  - By the time a tornado warning is posted by the National Weather Service, the public may have only 15 minutes or less to prepare.
  - Being outside and exposed to flying debris is the most significant risk to people.
  - Perimeter offices of buildings with windows are at the most risk of damage because of shattering glass.
  - Once the wind can find its way inside a building, office materials become projectiles.
  - Long hallways become channels for the wind to flow, carrying debris.
  - The safest places in large structures are stairwells and bathrooms or basements.

**Deliverables:**

- GIS map of buildings at risk from tornado damage, with the locations of vulnerable and safe buildings along with risk probabilities identified
- Recommendations on severe storm/tornado emergency preparedness actions

### **3 PROGRAM MANAGEMENT**

The Environmental Science Division (EVS) at Argonne will be responsible for completion of the tasks described in this proposal. The program manager, Michael Lazaro, will serve as a single point of contact and liaison for all work performed under this proposal. Typical project organization will include a project leader, technical leads, and supporting staff. Argonne will periodically meet with COEMC managers to address questions and issues encountered in the performance of the project and report on work progress. Written progress reports will be provided on a monthly or other basis as directed by the COEMC project leader.



## 4 QUALITY ASSURANCE

The purpose of the Argonne quality assurance (QA) program is to establish procedures for performing high-quality work on projects and to ensure that the planned procedures are followed during the course of the work. QA procedures cover project planning, field activities, laboratory analysis, data analysis, review of reports, documentation, and records retention. All deliverables are subjected to a thorough review by qualified technical staff members not otherwise involved in the project.

## 5 SCHEDULE AND BUDGET

Support for this proposal is anticipated to extend over a one-year period. Table 2 provides the overall proposal budget, and Figure 1 lays out the project schedule.

**TABLE 2 Cost and Effort Estimate, Argonne Proposal P-07021**

Component	FY 2008		FY 2009		Totals	
	Person-Months	Cost (\$1,000)	Person-Months	Cost (\$1,000)	Person-Months	Cost (\$1,000)
Direct Effort						
Scientific Direct	32.1	444.4	10.6	157.6	42.7	602.1
Secretarial/Clerical Direct	1.7	13.1	0.6	4.8	2.3	17.9
Total Effort	33.8	457.5	11.2	162.5	45.0	619.9
Other Direct Costs						
Materials & Supplies		92.0		0.0		92.0
Subcontracts		180.0		50.0		230.0
Technical Editing		1.8		0.0		1.8
Travel		20.0		7.0		27.0
Total Other Direct Costs		293.8		57.0		350.8
Total Direct Cost		751.3		219.4		970.7
General and Administrative		248.7		80.6		329.3
Total Argonne Cost		1000.0		300.0		1300.0

\* Totals may be off due to rounding.



City of Chicago  
Richard M. Daley, Mayor

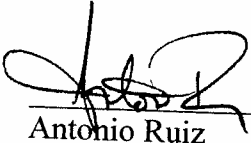
Office of Emergency Management  
and Communications

1411 West Madison Street  
Chicago, Illinois 60607-1809  
(312) 746-9111  
(312) 746-9120 (FAX)

<http://www.cityofchicago.org>

## MEMORANDUM

To: Doug Yerkes  
Acting Chief Procurement Officer  
Department of Procurement Services

From:   
Antonio Ruiz  
Executive Director  
Office of Emergency Management & Communications

Date: November 1, 2007

Re: Evacuation Planning and Modeling with Argonne National  
Laboratory

The Office of Emergency Management & Communications is requesting a sole source contract with Argonne National Laboratory for assistance with evacuation planning and modeling. This important software will be used to safely evacuate residents in the case of an emergency.

Argonne National Laboratory has current contracts with the Department of Health and with the Department of Environment (#12222), both of which have No State Goals in regards to the MBE/WBE status. We hope the same status for this contract will apply.

Thank you for your assistance with this matter. If you have any questions or need additional information, please contact Amy Gudgeon at 312-743-7352.

