



GEOCOMM

State of North Carolina NG911 GIS Project Introduction

June 4, 2019

E9-1-1 vs. Next Generation 9-1-1

E9-1-1

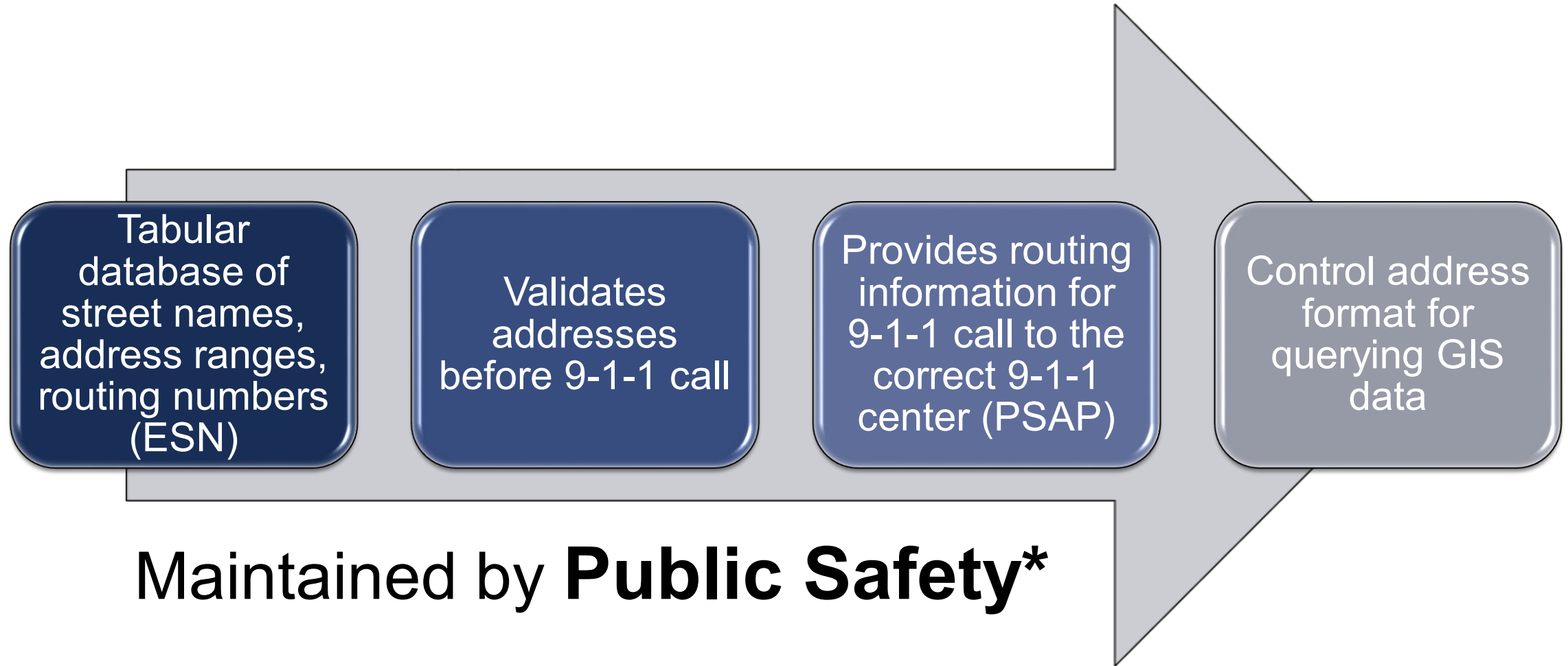


NG9-1-1



E9-1-1 critical database

MSAG (Master Street Address Guide)



E9-1-1 process – GIS department today

GIS Department

PSAP

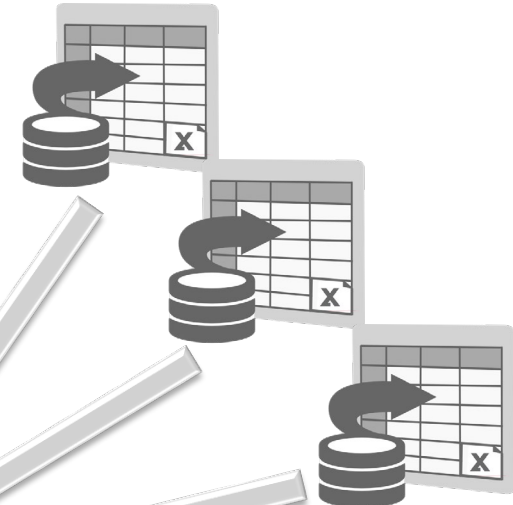
Telcos / Database Provider

GIS

CAD

MSAG

Telco Records



Mobile Systems



NG9-1-1 critical database GIS database



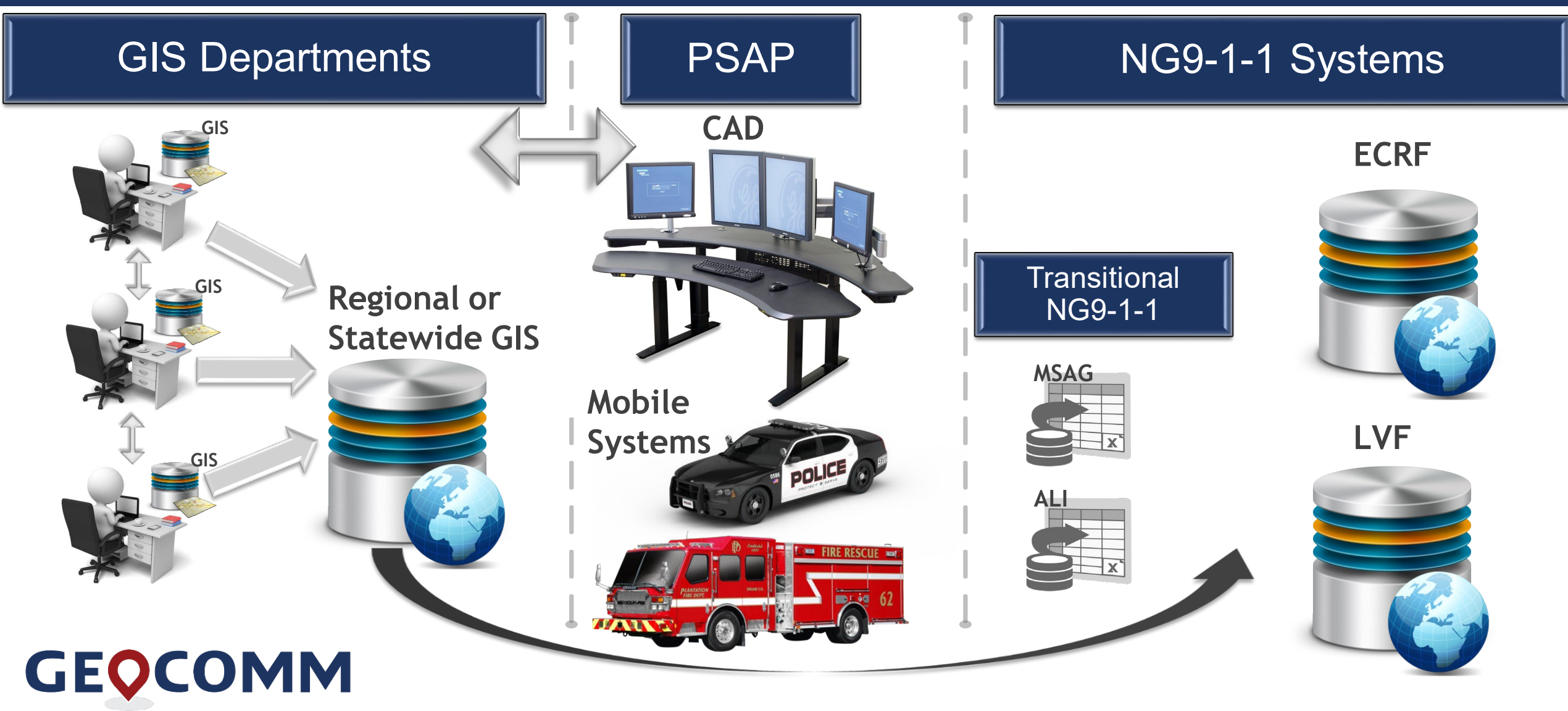
GIS database:
Street centerline
Address Points
Boundaries

