

NG911 Countywide Meeting

Welcome!

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Agenda for today

- Current County-wide Workflow
 - Data Schema
 - Current Data Sharing Process
 - QA/QC Discussion
- BREAK
- Future County-wide Workflow
- Future improvement in collaboration/communication discussion
- Wrap up

Current Data Schemas

What current schema are used by Prescott, Prescott Valley, Cottonwood, Camp Verde, Sedona, Dewey-Humboldt, Chino Valley, Wickenburg?

Are there key fields that are in local data schema's that must be kept, but are used in a different way when sharing? Example Prescott Asset Management field named GBLINK.

Known field schema's

Data Schema Changes

- ▶ Old data schema being changed for NG911 datasets
 - ▶ Street Centerlines
 - ▶ Addresses
 - ▶ PSAP Boundaries
 - ▶ Emergency Service Boundaries
- ▶ This includes addition of new fields, renaming of old fields to standardized name, and introducing new required data type and field widths

Street Centerline Schema (NENA)

Descriptive Name	Field Name	M/C/O	Type	Field Width
Discrepancy Agency ID	DiscrpAgID	M	P	75
Date Updated	DateUpdate	M	D	-
Effective Date	Effective	O	D	-
Expiration Date	Expire	O	D	-
Road Centerline NENA Globally Unique	RCL_NGUID	M	P	254
Left Address Number Prefix	AdNumPre_L	C	P	15
Right Address Number Prefix	AdNumPre_R	C	P	15
Left FROM Address	FromAddr_L	M	N	6
Left TO Address	ToAddr_L	M	N	6
Right FROM Address	FromAddr_R	M	N	6
Right TO Address	ToAddr_R	M	N	6
Parity Left	Parity_L	M	P	1
Parity Right	Parity_R	M	P	1
Street Name Pre Modifier	St_PreMod	C	E	15

Street Name Pre Directional	St_PreDir	C	P	9
Street Name Pre Type	St_PreTyp	C	E	50
Street Name Pre Type Separator	St_PreSep	C	E	20
Street Name	St_Name	M	E	60
Street Name Post Type	St_PosTyp	C	E	50
Street Name Post Directional	St_PosDir	C	P	9
Street Name Post Modifier	St_PosMod	C	E	25
Legacy Street Name Pre Directional*	LSt_PreDir	C	P	2
Legacy Street Name*	LSt_Name	C	P	75
Legacy Street Name Type*	LSt_Type	C	P	4
Legacy Street Name Post Directional*	LSt_PosDir	C	P	2
ESN Left*	ESN_L	C	P	5
ESN Right*	ESN_R	C	P	5
MSAG Community Name Left*	MSAGComm_L	C	P	30
MSAG Community Name Right*	MSAGComm_R	C	P	30
Country Left	Country_L	M	P	2
Country Right	Country_R	M	P	2
State Left	State_L	M	P	2
State Right	State_R	M	P	2
County Left	County_L	M	P	40
County Right	County_R	M	P	40
Additional Code Left	AddCode_L	C	P	6
Additional Code Right	AddCode_R	C	P	6
Incorporated Municipality Left	IncMuni_L	M	E	100
Incorporated Municipality Right	IncMuni_R	M	E	100
Unincorporated Community Left	UnincCom_L	O	E	100
Unincorporated Community Right	UnincCom_R	O	E	100
Neighborhood Community Left	NbrhdCom_L	O	E	100
Neighborhood Community Right	NbrhdCom_R	O	E	100
Postal Code Left	PostCode_L	O	P	7
Postal Code Right	PostCode_R	O	P	7
Postal Community Name Left	PostComm_L	O	P	40
Postal Community Name Right	PostComm_R	O	P	40
Road Class	RoadClass	O	P	15
One-Way	OneWay	O	P	2

Site Address Schema (NENA)

Descriptive Name	Field Name	M/C/O	Type	Field Width
Discrepancy Agency ID	DiscrpAgID	M	P	75
Date Updated	DateUpdate	M	D	-
Effective Date	Effective	O	D	-
Expiration Date	Expire	O	D	-
Site NENA Globally Unique ID	Site_NGUID	M	P	254
Country	Country	M	P	2
State	State	M	P	2
County	County	M	P	40
Additional Code	AddCode	C	P	6
Additional Data URI	AddDataURI	C	U	254
Incorporated Municipality	Inc_Muni	M	E	100

Descriptive Name	Field Name	M/C/O	Type	Field Width
Unincorporated Community	Uninc_Comm	O	E	100
Neighborhood Community	Nbrhd_Comm	O	E	100
Address Number Prefix	AddNum_Pre	C	P	15
Address Number	Add_Number	C	N	6
Address Number Suffix	AddNum_Suf	C	P	15
Street Name Pre Modifier	St_PreMod	C	E	15
Street Name Pre Directional	St_PreDir	C	P	9
Street Name Pre Type	St_PreTyp	C	E	50
Street Name Pre Type Separator	St_PreSep	C	E	20
Street Name	St_Name	C	E	60
Street Name Post Type	St_PosTyp	C	E	50
Street Name Post Directional	St_PosDir	C	P	9
Street Name Post Modifier	St_PosMod	C	E	25
Legacy Street Name Pre Directional*	LSt_PreDir	C	P	2
Legacy Street Name*	LSt_Name	C	P	75
Legacy Street Name Type*	LSt_Type	C	P	4
Legacy Street Name Post Directional*	LSt_PosDir	C	P	2
ESN*	ESN	C	P	5
MSAG Community Name*	MSAGComm	C	P	30
Postal Community Name	Post_Comm	O	P	40
Postal Code	Post_Code	O	P	7
ZIP Plus 4	Post_Code4	O	P	4
Building	Building	O	P	75
Floor	Floor	O	P	75
Unit	Unit	O	P	75
Room	Room	O	P	75
Seat	Seat	O	P	75
Additional Location Information	Addtl_Loc	O	E	225
Complete Landmark Name	LandmkName	C	E	150
Mile Post	Mile_Post	C	P	150
Place Type	Place_Type	O	P	50
Placement Method	Placement	O	P	25
Longitude	Long	O	F	-
Latitude	Lat	O	F	-
Elevation	Elev	O	N	6

What's expected of you?

