GeoComm

State of South Dakota

DIMES Users Guide

State of South Dakota

Data Integration Management System

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Users Guide Overview

The State of South Dakota (SD) Database Integration Management System (DIMES) managed services include the development of project specific workflows, standard operating procedures (SOPs), and informational documentation on operational processes and procedures including tools to facilitate discrepancy resolution and data quality improvements.

The SD DIMES website offers a common landing page from which to access the mechanisms to complete the following:

- upload datasets,
- download the statewide DIMES dataset,
- view and interact with the DIMES map,
- download detailed quality control check results,
- download Geographic Information Systems (GIS) data to Master Street Address Guide (MSAG) and Automatic Location Identification (ALI) database synchronization check results, and
- mark Authoritative Boundary adjustment needs through GeoLynx Server Change Requests

Software specific procedural instructions and help files are maintained through the specific software's WebHelp files.

- Below are links to access the SD DIMES website and software specific WebHelp files.SD DIMES website
- GeoLynx Server GIS Portal WebHelp
- GeoLynx Server Map Viewer WebHelp
- GeoLynx Server Map Tools WebHelp
- GeoLynx Server Web DMS WebHelp
- GeoLynx Server Change Requests WebHelp

  Note: To access GeoLynx DMS Discrepancy Viewer help files click the  button in the product's toolbar.

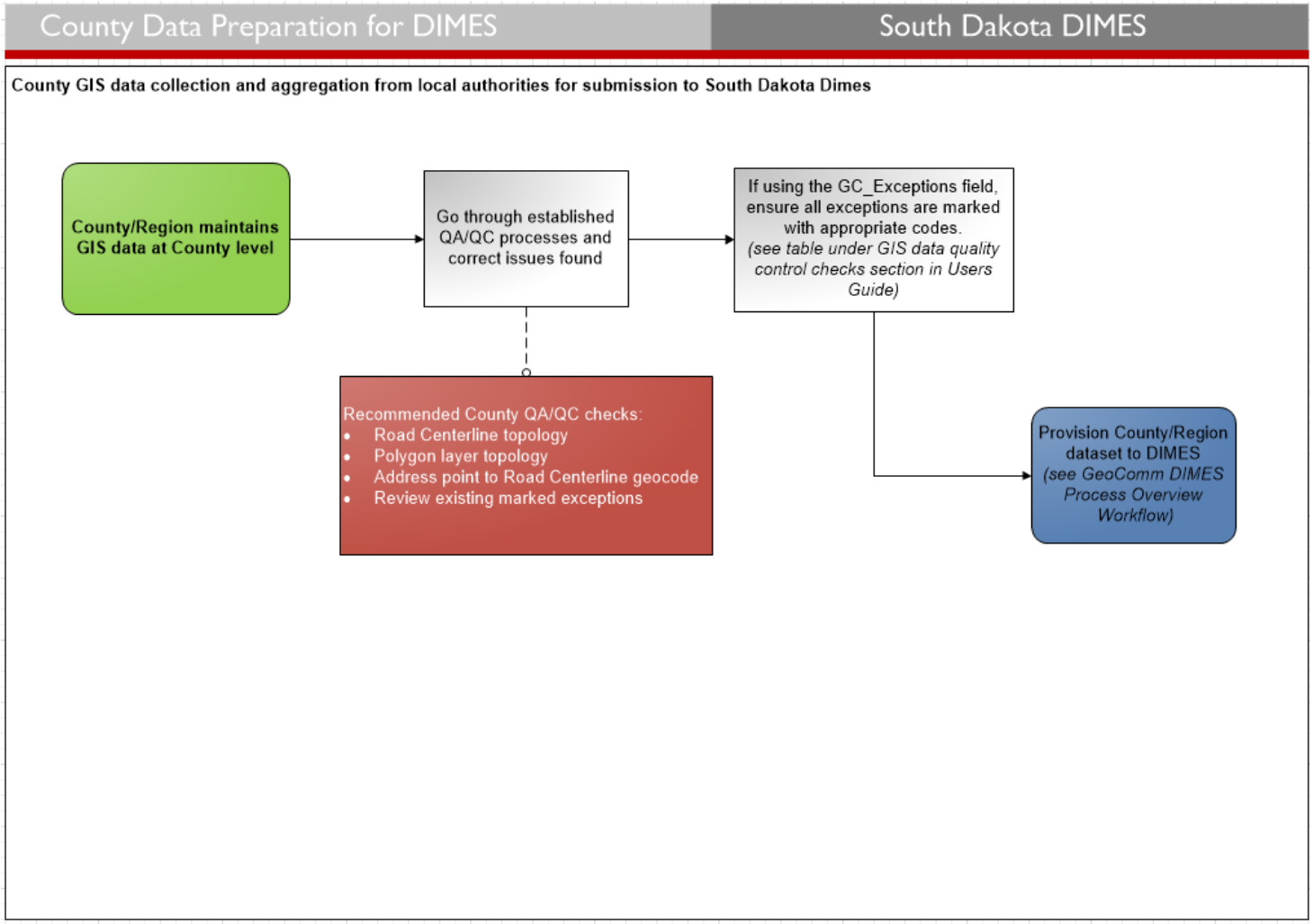
To request a new user access account for GeoLynx Server, request an end user form from the SD State 9-1-1 Coordinator. After filling it out, submit the end user form to the SD State 9-1-1 Coordinator for review and approval. Once approved, SD will pass the form on to GeoComm to create the new user account and provide access information to the requestor.

