

Please note, there are many ways to describe a location with coordinates.

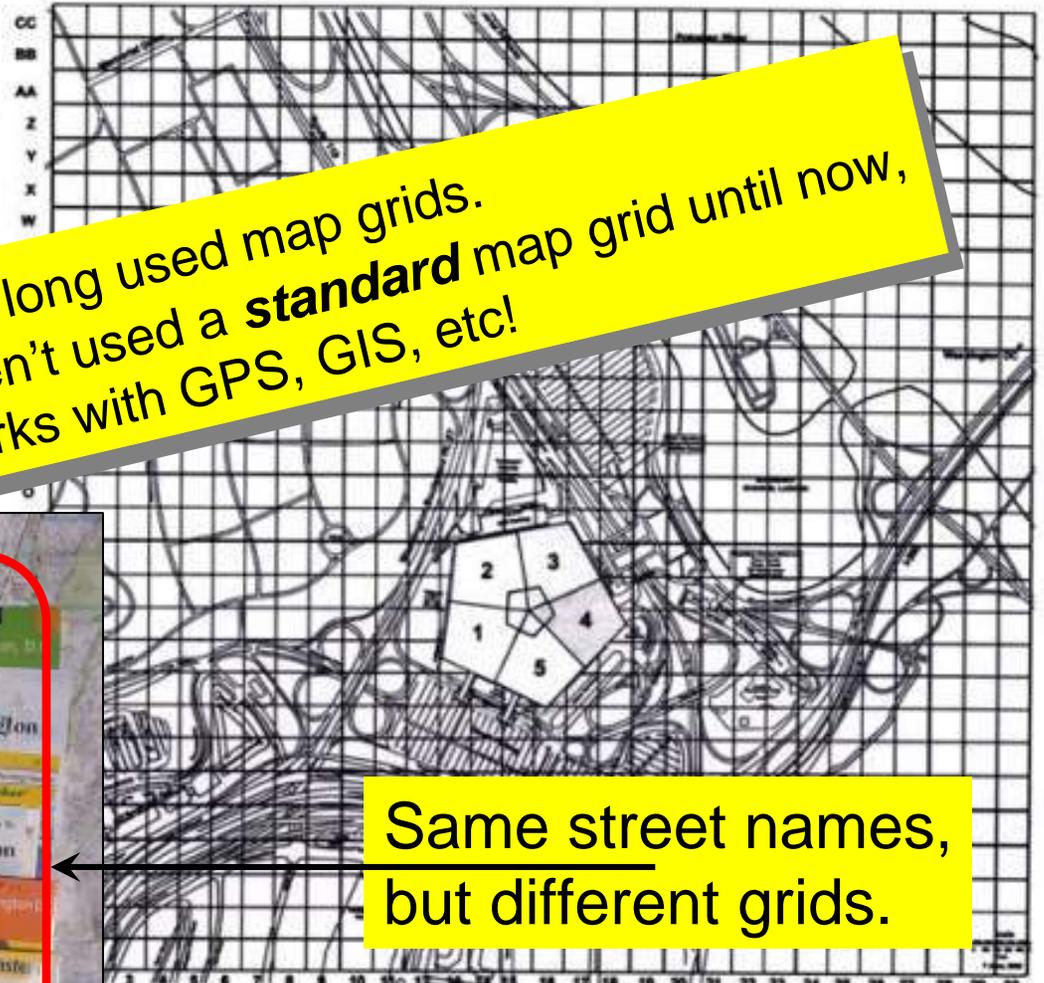
Asa Ramsay
Perlustrations
P. O. Box 6112,
Santa Fe, New Mexico 87502-6112
505-986-0635 asa@newmexico.com

Have GPS Will Coordinate
KUTM27: 13S E413.713km N3947.310km
GEO84: N35°40'03.79" W105°57'14.26"
USNG83/MGRS83: 13S DV 13662 47513
SPC83: 3002 X1728349ft Y1698447ft
CGCS84: 239.63080° 582.27338°
*A well-coordinated person knows their
position in the world*

The US National Grid being discussed here is just one of them.

Non-Standard Grids Problems & Impact

We've long used map grids.
We simply haven't used a **standard** map grid until now,
one that works with GPS, GIS, etc!



Same street names,
but different grids.

A Survey of Washington, DC
Commercial Street Maps
Found 35 different maps...
... with 31 different grids.
None worked with GPS receivers.

A Standard Grid...

...a consensus based standard.

- A communications enabler.

... a nationally consistent language of location.

- Geoaddress on maps.



- Universal Map Index

Point of Interest	Street Address	JSNG Grid	Telephone: (202)
		18S UJ	
Subway Sandwich & Salads	2030 M St., NW	2256 0826	223-2587
Subway Sandwich & Salads	430 8th St., SE	2698 0567	547-8200
Subway Sandwich & Salads	3504 12th St., NE	2740 1120	526-5999
Subway Sandwich & Salads	1500 Benning Rd, NE	2815 0757	388-0421

- An enabler... a bridge between hardcopy maps and digital.

- Frictionless interoperability



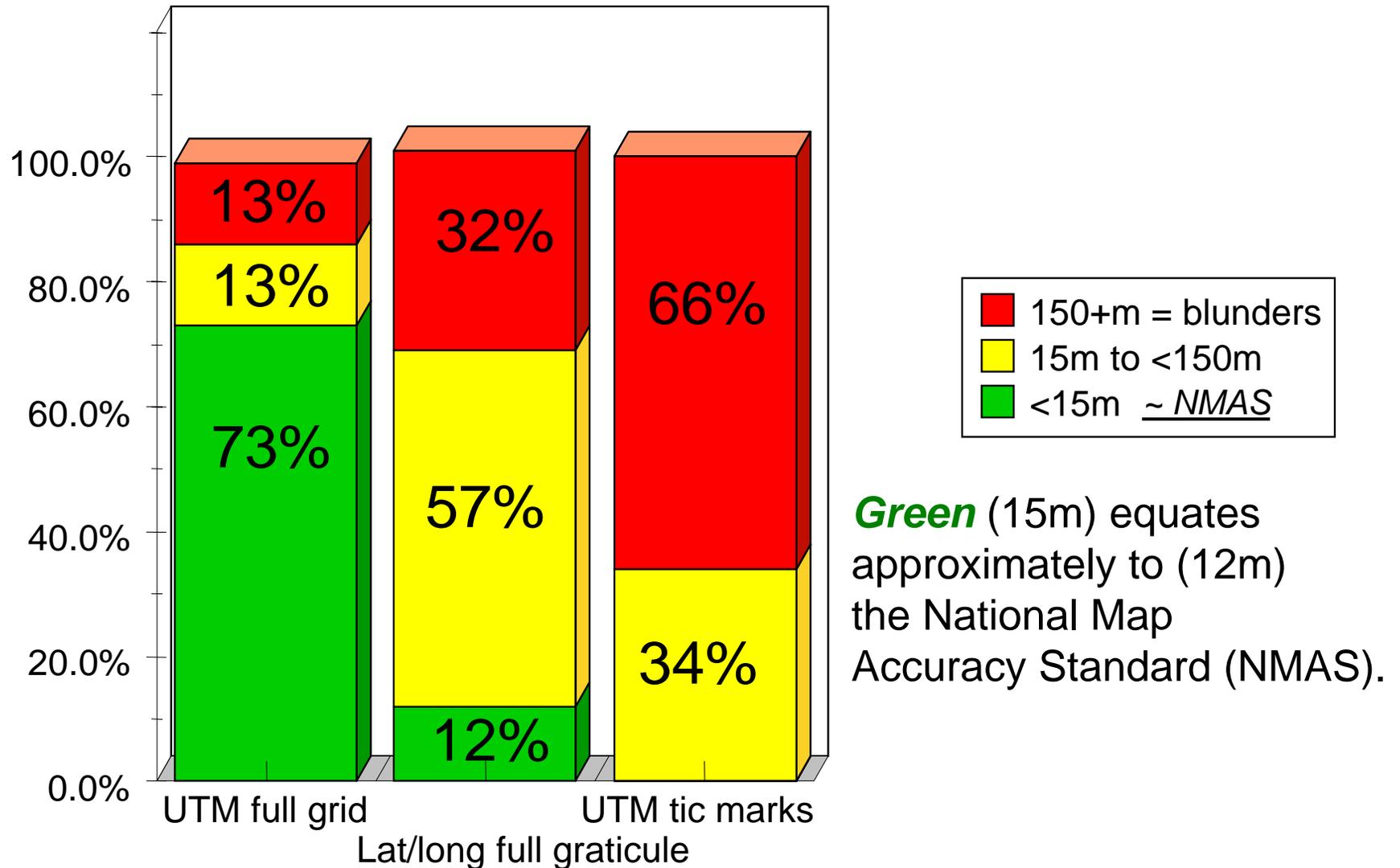
USNG... framing issues.

- USNG is an FGDC process standard
 - It is a presentation process standard.
- It is not intended to define internal storage structure of any GIS or to the transfer of coordinates between databases or appliances.
- Intended for ground operations. For the general public, public safety, and commerce.
- For maps generally $>1:1,000,000$ -scale.
- Not applicable to aeronautical and nautical operations as such.

From research into,

“Why not lat/long instead of plane coordinates.”

Human factors: Types & Percentages of Positional Errors



08/27/98

Terry, 1994, Photogrammetric Engineering & Remote Sensing, Vol 63, No. 4, Apr 1997, p.381 - 383.

Average Positional Accuracy

(Excluding Gross Errors)

100 meters
Drawn to scale

150 meters

Gridded UTM

86% / 10.2 Meter Avg.

Avg. Time: 9:43

Meets National Map Accuracy Standard

Gridded Lat/Long

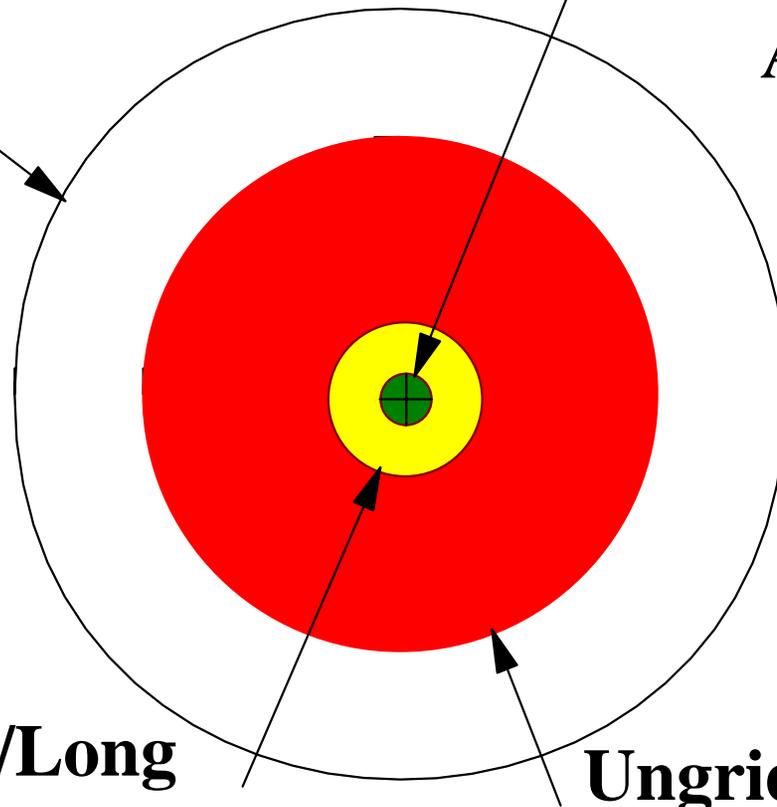
69% / 31.7 Meter Avg.

Average Time: 14:47

Ungridded UTM

34% / 100.1 Meter Avg.

Average Time: 8:00



User's Preference

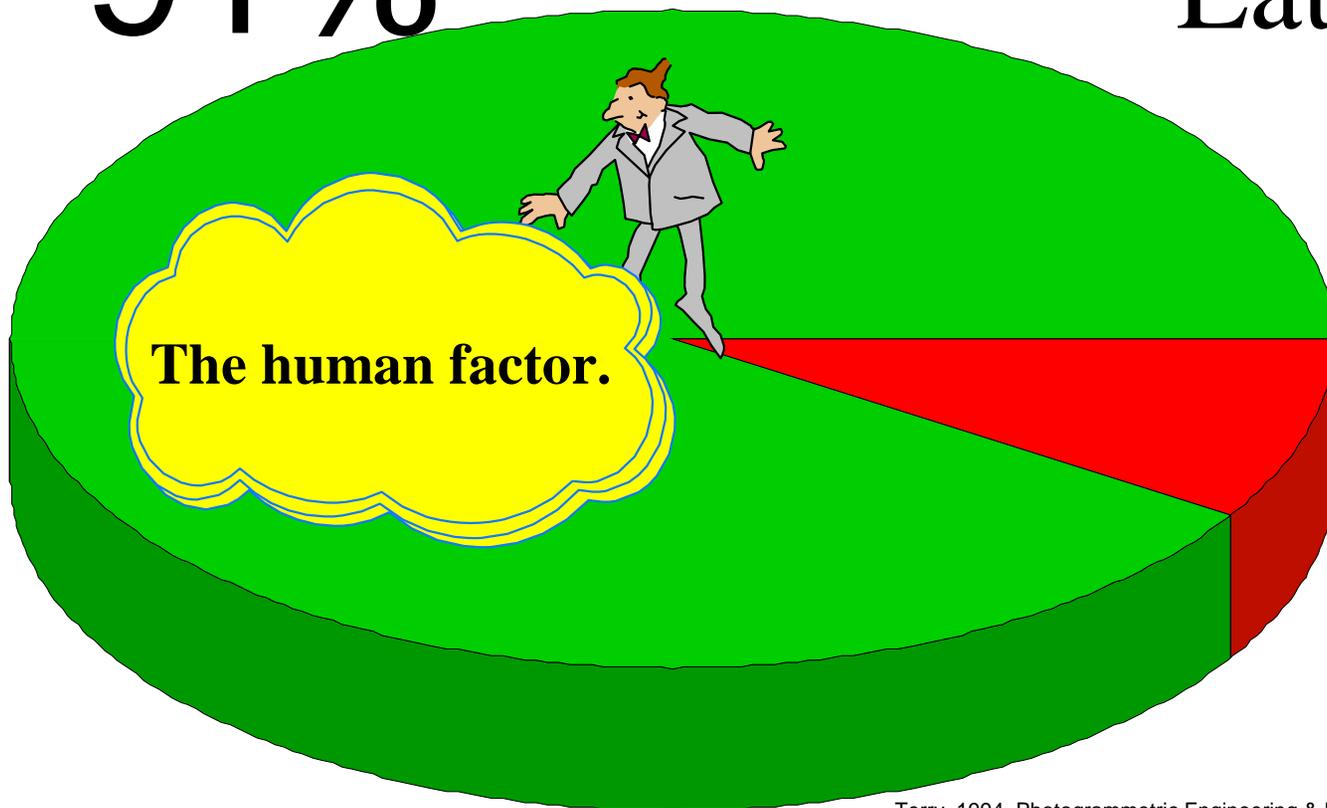
10 Marines, 5 Firemen, and 7 Civilian Backpackers

