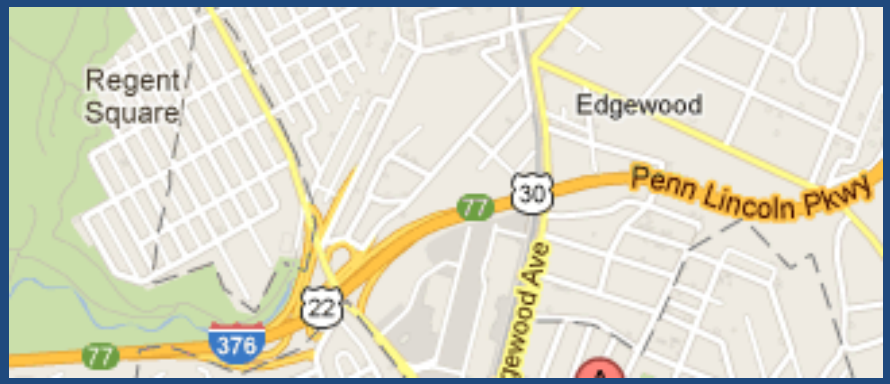
Where the Streets have Four Names: Building Address Standards in Allegheny County´s Municipalities



http://goo.gl/maps/EEDTW

Presenters:
Matt Mercurio
Allegheny County, GIS Manger
Rebecca Reinhold
City of Pittsburgh, GIS Analyst

Overview

- Allegheny County (ALCO) GIS
  - Stats
  - History
  - Who We Are Now
  - Countywide GIS Data
- ALCO GIS & Addressing
  - Legal Setting
  - Address Mapping Efforts
  - Addresses as a Core Enterprise Dataset
  - Locally Controlled Addressing
  - Need for Addressing Ordinances
- Focus on CPAC
  - Background
  - Ordinance
  - Standards
  - Ongoing Activities
- Future
  - Next Steps

ALCO GIS

Stats

- 744 Square Miles
- Second Most Populated County in PA
- More Local Government Per Capita Than Any Other Similar Region in the Country
  - 1 City – Duquesne (other cities are Home Rule Municipalities)
  - 79 Boroughs
  - 32 Townships
  - 18 Home Rule Municipalities:
    - 3 Cities
    - 5 Boroughs
    - 8 Townships
    - 2 Municipalities
  - 45 School Districts
  - 100 Zip Codes
- Addressing Perspective
  - ~600 unique combinations of Municipality and Zip Code
  - ~500 borders
  - ~3500 Road Segments That Cross These Borders

ALCO GIS
History

- Early Years: 1980 to 1996
  - City (Planning Dept)
    - 1983 GIS Project Funded;1984 Aerial Survey;1986 Photogrammetric Maps
  - County (Planning; Computer Services)
    - 1992 Survey/Mapping; Started in Planning; 1993 Moved To Computer Service
- Middle Years: 1996 to 2000
  - The Rough Years
    - Enterprise GIS Defunded; Survived at ACHD
- Re-ignition: 2000 to Present
  - 2000 GIS re-instated; 2004 Imagery and Base Data update; 2008 911 Funded Addressing Project ;2010 Consolidated City-County CAD Goes Live; 2010 Pictometry Imagery Collection to Support Court Ordered Reassessment

TIM MENEES

County Cartographer
...AND WHEN YOU FINISH SORTING OUT ALL THIS MILLION DOLLAR COMPUTER MAPPING STUFF, WE'RE LAYING YOU OFF!
TIM MENEES

ALCO GIS
Who We Are Now

- The mission of the Allegheny County GIS Group is to provide spatial data and related services in the most effective and efficient manner possible through a number of internal and external initiatives:
  - Promote GIS as a decision support and reporting tool for use across the County
  - Foster cooperation with GIS Stakeholders to develop and use GIS as a regional resource
  - Reduce duplication of data creation, acquisition and maintenance through cooperative efforts with stakeholders
  - Make Spatial data available to stakeholders

ALCO GIS
Countywide GIS Data

- Data Consolidators
  - Local Government Is Authority In Almost All Cases Of GIS Data Compilation
- Key GIS Datasets Maintained By County For Operational Efficiency:
  - Parcels
  - Addressing
  - Boundary Data
- Rely On Municipal Contacts For Data Update Suggestions
  - Work With COGs & Engineering Firms Helps Greatly
- Data Distributors
  - Via PASDA
  - Data Exchange

ALCO GIS & Addressing

- Legal Setting
- Address Mapping Efforts
- Addressing as a Core Enterprise Dataset

ALCO GIS & Addressing
Legal Setting

- Allegheny County Has No Jurisdiction To Assign Street Names and/or Addresses
- Municipal Codes Assign Street Naming And Addressing Responsibilities To:
  - Cities
  - Boroughs
  - Townships
  - Home Rule Municipalities

ALCO GIS & Addressing
Address Mapping Efforts

- Before GIS
  - Systems Stored Addresses Without Geoinfo
- Nascent County GIS
  - Planimetric Update; Minimal Attributes
  - External and Commercial Datasets for Addressing
- Mature County GIS
  - County Maintained Addressing Data
    - Addresspoints and Connector lines
    - Commercial Off The Shelf (COTS) Addressing Toolbar
    - Supports Production CAD and Enterprise Geocoding Services

ALCO GIS & Addressing
Addresses as Core Enterprise Dataset

- Addresses Are The Way People Refer To Specific Locations
  - Used For Service Delivery
  - Relate Location To Other Known Locations
- Locations Are Critical To A Geographically Bounded Organization
  - Determine Responsibility
  - Provide Mechanism to Accurately Report Issues
- As Government Information Systems Proliferate, Location Of Constituents Is An Essential Piece Of Information
  - Minimum: Standardization of Address Data Storage
  - Optimum: Store Coordinates for Located Records

ALCO GIS & Addressing
Locally Controlled Addressing

+ Provide A Mechanism To Delineate Areas Of Responsibility
+ Allows For A Priori Knowledge Of Area Of Interest
- Advent Of Computer Assisted Systems Requires Electronic Record Keeping
- Changes Of Administration Can Lead To Inconsistent Address Assignment If No Ordinance In Place