Location Validation
Function (LVF)
Validates addresses
before 9-1-1 call

Emergency Call
Routing Function
(ECRF)
Routes call to the
correct 9-1-1 center
(PSAP)

Maintained by **GIS department**

NG9-1-1 process – GIS department, soon



Impacts of NG9-1-1 on GIS programs

New responsibility level – Education!

New data model standard specifically for NG9-1-1

Maintenance update process and schedule

Discrepancy report resolution

Extract, Transform, Load (ETL) – local, regional, or state level

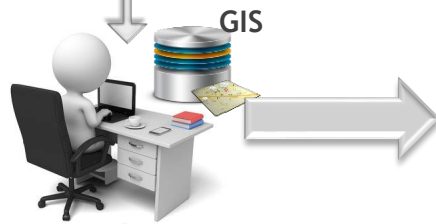
Preserve local schema – ETL process

(Extract, Transform, Load)

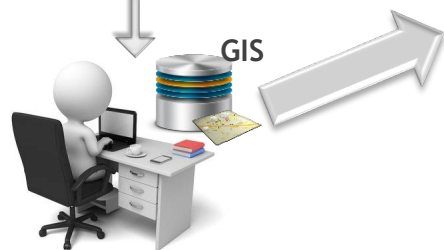
Local Schema



Local Schema



Local Schema



Field Mapping and Conversion (ETL)



NG9-1-1 Schema



NENA Standard for NG9-1-1 GIS Data Model

Mapping the
Future of 9-1-1



June 16, 2018

**NENA Standard for
NG9-1-1 GIS Data Model
was approved!**

NENA-STA-006.1-2018

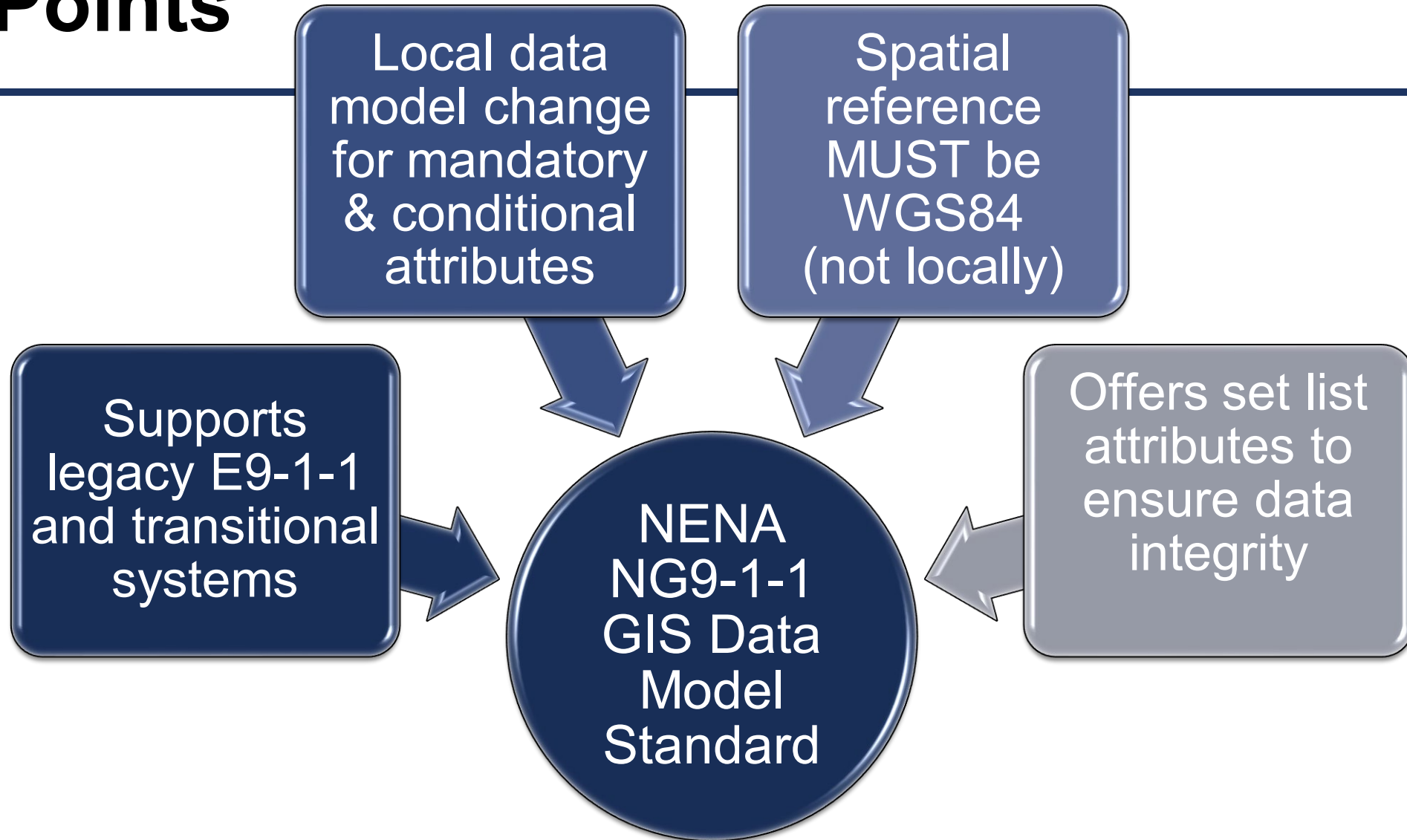
And it only took 8 years....