Cc: Jim Argiropoulos, OEMC  
Amy Gudgeon, OEMC  
John O'Brien, DPS





William M. Walsh  
Contract Specialist Senior

Office of the Chief Financial Officer  
Procurement Department  
Argonne National Laboratory  
9700 South Cass Avenue, Bldg. 201  
Argonne, IL 60439

1-630-252-7030 phone  
1-630-252-4517 fax  
wmwalsh@anl.gov

October 31, 2007

Ms Amy Gudgeon  
**City of Chicago**  
Office of Emergency Management and Communications  
1411 W. Madison Street  
Chicago, IL 60607-1809

Dear Ms. Gudgeon:

Subject: Minority Business Enterprises and Women Business Enterprises  
Reference: Emergency Modeling and Visualization Project (Proposal P-07021)

The facility known as Argonne National Laboratory is owned by the United States Government and operated by UChicago Argonne, LLC, under a Prime Contract with the Government. The Laboratory complies with the requirements dictated in our Prime Contract with respect to Socio-Economic Goals. The performance rating of the Laboratory by the federal Government is judged in part by our compliance with those requirements. In FY 2006 and FY 2007, the Laboratory exceeded its Goals for Small Business Concerns, Women Owned Business Concerns, and Small Disadvantaged Minority Concerns.

The Laboratory endorses the concept of including language regarding Minority and Women Business Enterprises in the contemplated agreement between our respective organizations. Because of the limitations inherent in our Prime Contract, we request that this provision consist of the following language, which has been used before in section 2.6 (entitled *Minority and Women's Business Enterprises Commitment*) in your Agreement No. 12222,

*"In the performance of this Agreement, including the procurement and lease of materials or equipment, the Laboratory abides by the U.S. Department of Energy requirements with respect to minority and women owned businesses."*

Should you have any questions, please feel free to contact the undersigned at your convenience at 630-252-7030.

Sincerely,

A handwritten signature in black ink that reads "William M. Walsh".

William M. Walsh  
Senior Contract Specialist

ID	Task Name	Duration	Start	Finish
1	Task 1: Tier I & II Modeling	266 days?	Fr 2/1/08	Fr 2/28/08
2	1A Model Diagnosis	34.94 days	Fr 2/21/08	Thu 3/20/08
3	1B Code benchmarking/evaluation	100 days	Fr 2/21/08	Thu 6/19/08
4	1C Model Recommendations	35 days	Fr 3/14/08	Thu 5/1/08
5	Model Attrib_Recom_Report	0.94 days?	Mon 3/31/08	Mon 3/31/08
6	1D Code Installations/Keyops/Testing/Mod	14 days?	Mon 4/7/08	Fr 4/25/08
7	1E Link Codes to Inverse Model	20 days	Mon 11/20/08	Fr 2/6/09
8	1F Link Codes to Transport-Evac Model	21.94 days?	Fr 1/20/09	Mon 2/2/09
9	1G Recruit/Train AOM	1 day?	Tue 5/6/08	Wed 5/7/08
10	Task 2: Tier III Modeling	266 days?	Fr 2/1/08	Fr 2/28/08
11	2A Review UCP Schemes	45 days?	Fr 2/21/08	Thu 4/3/08
12	2B UCP of M3	180 days?	Fr 4/11/08	Thu 1/21/09
13	2C M3-GTD Coupling	45 days	Fr 1/25/08	Fr 2/6/09
14	2D Interface with TRANSIMS	100 days	Mon 9/22/08	Fr 2/6/09
15	2E WARE Connection	90 days?	Fr 10/3/08	Thu 2/5/09
16	Task 3: Advanced Ventilation	315 days?	Fr 2/1/08	Thu 4/16/09
17	3A VANSER-Vent Design	45 days	Fr 2/1/08	Thu 4/3/08
18	3B Visualization Software Development	90 days	Fr 2/1/08	Thu 6/5/08
19	Working Prototype Installed	1 day	Thu 1/21/08	Fr 1/21/08
20	3C WARE Connection	90 days?	Fr 1/21/08	Thu 4/16/09
21	3D User Interface	45 days?	Fr 1/21/08	Thu 3/1/09
22	Task 4: Tornando High-Rise Risk Assessm	266 days?	Fr 2/1/08	Fr 2/28/08
23	4A Building Categorization	40 days?	Fr 2/1/08	Thu 3/27/08
24	4B Data Acquisition and Analysis	60 days?	Fr 2/1/08	Thu 5/8/08
25	4C Identify Damage Levels, Cal. Models	50 days	Fr 8/1/08	Thu 10/9/08
26	4D Tornando Risk mapping	41 days	Fr 1/21/08	Fr 2/6/09
27	4E Emergency Preparedness Plans	35 days	Fr 1/21/08	Thu 2/5/09