ALCO GIS & Addressing
Need for Addressing Ordinances

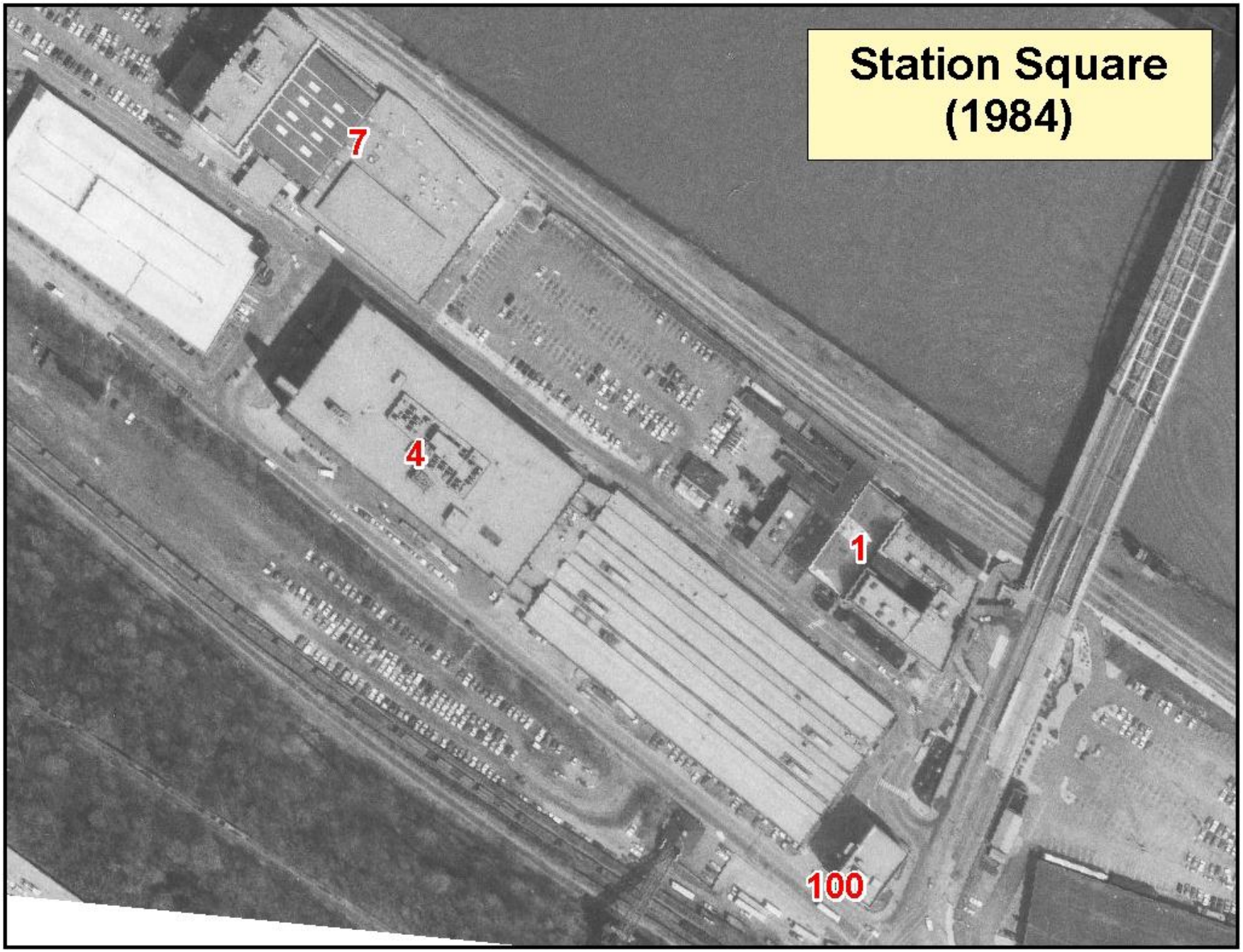
- Outlines Clear Instructions For Both Address Requestors And Assignors
- Provides Longevity To Addressing Methodology Across Administrative Changes
- Promotes Adherence To Standards
- Abstracts Address Assignment To A Single Job Function Or To A Committee
- Allows For Greater Transparency And Record Keeping
- City of Pittsburgh Addressing Committee (CPAC)

City of Pittsburgh Addressing Committee (CPAC)

- Background
- Ordinance
- Standards
- Ongoing Activities

City of Pittsburgh Addressing Committee (CPAC)

- Background
  - 1999
  - Addressing Issues Resurface
    - Example: Station Square


Station Square
(1984)
7
4
1
100

Station Square
(2010)
300
301
230
226
225
224
220
222
210
100
125
100

City of Pittsburgh Addressing Committee (CPAC)

- Background
  - 1999
  - Addressing Issues Resurface
    - Example: Station Square
  - Discussions with City Council member
  - Ordinance (2008)

City of Pittsburgh Addressing Committee (CPAC)

- Ordinance to Pittsburgh Code
  - Introduced - 9/23/2008
  - 4 Versions
  - Passed & Signed – End of 10/2008
  - Established Procedure For Requesting Address Number/Naming Streets

City of Pittsburgh
Addressing Application-Worksheet

LOCATION/ ADDRESS_____ _____**LOT/BLOCK #**_____

Requestor Name_____**Phone:**_____**DATE:**_____

Mailing Address: _____ **Email**_____

Items	
☐ NEW STREET NAME AND ADDRESS RANGE	☐ NEW ADDRESS ON EXISTING STREET
☐ ADDRESS DISCREPANCIES	☐ CHANGE OF STREET NAME OR ADDRESS
☐ OTHER_____	

PROPOSAL:

☐ **Plot Plan Map Attached** ☐ **Continuation Page**

Office Use Only

AF Used:

REPLY: ☐ **APPROVE** ☐ **APPROVE WITH CORRECTION** ☐ **DISAPPROVE**

☐ BBI	☐ PLANNING	☐ PUBLIC WORKS	☐ 9-1-1	☐ EMA	☐ DPS Director

Signature: _____ **DATE:**_____

City of Pittsburgh Addressing Committee (CPAC)