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Left FROM Address	FromAddr_L	M	N	6
Left TO Address	ToAddr_L	M	N	6
Right FROM Address	FromAddr_R	M	N	6
Right TO Address	ToAddr_R	M	N	6
Parity Left	Parity_L	M	P	1
Parity Right	Parity_R	M	P	1
Street Name Pre Modifier	St_PreMod	C	E	15

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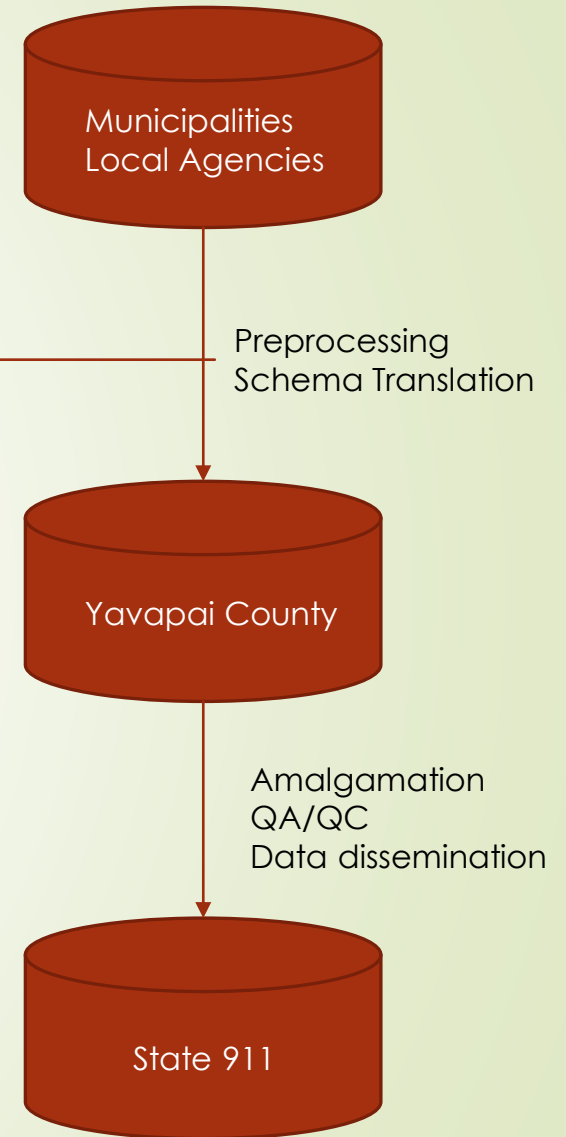
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Reduces translation error

▶ Increases update/integration efficiency

▶ County can preprocess data updates to match NENA schema if it is not possible for data schemas to be changed.

▶ Helpful to have documentation on data schema for these feature classes to help with schema mapping and translation prior to updating



Field Domains

Definition of Domain: a **declaration of acceptable attribute values**

ESRI Documentation about Domains: ***Domains allow you to model specific values to be used on the fields in your layers. They offer a way to enforce data integrity in your data model by restricting the input on any particular field to a list or range of valid values.***

1. Are there Domains that are used that we should be sharing?
2. Are there specific domains that everyone should have a copy?

Field Domains

- ▶ The county will keep and maintain domain tables for all major street name fields, generated from the current existing data
- ▶ Domains are generated nightly
- ▶ These domains will be used in external web editors and/or can be provided through the NG911 Utility or by request

Bottom Line:

Domains = Data Integrity

VAL	LEGACY
AVENUE	AVE
BOULEVARD	BLVD
CANYON	CYN
CIRCLE	CIR
COURT	CT
COVE	CV

GALENA	
SACRED	<Null>
PARKER	AVENUE
	BOULEVARD
	CANYON
	CIRCLE

◀ ▶ 0 of 5,702 selected



How are Unique ID's being used in a NG911 system



What types of unique ID systems are being used throughout the county?

Unique ID's

Global Unique ID (GUID)

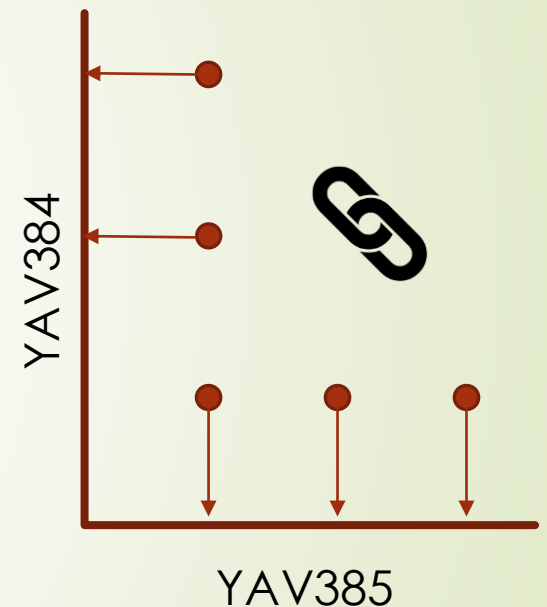
- Generated by ArcGIS
- Used in automated processes such as replication and QA/QC

ZoneCode	LOT	GUID
3	79	{E26094A2-ED4F-4997-A715-EBDB51C8A5E9}
3	66	{C0C75D5F-A7A5-4800-95F6-4D8CA318776A}
3	66	{CF31CDBF-1CEA-4F88-AA3D-660E4946EF1C}
2	74	{3DF65E67-2971-493B-A811-1B22789720F0}
3	66	{B919E40D-D300-461A-A3CB-64A77209EAD1}
3	66	{236B7AB3-09AE-43C7-874E-D6A60DBDE71C}
3	66	{98511D3E-E09D-4AF6-B4E5-F80F7FC78C12}
2	140	{471A7F77-9D69-435F-B151-E5EDBF772C09}
3	82	{09F3FC3B-D351-468F-B1BC-3CC1775C60C5}
3	78	{018739D4-6CBD-491F-A08E-69AE87457F41}

Unique IDs – External Street and Routing Keys

- ▶ String field used for QA/QC, data updates, address-centerline linkages, spatial queries via table
- ▶ Updates and creation handled by user
- ▶ Format: CITYCODE + Unique Integer

YAV + 384 = YAV384



Unique IDs – NG911 Unique ID's

- NG911 Workflows will be utilizing 2 different unique IDs
 - NENA Globally Unique ID
 - Used to stitch together state datasets