UTM with full grid

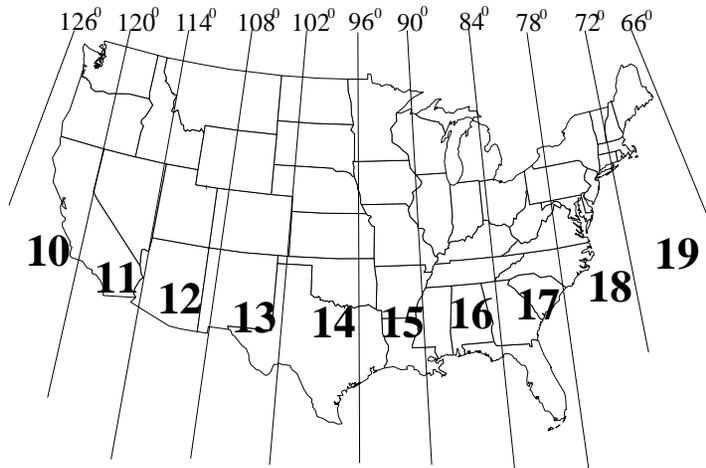
91%

Lat/long with
full grid.

9%



UTM Grid Zones

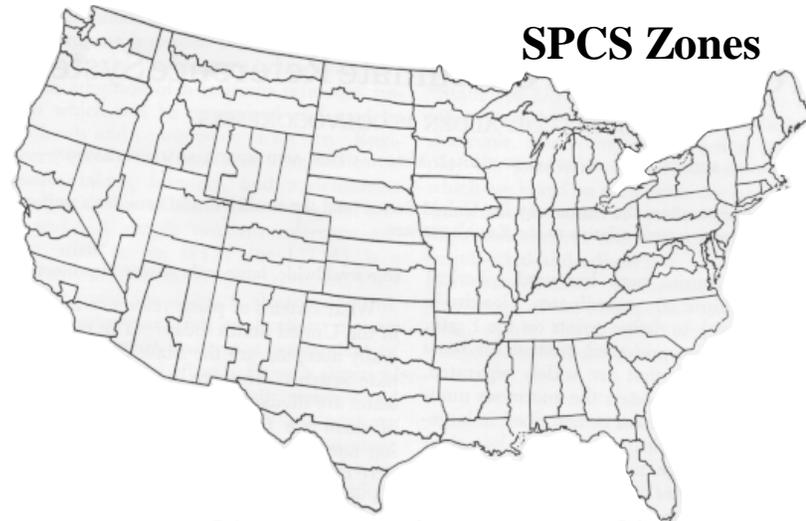


© 1997 N.G. Terry, Jr.

National/International or Local?



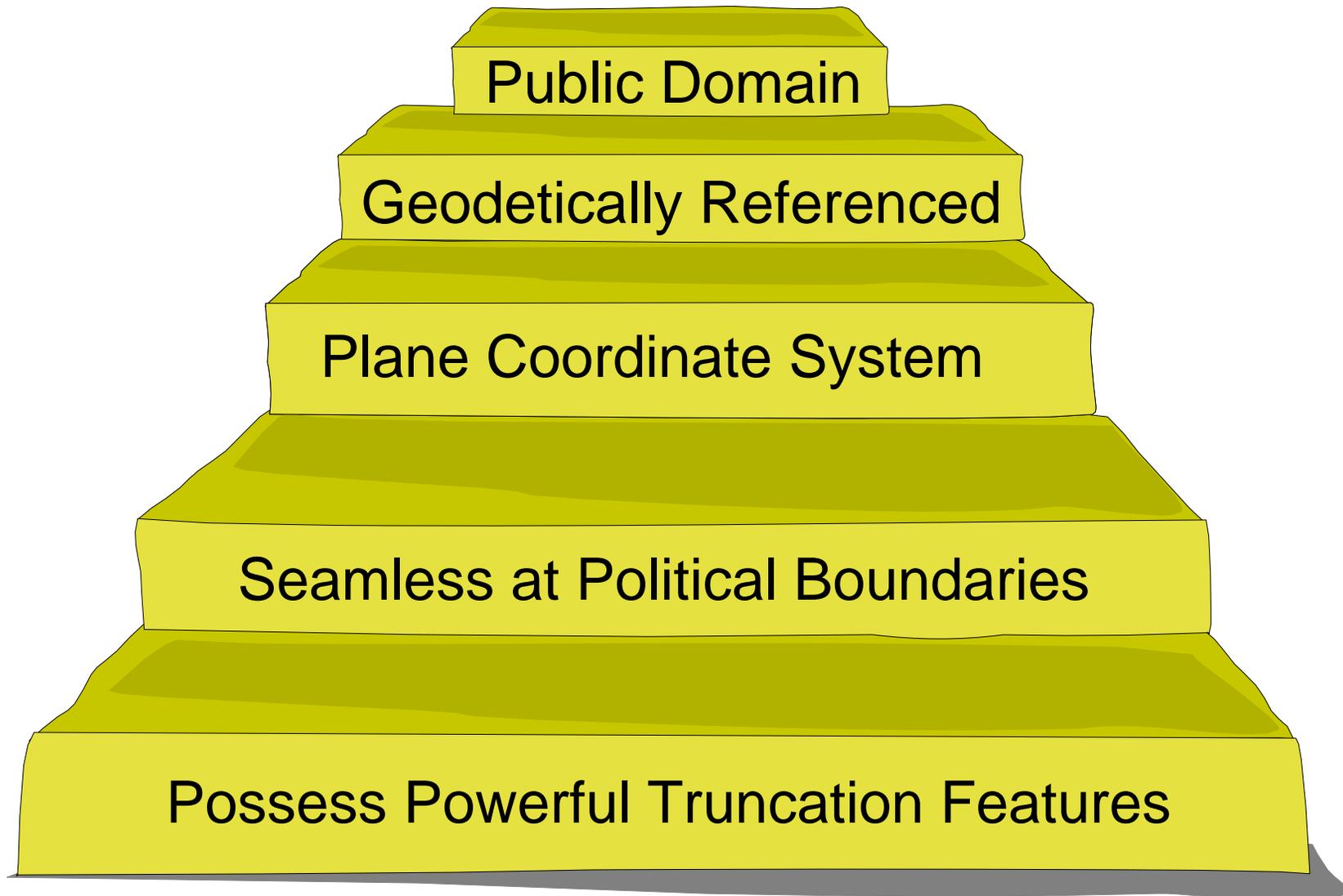
UTM/USNG or SPCS ?



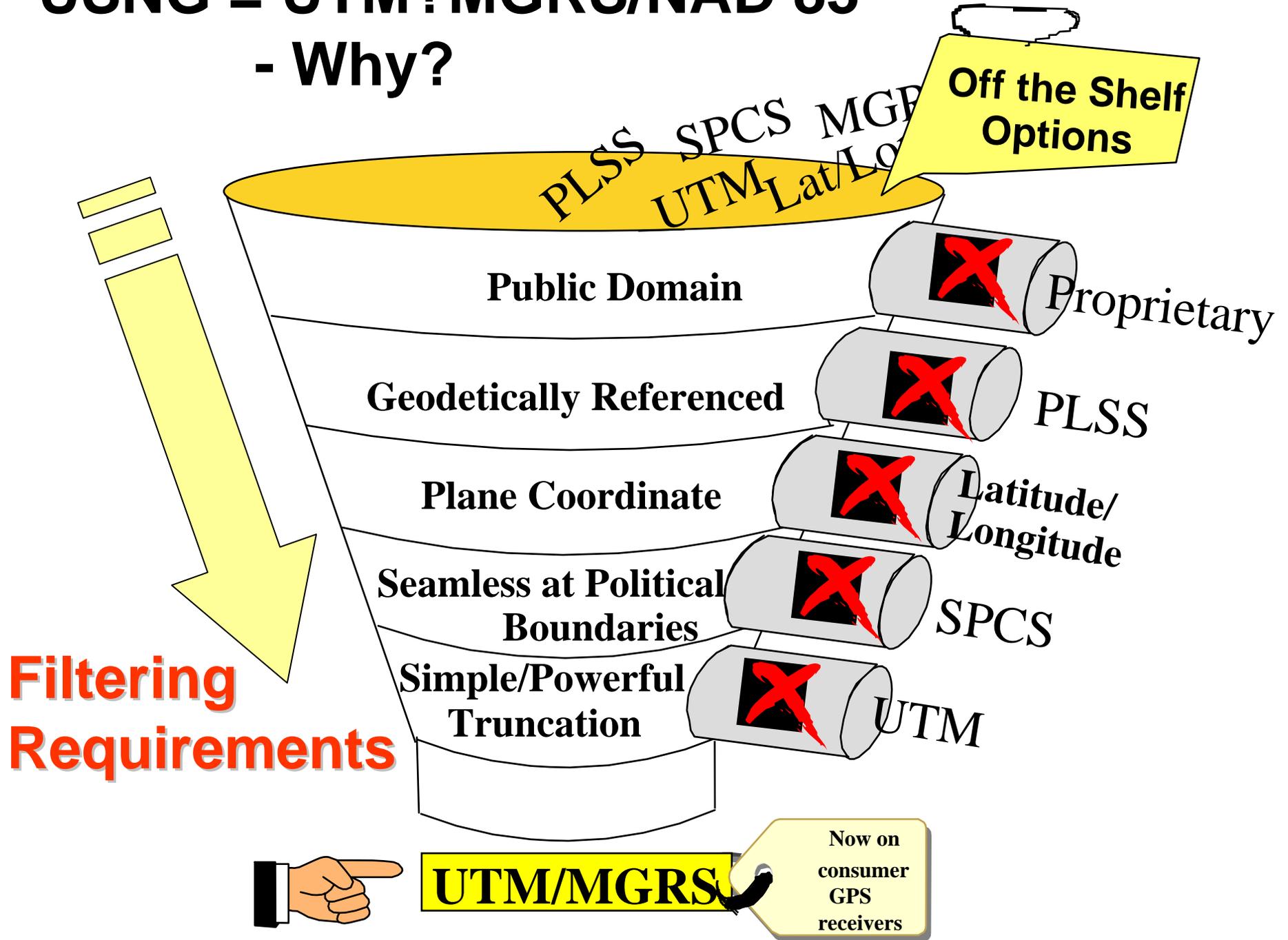
Why not SPCS?

State Plane Coordinate System

The Requirements of a United States National Grid (USNG) for Geoaddressing...



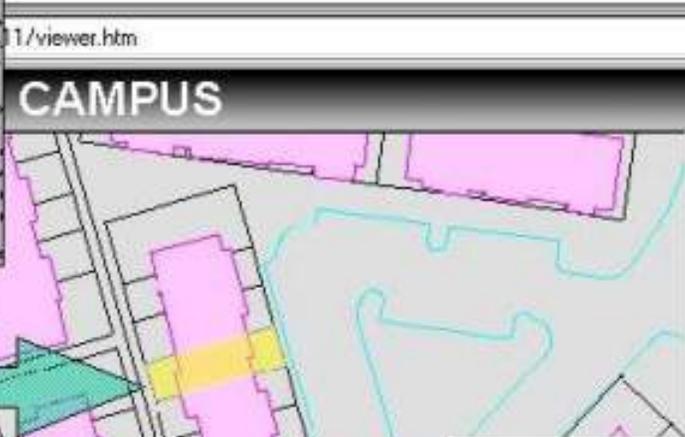
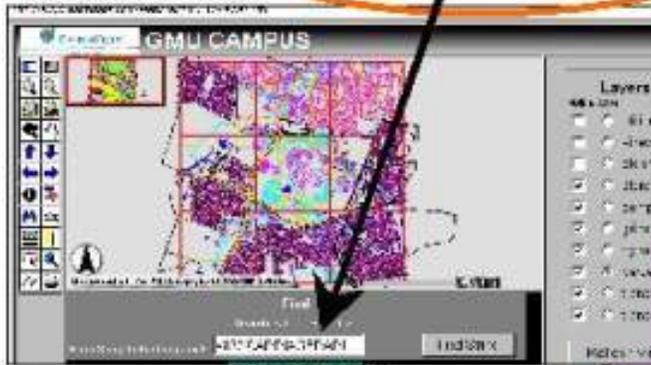
USNG = UTM?MGRS/NAD 83 - Why?