- Ordinance to Pittsburgh Code
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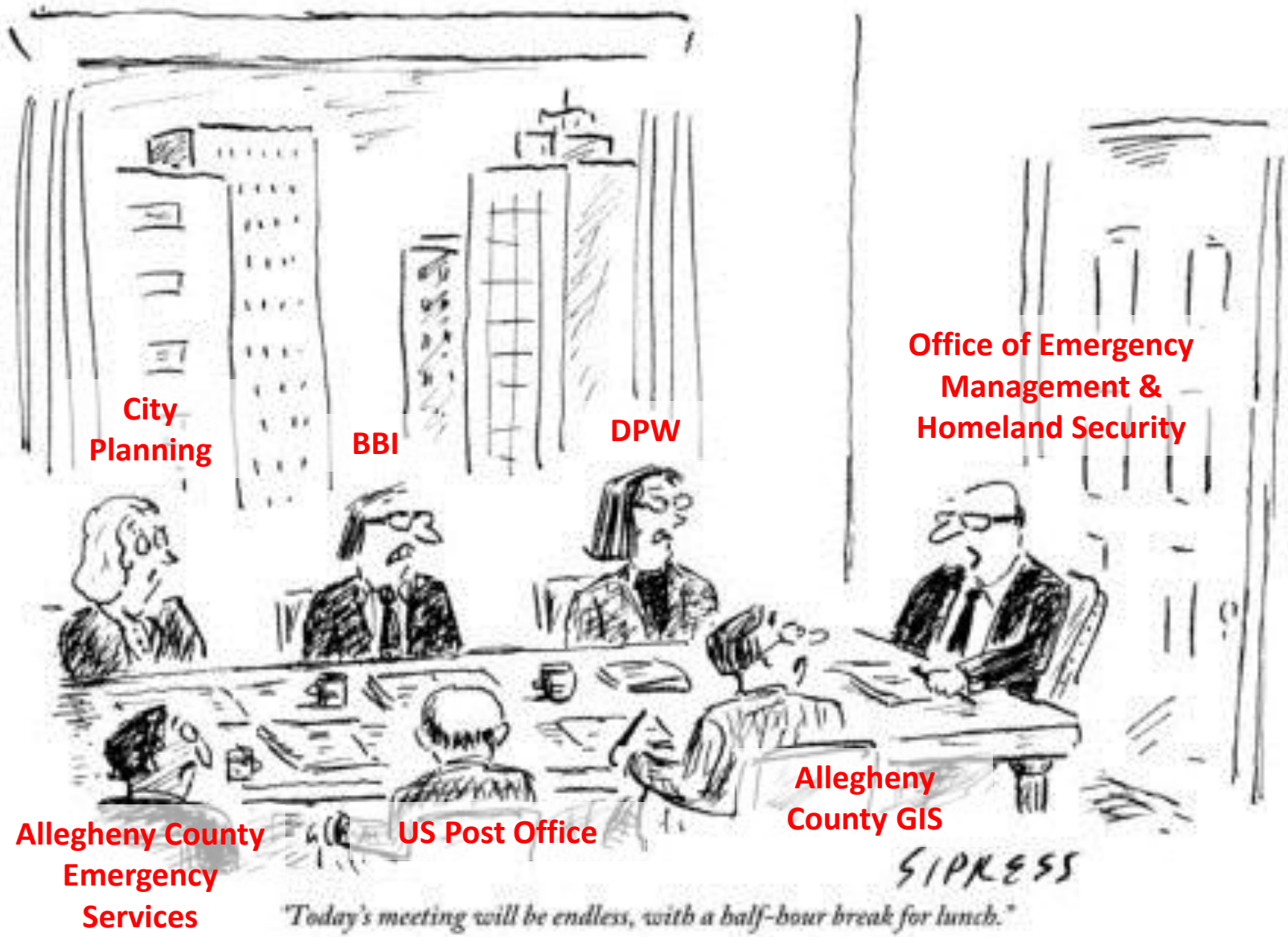
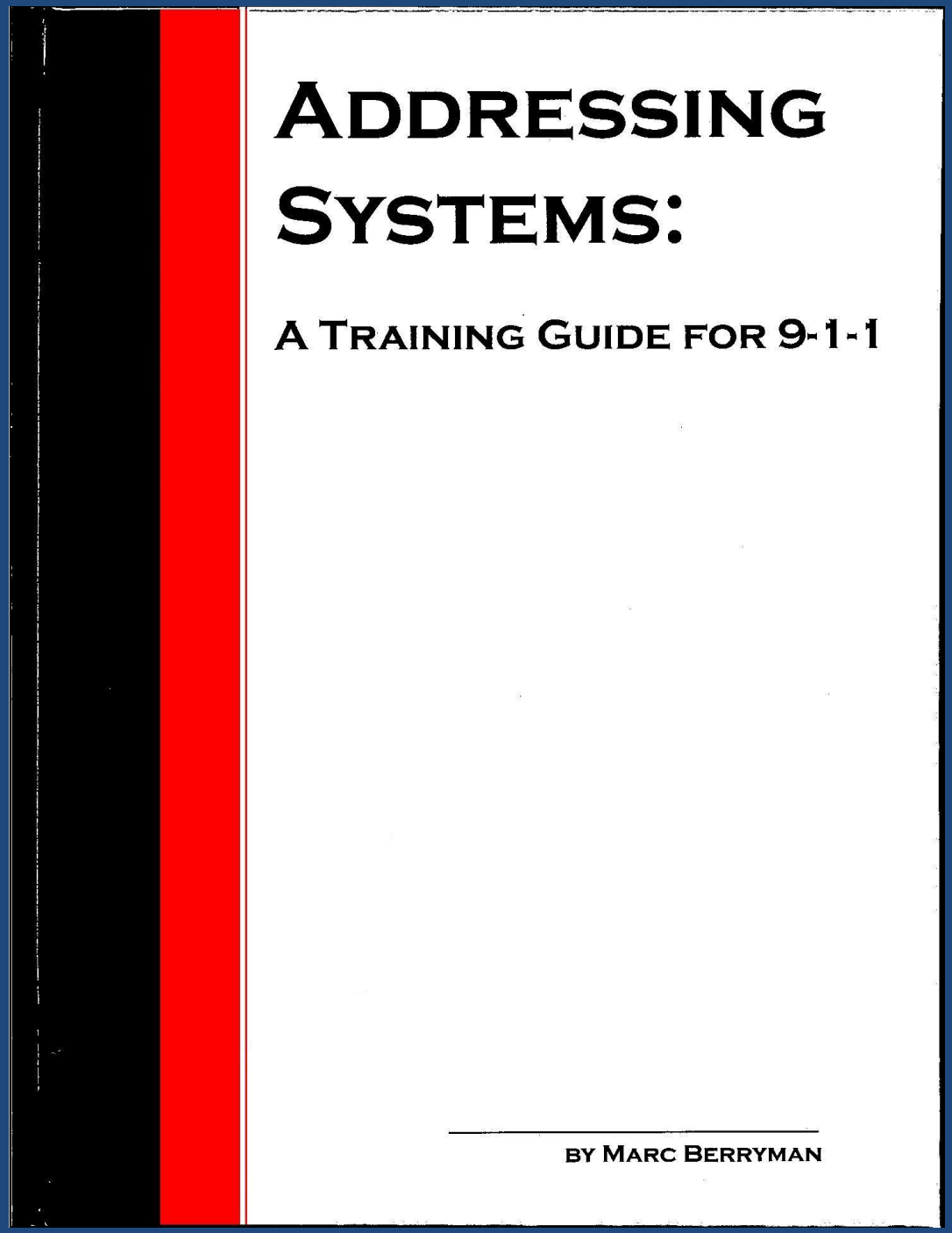
  - Established Procedure For Requesting Address Number/Naming Streets
  - Established an Addressing Committee


City Planning
BBI
DPW
Office of Emergency Management & Homeland Security
Allegheny County Emergency Services
US Post Office
Allegheny County GIS
SIPRESS
"Today's meeting will be endless, with a half-hour break for lunch."

City of Pittsburgh Addressing Committee (CPAC)