{feature}YAV384@yavapai911.az.gov

- County NGUID
 - Used in Master Table Processes (covered in future workflows)

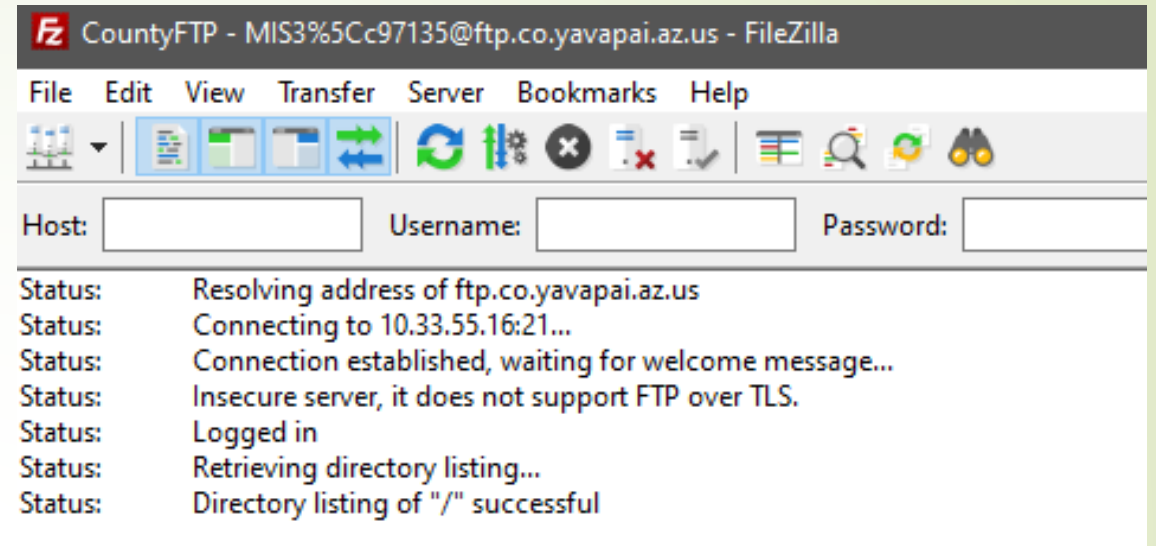
Sharing Data Across Agencies

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➔ Use County FTP Server

➔ Use Office 365/SharePoint File Transfer * (not automated)

➔ ArcGIS Online Collaboration (new option that has not been setup or tested)



Collaborations

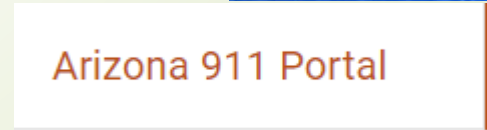
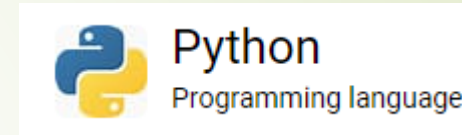
Partnered

Partnered collaborations allow ArcGIS Online organizations to work closely and securely with each other in groups. In order to work in this way, you must establish a partnered collaboration with each organization.

Quality Assurance / Quality Control

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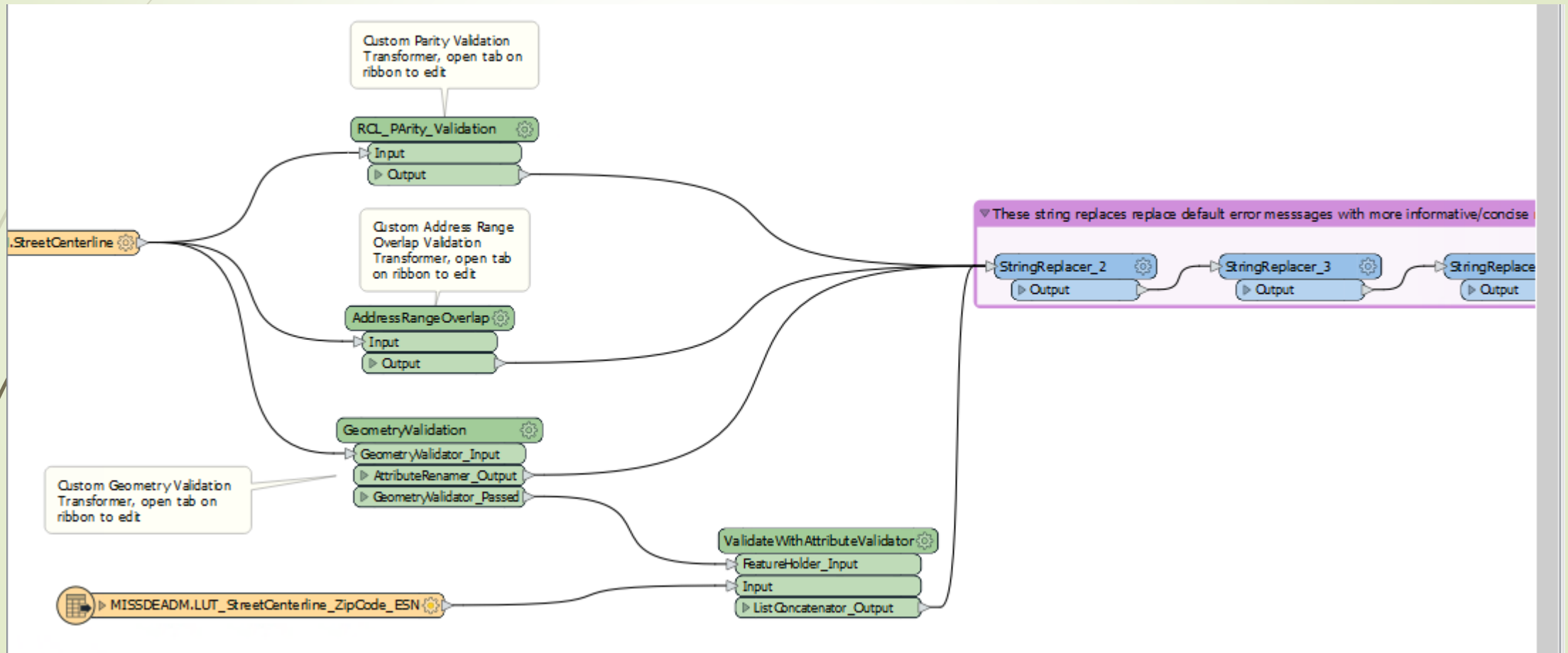
- What is the history for quality assurance and quality control within the County?
- Visual
- Python scripting
- MapSAG, ArcMap Add-in used through 2019
- AZ Geospatial Intake and Validation (AZGIV's)
- FME
- 1Spatial 1Data Gateway