Search for **4862 CARRIAGEPARK**

Web Disseminated "WHERE 'it' is"

Example: dcgis.dc.gov/mar_client_sample/

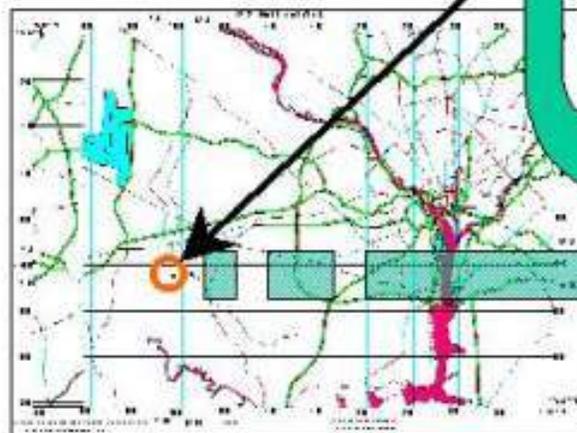


(Randomly selected address for illustration only.)

USNG Format

Map created with ArcIMS - Copyright (C) 1992-2001 ESRI Inc.

parcels				
OBJECTID	CONTO	PIN	DLDCIDENT	STREETNDR
1	18S TH 9981 9970	00 32 05 1904	823098985109	4862



Low-end



High-end



“Problems/Issues/Gaps:

Responders’ lack ability to share information between the MAC (Multi-Agency Coordination Entities) and area command posts is partially due to weak communications and interoperability standards.

This is evidenced by situations where MAC and area commands may both be utilizing digital maps, but with different indexing standards. The result may be an inability to easily exchange map coordinates.”

-A Project Responder Report: Technology Opportunities for Implementing the National Incident Management System (NIMS)

Of October 2005, p. 31, by Hicks and Associates, Inc., for The Memorial Insitute for the Prevention of Terrorism and the United States Department of Homeland Security.

“Lack of a uniform method for describing incident locations has long been a major impediment to rapid and effective emergency response in diverse metropolitan and rural areas...

...the immediate impact of USNG will be to ensure that GPS is directly usable with properly gridded map products to quickly enable multi-agency and multi-jurisdictional emergency responders, and the public in general, to precisely identify geolocations in the real world.

...the USNG will be a principal integrating mechanism to create spatial interoperability nationwide...among multi-jurisdictional civil emergency response organizations and when necessary, between those organizations and the military to support any and all domestic emergency response and disaster relief operations.”

- Appendix E Spatial Interoperability
Defense Science Board Task Force on the Future of the
Global Positioning System, October 2005.

One approach: Cartographic anarchy.

Many non-standard grids & spatial ref. systems.

Many civil sector polygon and reference systems
in Hurricane KATRINA 2005



Local areas by geographic features is good,
but no standard spatial reference grid.

Louisiana State Search Grid

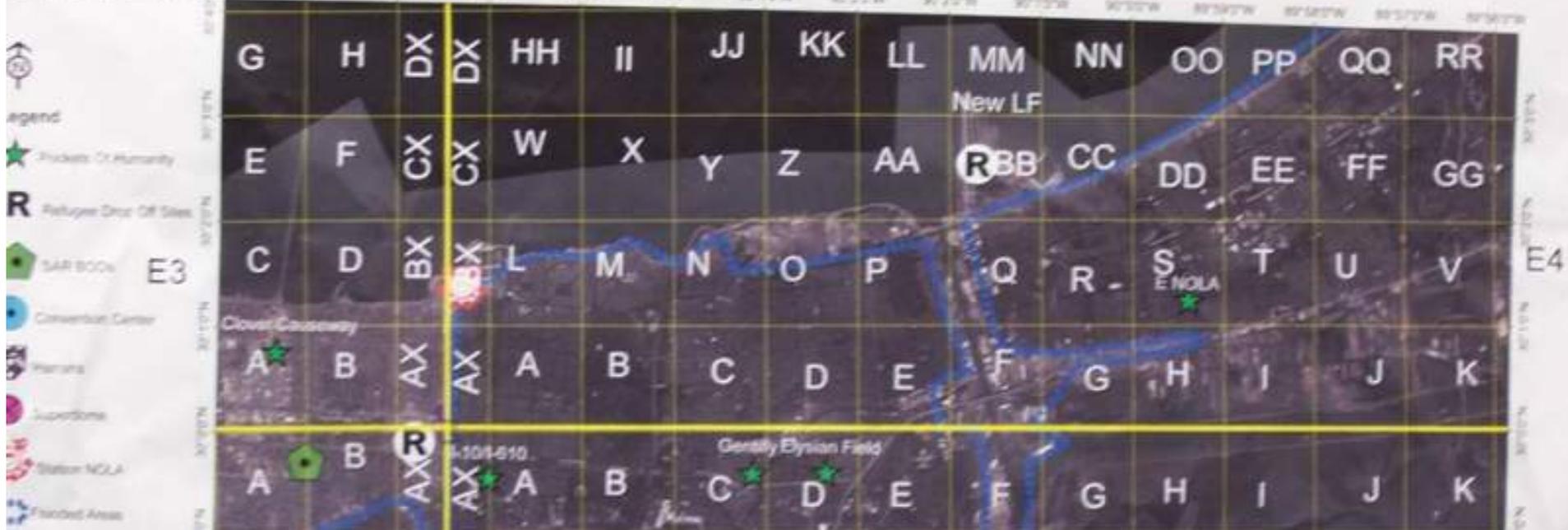


Multiple non-standard reference systems:

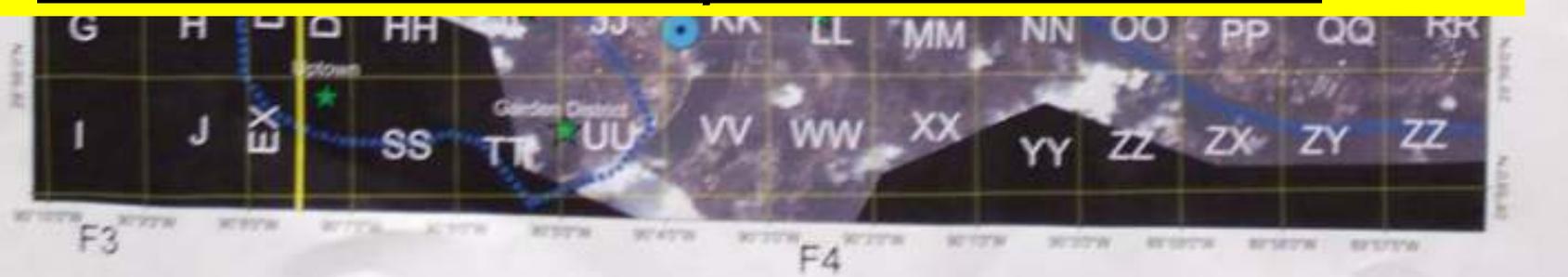
- = Not compatible with GPS, C2 systems, etc.
- = Does not enable trained forces or interoperability.
- = Operational friction during mutual assistance.

Local (state) quadrangle reference system.

DV 097



Grids are good but...
...a standard grid reference system is essential.
The alternative is operational friction.

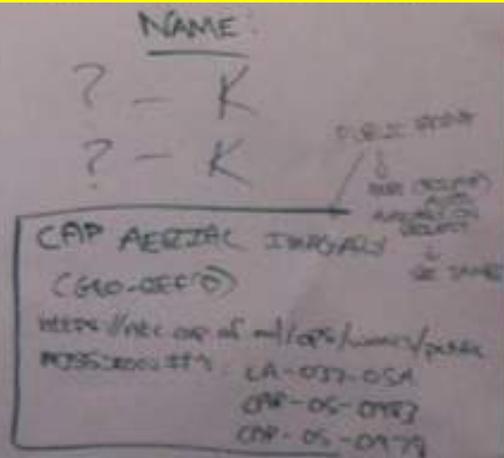


CRITICAL DATA

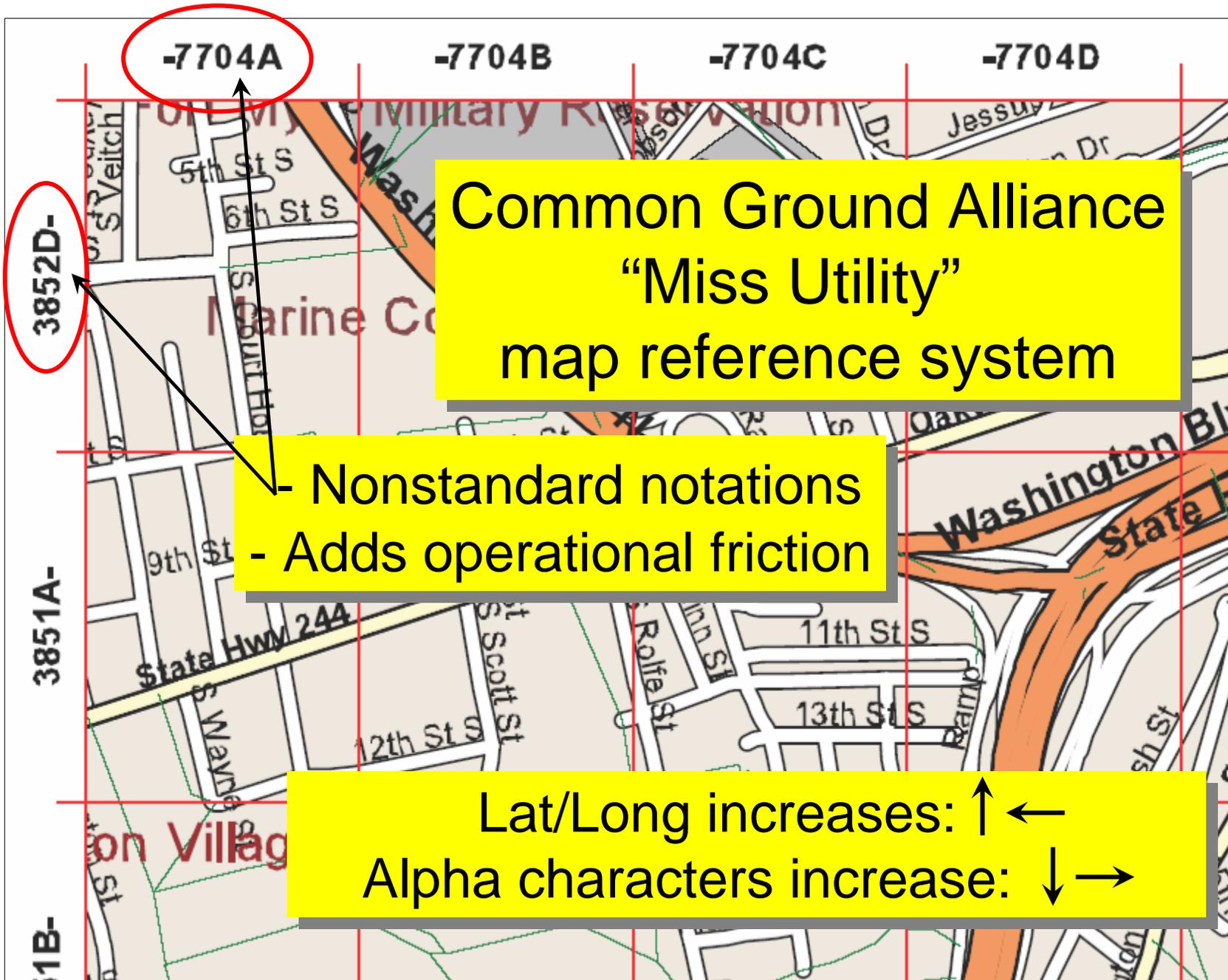
Location, location, location...

WHAT WE NEED:

- PARCEL DATA ✓
- POLICE DISTRICT BOUNDARIES (ORLEANS COUNTY) ✓
- Pump Station locations
- 911 Grid map
- Levee breaks
- Public Health Districts
- Sectionals
- Electric/Power Districts
- Parish



What exactly is a 911 Grid Map?



Common Ground Alliance
“Miss Utility”
map reference system

- Nonstandard notations
- Adds operational friction

Lat/Long increases: ↑ ←
Alpha characters increase: ↓ →

The value of an alternative approach:

Results of Research at an ABCA Conference



Hypothesis: Standards, doctrine, and training based on a standard grid will substantially reduce operational friction and improve operational effectiveness.

Scenario: Disaster has struck Blues City in Blue Land, requiring formation of a coalition to support civil authorities in disaster response.

Part I: Without prior notice or special training coalition officers are provided a 1:50,000 topographic map of Blues City, romer scale, and requested to locate features provided by USNG/MGRS grid coordinates.

Part II: Given rapid planning requirements, coalition countries must produce their own maps of Blues City located on a UTM zone junction.

The value of an alternative approach: Results of Research at an ABCA Conference



Part I: *Without prior notice or special training*

coalition officers are provided a 1:50,000 topographic map of Blues City, romer scale, and requested to locate features provided by USNG/MGRS grid coordinates.

Results: Of 64 attempts, 63 points located.



Part II: Given rapid, disbursed planning requirements, coalition countries must produce their own maps of Blues City located on a UTM zone junction.

Results: Within an hour street data had been downloaded from Blues City web site and a properly gridded map prepared per normal procedures.



PREPARED AND PUBLISHED BY THE
JOINT OPERATIONAL SUPPORT ACTIVITY
1000 HANOVER LANE
FORT BELLEVILLE, ILLINOIS 62209
PHONE: (618) 438-4000
FAX: (618) 438-3000

Disclaimer Notice
The Roads information on this map is derived
from the City of New Orleans Enterprise GIS Database
All other data is derived from WMAP level 1

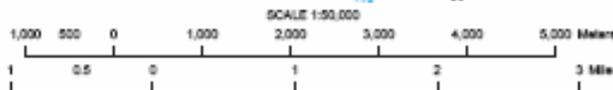


ILLUSTRATION: WORLDWIDE EXTREM (WEX)
CIRC: 1:500,000 UTM ZONE 18R (HANSRICH LINE)
PROJECTION: TRANSVERSE MERCATOR
VERTICAL DATUM: MEAN SEA LEVEL
HORIZONTAL DATUM: WORLDWIDE EXTREM (WEX)
PRINTED BY: JOINT OPERATIONAL SUPPORT ACTIVITY



KATRINA Lessons Learned in Mississippi:



“3. The implementation of a standardized reference system. We recommend the use of the US National Grid (USNG). We made the mistake of initially improvising a search and rescue grid and then modifying that grid for local use. Hundreds of copies of each were published. The USNG is a readily available standard that is yet to be adopted by emergency response agencies due to lack of education.”