Fitting it all together

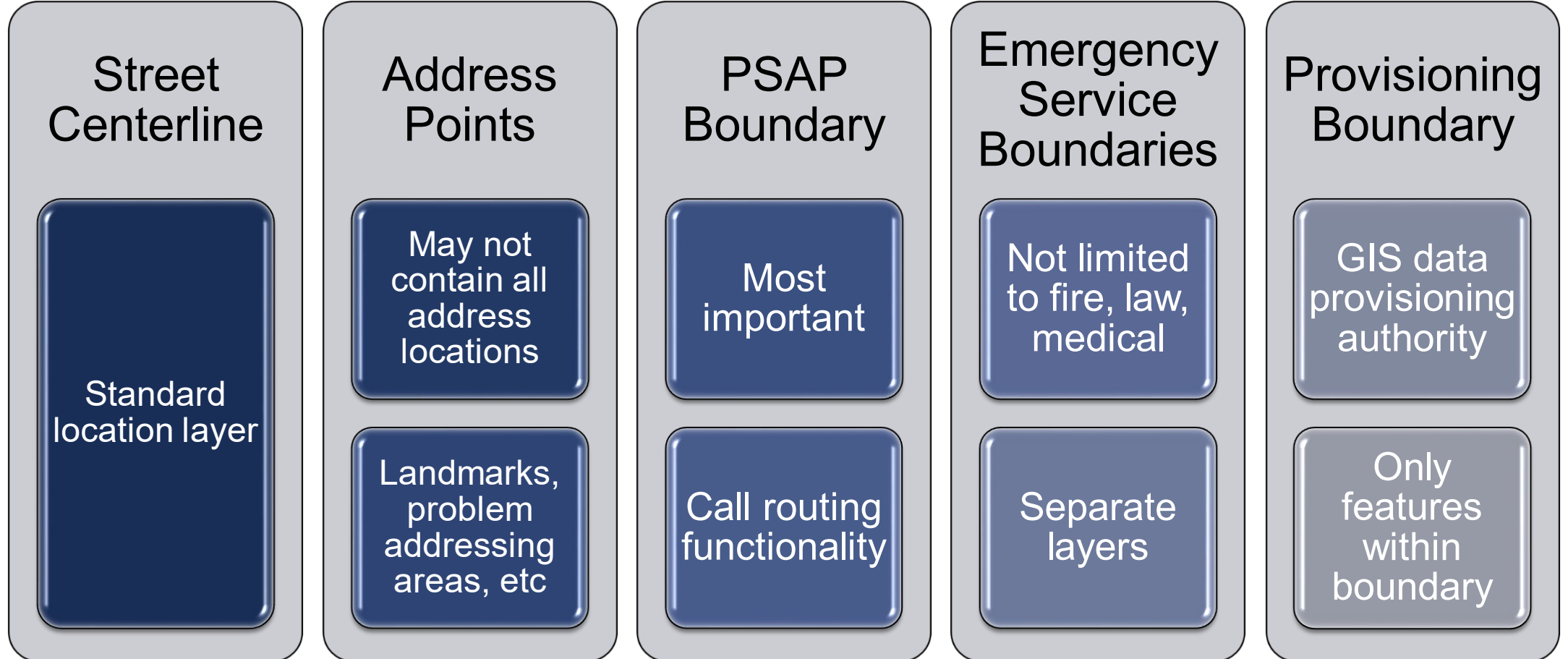
- If YOU build your data to the standard...
- and your NEIGHBOR builds their data to the standard...
- and THEIR neighbor builds their data to the standard...



Key Points



Required GIS layers




Strongly recommended

-  Street Name Alias Table
-  States or Equivalents
-  Counties or Equivalents
-  Incorporated Municipal Boundary
-  Unincorporated Community Boundary
-  Neighborhood Community Boundary

-  Landmark Name Part Table
-  Complete Landmark Name Alias Table

**Being reviewed with
CLDXF doc update**

Recommended

-  Railroad Centerline
-  Hydrology Line
-  Hydrology Polygon
-  Cell Sector Location
-  Mile Marker Location

PSAP

CAD



Attribute Requirements



Mandatory

Data field
MUST NOT
be blank

Conditional

If attribute value
exists, it MUST
be provided

If no value
Blank or Null

Optional

An attribute
value MAY or
MAY NOT be
provided in the
data file

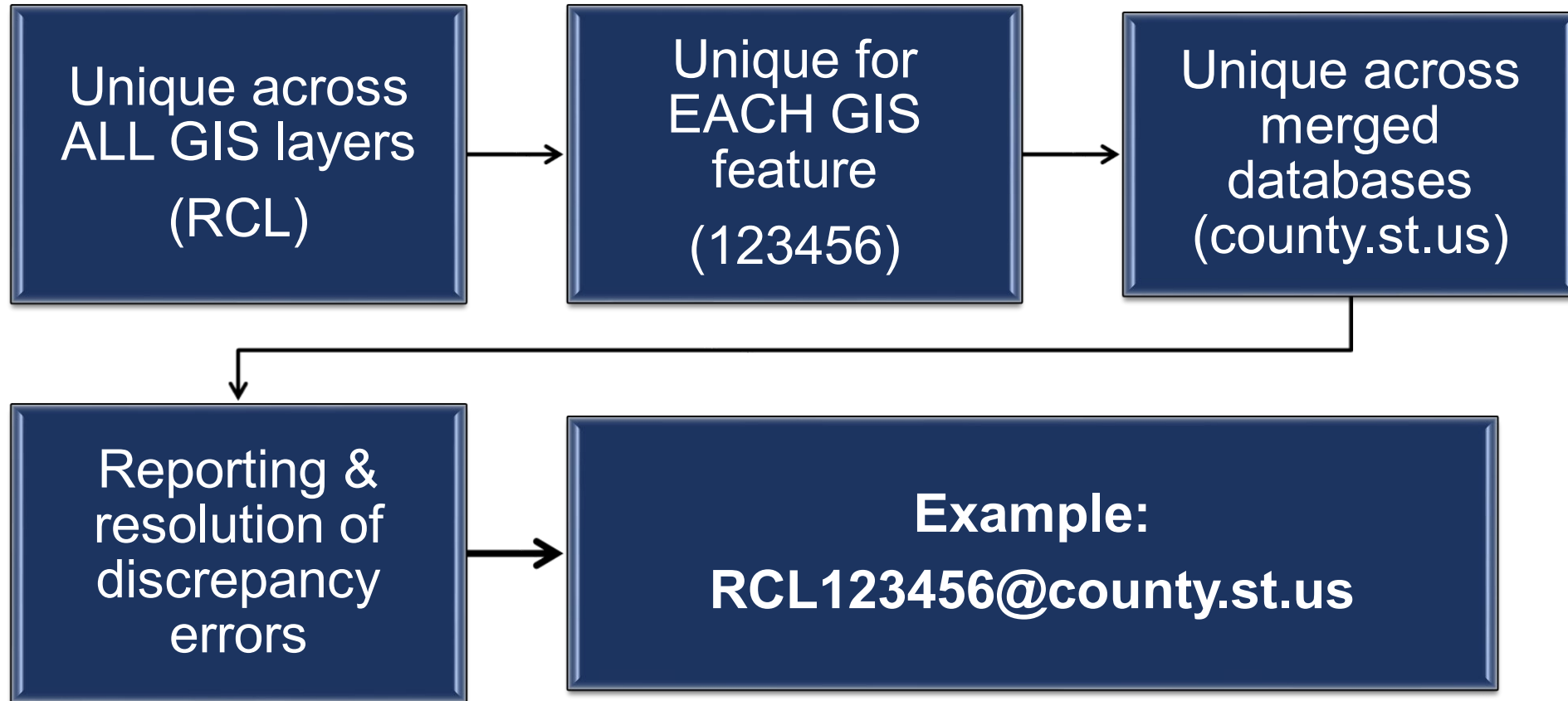
Notable Mandatory Attributes

- Discrepancy Agency ID: Agency that receives a Discrepancy Report (DR), should a discrepancy be discovered, and will take responsibility for ensuring discrepancy resolution. This may or may not be the same as the 9-1-1 Authority.
 - E.g. Durham911.nc.us.gov; Richmond911.nc.us
- Incorporated Municipality: Municipality name or “UNINCORPORATED”
- ESN and MSAG Community: Mandatory through transition to NG911