Workflows

The DIMES workflows that follow are intended to provide guidance through each part of the DIMES process, from GIS data maintenance and quality improvement at the local level to submission into the DIMES by each source entity, to extraction of the statewide dataset. Additional information about the QA/QC check results and guidance on improving GIS data for the DIMES is found in subsequent sections.

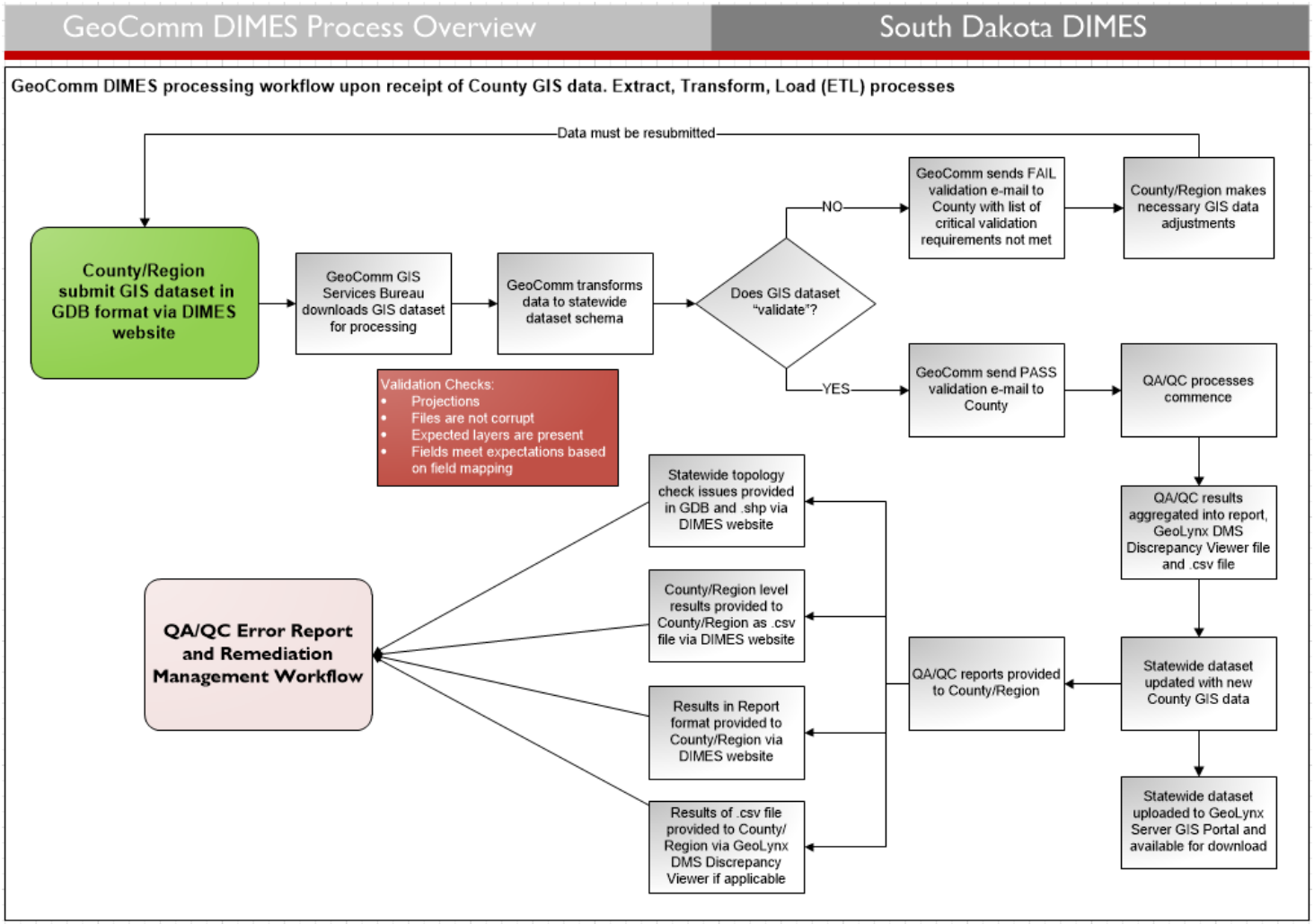
County Data Preparation for DIMES

The diagram below details the source entity GIS data collection preparation and aggregation from local authorities for submission to the DIMES. Whether the data is provided