From proposed:

Joint Emergency Mapping System for Mississippi (JEMS),
Center for Interdisciplinary Geospatial Information Technologies
Delta State University, Mississippi
19 November, 2005

FloridaDisaster.org - US National Grid - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Address <http://www.floridadisaster.org/gis/USNG/index.htm> Go Links

Norton™ Fraud monitoring is on Options

[Contact](#) | [Search](#)



FloridaDisaster.org
Florida Division of Emergency Management

Public | Business | EM Community | Organization | News Media | Kids

Prepare and Stay Aware!

[Home](#) / [Organization](#) / [About the Division](#) / [BPR](#) / [GIS](#) / [USNG](#)

United States National Grid

Lessons learned from recent hurricane seasons have taught us that standardized grid maps for search and rescue and other activities are a necessity. In an effort to standardize maps in Florida for both emergency and other operations, the State Fire Marshal, as the coordinating agency for search and rescue under the State Comprehensive Emergency Management Plan, and the Division of Emergency Management are embarking on a program to adopt the US National Grid (USNG) as the standard in Florida. This project will ensure a uniform grid mapping system across cities and counties in Florida, and will match the system used by the National Guard, the US Coast Guard and the US military when they are deployed into our state.

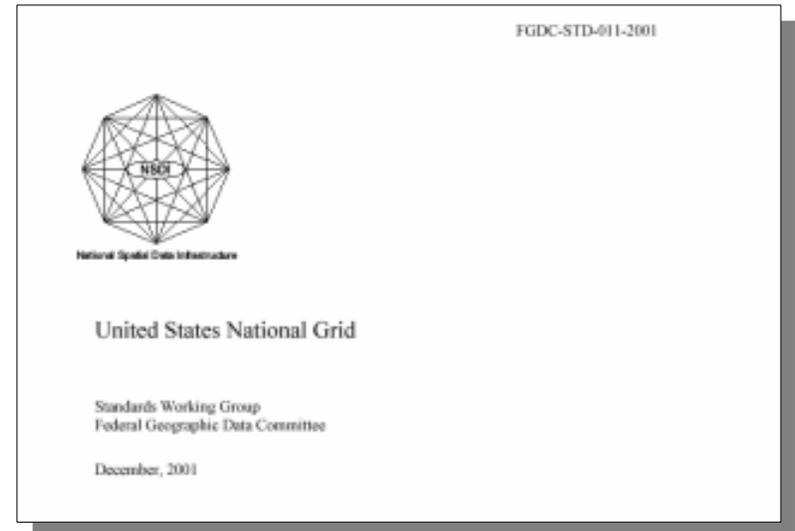
Florida's unique geography of miles of coastlines, multiple river corridors, and large watersheds make the use of the common Township/Range/Section grid (PLSS) all but impossible except for a handful of

Start | NOLAzonesKatrina | 3 Internet Explorer | Microsoft PowerPoint - [...]

Norton™ 14:14

FGDC-STD-011-2001 United States National Grid

www.fgdc.gov/usng



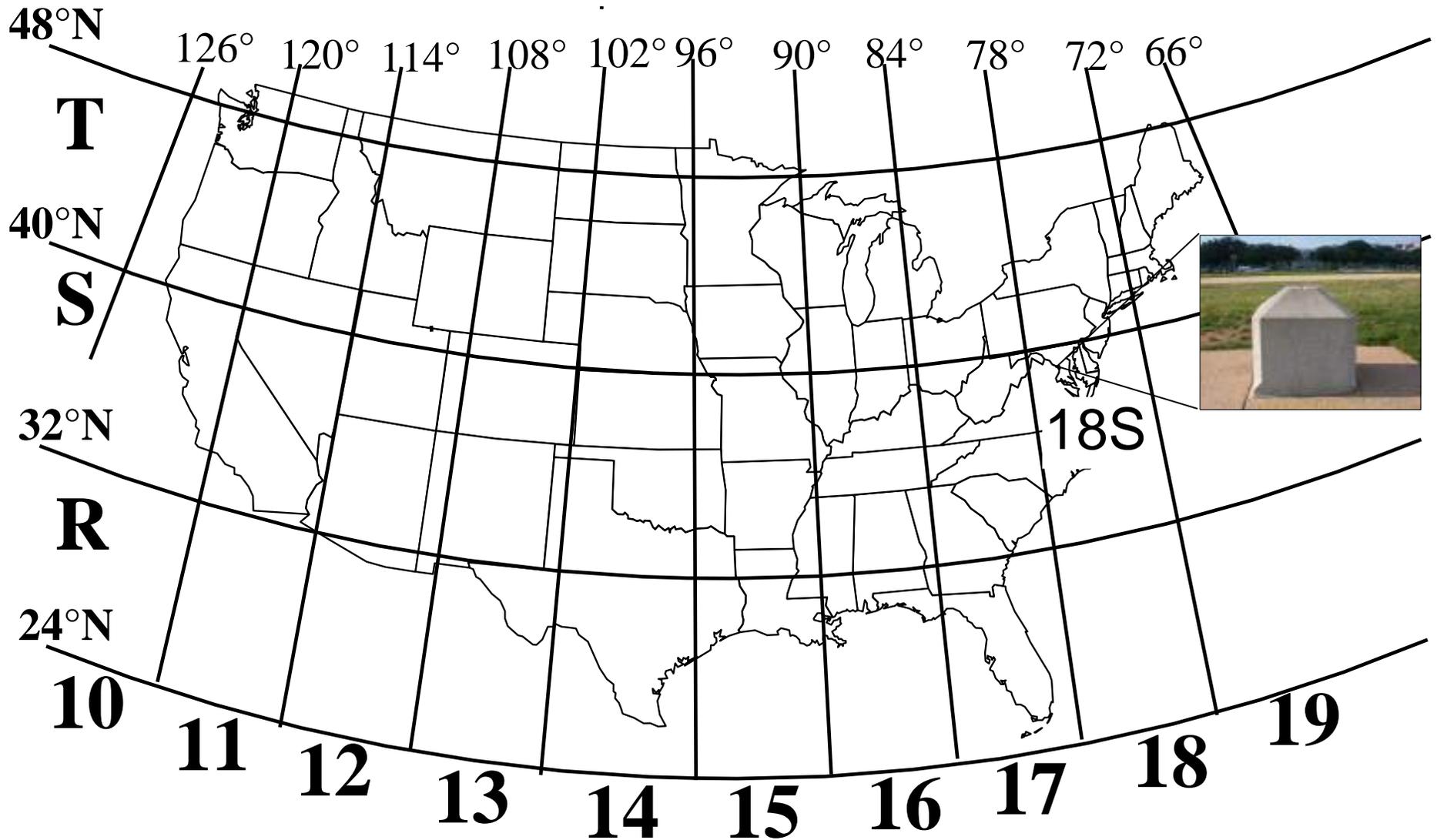
“We should promote voluntary standards that enhance the effective coordination of disaster responses, such as the U.S. National Grid map standard for geospatial information system;”

- The Honorable John H. Marburger, III
Director, Office of Science and Technology Policy.

Testimony of Dec 5, 2001 before the Subcommittee on Science, Technology and Space Committee on Commerce, Science, and Transportation, United States Senate.

How to read the USNG...

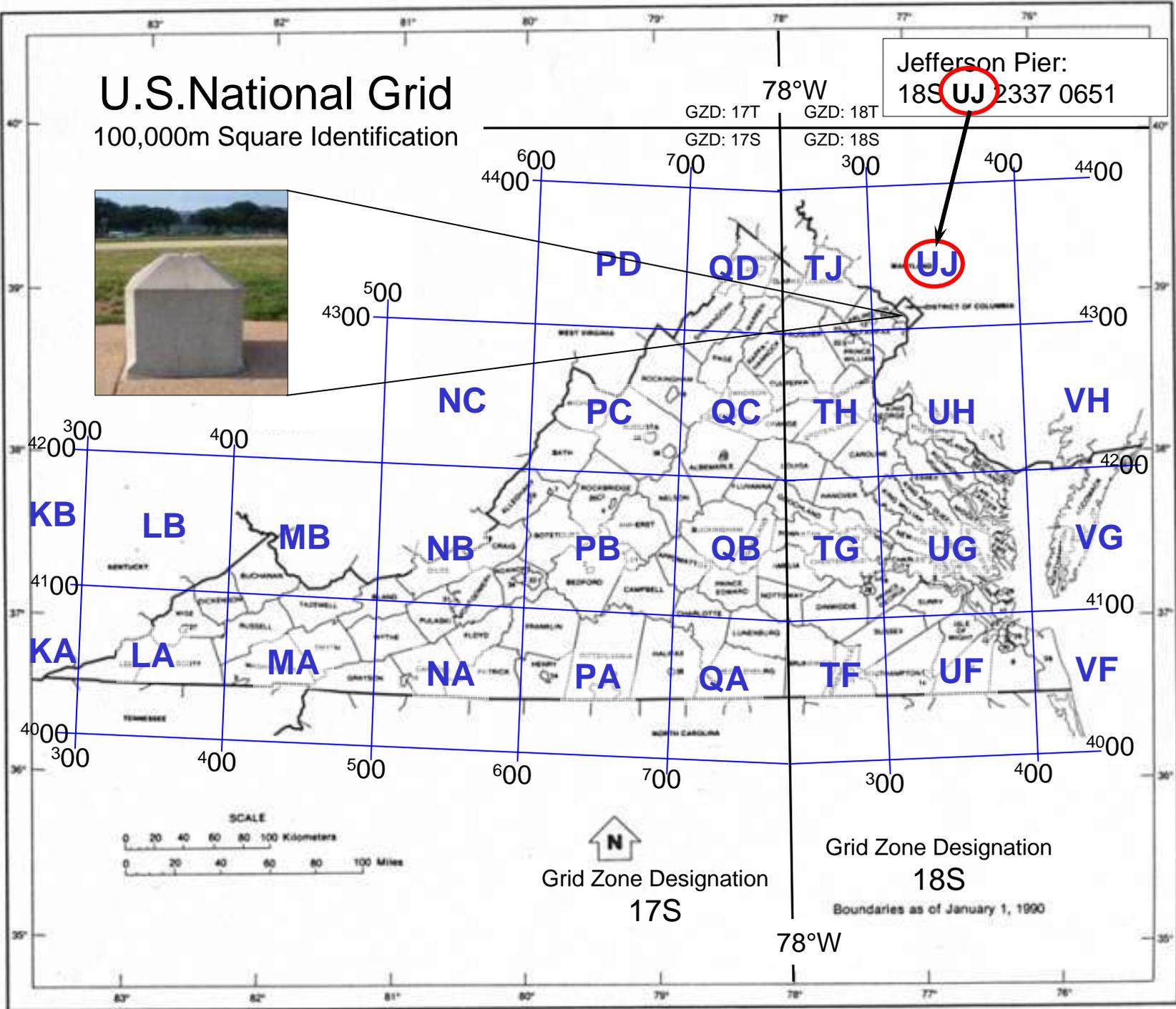
U UTM/USNG Grid Zone Designations



Jefferson Pier: **18S** UJ 2337 0651 (NAD 83)

U.S. National Grid

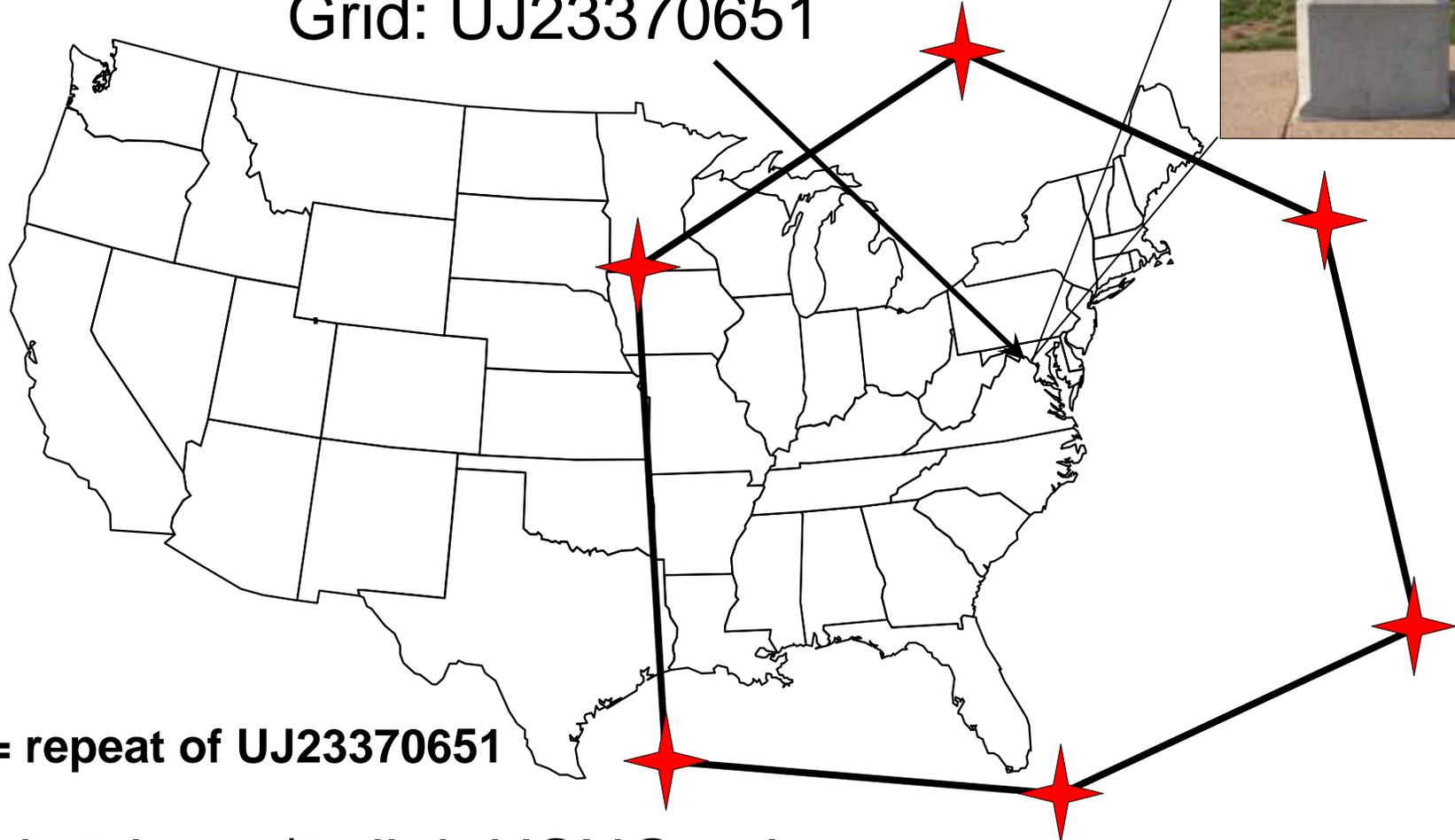
100,000m Square Identification



The Power of Truncated USNG Values

Jefferson Pier, Washington, DC

Grid: UJ23370651



★ = repeat of UJ23370651

Each 2 letter/8 digit USNG value
(10-m posting) in the outlined area is unique.