Notable Mandatory Attributes | NENA Globally Unique ID

- Each feature (record) must have a globally unique ID. When coalesced together with other local 9-1-1 authority's data into the NG9-1-1 system the ID must continue to have only one occurrence.

Notable Mandatory Attributes | NENA Globally Unique ID



Street Name Elements

CLDXF

- Street Name Pre Modifier
- Street Name Pre Directional
- Street Name Pre Type
- Street Name Pre Type Separator
- Street Name*
- Street Name Post Type
- Street Name Post Directional
- Street Name Post Modifier

Legacy

- Legacy Street Name Pre Directional
- Legacy Street Name
- Legacy Street Name Type
- Legacy Street Name Post Directional

CLDXF Fields

Street Name Pre Modifier
X

Street Name Pre Directional
EAST

Street Name Pre Type
AVENUE

Street Name Type Separator
OF THE

Street Name
FLAGS

Street Name Post Type
BOULEVARD

Street Name Post Directional
NORTH

Street Name Post Modifier
X

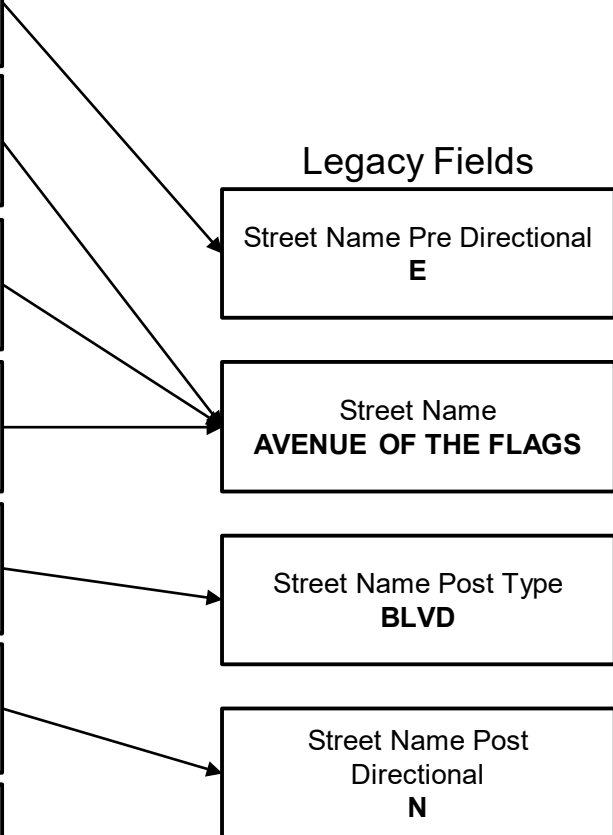
Legacy Fields

Street Name Pre Directional
E

Street Name
AVENUE OF THE FLAGS

Street Name Post Type
BLVD

Street Name Post Directional
N



CLDXF Fields

Street Name Pre Modifier
OLD

Street Name ~~Pre~~ Directional

Street Name Pre Type
UNITED STATES HIGHWAY

Street Name ~~Pre~~ Separator

Street Name
63

Street Name ~~Post~~ Type

Street Name ~~Post~~ Directional

Street Name ~~Post~~ Modifier

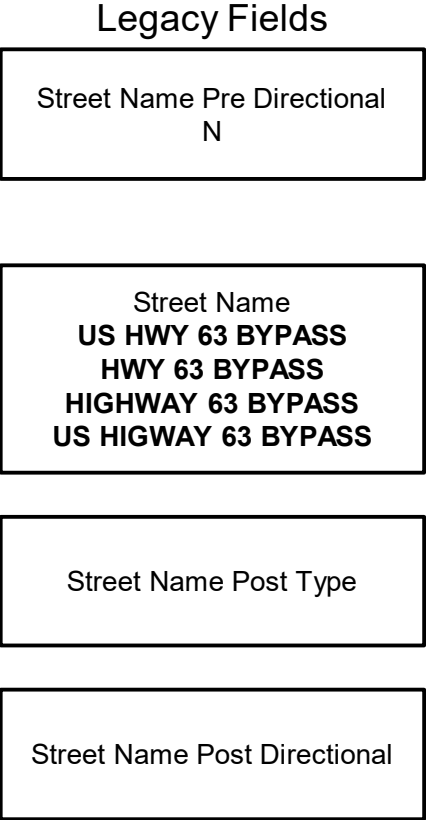
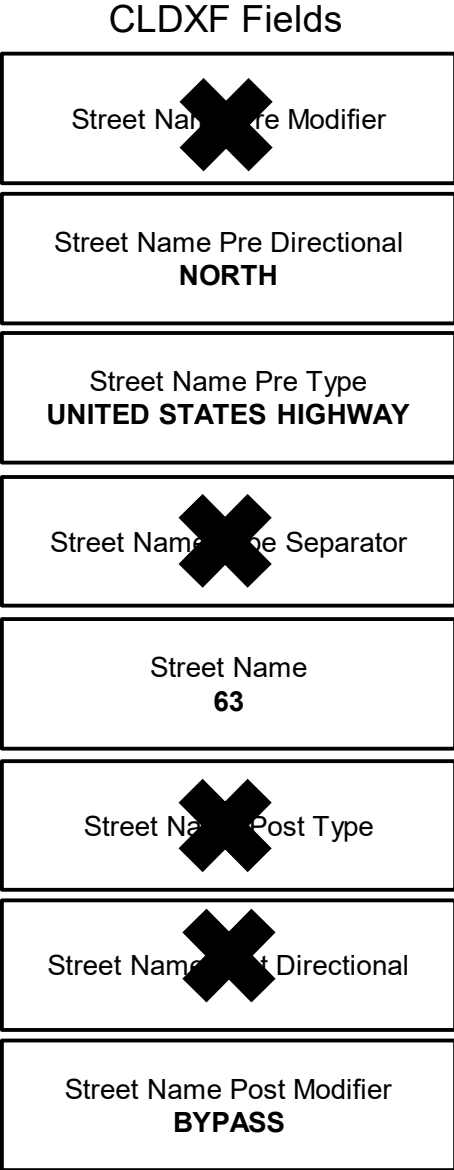
Legacy Fields