- Standards
  - NENA – National Emergency Number Association



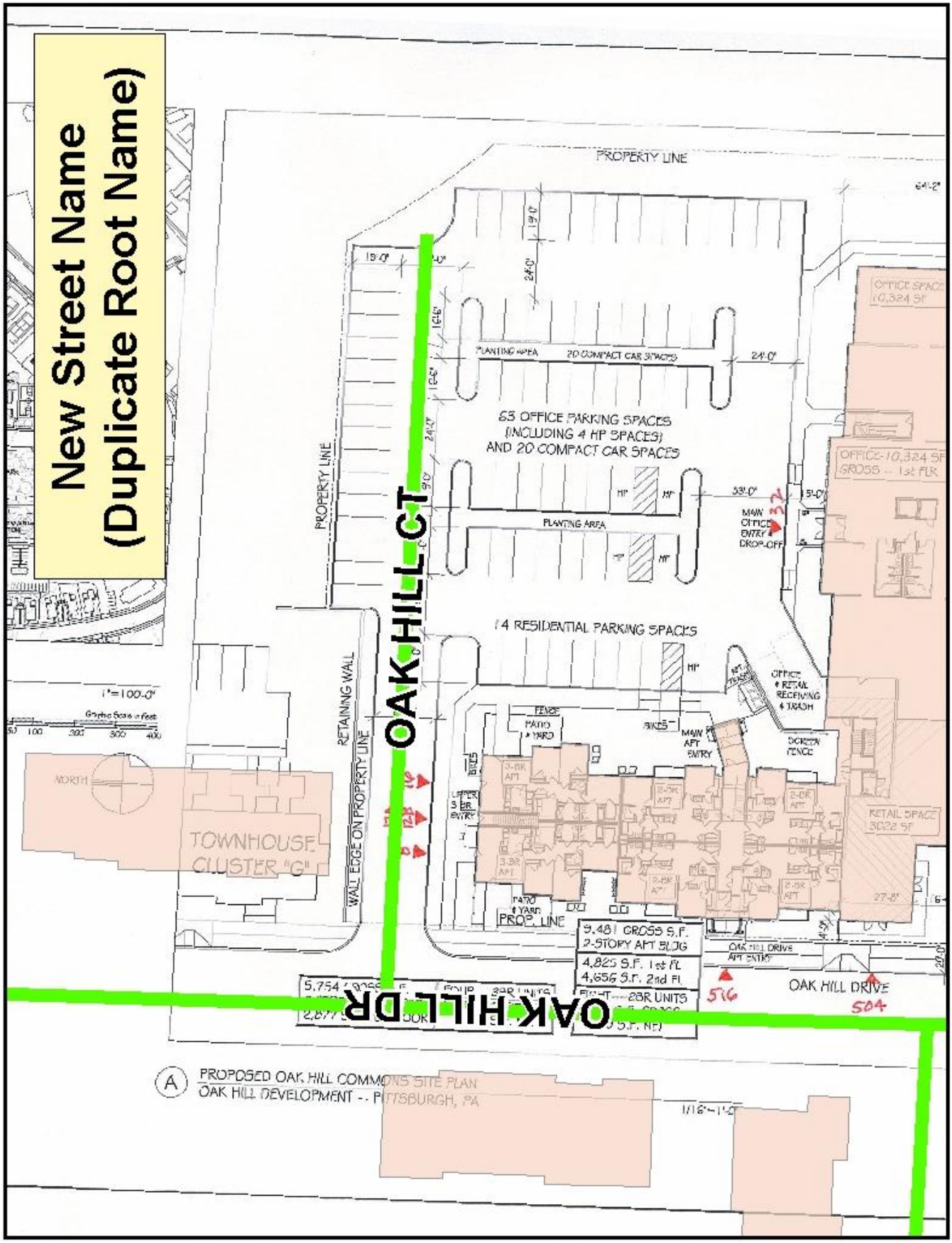
"The Bible" for Addressing

City of Pittsburgh Addressing Committee (CPAC)

- Standards
  - NENA – National Emergency Number Association
  - Street Naming
    - Root Name
    - Thoroughfare Types

City of Pittsburgh Addressing Committee (CPAC)

- Examples
  - Countrytime Ln & Country Time Rd
  - Roger St, Rodger St, Roger Rd, E Roger St, Roger St W
  - Browns Hill Rd & Brownsville Rd
  - Old Country Ln & Country Ln
  - JFK Dr → John F Kennedy Dr
  - North Shore Dr
  - The Boulevard


New Street Name
(Duplicate Root Name)
OAK HILL CT
OAK HILL DR
PROPERTY LINE
63 OFFICE PARKING SPACES
(INCLUDING 4 HP SPACES)
AND 20 COMPACT CAR SPACES
74 RESIDENTIAL PARKING SPACES
PLANTING AREA
20 COMPACT CAR SPACES
MAIN OFFICE ENTRY & DROP-OFF
MAIN APT ENTRY
OFFICE & RETAIL RECEIVING & TRASH
RETAINING WALL
WALL EDGE ON PROPERTY LINE
TOWNHOUSE CLUSTER "G"
OFFICE 10,324 SF
RETAIL SPACE 3022 SF
9,481 GROSS S.F.
2-STORY APT BLDG
4,825 S.F. 1st FL
4,656 S.F. 2nd FL
2BR UNITS
OAK HILL DRIVE
OAK HILL DRIVE APT ENTRY
516
504
PROPOSED OAK HILL COMMONS SITE PLAN
OAK HILL DEVELOPMENT -- PITTSBURGH, PA

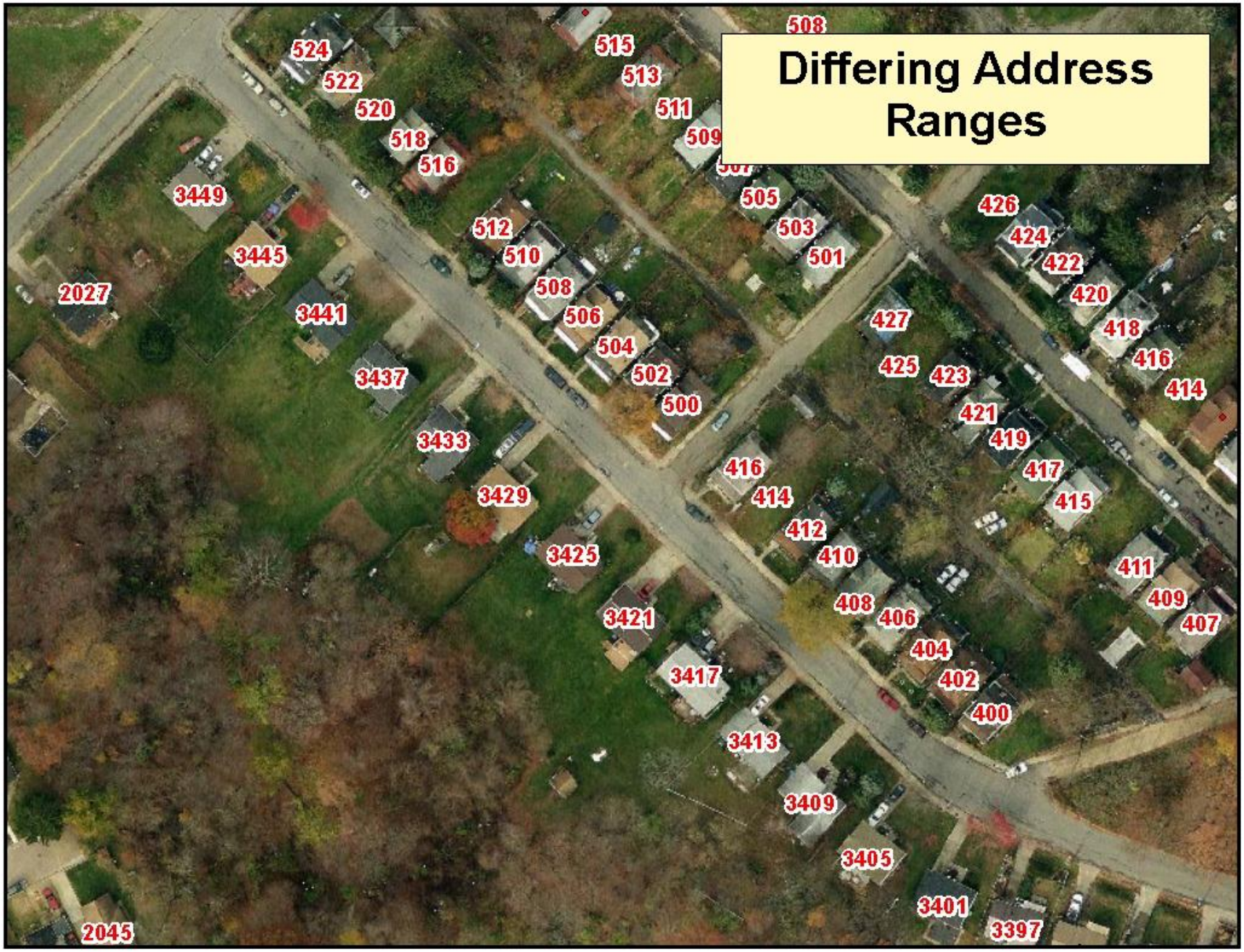
City of Pittsburgh Addressing Committee (CPAC)