FIGURE 1 Overall Schedule, Argonne Proposal P-07021



City of Chicago  
Richard M. Daley, Mayor

Office of Emergency Management  
and Communications

120 North Racine Avenue  
Chicago, Illinois 60607-2010  
<http://www.cityofchicago.org>

07 NOV 19 PM 2:35

November 14, 2007

Mr. Doug Yerkes  
Acting Chief Procurement Officer  
Department of Procurement Services  
121 N. LaSalle Street, Suite 403  
Chicago, IL 60602

<b>Attn:</b>	<b>Brent Walters</b>
<b>SUBJECT:</b>	Sole Source Request
<b>CONTRACT TYPE:</b>	Pro-Serv
<b>VENDOR:</b>	Argonne National Laboratory
<b>EST CONTRACT COST:</b>	\$1,300,000

Dear Mr. Yerkes:

I am writing to submit a request to the Non-Competitive Review Board allowing the Office of Emergency Management and Communication to enter into a contract with Argonne National Laboratory. Argonne has unique capabilities and qualifications for providing our office with highly sophisticated emergency modeling and visualization software.

Argonne National Laboratory is a unique entity, in that they are a U.S. Department of Energy Laboratory and managed by the University of Chicago. They do not actively compete with companies in the private sector and provide a unique set of services.

In support of this request, attached please find:

- 1) Project checklist
- 2) Requisition # 35971
- 3) Justification for Non-competitive procurement
- 4) Scope proposal from Argonne
- 5) Copy of the No Stated Goals Request (Already submitted to DPS)

If you have any questions, please contact me directly at 312-743-7352.

Sincerely,

Amy Gudgeon  
Office of Emergency Management & Communications

Cc: Jim Argiropoulos, OEMC  
John O'Brien, DPS  
Al Ruiz, OEMC





City of Chicago  
Richard M. Daley, Mayor

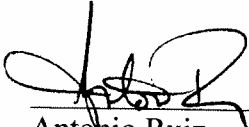
Office of Emergency Management  
and Communications

1411 West Madison Street  
Chicago, Illinois 60607-1809  
(312) 746-9111  
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<http://www.cityofchicago.org>

MEMORANDUM

To: Doug Yerkes  
Acting Chief Procurement Officer  
Department of Procurement Services

From:   
Antonio Ruiz  
Executive Director  
Office of Emergency Management & Communications

Date: November 1, 2007

Re: Evacuation Planning and Modeling with Argonne National  
Laboratory

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Thank you for your assistance with this matter. If you have any questions or need additional information, please contact Amy Gudgeon at 312-743-7352.

Cc: Jim Argiropoulos, OEMC  
Amy Gudgeon, OEMC  
John O'Brien, DPS

07 NOV -9 AM 8:24





07 NOV -9 AM 8: 24

William M. Walsh  
Contract Specialist Senior

Office of the Chief Financial Officer  
Procurement Department  
Argonne National Laboratory  
9700 South Cass Avenue, Bldg. 201  
Argonne, IL 60439

1-630-252-7030 phone  
1-630-252-4517 fax  
wmwalsh@anl.gov

October 31, 2007

Ms Amy Gudgeon  
**City of Chicago**  
Office of Emergency Management and Communications  
1411 W. Madison Street  
Chicago, IL 60607-1809

Dear Ms. Gudgeon:

Subject: Minority Business Enterprises and Women Business Enterprises  
Reference: Emergency Modeling and Visualization Project (Proposal P-07021)

The facility known as Argonne National Laboratory is owned by the United States Government and operated by UChicago Argonne, LLC, under a Prime Contract with the Government. The Laboratory complies with the requirements dictated in our Prime Contract with respect to Socio-Economic Goals. The performance rating of the Laboratory by the federal Government is judged in part by our compliance with those requirements. In FY 2006 and FY 2007, the Laboratory exceeded its Goals for Small Business Concerns, Women Owned Business Concerns, and Small Disadvantaged Minority Concerns.