Street Name Pre Directional

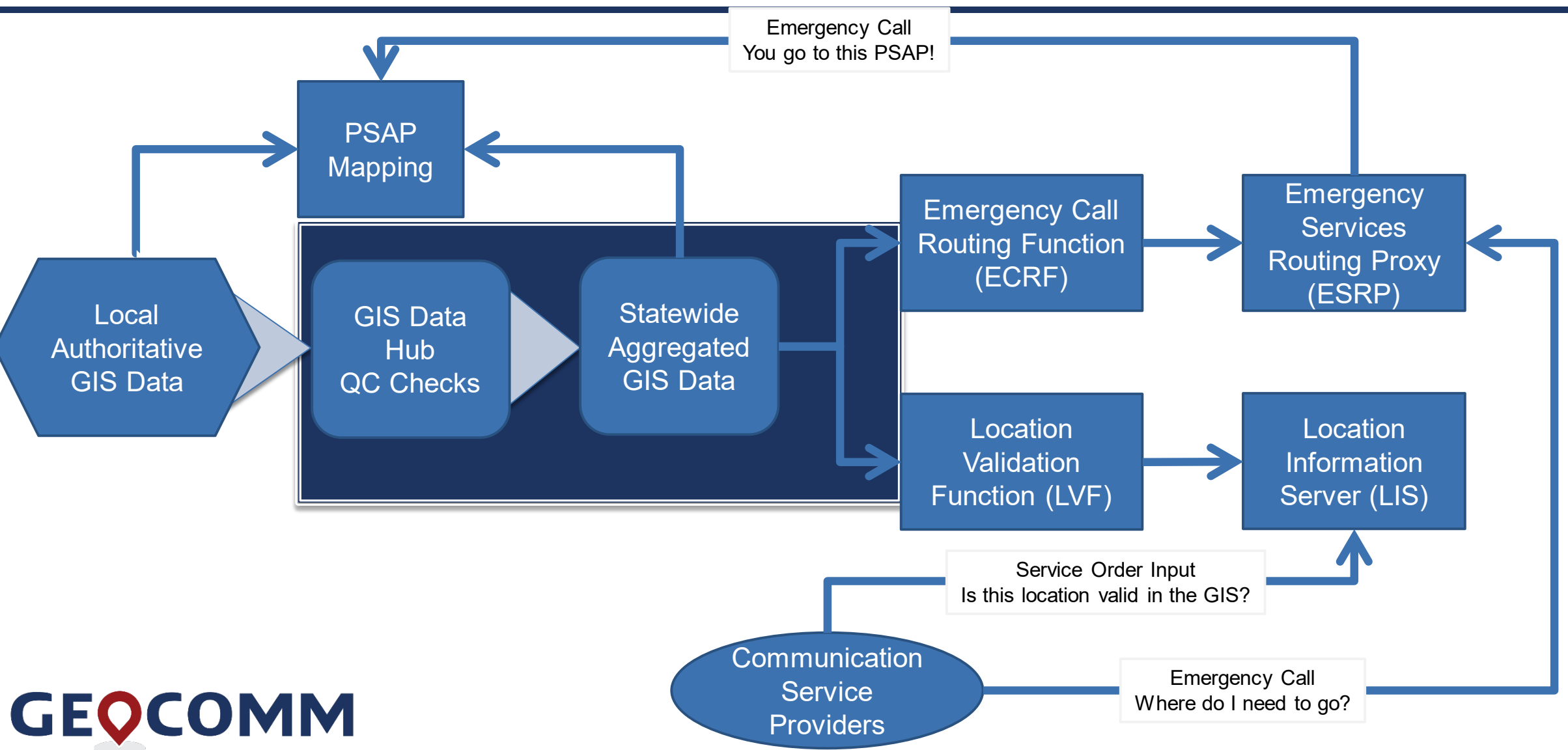
Street Name
OLD US HWY 63
OLD HWY 63
OLD HIGHWAY 63
OLD US HIGWAY 63

Street Name Post Type

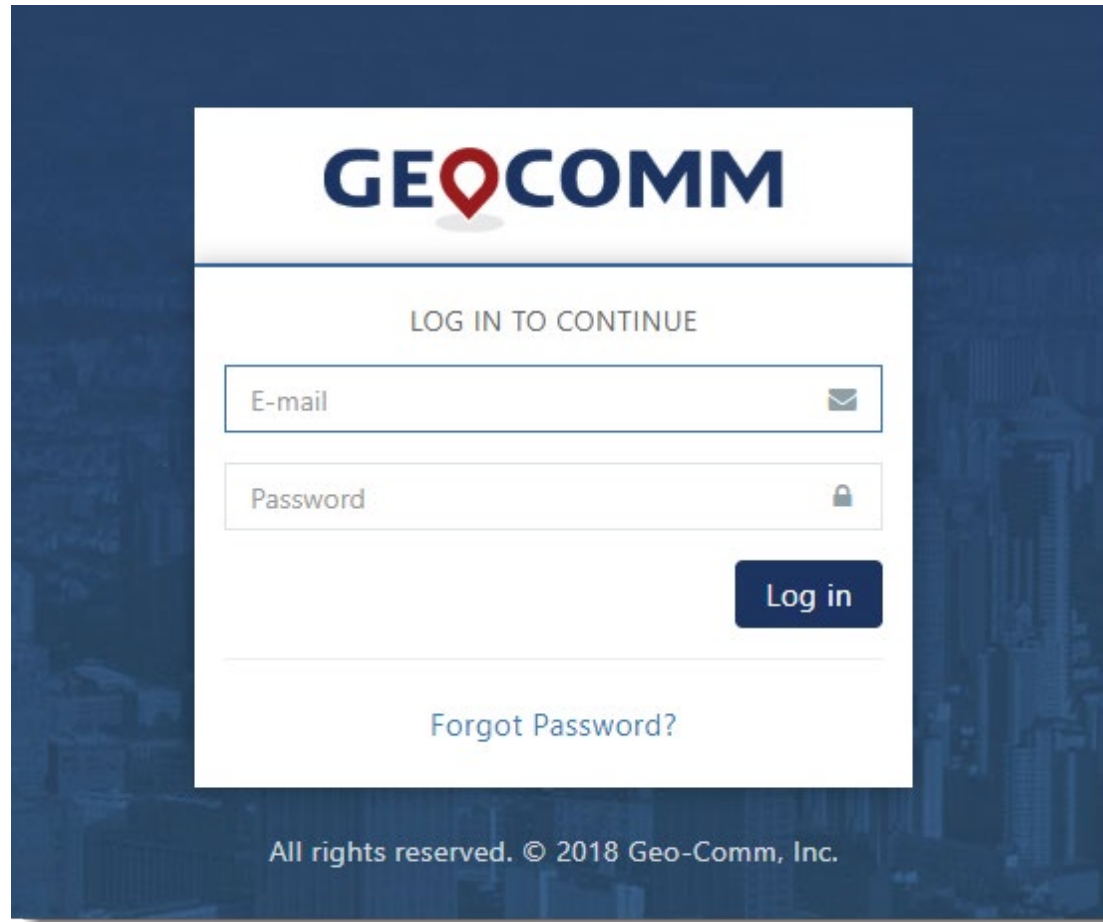
Street Name Post Directional



NG911 GIS Managed Services




GIS Data Hub



The image shows a login form for the GEOCOMM GIS Data Hub. The form is centered on a dark blue background with a faint cityscape. At the top of the form is the GEOCOMM logo. Below the logo is the text "LOG IN TO CONTINUE". There are two input fields: "E-mail" with an envelope icon and "Password" with a lock icon. A dark blue "Log in" button is positioned to the right of the password field. Below the button is a link for "Forgot Password?". At the bottom of the form, there is a copyright notice: "All rights reserved. © 2018 Geo-Comm, Inc."