- Standards
  - NENA – National Emergency Number Association
  - Street Naming
    - Root Name
    - Thoroughfare Types
  - Special Street Names
    - Honorary Street Naming
    - Non-Permanent/Commemorative Naming

17th St
HONORARY
Wholey Way

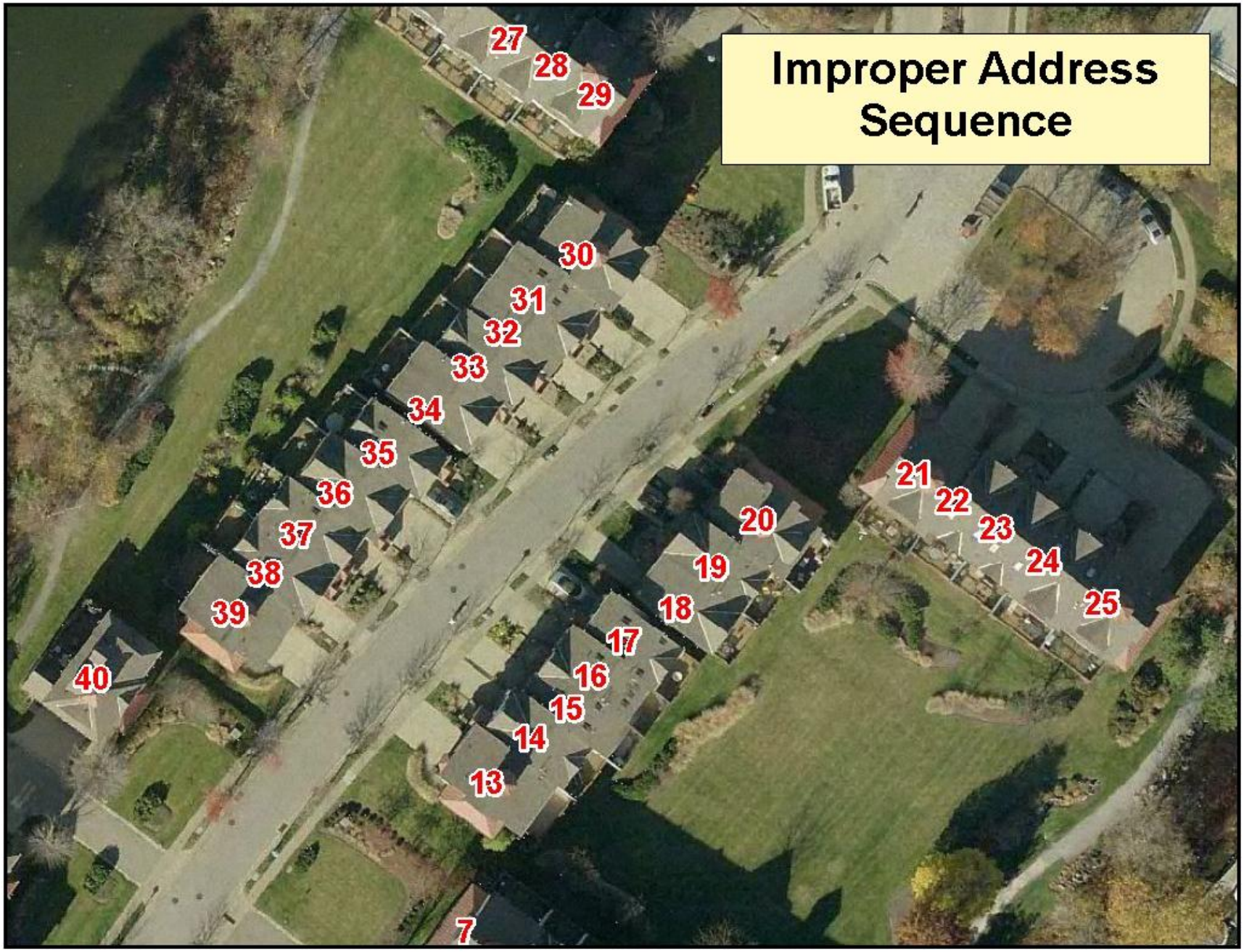
City of Pittsburgh Addressing Committee (CPAC)

- Standards – (Continued)
  - Address Numbers
    - Ranges


Differing Address Ranges
508
524
515
522
513
520
511
518
509
516
505
3449
426
512
503
424
3445
510
501
422
2027
508
420
3441
506
427
418
504
425
423
416
3437
502
414
500
421
3433
419
416
417
3429
414
415
412
3425
410
411
408
409
3421
406
407
404
3417
402
400
3413
3409
3405
3401
2045
3397

City of Pittsburgh Addressing Committee (CPAC)

- Standards – (Continued)
  - Address Numbers
    - Ranges
    - Flow
    - Parity


Improper Address Sequence
27
28
29
30
31
32
33
34
35
36
37
38
39
40
7
13
14
15
16
17
18
19
20
21
22
23
24
25