as a regional dataset or as individual counties, the data schema needs to match that of the submitted field mapping spreadsheet to ensure successful data validation in the Extract, Transform, and Load (ETL) processes performed as part of the DIMES managed service.



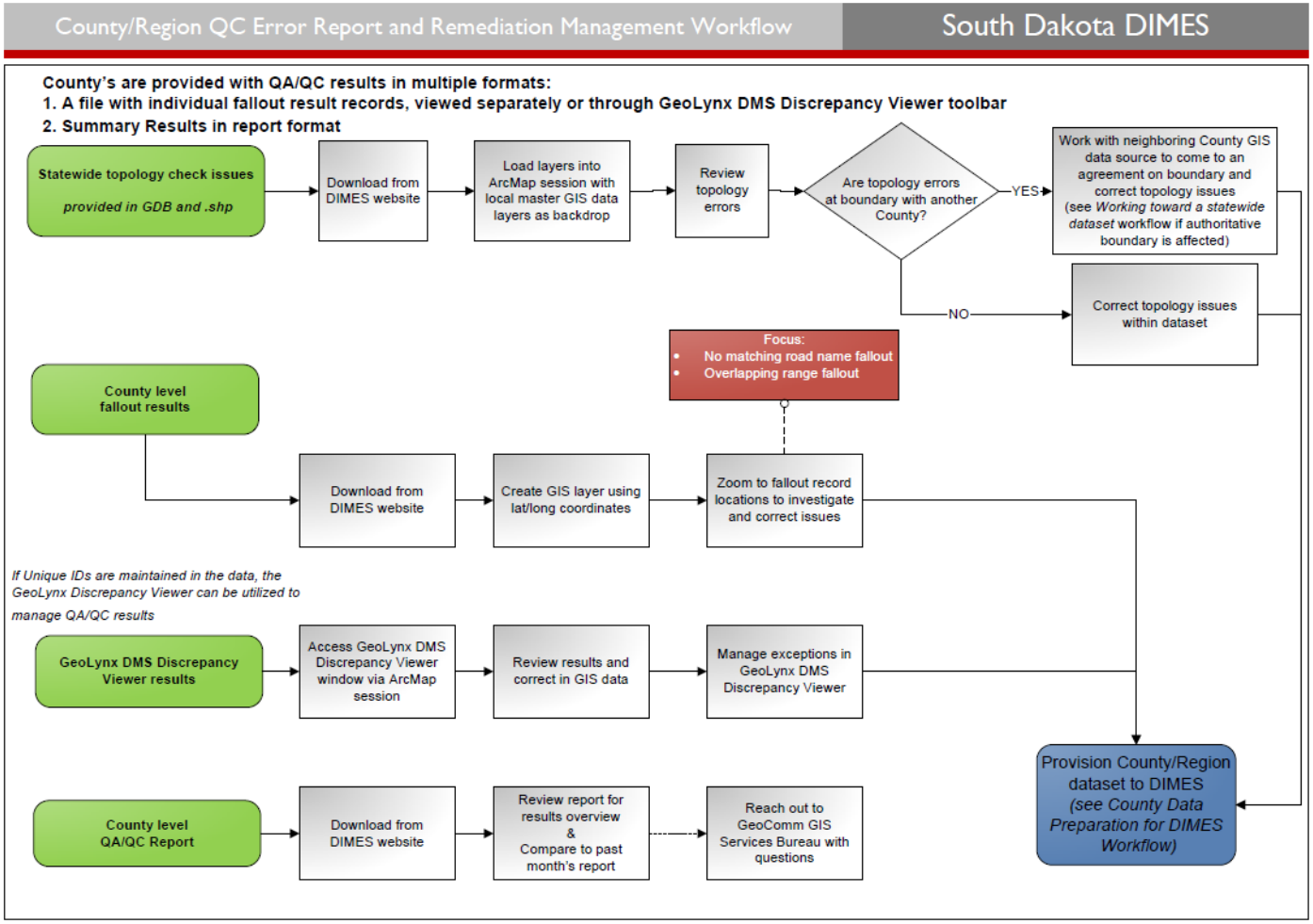
GeoComm DIMES Process Overview

The diagram below details the DIMES managed service process from receiving the GIS datasets submitted by source entities to processing the datasets and running quality control checks. It also depicts the different mechanisms in which the quality control check results are communicated back to the submitting entities.