The Laboratory endorses the concept of including language regarding Minority and Women Business Enterprises in the contemplated agreement between our respective organizations. Because of the limitations inherent in our Prime Contract, we request that this provision consist of the following language, which has been used before in section 2.6 (entitled *Minority and Women's Business Enterprises Commitment*) in your Agreement No. 12222,

*"In the performance of this Agreement, including the procurement and lease of materials or equipment, the Laboratory abides by the U.S. Department of Energy requirements with respect to minority and women owned businesses."*

Should you have any questions, please feel free to contact the undersigned at your convenience at 630-252-7030.

Sincerely,

A handwritten signature in black ink that reads "William M. Walsh".

William M. Walsh  
Senior Contract Specialist

**From:** AMY GUDGEON  
**To:** Smith, Christine  
**Date:** 11/20/2007 12:09:55 PM  
**Subject:** Argonne

Just checking in to see if you have received the paperwork for this project. I sent it interoffice mail and sent it to Doug's attention.

Thank you for your help.

Amy Gudgeon  
Office of Emergency Management and Communications  
Phone: 312.743.7352  
Mobile: 312-735-1538  
E: [agudgeon@cityofchicago.org](mailto:agudgeon@cityofchicago.org)



# DPS PROJECT CHECKLIST

For DPS Use Only	
Date Received	_____
Date Returned	_____
Date Accepted	_____
CA/CN's Name	_____

**IMPORTANT:** PLEASE READ AND FOLLOW THE INSTRUCTIONS FOR COMPLETING THE PROJECT CHECKLIST AND CONTACT THE APPROPRIATE UNIT MANAGER IF YOU HAVE ANY FURTHER QUESTIONS. ALL INFORMATION SHOULD BE COMPLETED, ATTACH ALL REQUIRED MATERIALS AND SUBMIT FOR HANDLING TO THE DEPARTMENT OF PROCUREMENT SERVICES, ROOM 403, CITY HALL, 121 N. LASALLE STREET, CHICAGO, ILLINOIS 60602.

**GENERAL INFORMATION:**

**Date:** 2.22.07  
**REQ No.:** 35971  
**PO No.:** (if known): 35971  
**Modification No.:** (if known):  
**Project Description:** Evacuation Planning and Consulting Services with Argonne National Laboratory

**Contact Person:** Amy Gudgeon  
**Tel:** 3-7352 **Fax:** \_\_\_\_\_ **E-mail:** agudgeon@cityofchicago.org  
**Project Manager:** Jim Argiropoulos  
**Tel:** \_\_\_\_\_ **Fax:** \_\_\_\_\_ **E-mail:** \_\_\_\_\_@cityofchicago.org  
**Previous PO No.:** (if known): \_\_\_\_\_

**FUNDING:**

City:  Corporate  Bond  Enterprise  Grant\*  Other  
 State:  IDOT/Transit  IDOT/Highway  Grant\*  Other  
 Federal:  FHWA  FTA  FAA  Grant\*  Other

LINE	FY	FUND	DEPT	ORGN	APPR	ACTV	OBJT	PROJECT	RPTG	\$ DOLLAR AMOUNT
	06	0M02	58	2705	0400	2204000			06DJ3B	1300000

Estimated Value \$1,300,000

\*IF GRANT FUNDED, A COPY OF THE APPROVED GRANT AND APPLICATION ARE REQUIRED and any other Terms and Conditions that may apply.