GEOCOMM

LOG IN TO CONTINUE

E-mail 

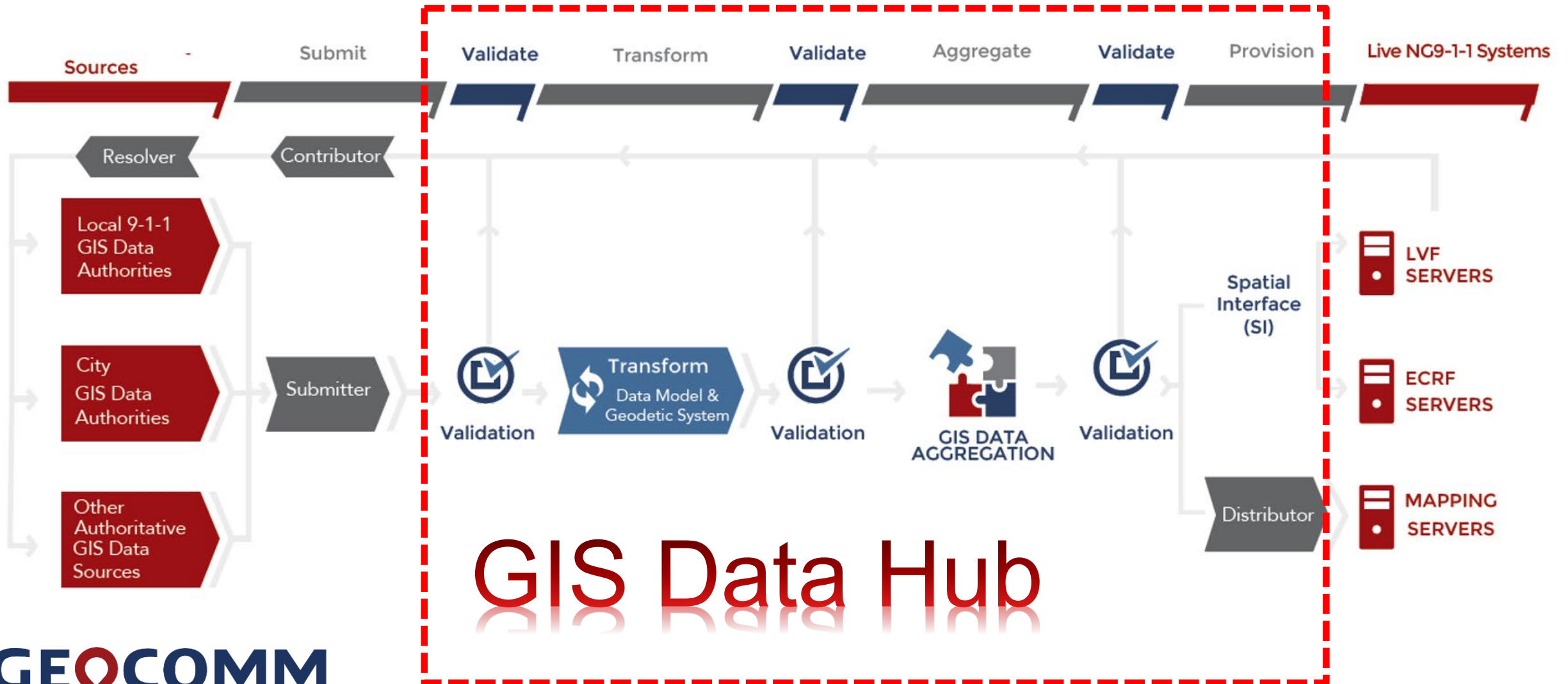
Password 

Log in

[Forgot Password?](#)

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What is GIS Data Hub?



GIS Data Hub Overview



Access to GIS Data Hub

GIS Data Hub link

- https://gdh.geo-comm.com/GMS_API

User configuration

- Invitation email is sent for registration and password creation
- Permissions can be set to allow individual users to upload data, download results, view the Dashboard and download converted dataset in desired schema

Access to GIS Data Hub



The image shows a login interface for GEOCOMM. At the top is the GEOCOMM logo. Below it is the text "LOG IN TO CONTINUE". There are two input fields: "E-mail" with an envelope icon and "Password" with a lock icon. A dark blue "Log in" button is positioned to the right of the password field. Below the button is a link for "Forgot Password?". At the bottom of the page is the copyright notice: "All rights reserved. © 2018 Geo-Comm, Inc."

GIS Data and Database Uploads | Consistency is Important!

Uploading to project : NorthCarolina client: NCRichmond

Logged in as user: Jessica Frye jfrye@geo-comm.com

Processing Options

Go! My existing settings work for me. ←

Pause! Something changed, I need to update my settings.

Select A File To Upload

←

Upload your data for QC checks in a zipped file format.

CONSISTENCY FROM UPLOAD TO UPLOAD IS IMPORTANT!

GIS data file names and schema needs to be consistent

ALI and MSAG database sheet tab names need to be consistent

Browse to your zip file or drag and drop your zip file that contains your GIS data, ALI, MSAG or any of the three.

GIS Data Hub – Behind the Scenes

Secure web browser-based configuration management

Initial Setup
Setup notification rules, Configure process alerts and failure conditions, Configure global settings.

Upload Data
Upload your first COMPLETE dataset so we can see what your data looks like. Upload NEW versions of your data over time for processing.

Finish Setup
Describe your data, Configure QC settings, Setup export and sharing settings.