Quality Assurance / Quality Control

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- Does everyone have any internal validations, checks? (Script, manual check list, geometry and attribute review)



1Spatial 1Data Gateway

- ▶ What is 1Spatial 1Data Gateway?
 - ▶ Next Generation 9-1-1 data providers to submit data for validation and aggregation into the statewide Next Generation 9-1-1 enterprise database.
- ▶ Can I access 1Data Gateway?
 - ▶ Yes, you will need an AZGEO account and State 911 Office assign you roles.
- ▶ What does the User Interface look like?
- ▶ Future meeting or one-on-one off-line.

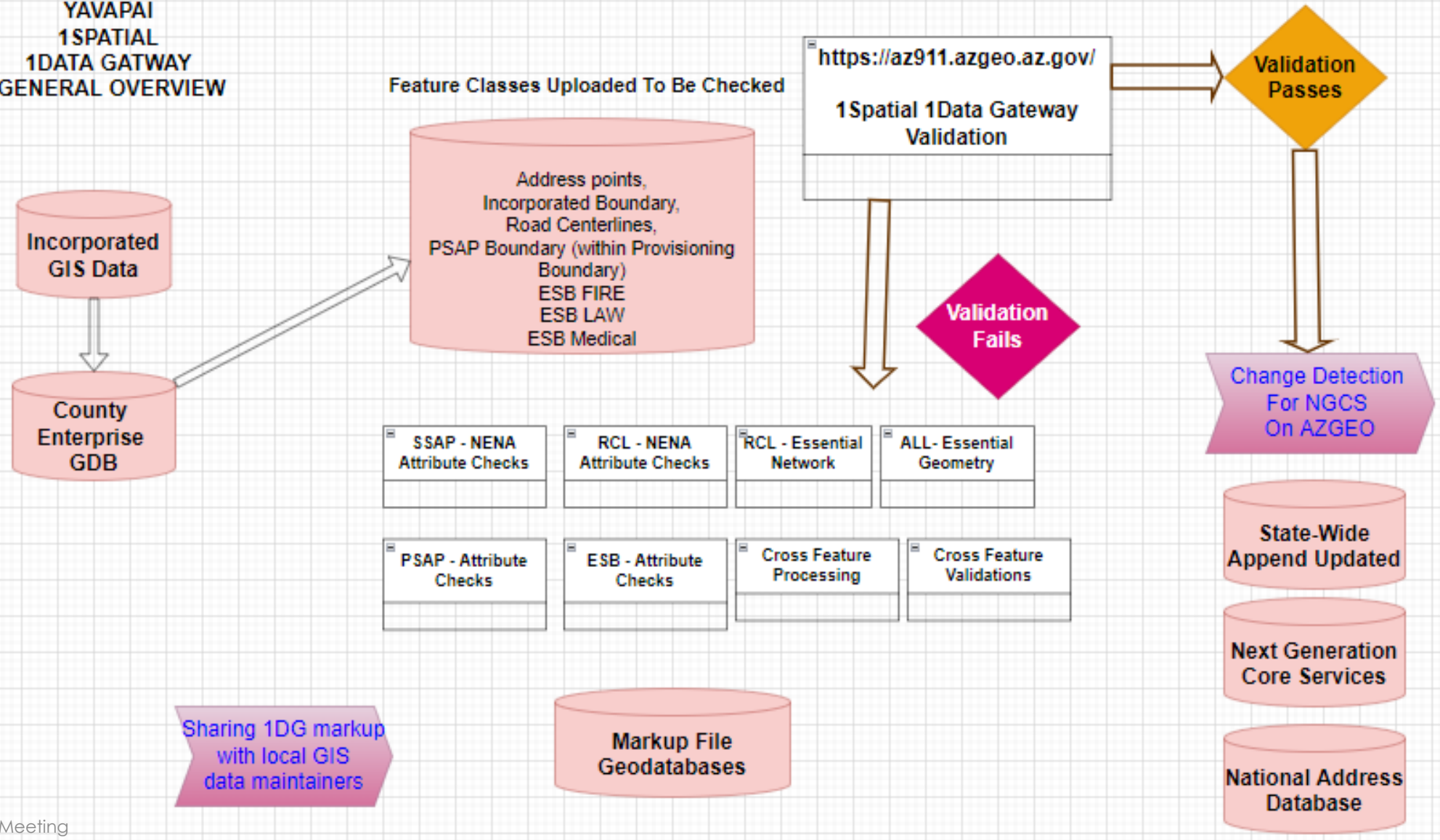
- ▶ RCL - Boundary
- ▶ RCL - Essential Geometry
 - ▶ 97.gdb
 - ▶ Markup_Line
 - ▶ Markup_Point
 - ▶ Markup_Summary
- ▶ RCL - Essential Network
- ▶ RCL - NENA Attribute
- ▶ RCL - RCL
- ▶ SAP - Essential Geometry
- ▶ SAP - NENA Attribute
- ▶ SAP - RCL
- ▶ SAP - SAP

1Spatial 1Data Gateway QAQC

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YAVAPAI 1SPATIAL 1DATA GATWAY GENERAL OVERVIEW

1Data Gateway is the web application that have more than 10 validation checks for NENA standards.



County Data Validation Issues

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NENA require fields must be populated for Address, Roads, Service boundary, & Public Safety Answer Point (PSAP) boundary.

Mandatory fields must not be empty. * Refer to the NG9-1-1 GIS Data Model **NENA-STA-006.1.1-2020**

- Address & Roads fields (County, State, Country) must not be empty. (Review National Address Database report from US Department of Transportation)
- Address & Roads Incorporated Municipality field must not be empty. If not incorporated value must be "Unincorporated".
- Service boundary invalid URIs, unknown URI, or URI is missing.