Reading Grid Coordinates... "Read Right, Then Up."

The Jefferson Pier is located at grid **2337 0651**

18SUJ23370651

- 4-digit: 23 06 = 1,000m
- 6-digit: 233 065 = 100m
- 8-digit: 2337 0651 = 10m
- 10-digit: 23371 06519 = 1m precision

(think **2337** / 0651)

Read **RIGHT** to grid line **23**

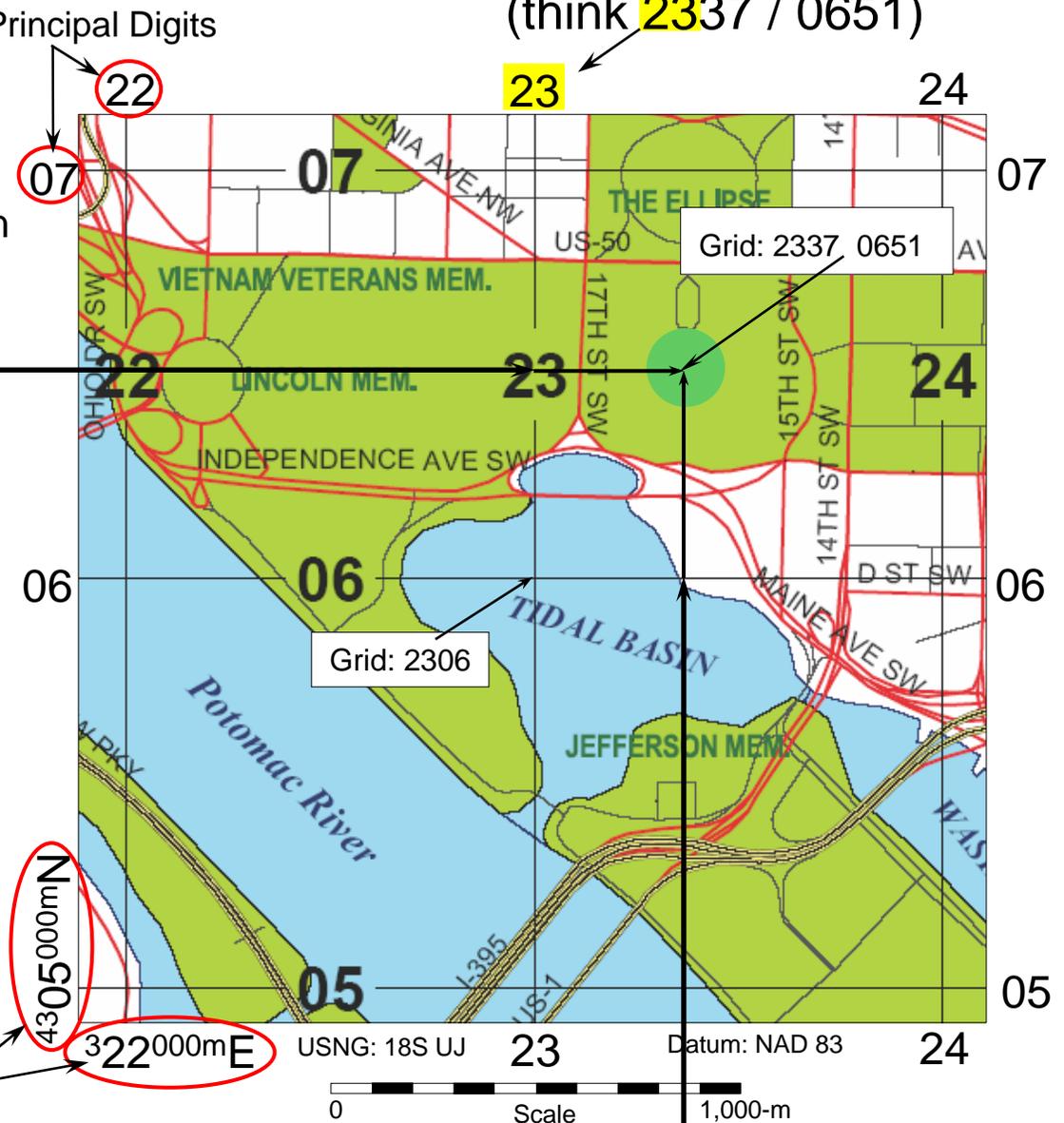
Then measure right another 370-meters.

Jefferson Pier



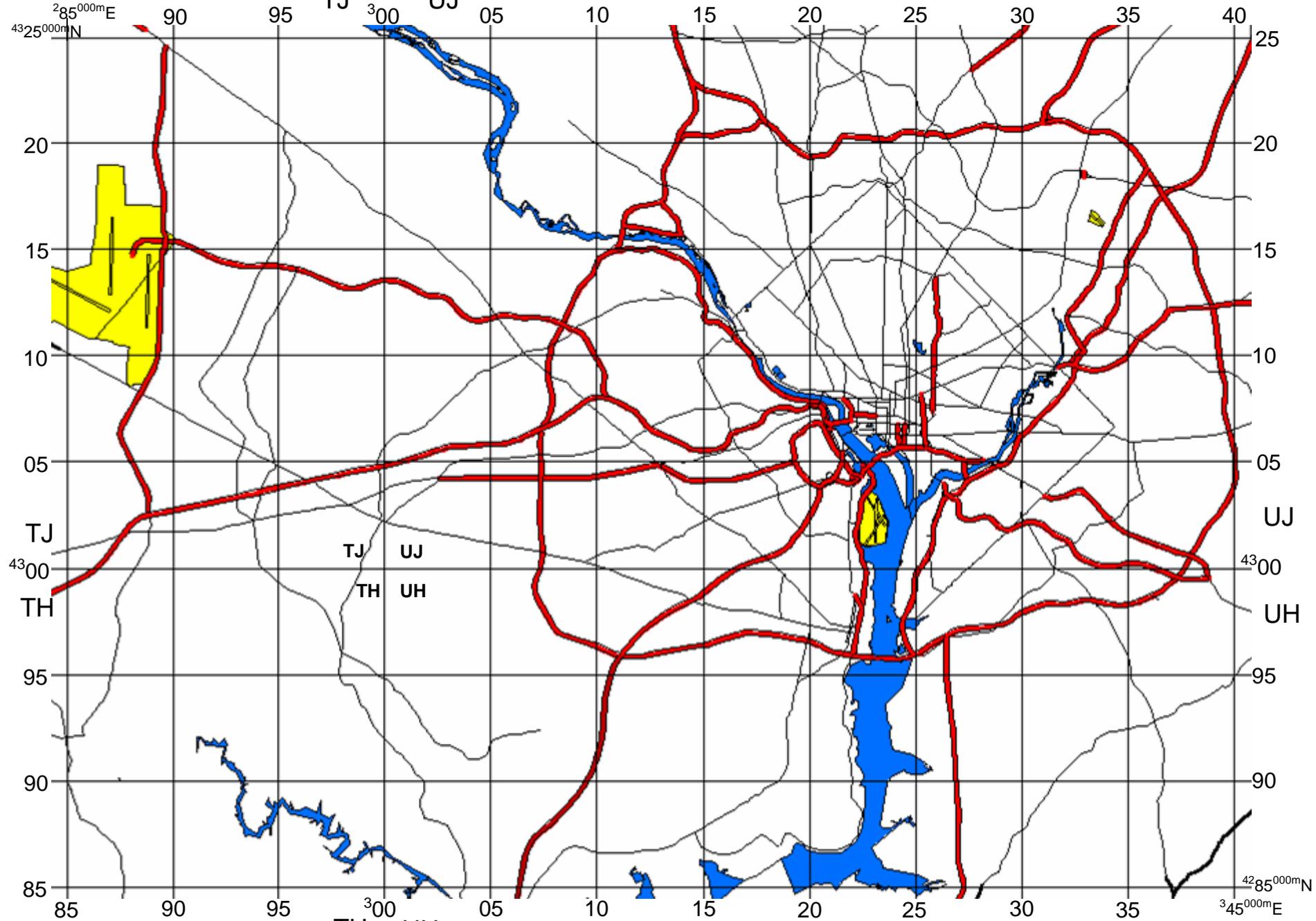
18S UJ 2337 0652

UTM values.



Then, read **UP** to grid line **06**, and measure UP another 510-meters.

US National Grid

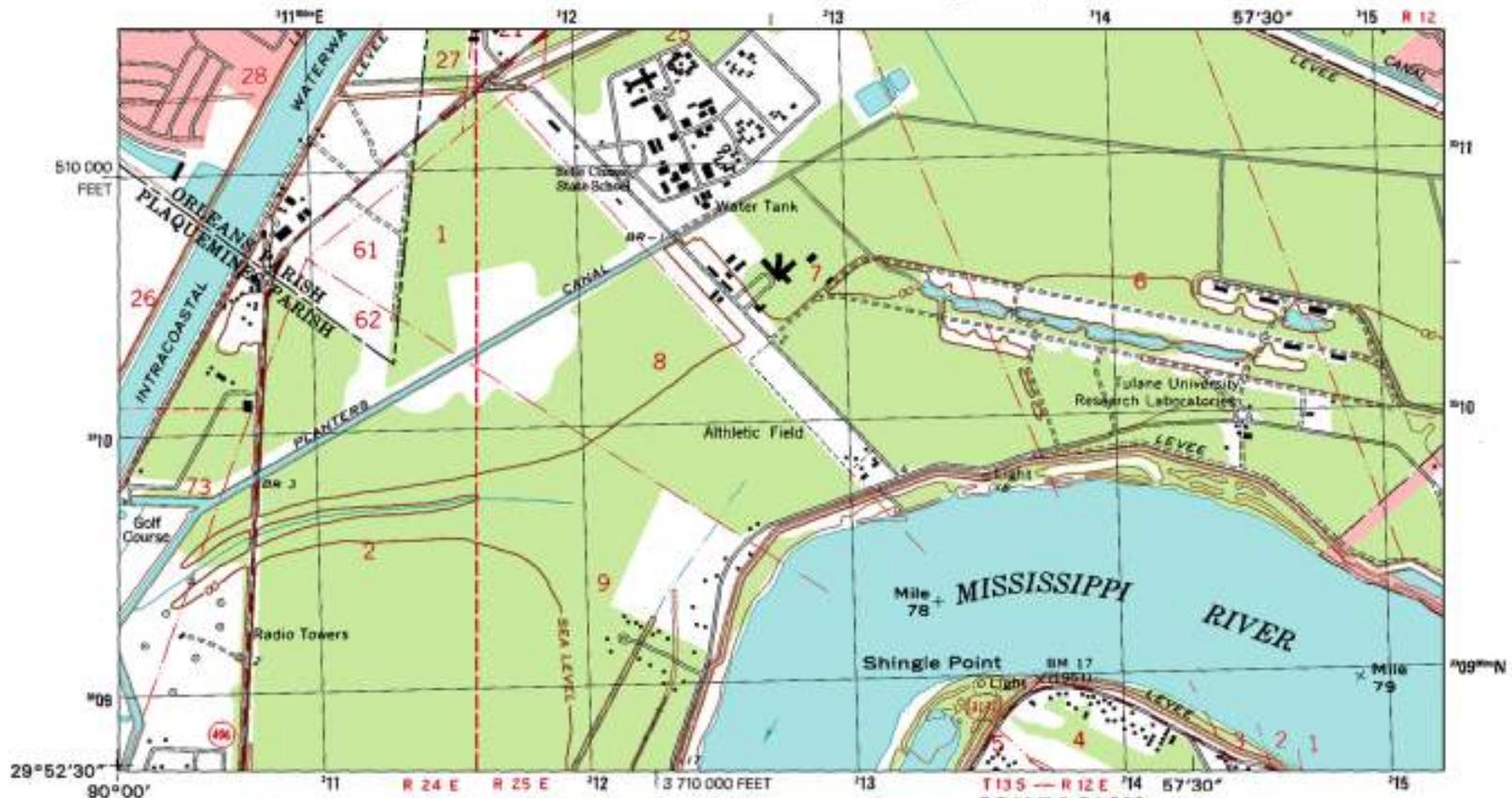


Datum: North American Datum 1983 (NAD 83)
Grid Zone Designation: 18S

Scale:

Jefferson Pier: 18S UJ 2337 0651

US National Grid Training Map



Produced by the United States Geological Survey

Topography compiled 1964. Planimetry derived from imagery taken 1998 and other sources. Public Land Survey Systems and survey control current as of 1967

North American Datum of 1983 (NAD 83). Projection and 1 000-meter grid: Universal Transverse Mercator, zone 16 10 000-foot ticks: Louisiana Coordinate Systems of 1983 (south zone)

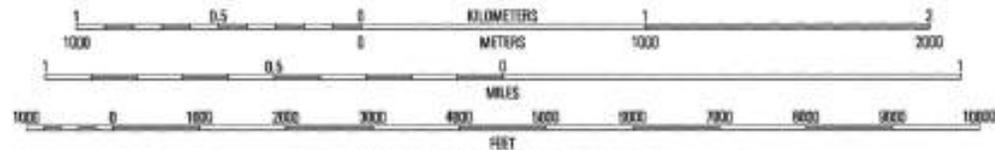
North American Datum of 1927 (NAD 27) is shown by dashed corner ticks. The values of the shift between NAD 83 and NAD 27 for 7.5-minute intersections are obtainable from National Geodetic Survey NADCON software

There may be private inholdings within the boundaries of the National or State reservations shown on this map

City of New Orleans and Orleans Parish are coextensive

This quadrangle covers a subsidence area

Landmark buildings verified 1967

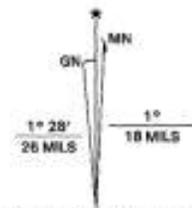


CONTOUR INTERVAL 5 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
TO CONVERT FROM FEET TO METERS, MULTIPLY BY 0.3048

1	2	3	1 Spanish Fort
			2 Little Woods
			3 Chef Menteur
4		5	4 New Orleans East
			5 Marillac Castle
			6 Bertrandoville
6	7	8	7 Belle Chasse
			8 Delacroix

ADJOINING 7.5' QUADRANGLE NAMES
LA 2004

U.S. National Grid
100,000-m Square ID
BU
Grid Zone Designation
16R



UTM GRID AND 2000 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET



District of Columbia Master Address Repository - Microsoft Internet Explorer provided by NMCI

File Edit View Favorites Tools Help

Address <http://dcatlascgms.dc.gov/mar/>

DC HOME DC GOVERNMENT Kids

WELCOME TO WASHINGTON
District of Columbia
 MAYOR Anthony A. Williams

Geographic Information System

DC GIS Master Address Repository

Search By Location
 Search By Square Suffix Lot (SSL)

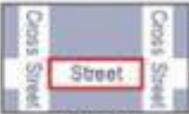
Find a DC location using a method shown below. Learn more about the District of Columbia [Master Address Repository](#).

1401 K St, NW

Location Types


STREET ADDRESS: An address consists of a street number, a street name, and a quadrant (NE, NW, SE, SW). The address number and street name are required. Every address in the MAR as also been assigned an AID# (Address Identification Number) which can be used to retrieve additional data about that address.
Example: 441 4th ST NW


INTERSECTION: An intersection consists of two streets
Example: 14th ST NW and Pennsylvania Avenue NW, or 14th ST NW & Pennsylvania Avenue NW


BLOCK: A block consists of a street and any other cross streets.
Example: 4th ST NW from D Street NW to E Street NW or 400 Block of 4th St NW


PLACE NAME: A place name consists of common place names and public/institutional building names.
Example: "White House" or "Dupont Circle" or "Wilson Building" or "Wilson High School" or "Woodrow Wilson House"

Done Internet

Start | Inbox - Microsoft Outlook | 1_Read_First | District of Columbia M... | Microsoft Office PowerPo... | 10:56

MAR Location Detail - Microsoft Internet Explorer provided by NMCI

File Edit View Favorites Tools Help

Address http://dcatlas.dcgis.dc.gov/mar/location_detail.aspx#

DC HOME DC GUIDE Kids

WELCOME TO WASHINGTON
District of Columbia

MAYOR
Anthony A. Williams

Geographic Information System

Location Details

Address Information	
Address: 1401 K STREET NW	Address Number: 1401
Address ID: 240265	Number Suffix: -----
Status: ACTIVE	Street Name: K
Zip Code: 20005	Street Type: STREET
Maryland State Plane Coordinates: X = 397197.07 Y = 137230.39	Quadrant: NW
National Grid: 18S UJ 23770 07967	

Boundary Information	
Ward: 2	Police District: First
Advisory Neighborhood Commission: 2F	Police Service Area: 101
Single Member District: 2F03	Neighborhood Cluster: 8
Vote Precinct: 129	Census Tract: 2000 Tract 51

- Select this link to download the current Location Details as XML
- Select this link to download current location as Google Earth KML

View Map

View Photo

Start | Internet

Inbox - Microsoft ... | 1_Read_First | MAR Location D... | Microsoft Office P...

11:03

USNG geaddress and universal map index value.



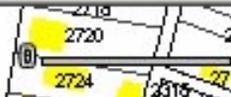
Geo St. Louis - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Links

Address http://stlcn.missouri.org/citydata/newdesign/data.cfm?Handle=11804000080 Go

St. Louis, MO GIS Web Site
 Street address look up...
 Functions like a Universal Map Index



Parcel Information	
Address:	2700
Zip Code:	63118
City Block:	1804.00
Number of Units:	0
Owner Information	
Owner Name:	GALLI, ROSE & CHARLES & DAVID & JOAN
Owner Address:	10369 CLAYTON RD ST LOUIS, MO 63131
Parcel ID Information	
9 Digit Parcel ID:	180400080
10 Digit Parcel ID:	1804000080
11 Digit Parcel ID:	18040000800
Handle:	11804000080
National Grid Information	
USNG(100 Meter):	15S YC 418 764
USNG(10 Meter):	15S YC 4184 7647
USNG(1 Meter):	15S YC 41847 76475
Use Information	

Geographical Information	
Ward:	9
Precinct:	5
Census Block:	1233.2005
Neighborhood:	22
Police District:	3
National District:	Benton Park
Preservation Review Area:	2005 Preservation
Housing Conservation District:	85
Zip Code:	63118
Assessed Value	
Assessed Land:	\$25,800.00
Assessed Improvements:	\$19,200.00
Assessed Total:	\$45,000.00
Legal Description	
C. B. 1804 JEFFERSON	
83 FT / 138 FT X	

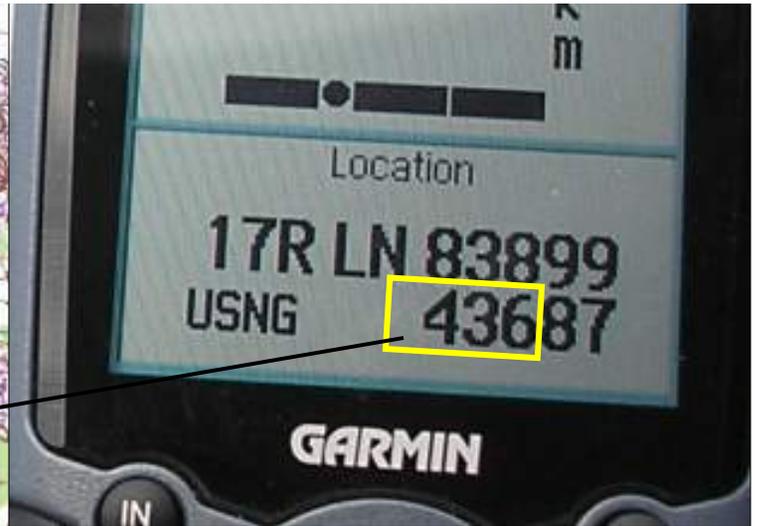
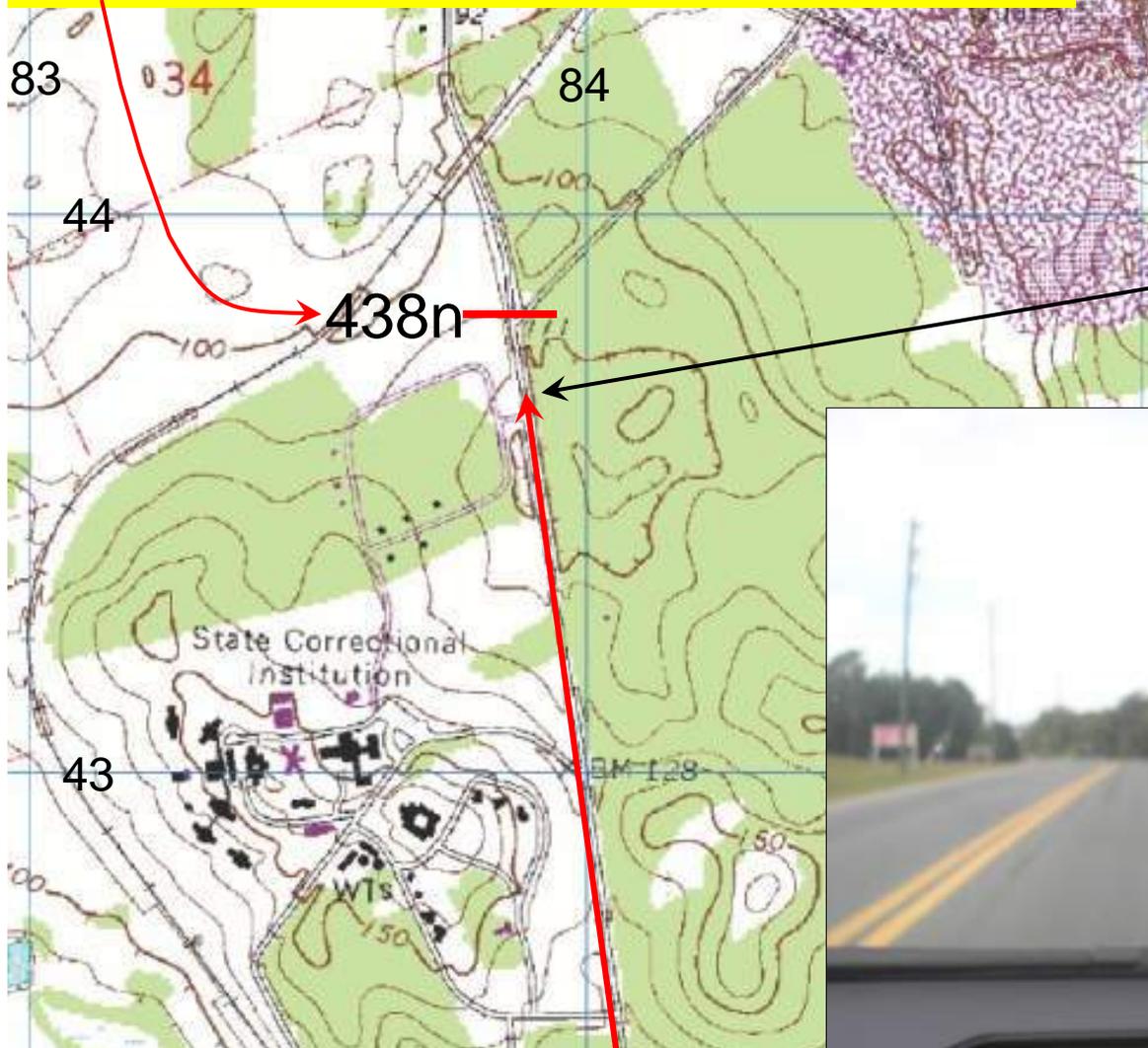
- Information
- Information
- Information
- Permits
- CSB Data
- Sales History
- Condemnations
- Building Inspections
- Images
- Development Activity
- Vacant Building
- Census
- Area Business Information

Data updated on 12/25/2005

Print Report

Done Internet

“Turn right at 438 Northing.”