Configure QC Settings

Existing QC Settings

QC Setting Description	Applies To	
Synchronization issues between All and SSAP	All SSAP	
County or Equivalent Boundary Critical Field(s) are Missing Value	CountyBoundary	
Authoritative Boundary MultiPart Geometry Check	AuthoritativeBoundary	
Emergency Medical Services Critical field(s) are missing value	EMSBoundary	
Road Centerline crosses Incorporated Municipality Boundary	IncMunicipalityBoundary, RoadCenterline	
Emergency Medical Services MultiPart Geometry Check	EMSBoundary	
Road Centerline crosses Law Boundary	LawBoundary, RoadCenterline	
State Boundary MultiPart Geometry Check	StateBoundary	
State Boundary polygons overlap	StateBoundary	
Law Enforcement Critical field(s) are missing value	LawBoundary	
ESN MultiPart Geometry Check	ESZBoundary	

Configure your QC setting

Configure your QC options

Unique description: SSAP Combined name doesn't match Concatenated

Configured Parameters

Default Parameters

Parameter Name: joinedAddressFields
Configured Value: addNumPre.addNum.addNum.Suf.pre.Mod.preDir.preType.pre
Default Value: Click to Override

Parameter Name: performStringCleanup
Configured Value: TRUE
Default Value: TRUE
Click to Override

Parameter Name: referenceMethod
Configured Value: CLIENTNAME
Default Value: CLIENTNAME
Click to Override

GIS Data Configuration

Add Dataset Mapping | Secondary Action Button | Use Default Mapping & Go Next

Existing Dataset Mapping

Source Dataset	mapped to	Target NG911 Dataset
Service_Area		LawBoundary
Intersection_Streets		RoadCenterlines
Addresses		SSAP
CountyBndry		CountyBoundary
Service_Areas		StateBoundary
City_Boundaries		MunicipalBoundary
Street1		MSAG
Service_Data		TargetData

Setup Email Notifications

Use this form to setup notification rules and receive email alerts when processes complete, reach alert levels, reach fatal thresholds, or do not complete successfully.

Enter the e-mail addresses which will receive notifications via this rule

Choose your alert levels

- Tell me when jobs hit an alert-level threshold
- Tell me when jobs hit an fatal-level threshold or do not complete
- Tell me when jobs finish

What project does this rule apply to: Select

Which job(s) should this notification rule apply to

- Client is created
- New uploads processed
- QC checks
- Ingest validation
- Data exports
- Change detection
- All jobs

Modify Existing Email Notifications

<p>Email: name.lastname@eamlagency.com Project: Murner Client: Durham, NCStateWide Jobs: All Jobs Conditions: Alert, Failure, Complete</p>	<p>Email: name.lastname@eamlagency.com Project: CavSTCLOUD Client: SCCloud Jobs: All Jobs Conditions: Alert, Failure, Complete</p>	<p>Email: name.lastname.foo.jong@eamlag... Project: Murner Client: Durham, NCStateWide Jobs: New uploads processed, Change detection, Data exports Conditions: Alert, Failure, Complete</p>
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Configure your QC setting

Configure your QC options

Unique description: Law Enforcement Critical field(s) are missing value

Configured Parameters

Parameter Name: ruleSet
Configured Value: zeroValue.emptyString.white.space.nullValue

Parameter Name: targetFields
Configured Value: urlLength.urlCIDData.urlLastEff.country.state.agencyID.RouteL

Parameter Name: targetLayer
Configured Value: LawBoundary

Default Parameters

Parameter Name: referenceMethod
Configured Value: CLIENTNAME
Default Value: CLIENTNAME
Click to Override

QC Results Notification E-mail and Download Link

Your GIS Data Hub File is Ready to Download

If you can't see the message below, [click here to access your content.](#)

GIS Data Hub Notification

Hello,

Data for **NorthCarolina - NCRichmond** has been processed by GeoComm's GIS Data Hub.

The export package for '**QC Results**' is ready for download.

Please contact the GIS Team if you have any questions.


Thank you,
GeoComm GIS Team
gis@geo-comm.com


[Download Your Files](#)

Copyright © Geo-Comm

Tue 5/14/2019 10:50 AM

NR No Reply
GIS Data Hub ready to download

To  Jessica Frye, ENP

 NCRichmond_GeoCommNG911.pdf
84 KB

Hello,

Data for **NorthCarolina - NCRichmond** has been processed by GeoComm's GIS Data Hub.

The export package for '**QC Results**' is ready for download.

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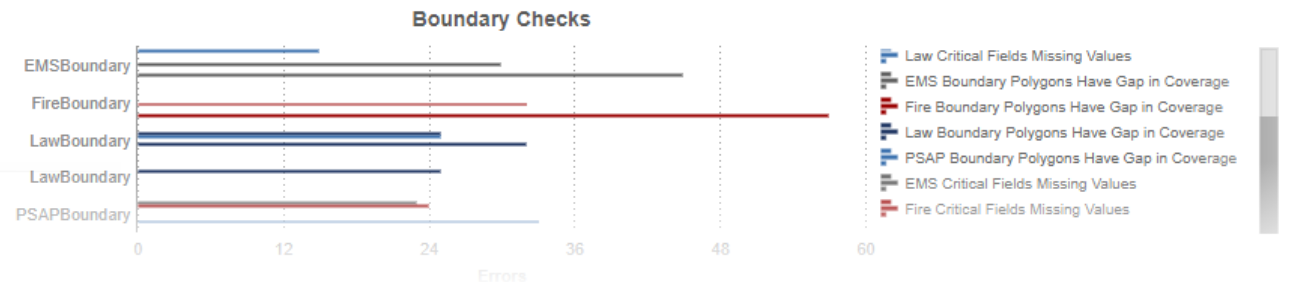
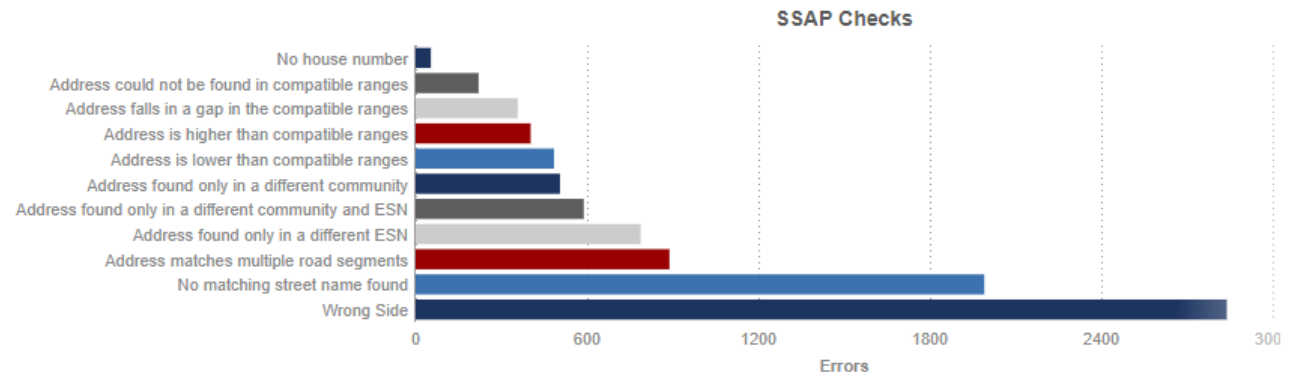
Thank you,
GeoComm GIS Team
gis@geo-comm.com