County Data Validation Issues

- Common error found in FME and in 1Data Gateway

CITY OF PRESCOTT

Feat_ID	Violation	OBJECTID *	SHAPE *
RCLPRE5782@YAVAP...	05 - Check for Overlaps	6	Point
RCLPRE5786@YAVAP...	05 - Check for Overlaps	9	Point



Markup_Point x 1Data Gateway – Reported Missing Intersection

Feat_ID	Severity	Violation
RCLWIC143@YAVAPA...	<Null>	04 - Check for Touch Intersection

Click to add new row.

Pwk Street Centerlines NTSQL19 x FME REPORT – NO ERROR REPORTED

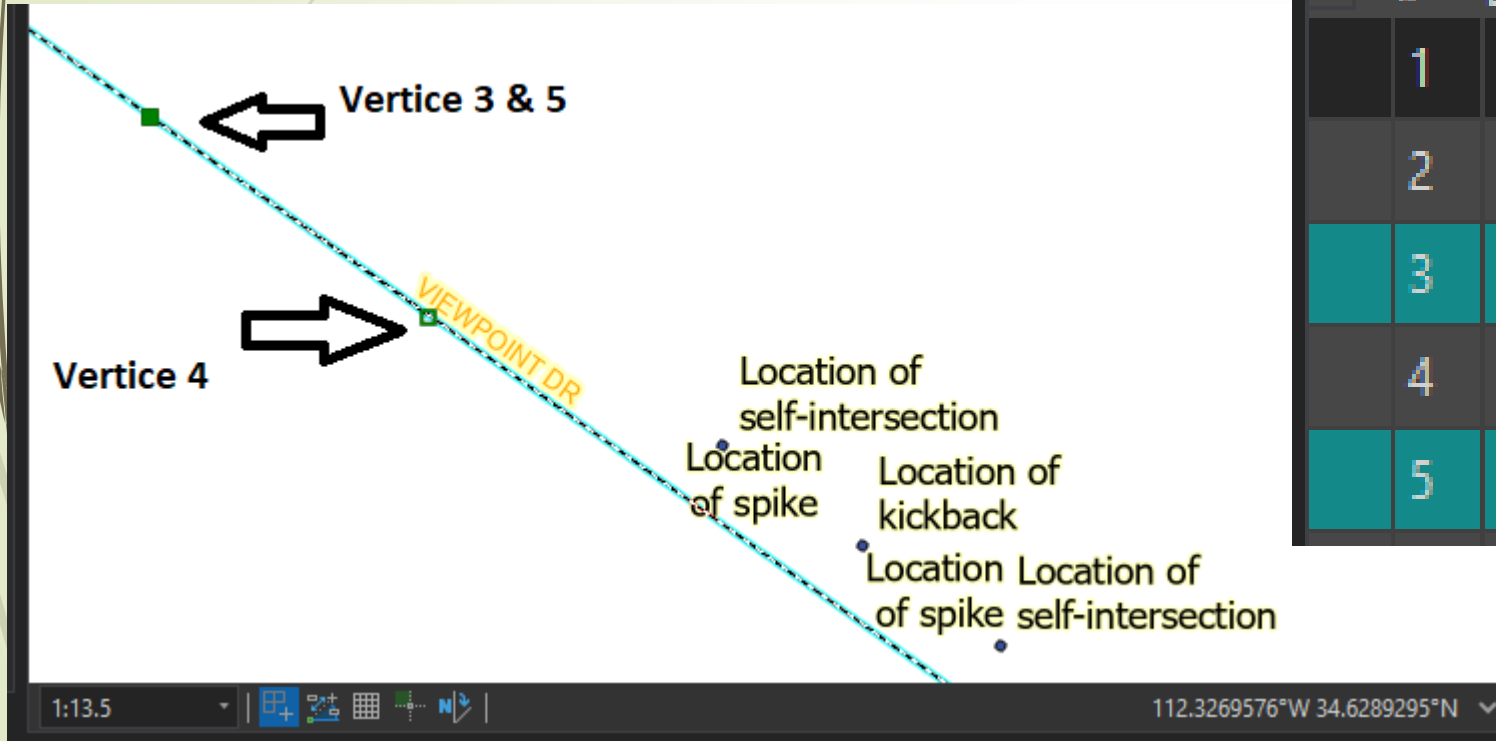
date	Shape *	GlobalID	ERROR_LIST	Shape.STLength0
12:51:00 PM	Polyline	<Null>	<Null>	571.590028

Click to add new row.

Data Validation Issues

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Topology Rules & RCL Essential Geometry Markup