**SCOPE STATEMENT:**

Attached is a Detailed Scope of Services and/or Specification

**IMPORTANT:** THIS IS A CRITICAL PORTION OF YOUR SUBMITTAL. IN ORDER FOR DPS TO ACCEPT YOUR SUBMITTAL YOU MUST COMPLETE THE SPECIFIC SCOPE REQUIREMENTS AS SET FORTH IN THE SUPPLEMENTAL CHECKLIST FOR THAT UNIT.

The following is a general description of what should be included in a Scope of Services or Specification:

A clear description of all anticipated services and products, including: time frame for completion, special qualifications of prospective vendors, special requirements or needs of the project, locations, anticipated participating user departments, citation of any applicable City ordinance or state/federal regulation or statute.

**TYPE OF PROCUREMENT REQUESTED (check all that apply):**

**NEW REQUEST**

Blanket Agreement  
 Standard Agreement  
 Small Orders

**MOD/AMENDMENT**

Time Extension  
 Vendor Limit Increase  
 Scope Change/Price Increase/Additional Line Item(s)  
 Other (specify): \_\_\_\_\_

**FORMS:**  Requisition  Special Approvals  Non-Competitive Review Board (NCRB)

**CONTRACT TERM:** 3 years **Requested Term (number of months):** 36

# DPS PROJECT CHECKLIST

## PRE BID/SUBMITTAL REQUIREMENTS:

Requesting Pre Bid/Submittal Conference?  Yes  No Requesting Site Visit?  Yes  No

## ARCHITECTURAL/ENGINEERING SUPPLEMENTAL CHECKLIST

**Required Attachments:** Scope of Services, including location, description of project, services required, deliverables, and other information as required

### Risk Management

Will services be performed within 50 feet of CTA train or other railroad property?  Yes  No  
Will services be performed on or near a waterway?  Yes  No

**If applicable, Pre-Qualification** Category No. Category Description:

For Pre-Qualification Program, attach list of suggested firms to be solicited

**Other Agency Concurrence Required:**  None  State  Federal  Other (fill in)

---

## AVIATION CONSTRUCTION SUPPLEMENTAL CHECKLIST

DOA sign-off for final design documents:  Yes  No

### Required Attachments:

Copy of Draft Contract Documents and Detailed Specifications.

### Risk Management:

Current Insurance Requirements prepared/approved by Risk Management: Yes  No

Will work be performed within 50 feet of CTA or ATS structure or property? Yes  No

Will work be performed airside? Yes  No

\*NOTE: Any non-construction Aviation request, complete the applicable section.

---

## COMMODITIES SUPPLEMENTAL CHECKLIST

**Required Attachments:** Detailed Specifications (Scope of Services) including detailed description of the product, delivery location, user department contact, price escalation considerations, Bidder's qualification, contract term and extension options, Contractor's qualifications, citation of any applicable City/State/Federal statutes or regulations, citation of any applicable technical standards and Price Lists/Catalogs, technical drawings and other exhibits and attachments as appropriate.

**If Modification request**, please verify and provide the following:

Contractor's Name:

Contractor's Address:

Contractor's e-mail Address:

Contractor's Phone Number:

Contractor's Contact Person:

---

## CONSTRUCTION SUPPLEMENTAL CHECKLIST

### Required attachments:

Copy of Draft (80% Completion), Contract Documents and Detailed Specifications

### Risk Management

Will services be performed within 50 feet of CTA train or other railroad property?  Yes  No

Will services be performed on or near a waterway?  Yes  No

# DPS PROJECT CHECKLIST

## VEHICLES/HEAVY EQUIPMENT SUPPLEMENTAL CHECKLIST

### Required Attachments:

- Detailed Specifications including detailed description of the vehicle(s) or equipment, mounted equipment, if any, and options/accessories.
- Special Provisions (Delivery, Warranty, Manuals, Training, Additional Unit Purchase Options, Bid Submittal Information, etc.)
- Delivery Location(s)
- Technical Literature
- Drawings, if any
- Part Number List (            Manufacturer; or            Dealer;            or Other Source:            )
- Current Price List(s)/Catalog(s)
- Special Approval Form
- Exhibits and Attachments