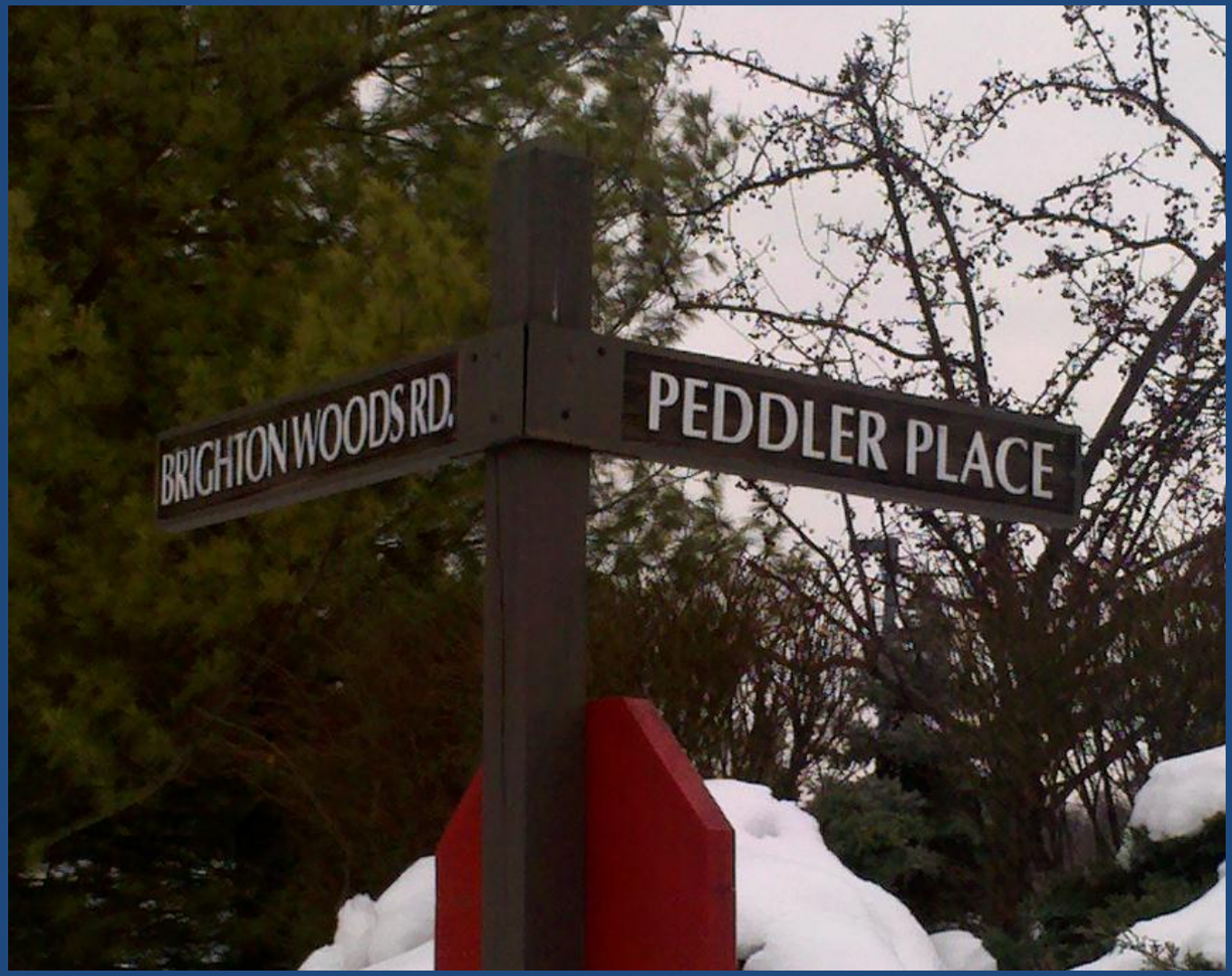
City of Pittsburgh Addressing Committee (CPAC)

- Standards – (Continued)
  - Address Numbers
    - Ranges
    - Flow
    - Parity
    - Special Cases
      - Multi-unit Structures

City of Pittsburgh Addressing Committee (CPAC)

- Ongoing Activities
  - Street Blade Committee

Incorrect Design and Materials



Wooden signs are not reflective and pose public safety hazards.

Incorrect Mounting

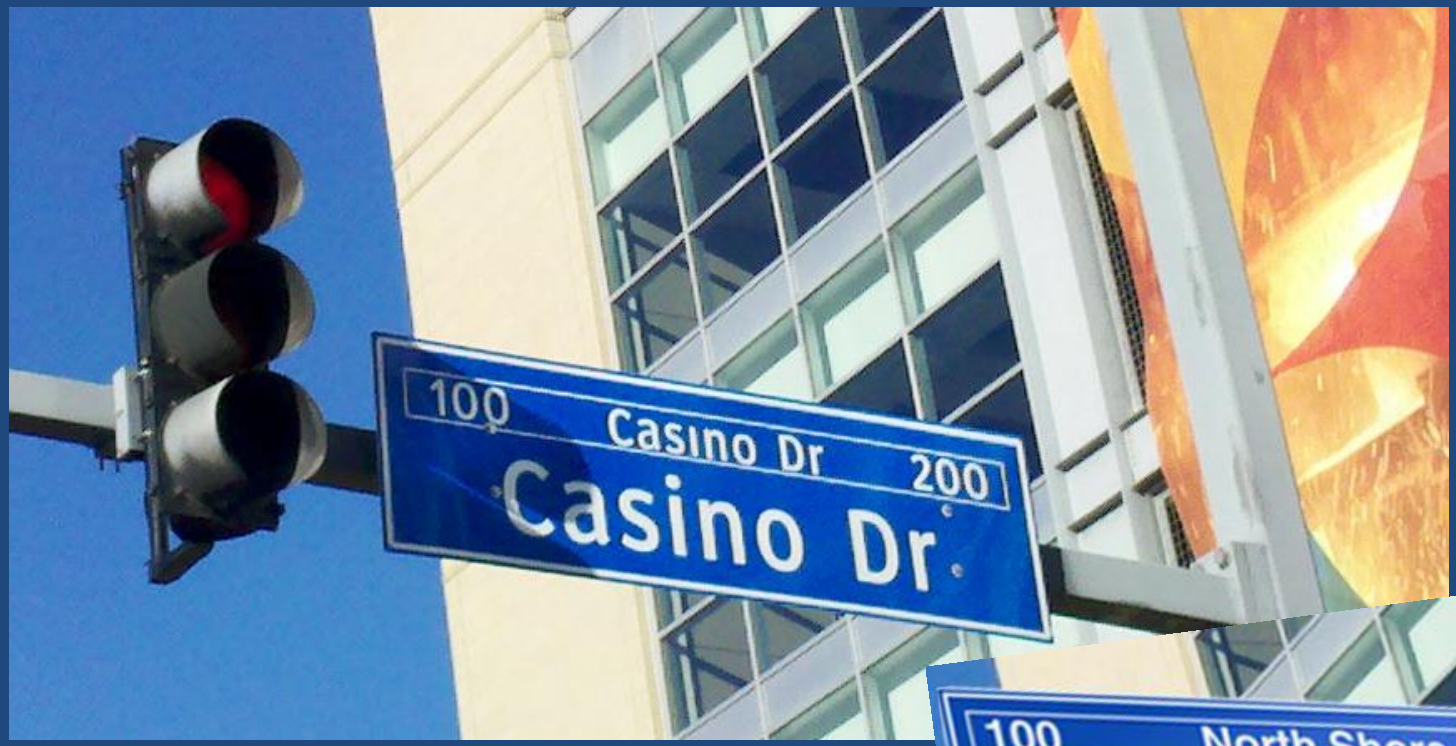
Signs should be mounted at 90 degree angles rather than cross-mounted.

Confusing Signage

- Honorary name placed above actual street name.
- Kaufman Way (one “n” at the end) already exists in Shadyside.

Incorrect Block Number & Neighborhood Name

Incorrect block numbers: Should only show 100 on the left side of the sign. Also note the neighborhood is shown as "Casino Dr" rather than the correct "Chateau."