QC Summary Report & Dashboard

Summary report is created with each quality control check run

Data Last Uploaded for Analysis

Client Source Name	UDM Name	Upload Date	Feature Count
MSAG_COMMUNITY	UnIncCommBoundary	02/19/2019 03:49 PM	555
ADDRESS_LOCATION	SSAP	02/19/2019 03:53 PM	729,361
ROADS	RoadCenterline	02/19/2019 03:50 PM	154,389
PSAP_BND	PSAPBoundary	02/19/2019 03:48 PM	220
NCT911_MSAG	MSAG	02/19/2019 03:53 PM	75,009
LAW_SERVICE_BND	LawBoundary	02/19/2019 03:49 PM	356
CITY	IncMunicipalityBoundary	02/19/2019 03:50 PM	230
FIRE_SERVICE_BND	FireBoundary	02/19/2019 03:49 PM	457
ESZ	ESZBoundary	02/19/2019 03:50 PM	715
MEDICAL_SERVICE_BND	EMSBoundary	02/19/2019 03:49 PM	249
COUNTY	CountyBoundary	02/19/2019 03:49 PM	14



Available Documentation & Supporting Applications

User Guide

- The User Guide includes the QC Plan
- The QC check table lists applicable exception codes

GDH Help File

- All available QC checks are described in the help file
- Exception codes associated with each QC check are listed in the help file

Resolver

- Can be installed locally and added into ArcMap
- Allows for exception code field population with one click by linking to features using the unique ID

Workflow Diagram and User Guide Review

Workflow diagram

- GeoComm Process Overview
- Data submission, QC Error Report and Remediation Management

Data conversion and quality control checks – User Guide QC Plan

- ETL fallouts
- Ingest validation
- General QC checks
- SSAP QC checks
- RCL QC checks
- Boundary layer QC checks
- Synchronization QC checks

Review of QC Process Results

Summary
Report

ETLFallouts.csv

QCFallouts.csv

QCFallouts.gdb

GIS data QC results

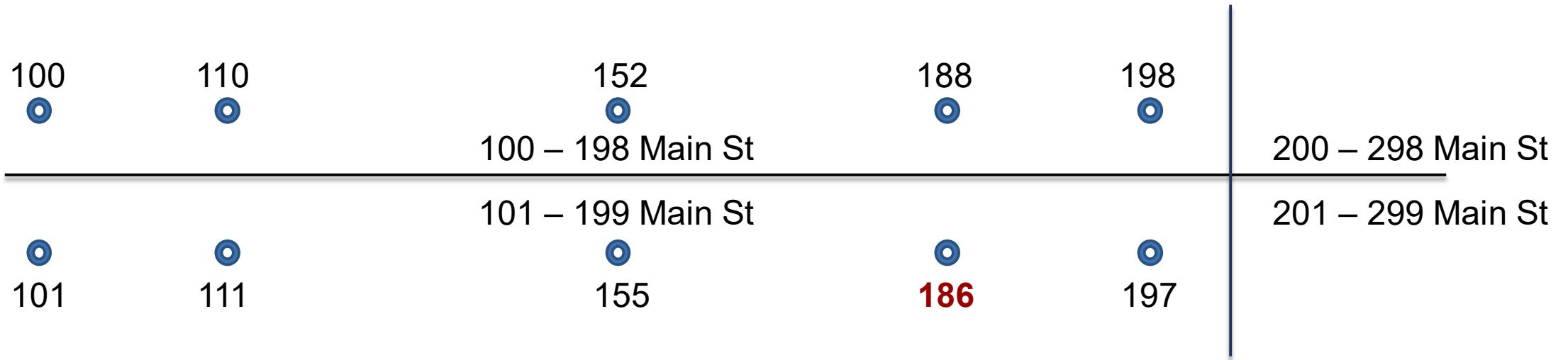
ALI database and MSAG
synchronization checks

Summary reports

Dashboard

GIS Data Exceptions

- An even address was assigned to the odd side of the road in previous years. The addressing authority does not want to re-address the structure. This even address will be found as an error in the QC checks. What do I do? It isn't an error that I can correct!




QC Exception Codes

- Exception codes are used to notify GIS Data Hub that a features is an anomaly and that an identified error is an quality control check exception.

Correcting Reported Errors & GIS Data Hub Help File

GEOCOMM GIS Data Hub Basics Get Started Features QC Checks Resources

Search 

You are here: QC Checks



Quality Control Checks

The GIS Data Hub performs quality control checks on the submitted GIS data to ensure addresses are synchronized, roads are connected, standards are met, errors are identified, and more. These QC checks are flexible to add or take away from what they do so the limit of QC checks are virtually unlimited. When executed, the application begins the process of running a series of quality control (QC) checks to ensure current, accurate data. Processing occurs on a first in first out basis. The more information that is processed, and the more customized the schemas, the longer the processing takes.

Following is a list of common QC checks types that may be processed.

- » [Boundary Layer QC Checks](#) [Read more...](#)
- » [General QC Checks](#) [Read more...](#)
- » [Ingest Validation QC Checks](#) [Read more...](#)
- » [Road Centerline QC Checks](#) [Read more...](#)
- » [SSAP QC Checks](#) [Read more...](#)
- » [Synchronization QC Checks](#) [Read more...](#)

- Basics
- Get Started
- Features
- QC Checks**
 - Boundary Layer
 - General
 - Ingest Validation
 - Road Centerline
 - SSAP
 - Synchronization
 - Quality Check Exception Codes
- Resources

You are here: QC Checks > Road Centerline > Overlapping Address Range Values

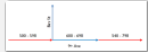


Overlapping Address Range Values

The **Road Centerline - Overlapping Address Range Values** quality control (QC) check identifies where roads have overlapping address ranges in a given community or zone. Overlapping ranges can produce poor geocoding results, as a given address may fall within range of multiple different segments. If these segments are spatially distant from one another, an emergency responder could be routed to a location far away from the actual incident.

EXAMPLE

In the example below, a call coming in from 564 9th Ave could geocode to either of the street segments in red, putting responders on the wrong block



The check takes into account several potential overlap scenarios.

- » Overlapping ranges are found on named streets.
- » Overlapping ranges are generated on named streets due to the use of an alias name. For instance, say the segment 100-198 Man St. is also known by it's alias State Highway 20. If State Highway 20 with a range of 2-138 exists somewhere else in the community, then an overlap is generated when using the alias for Main St.
- » Overlapping ranges are generated when streets with generic names such as driveway or parking lot have ranges and appear multiple times in a dataset.

- Road Centerline
 - Cross a Boundary Layer
 - Cross a Boundary Layer - Subscriber
 - Does Not Meet Length Requirement
 - From Value is Higher Than To
 - Full Address Does Not Match Concatenation of Parsed Out Values
 - Has Incorrect Direction
 - Has Incorrect One-way Values
 - Has Incorrect Z Levels
 - Has Range Gaps
 - Has Stacked Segments
 - Has Zero in Range Value
 - Not Snapped to Adjacent Originator Segment
 - Not Snapped to Adjacent Segments
 - Overlapping Address Range Values**
 - Parity Issue
 - Zone Attribution Against Intersecting Polygon Attribution



Questions

Jessica Frye, GeoComm Project Manager

320-281-2554

jfrye@geo-comm.com

Brandon Moore, King-Moore

276-356-8224

moore@king-moore.com

**Mapping the
Future of 9-1-1**