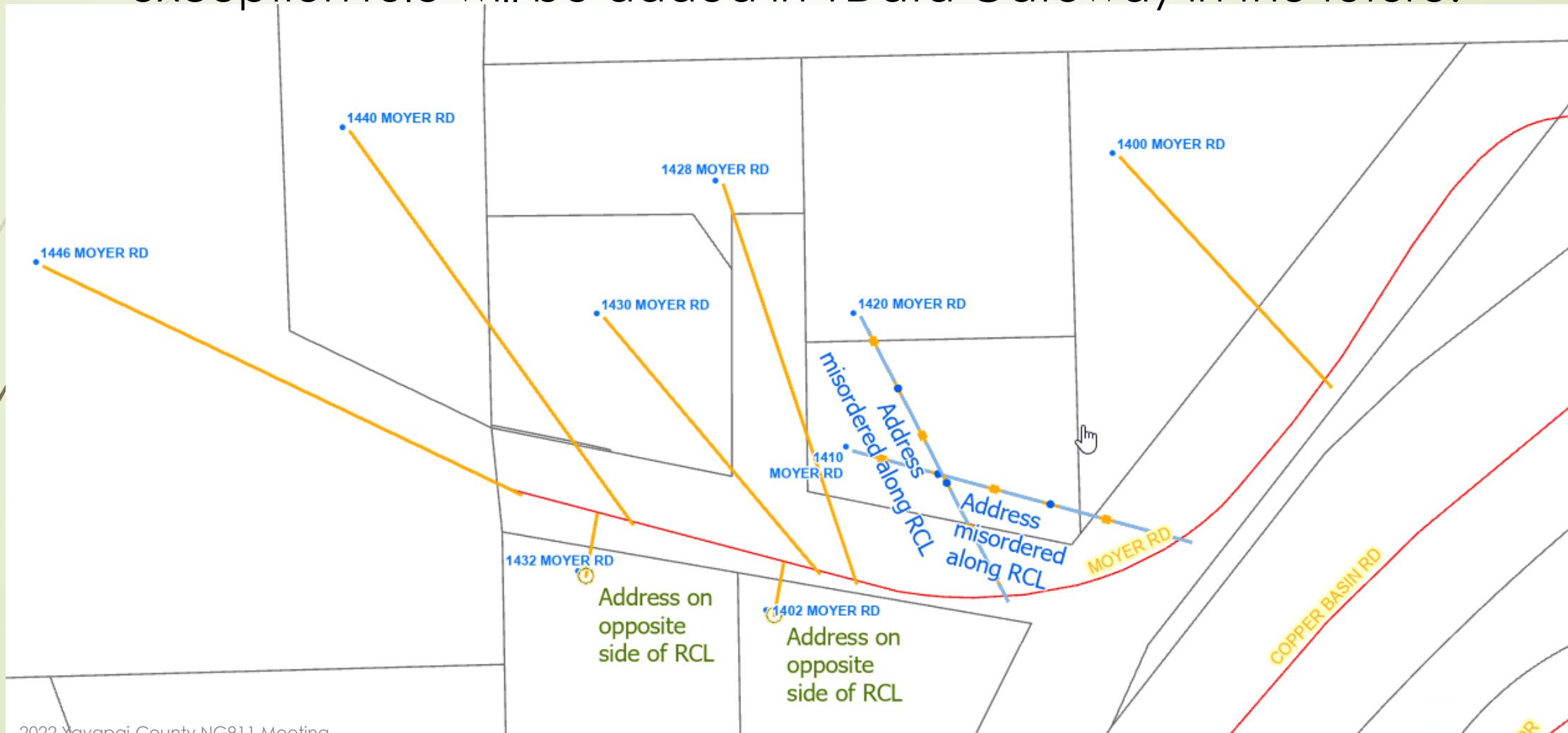


#	Longitude (dd)	Latitude (dd)
1	112.3262997°W	34.6285338°N
2	112.3269343°W	34.6289041°N
3	112.3269895°W	34.6289363°N
4	112.3269841°W	34.6289332°N
5	112.3269895°W	34.6289363°N

Data Validation Issues

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- Address on opposite side of RCL - Some cannot be changed, exception rule will be added in 1Data Gateway in the future.



GIS Gap Analysis Findings

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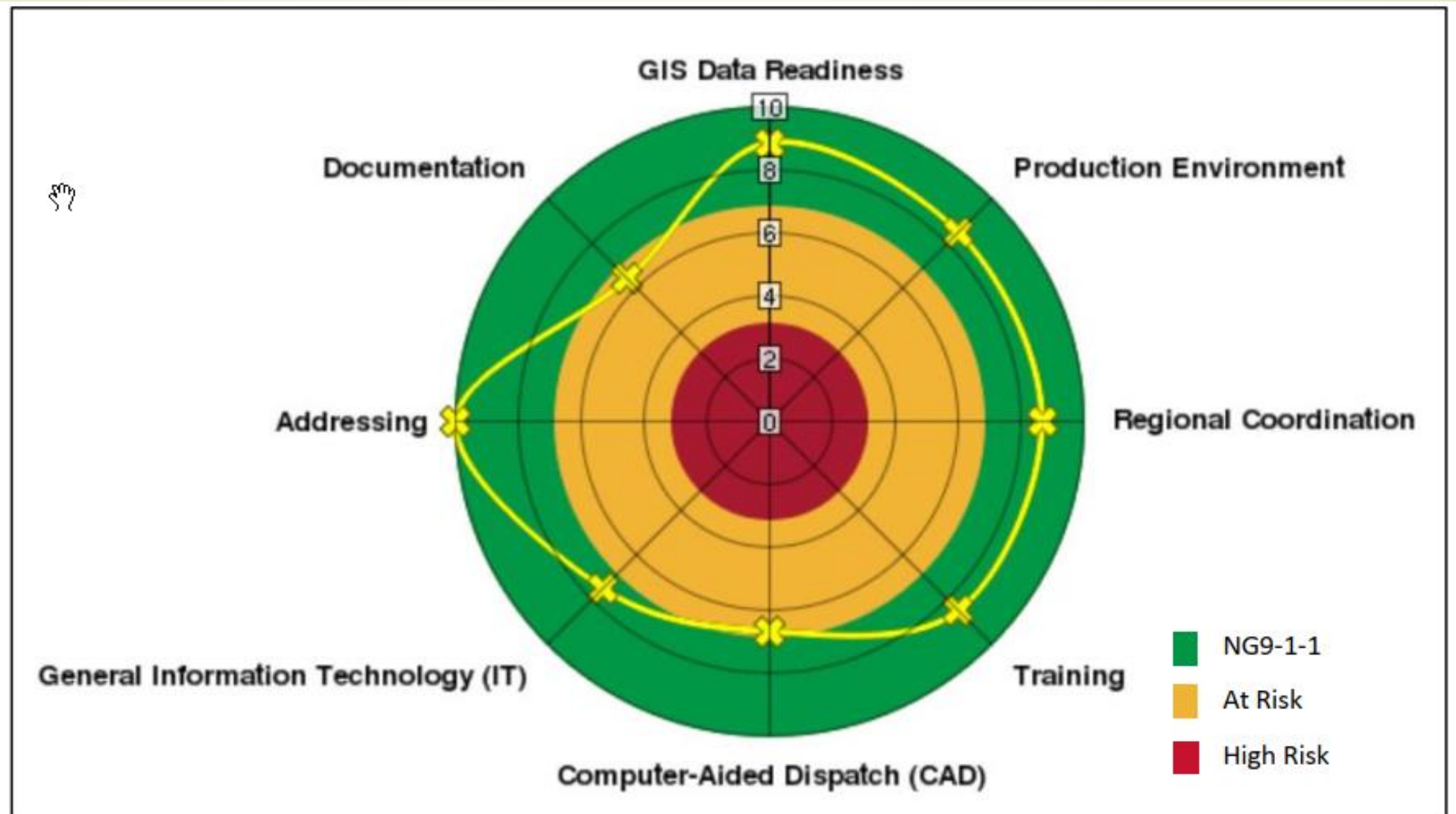


Figure 4: Overall MAPS Score

GIS Gap Analysis Findings

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Expected results of change after being implemented.