“Street Sign-in-a-Box”
concept

Think of it as a “street sign-in-a-box”

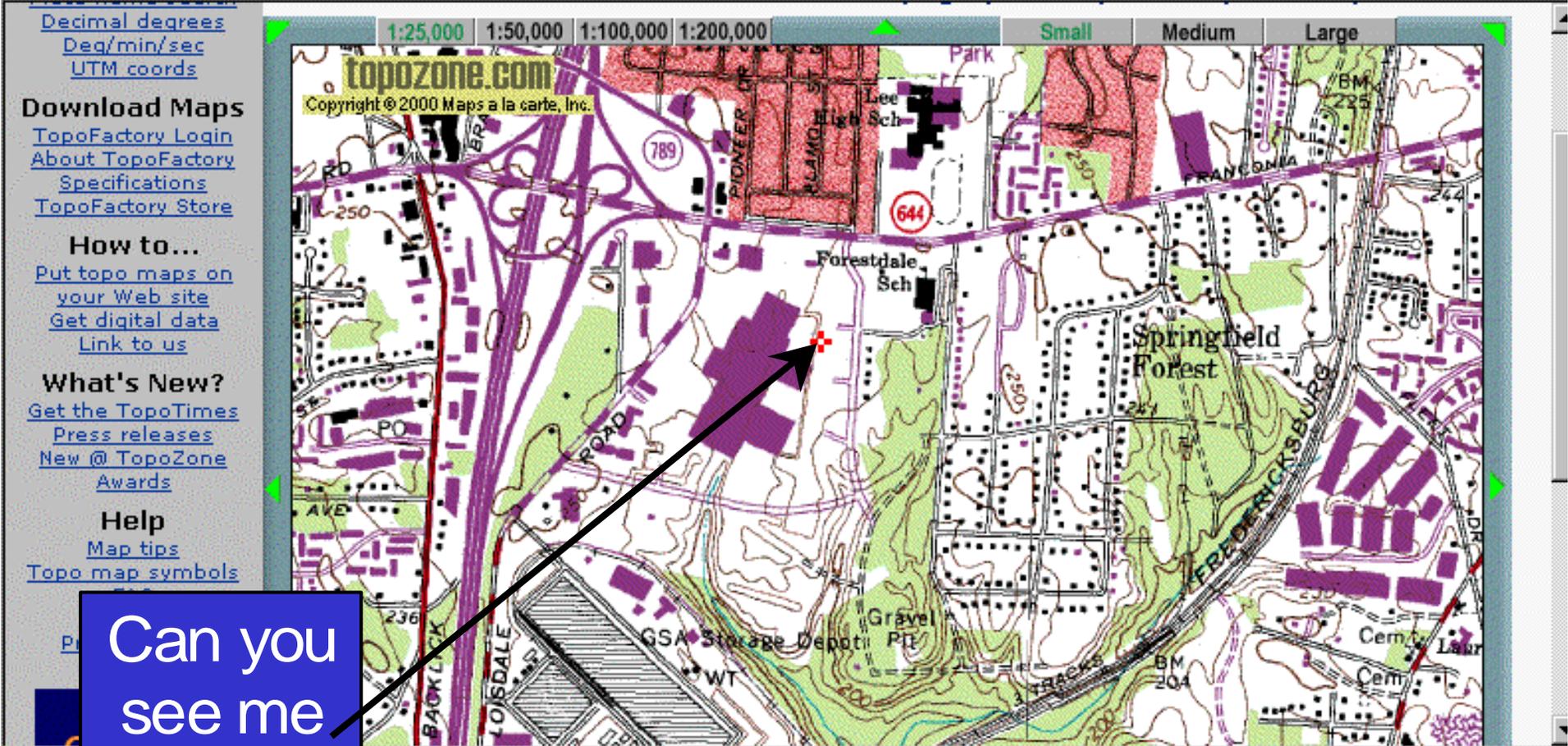


Threshold Automobile GPS Initiative
TAGI

Call to AAA with dead battery...
GPS.... "Oh, we don't use that technology."

Address <http://www.topozone.com/map.asp?z=18&n=4293870&e=311241&s=25>

Links [Best of the Web](#) [Channel Guide](#) [Customize Links](#) [Free HotMail](#) [Internet Start](#) [Microsoft](#) [Windows Media](#)



Can you see me now?

Microsoft Internet Explorer taskbar showing the Start button, taskbar icons for Exploring - Fgdc..., Microsoft PowerP..., Microsoft Word - ..., and TopoZone - T... The system tray shows the time as 8:22 AM.

Arlington Co. VA 9-1-1 Operator;
‘We can’t use a GPS coordinate.’

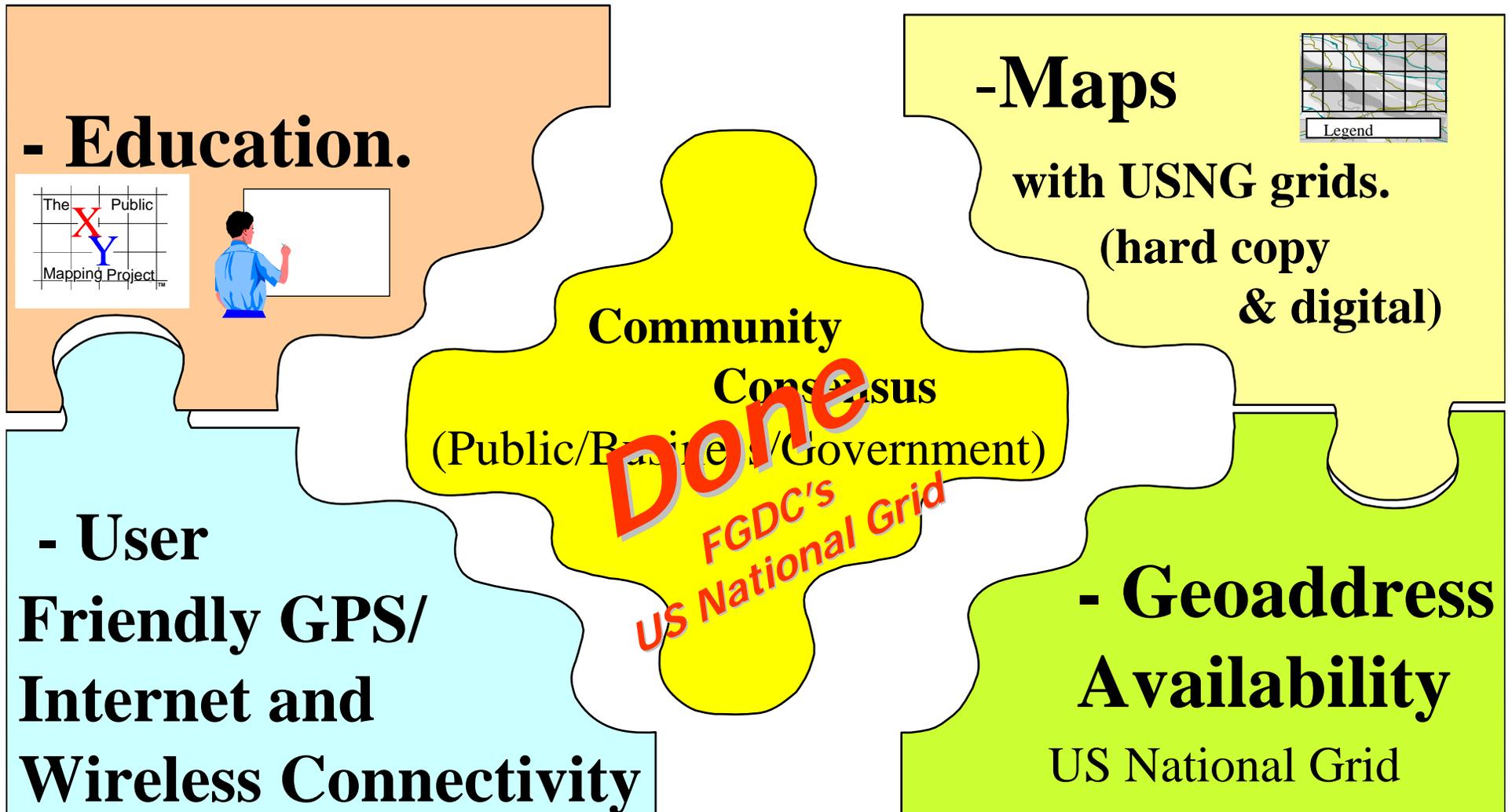


Motorcycle accident, Sept 10, 2003, 7:55AM.

USNG readout for cursor

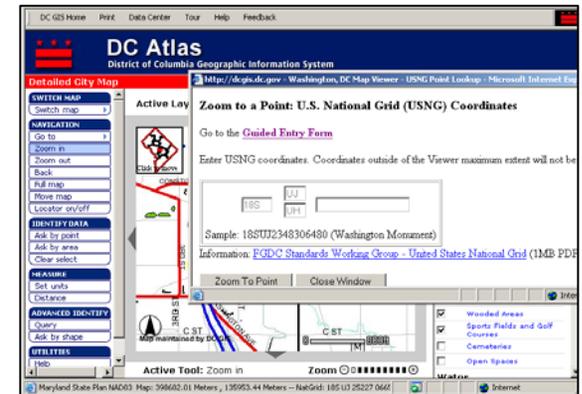
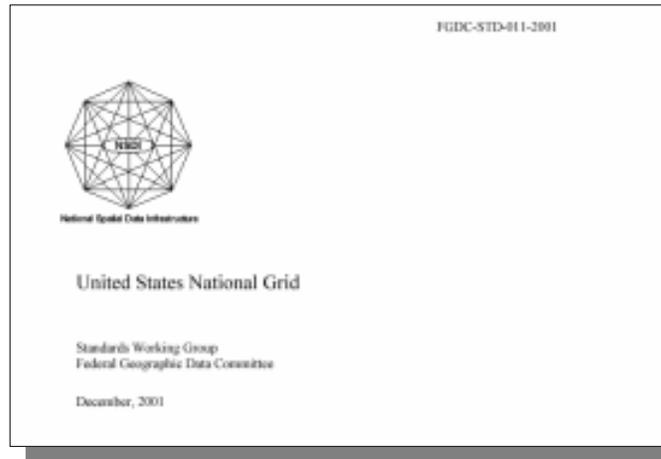
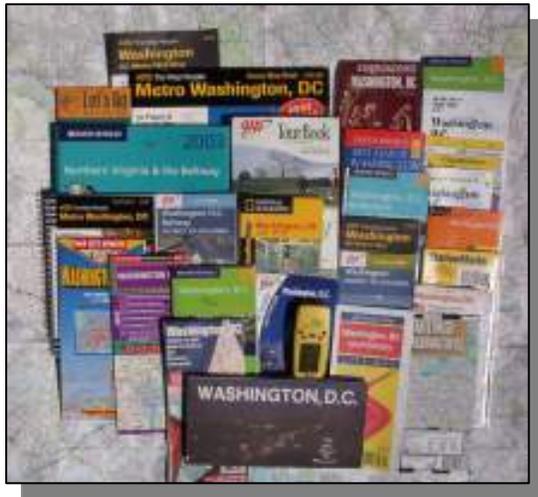
NatGrid: 185 UJ 21027 03554 (NAD83)

Four Pillars of Implementation



Questions?

Comments?



Analog-----Bridge-----Digital

For information, see:
www.fgdc.gov/usng



Backup Slides

USNG Zone Junction

New Orleans, LA

- GIS technician training requirements emerge from Hurricane KATRINA, 2005.
- Additional issue. It has been suggested that MGRS/USNG cannot be used by aircraft supporting ground operations.

FGDC US National Grid (WG84) = Military Grid Reference System (WGS84)
See www.fgdc.gov/usng for additional information

USNG Zone Junction

New Orleans, LA

- Training requirements emerge from Hurricane KATRINA, 2005.
 - “We tried to implement the USNG in New Orleans early on but based on the visual confusion of the product (see Doug’s example), it was dropped for a Lat/Long grid.” - FEMA, GIS Coordinator, DHS/FEMA Region X, email of Friday, May 5, 2006, 11:00

Next slide depicts how the grid was used.

(“Doug’s FEMA Example”)

Sample of how FEMA GIS depicted the USNG at the zone junction
in New Orleans, LA during Hurricane KATRINA, 2005.

Warning: This is *not* how the USNG zone junction is cartographically handled
and this method does not work with low-cost GPS receivers.

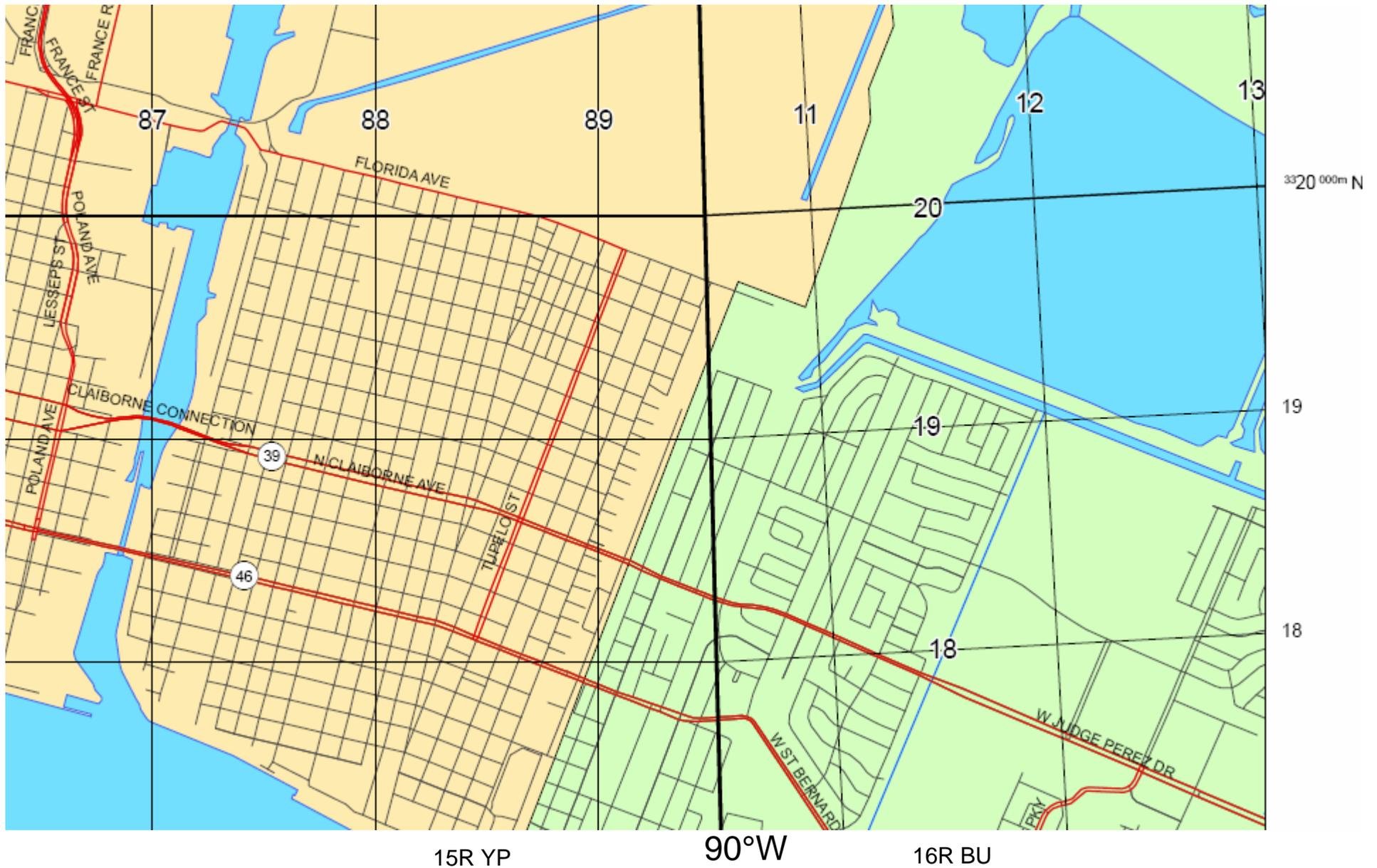
New Orleans - Lower 9th Ward

National Grid (500M) - **Zone 15** & **Zone 16**



USNG Zone Junction

- Proper way to handle the grid at zone junction:
 - Survey ops: Uses UTM numerical coordinates. Extend one zone across into the other (*not both*). Carry survey across and then establish control in new zone.
 - Position referencing: Uses USNG alpha-numeric format.
 - Do not extend zones across into adjacent zones. Each point has an absolute value based on the zone that point is located in.