If **Modification request**, please verify and provide the following:

Contractor's Name:

Contractor's Address:

Contractor's e-mail Address:

Contractor's Phone Number:

Contractor's Contact Person:

---

## PROFESSIONAL SERVICES SUPPLEMENTAL CHECKLIST

- Detailed description of project listing obligations of each party.
- The Schedule of Compensation
- Deliverables
- Request for individual contract services (if applicable)
- The appropriate EPS form
- ITSC (approved by BIS)
- OBM (approved by Budget form/memo)
- Grant document attached

Attach any documentation indicating any previous purchase activity to assist in the procurement process

## TELECOMMUNICATIONS AND UTILITIES SUPPLEMENTAL CHECKLIST

**Required Attachments:** Detailed Scope of Services/Specification which sets forth all of the anticipated services and products the user department wants provided, including time frame for completion, special qualifications of prospective vendors, special requirements or needs of the project, locations, anticipated participating user departments, citation of any applicable City ordinance or state/federal regulation or statute.

Has the project been reviewed by DGS?             Yes     No

Attach copy of DGS Recommendation; Reservation(s); or participate under current contract.

Does the project include software?             Yes     No

If yes, is signed ITSC form attached?             Yes     No

Does the location involve:

A public way?             Yes     No

Any concession in the City's facilities?             Yes     No

Is it anticipated City Council approval of the project or contract will be required?             Yes     No

# DPS PROJECT CHECKLIST

## WORK SERVICES/FACILITY MAINTENANCE SUPPLEMENTAL CHECKLIST

**Required Attachments:** Detailed Specifications (Scope of Services) including detailed description of the work, locations (with supporting detail), user department contacts, work hours/days, laborer/supervisor mix, compensation and price escalation considerations, Bidder's qualification, contract term and extension options, Contractor's qualifications, citation of any applicable City/State/Federal statutes or regulations, citation of any applicable technical standards and Price Lists/Catalogs, technical drawings and other exhibits and attachments as appropriate.

**Risk Management:**

Will services be performed within 50 feet (50') of CTA train or other railroad property?  Yes  No

Will services be performed on or near a waterway?  Yes  No

Will services require the handling of hazardous/bio-waste material?  Yes  No

Will services require the blocking of streets or sidewalks which may affect public safety?  Yes  No

**If Modification or Amendment request, please verify and provide the following:**

Contractor's Name:

Contractor's Address:

Contractor's e-mail Address:

Contractor's Phone Number:

Contractor's Contact Person:

**CITY OF CHICAGO  
 PURCHASE REQUISITION**

**Copy (Department)**

<b>DELIVER TO:</b>  058- OEC1411 1411 W. MADISON Chicago, IL 60607	<b>REQUISITION:</b> 35971  <b>PAGE:</b> 1 <b>DEPARTMENT:</b> 58 - OFFICE OF EMERGENCY COMMUNICA <b>PREPARER:</b> Amy R Gudgeon <b>NEEDED:</b> <b>APPROVED:</b> 11/13/2007
--	---

**REQUISITION DESCRIPTION**

Consulting Project with Argonne National Lab. for Evacuation Planning  
 SPECIFICATION NUMBER: 61698

**COMMODITY INFORMATION**

LINE	ITEM	QUANTITY	UOM	UNIT COST	TOTAL COST						
1	92410 Consulting	#####	USD	0.00	0.00						
<b>SUGGESTED VENDOR:</b>		<b>REQUESTED BY:</b> Amy R Gudgeon									
DIST	BFY	FUND	COST CTR	APPR	ACCNT	ACTV	PROJECT	RPT CAT	GENRL	FUTR	Dist. Amt.
1	006	0M02	0582705	0400	220400	0000	00000000	06DJ3B	00000	0000	0.00
<b>LINE TOTAL:</b>											<b>0.00</b>
<b>REQUISITION TOTAL:</b>											<b>0.00</b>

Where a commodity is for a particular or unique use other than standard quality, grades, color, size or other characteristics, give details of how it will be and for what purpose.  
 Requisitions prepared incorrectly will be returned to the using department.