1. Strategic plan new goals/focus.
2. Involve dispatch supervisors.
3. More conversations with all GIS Data providers.
4. Improved error reporting and sharing.
5. Create Service Level Agreements to meet 72-hour standard.
6. Cleanup current MSAG table.
7. GIS data validation.
8. Granular location information, sub-addressing or indoor mapping.
9. Next Generation fields in local schema.
10. Simple document of monthly tasks/goals & testing.



NG911

QAQC Wrap up

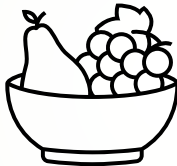
What is the County doing internally?

FME Workspaces (Screenshot on another slide)

Python Scripts (outline of what is being checked)

Miss any other internal County process?

BREAK TIME 20 MINUTES



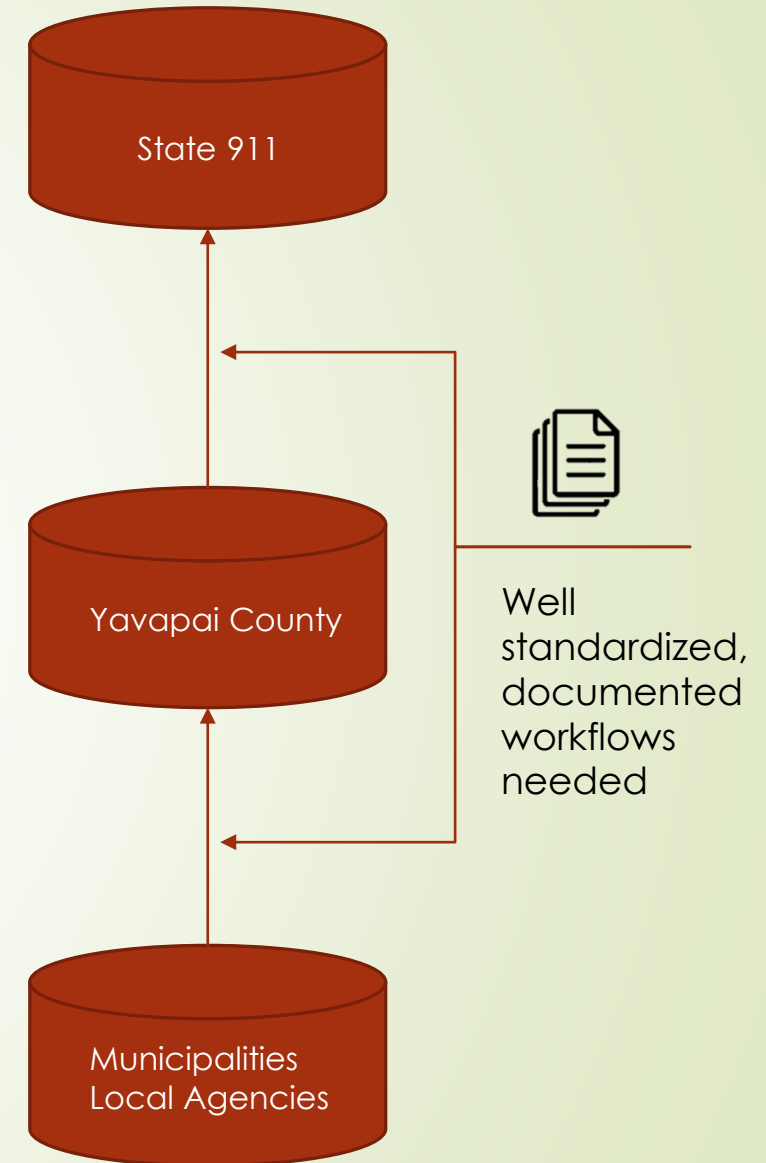
Future Workflow

Purpose!!!

Data updates will need to propagate from the local level all the way up to the State/Federal level. Maintaining data accuracy relies on bottom-up approach.

Happy State = Happy GIS 😊

State requiring more frequent updates for NG911 & Consequences



NG911 Master Tables

➔ What are they?

ST_PREMOD	ST_PREDIR	ST_PRETYPE	ST_PRESEP	ST_NAME	ST_POSTYPE	ST_SUFDIR	ST_POSMOD	NGFULLSTNAME	NGUID
				HILLTOP	ROAD			HILLTOP ROAD	NGYAV1
	NORTH			SOARING HAWK	LANE			NORTH SOARING HA...	NGYAV2
	WEST			MANDALA	LANE			WEST MANDALA LANE	NGYAV3
				CROWN RIDGE	ROAD			CROWN RIDGE ROAD	NGYAV4
	NORTH			FOREST SERVICE ROA...				NORTH FOREST SERV...	NGYAV5
	SOUTH			FOREST SERVICE ROA...				SOUTH FOREST SERV...	NGYAV6
	SOUTH			RIVER VIEW	LANE			SOUTH RIVER VIEW L...	NGYAV7
	SOUTH			MT TRITLE	ROAD			SOUTH MT TRITLE R...	NGYAV8
	EAST			BOYNTON PASS				EAST BOYNTON PASS	NGYAV9
				FS9899N				FS9899N	NGYAV10
				FS103				FS103	NGYAV11
	EAST			TRANSWESTERN	TRAIL			EAST TRANSWESTER...	NGYAV12
	NORTH			KOOLRIDGE	WAY			NORTH KOOLRIDGE...	NGYAV13
	NORTH			OAK FOREST	DRIVE			NORTH OAK FOREST...	NGYAV14
	WEST			CHAIN RANCH	ROAD			WEST CHAIN RANCH...	NGYAV15
	NORTH			SPRUCE	DRIVE			NORTH SPRUCE DRIVE	NGYAV16

- Table for each agency
- **Remember the County NGUID?**
- Address and Centerline street attribution can now be relationally linked via the NGUID
- Also contains legacy fields
- Used for generating field domains
- **Standardization!**

ST_PREMOD	ST_PREDIR	ST_PRETYPE	ST_PRESEP	ST_NAME	ST_POSTYPE	ST_SUFDIR	ST_POSMOD
				HILLTOP	ROAD		
	NORTH			SOARING HAWK	LANE		
	WEST			MANDALA	LANE		

How can future updates proceed?