Sample of NGA produced map with properly depicted USNG/MGRS grid at the junction of UTM zones 15 / 16.

Situations the US National Grid will remedy...

Miami, FL -- The story of a lady's drowning quickly gained National coverage after she dialed 9-1-1 on her wireless phone from her sinking car in a Miami, FL canal. Not able to escape the car and with dispatchers unable to locate the accident scene, the woman perished before emergency help could reach her.

Fort Lauderdale, FL – A lady was forced to wait seven minutes and make three separate 9-1-1 calls from her cellular phone before help was dispatched after her daughter was impaled by a three-foot steel rod that had crashed through their windshield. The lady was forced to exit the interstate and find a major intersection in order to give the dispatchers her location.

From National Emergency Number Association web site and other sources.

Day County, SD – A lady spent 40 hours in temperatures that dropped to -30° F when a blizzard stranded her in her pickup truck. Although she was able to dial 9-1-1, she was unable to tell her rescuers where she was. While the Day County Sheriff's office was eventually able to locate the car, it took them five hours to place the vehicle within a 35-mile radius.

Rural Michigan – A lady was rear-ended and suffered minor damages while driving in rural Michigan. While no one was injured, she did call 9-1-1. She informed the dispatcher of her location and then waited 30 minutes for the cruiser to arrive. When he failed to materialize, she called again. The two roads that she had given to the dispatcher to help them locate her actually crossed twice, and the cruiser was looking at the wrong intersection.

From National Emergency Number Association web site and other sources.

Washington, DC – In 2001, a visitor to the FDR Memorial was struck with a heart attack. A passing police officer and the dispatcher could not agree on an appropriate address for the incident location at this large campus like memorial. Eventually an intersection several blocks away was selected, but the ambulance was never able to find the incident.

Arlington County, VA. - In 2003, a motorcyclist was seriously injured after being thrown over the guardrails of an overpass. A pedestrian nearby immediately called 9-1-1 but had trouble determining an address for the incident. He did have a GPS receiver, and finally asked in frustration if the 9-1-1 operator could use a coordinate from it. The operator replied that no, they did not use that technology.

From National Emergency Number Association web site and other sources.

Fairfax County, VA – A caller to 9-1-1 reported having been stung by a bee, and was beginning to have trouble breathing. The 9-1-1 operator could see clearly on the map where the caller was located with Phase II wireless location technology, but had no actionable way of describing the caller's location in the 493 acre park to first responders.

From National Emergency Number Association web site and other sources.

Two perspectives on using coordinates...

In Rhode Island, cell phones equipped with GPS chip sets can be rapidly located to within 15-m of true position. 9-1-1 organizations remain focused on conventional addresses, yet only about a fifth of the street addresses have been correlated to a coordinate. For incidents where the provided coordinate cannot be correlated to a street address there is no way to readily communicate a location to first responders who can only use street addresses to find places. As the Rhode Island 9-1-1 Director Ray LaBelle stated, "*If I give an ambulance driver latitude and longitude coordinates, he's going to tell me where to go.*" (Lagesse, 2003).

“...In Iraq, Coalition Forces (particularly the U.S. Govt and U.S. Military) are using MGRS coordinates almost exclusively. They have GIS software and data that allows them to search for a particular address (building #, street # and house #) within the 9 districts of Baghdad and in a few other cities/regions of Iraq. The operators in the field will get intel about a person of interest being located at a particular address. We will use the GIS sw/data to locate that address on a map or imagery of the city. Then, using our data, we can provide an MGRS coordinate for that location. The operator can then plug that coordinate into his GPS and easily navigate to the building of interest in order to do surveillance.” - US Government person, December 2005

Keith R. Bushey
 Assistant Vice President and University Safety Officer
 University Safety Office
 10519 Braddock Road, Suite 1900
 Fairfax, Virginia 22030

Phone: (703) 993-3088
 Fax: (703) 993-2339

E-mail: kbushey@gmu.edu
 USNG: 18STH99209984

George Mason University

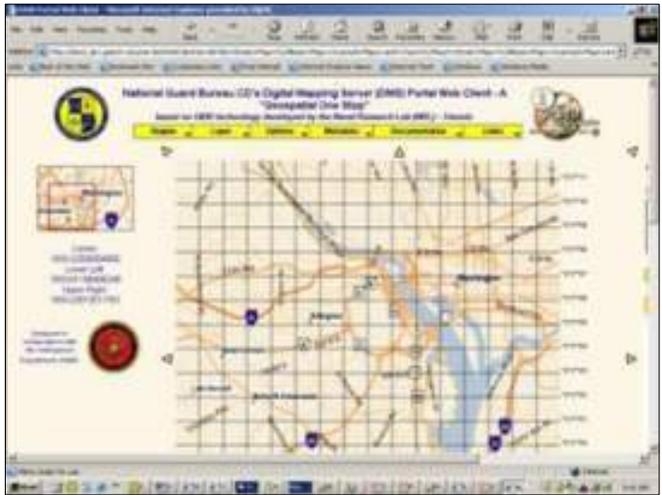


OVERLOOK
 SYSTEMS TECHNOLOGIES, INC.

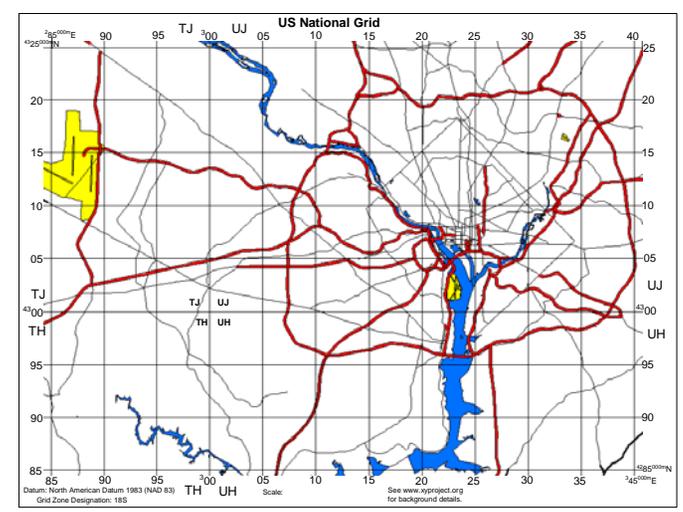
Jules G. McNeff
 Vice President, Strategy and Programs

Phone: 703-893-1411x132
 Fax: 703-356-9029
jmcneff@overlooksys.com

Suite 400
 1950 Old Gallows Road
 Vienna, VA 22182-3933
 U.S. National Grid: 18S UJ 0727 0926



Physical Implementations of Geoaddresses



Driving Factors and Impetus....

-  Improved 911 & emergency services.
-  Improved business processes.
-  Enables use of geospatial info tech.
 - National Map application.
 - Web mapping and other uses.
 - Orthoimagery.
 - Paper maps (properly gridded).
-  Enables use of **GPS!** (and **TAGI**)

Geoaddress

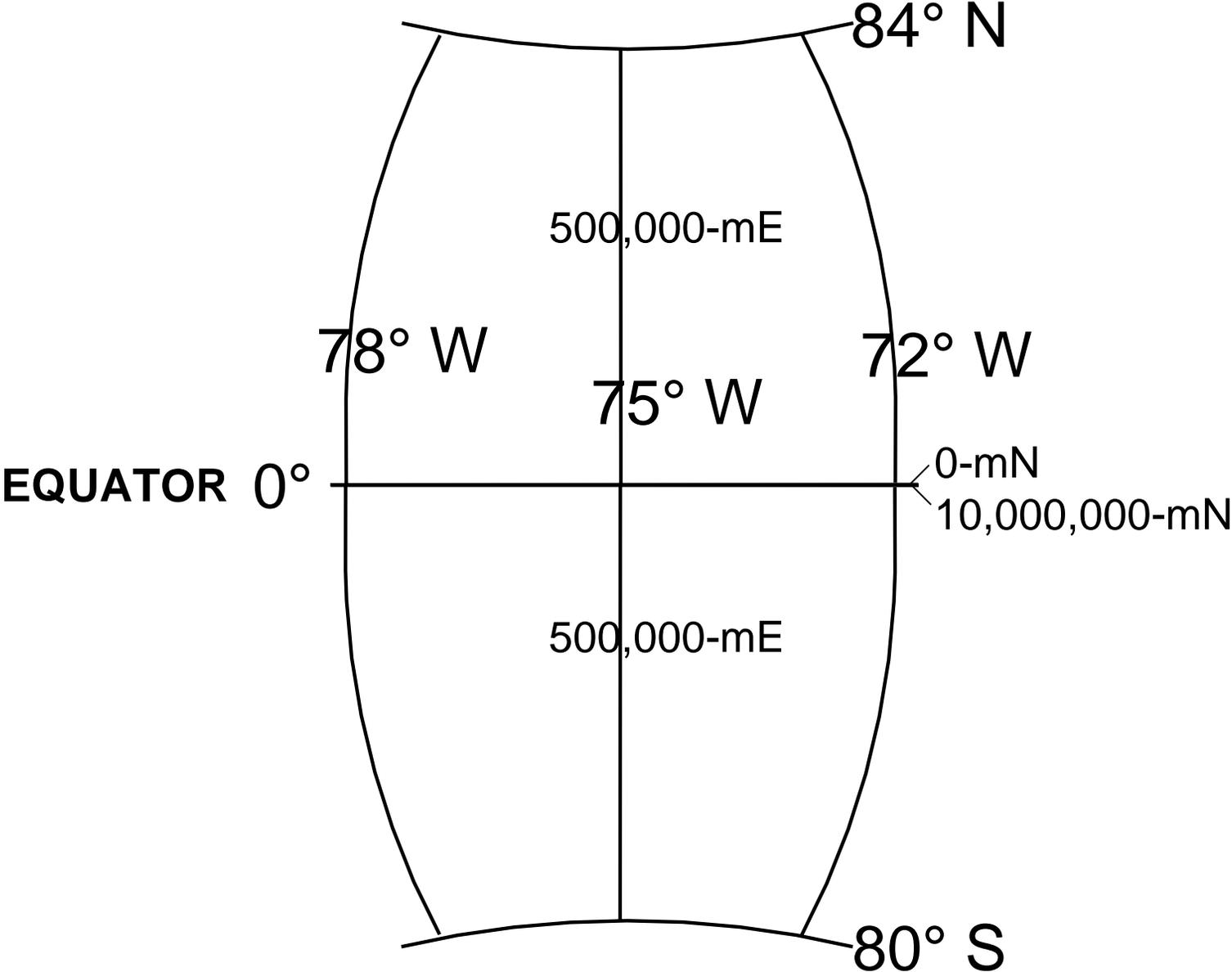
A two-dimensional earth referenced address based on the U.S. National Grid (USNG) that supplements conventional one-dimensional street addresses. Geoaddresses unambiguously communicate the surface location at which an organization or person can be reached, and act as a universal map index for properly gridded topographic, street, highway, and general purpose maps. Geoaddresses may serve a temporary (i.e. reporting an accident location), or permanent purpose, (i.e. associated with cultural features). Away from the road network, or in the event of major disaster, geoaddresses may be the only readily usable 'address'. Geoaddresses enable the widespread use of the Global Positioning System (GPS) in society, and enhance the use of web based/digital and hardcopy maps.

Example: USGS National Center
18S TJ 9473 1361

Value of a Standardized Grid

- User friendly way to describe precise locations for all users.
Easier to use than lat/long. Reduced training requirements.
- Provides a cross check between a street address and geaddress to ensure information is not garbled in transmission.
- Increase the speed and accuracy with which places can be identified on a map or in a GIS. No ambiguity. Includes all places--not just roads.
- Enables creation of a universal map index of places and facilities.
- Improves navigation to, and within, incident areas by responding external forces/mutual assistance situations.
- Sets a presentation format standard. USNG does not replace GIS data storage formats or SPCS in survey and engineering operations.
- Improves coordination between different responding agencies (to include local, state, federal, and general public).
- Nonproprietary standard facilitates rapid implementation by commercial maps and software applications.
- Facilitates use of simple, digital, communications systems such as Short Messaging Service (SMS) when cell phone voice circuits are overloaded during crisis.
- ENABLES THE USE OF GPS! *USNG now used in commercial GPS.*

Organization of UTM zone 18



Relevant URLs

DC Atlas <http://dcgis.dc.gov/>

1620 L St NW USNG: 2331 0803



St. Louis, MO Parcel Data by Address

<http://stlcin.missouri.org/citydata/newdesign/index.cfm>

<http://stlcin.missouri.org/citydata/newdesign/addressparser.cfm?addresssearch=&previouspage=data>

The National Map <http://nmviewogc.cr.usgs.gov/viewer.htm>

Geospatial One Stop2

<http://gos2.geodata.gov/wps/portal/gos>

FGDC resource site: <http://www.fgdc.gov/usng>