What the correct sign should look like:

City of Pittsburgh Addressing Committee (CPAC)

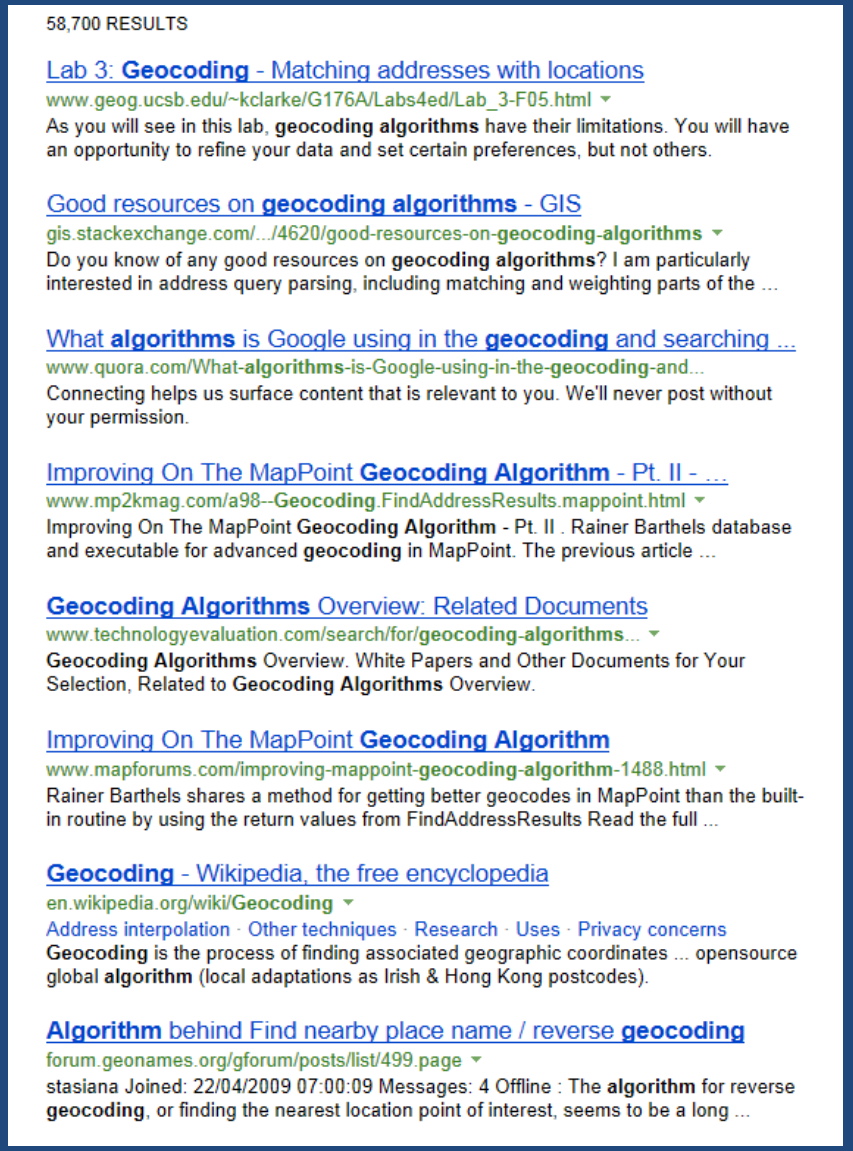
- Ongoing Activities
  - Street Blades Committee
    - Incorrect Designs & Materials
    - Incorrect Sign Mountings
    - Confusing Signage
    - Missing/Incorrect Block Numbers & Neighborhood Names
    - Development Of Other Types Of Street Blades
      - Steps

Future

- Next Steps (**pure speculation & hand waving**)
  - Enhanced Geocoding
  - GIS-Based Enterprise Address Management
  - Geography As The Universal Foreign Key
  - Eye Towards Next Generation (NG) 911

Enhanced Geocoding

- Get Straight To The Coordinates And Store Along Side Of Records
- GEOCODING IS A BLACK BOX!
- County Can Be Authoritative, Documented Geocoding Service for First Pass Geocoder for Allegheny County Addresses
  - Use Commercial Sources for Subsequent Passes



58,700 RESULTS

Lab 3: **Geocoding** - Matching addresses with locations
www.geog.ucsb.edu/~kclarke/G176A/Labs4ed/Lab_3-F05.html
As you will see in this lab, **geocoding algorithms** have their limitations. You will have an opportunity to refine your data and set certain preferences, but not others.

Good resources on **geocoding algorithms** - GIS
gis.stackexchange.com/.../4620/good-resources-on-**geocoding-algorithms**
Do you know of any good resources on **geocoding algorithms**? I am particularly interested in address query parsing, including matching and weighting parts of the ...

What **algorithms** is Google using in the **geocoding** and searching ...
www.quora.com/What-**algorithms**-is-Google-using-in-the-**geocoding**-and...
Connecting helps us surface content that is relevant to you. We'll never post without your permission.

Improving On The MapPoint **Geocoding Algorithm** - Pt. II - ...
www.mp2kmag.com/a98--**Geocoding**.FindAddressResults.mappoint.html
Improving On The MapPoint **Geocoding Algorithm** - Pt. II . Rainer Barthels database and executable for advanced **geocoding** in MapPoint. The previous article ...

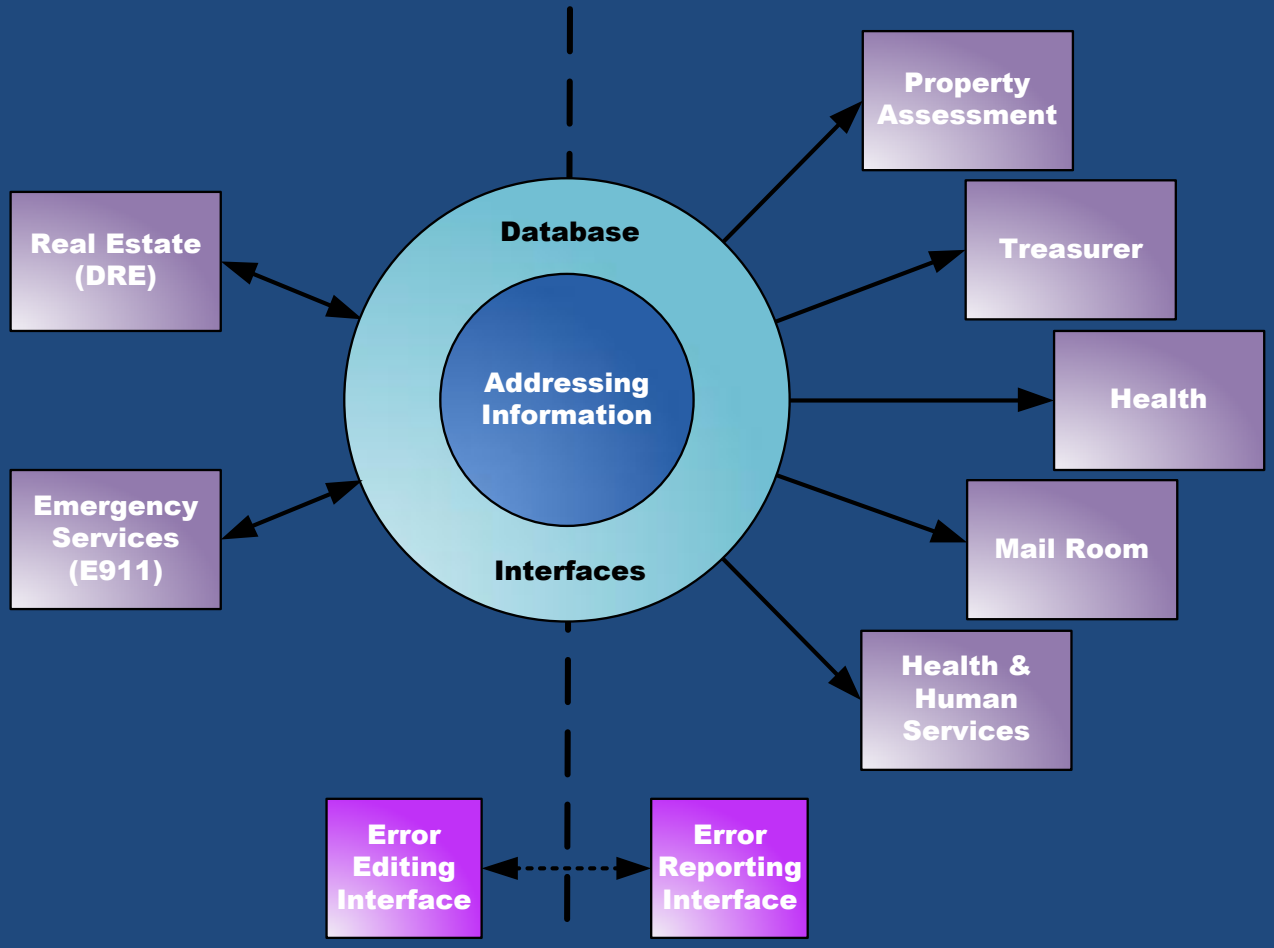
Geocoding Algorithms Overview: Related Documents
www.technologyevaluation.com/search/for/**geocoding-algorithms**...
Geocoding Algorithms Overview. White Papers and Other Documents for Your Selection, Related to **Geocoding Algorithms** Overview.