By periodic updates

- Tables and feature classes sent to the county either through FTP or email
- Mandatory NG911 fields should be included
- Matching names, data type, and field width are highly recommended, but can be pre processed prior to updates if needed

Centerlines: Prescott, Prescott Valley, Cottonwood, Clarkdale, Sedona
Addresses: Prescott, Prescott Valley



Through online web applications, provided by county

- Current street and address web editing applications will be updated to fit NG911 schema
- NG911 Utility
- Master Table Changes
- View Data QA/QC ticketing system

Centerlines: Camp Verde, Chino Valley
Addresses: Cottonwood, Clarkdale, Sedona

NG911 Utility – Master Table/Edits

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Admin NG911 Utility

Admin Logout

Find address or place

Editor

- Edit feature >
- Add feature >

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Master Table Entries

MAIN STREET, NGCLK5

Pending Changes

A: EAST SPRING CREEK RANCH ROAD , COT

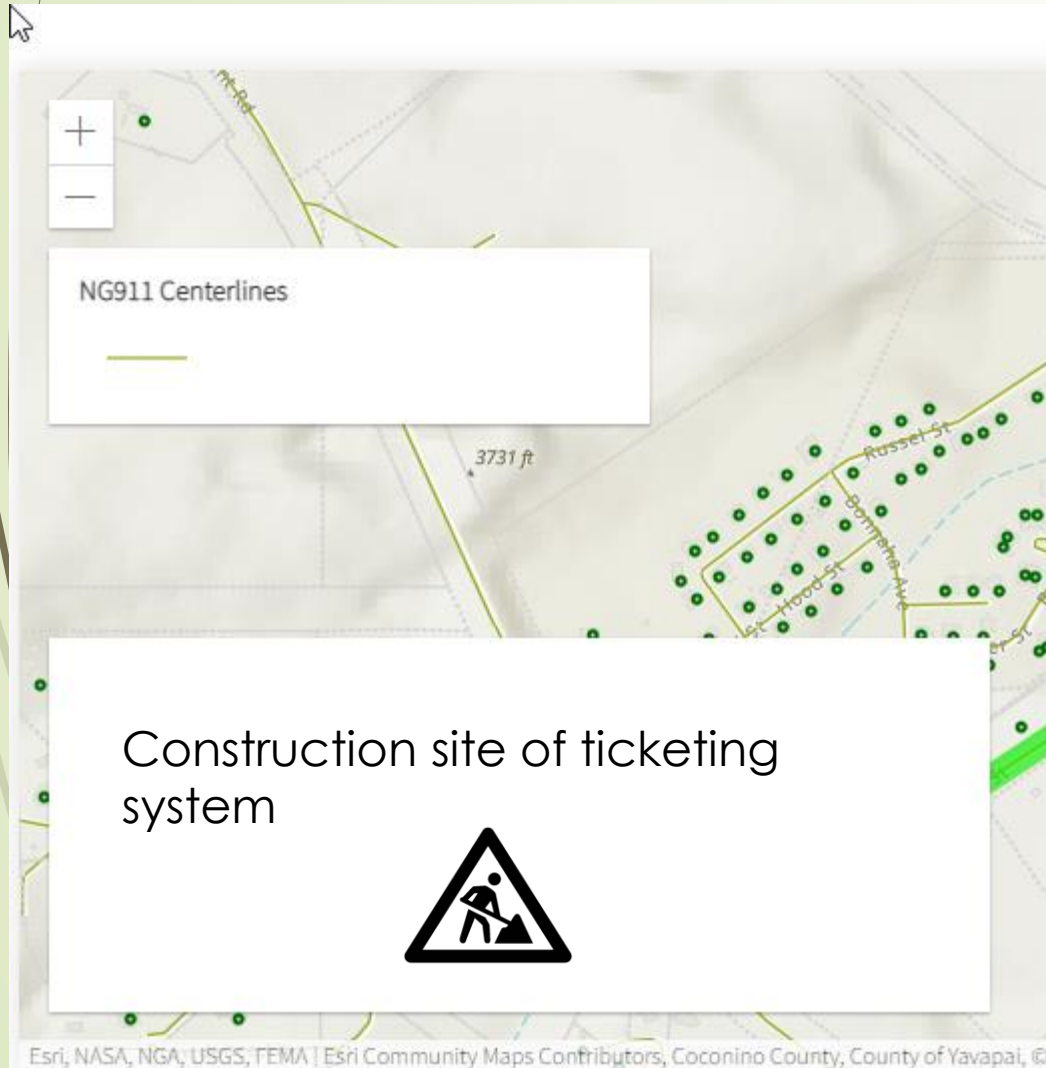
NG911 Street Name:

Submit Add

Domain Type

- Both
- Multi-Jurisdictional
- Single

NG911 Ticketing System



- Provides web service of QA/QC details run by county
- End user can interact with, download, and edit tickets
- Edits can be made directly to addresses and centerlines through application

Where do you fit in?



Unique ID's
NG911 Master tables
Update workflows

Future improvement in collaboration

- ▶ How can we all cooperate better to reach the end goal?
 - ▶ Any current areas of weakness that we need to work on?

Wrap-up

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- Updated County address editor application coming soon.
- Statewide workflow future meeting
 - What is working?
 - What is not working?
 - Plans at the State Level that may affect you.

Wrap-up - Next meeting

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➤ Things to remember:

- Yavapai County PSAP Cutover to Next Generation Core Services August 2023.

Arizona NG9-1-1 Imp

AZ Next Gen Core

PSAP: Prescott Regional
Comm Center
Estimated Cutover Date:
9/25/2023
478 Days Till NG Cutover

PSAP: Yavapai County
Sheriffs Office
Estimated Cutover Date:
9/26/2023
479 Days Till NG Cutover

PSAP: Camp Verde Marshalls
Office
Estimated Cutover Date:
9/27/2023
480 Days Till NG Cutover

PSAP: Cottonwood Police
Department
Estimated Cutover Date:
9/28/2023
481 Days Till NG Cutover

PSAP: Sedona Police
Department
Estimated Cutover Date:
9/29/2023
482 Days Till NG Cutover

List

Map

Agenda Exercise

- ▶ How many address/street errors can you find?
 - ▶ **9!**