Improving On The MapPoint **Geocoding Algorithm**
www.mapforums.com/improving-mappoint-**geocoding-algorithm**-1488.html
Rainer Barthels shares a method for getting better geocodes in MapPoint than the built-in routine by using the return values from FindAddressResults Read the full ...

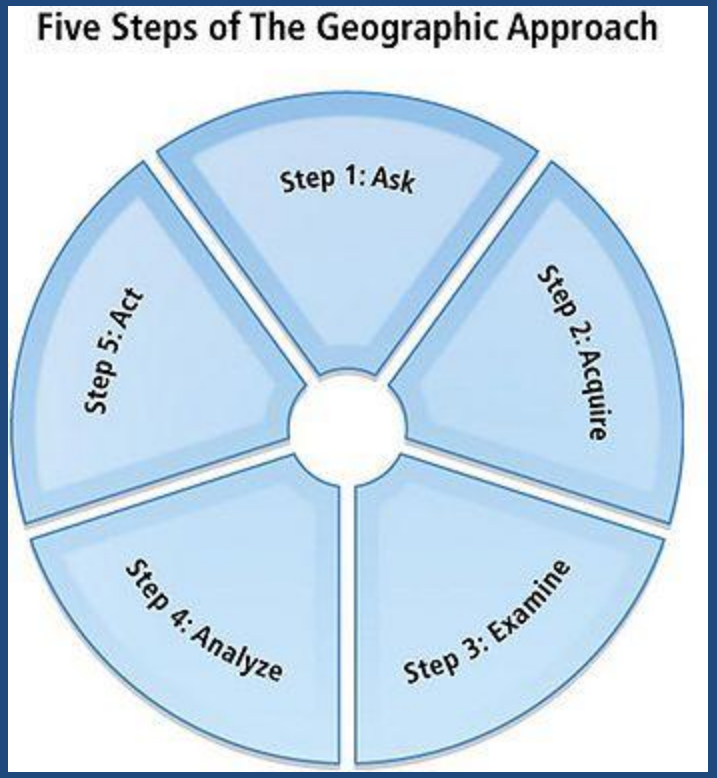
Geocoding - Wikipedia, the free encyclopedia
en.wikipedia.org/wiki/**Geocoding**
Address interpolation · Other techniques · Research · Uses · Privacy concerns
Geocoding is the process of finding associated geographic coordinates ... opensource global **algorithm** (local adaptations as Irish & Hong Kong postcodes).

Algorithm behind Find nearby place name / reverse **geocoding**
forum.geonames.org/gforum/posts/list/499.page
stasiana Joined: 22/04/2009 07:00:09 Messages: 4 Offline : The **algorithm** for reverse **geocoding**, or finding the nearest location point of interest, seems to be a long ...

GIS-Based Enterprise Address Management



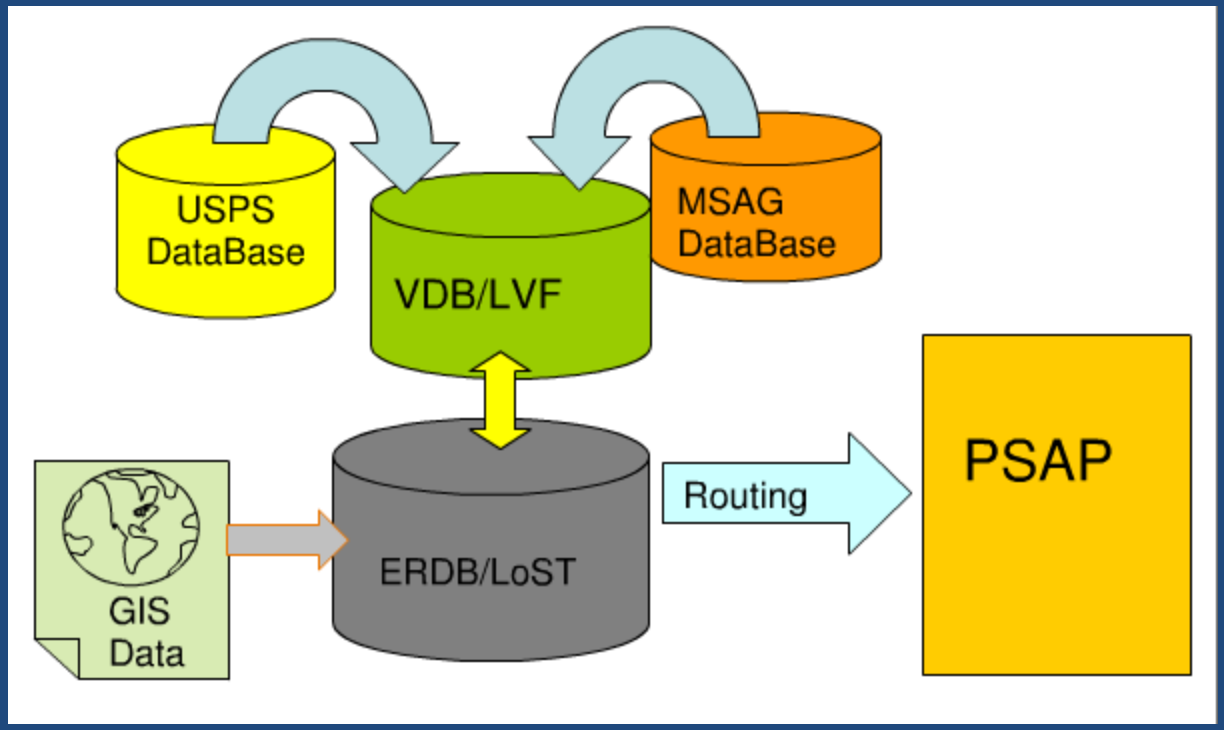
Geography as Universal Foreign Key



- Operational Efficiency Through Geography
- Integrate Systems That Are Seemingly Dissimilar

http://wiki.gis.com/wiki/index.php/Geographic_Approach

Eye Towards NG9-1-1



- EMERGENCY HELP, anytime, anywhere, any device ™ (NENA)

http://www.docstoc.com/docs/38313382/The-Role-of-GIS-in-Next-Generation-911-_NG9-1-1_-Gordon-Chinander

Thanks to:
Kathryn Reed (ALCO GIS) for providing ALCO GIS History
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