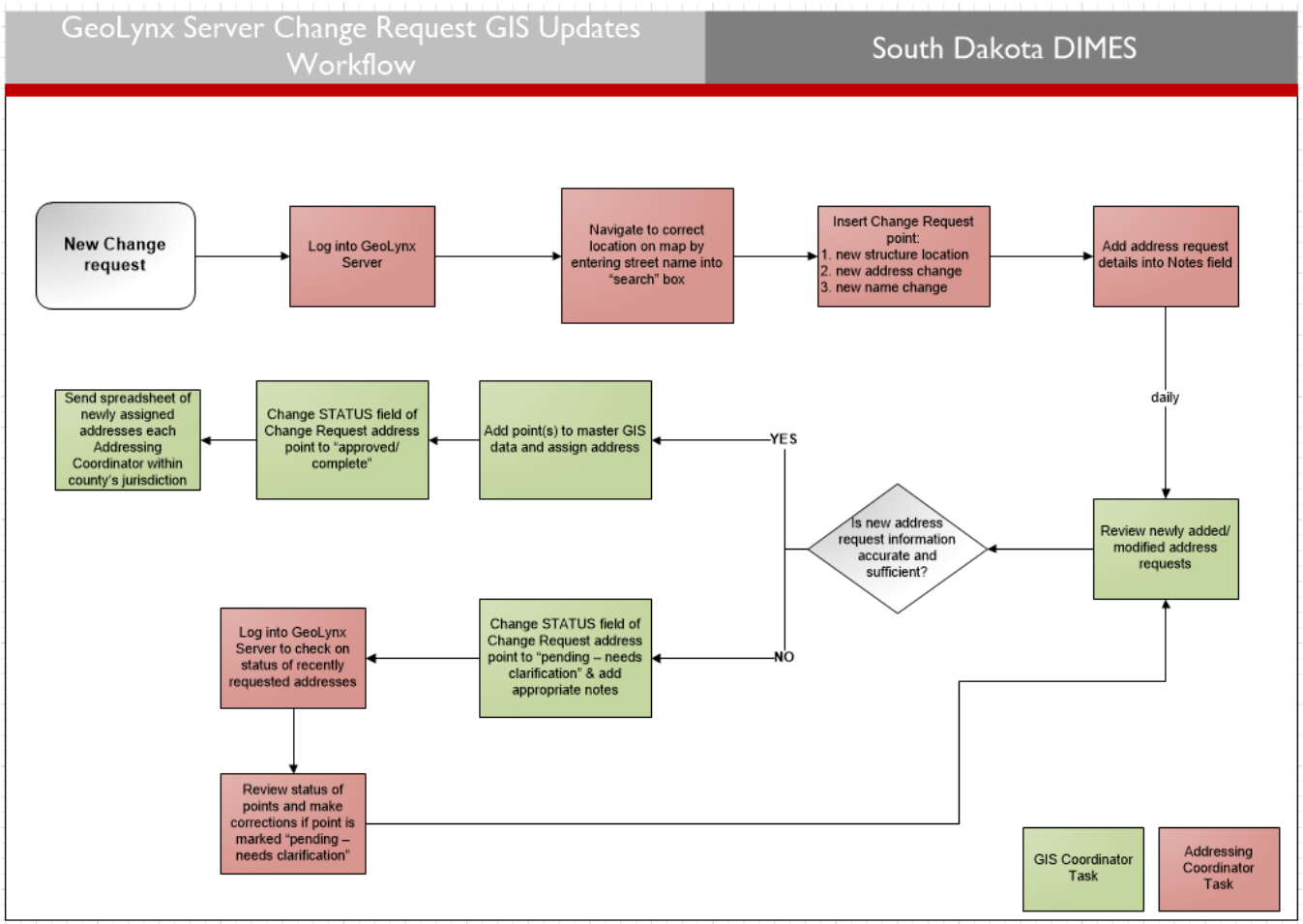
County/Region QC Error Report and Remediation Management Workflow

The diagram below details the workflow for source GIS entity retrieval, review, and resolution of quality control discrepancies reported by the DIMES managed service through GeoLynx DMS Discrepancy Viewer, or by loading a .csv file or shapefile into an ArcMap session. The statewide topology check results, polygon gaps and overlaps, are provided in a file geodatabase and shapefile.



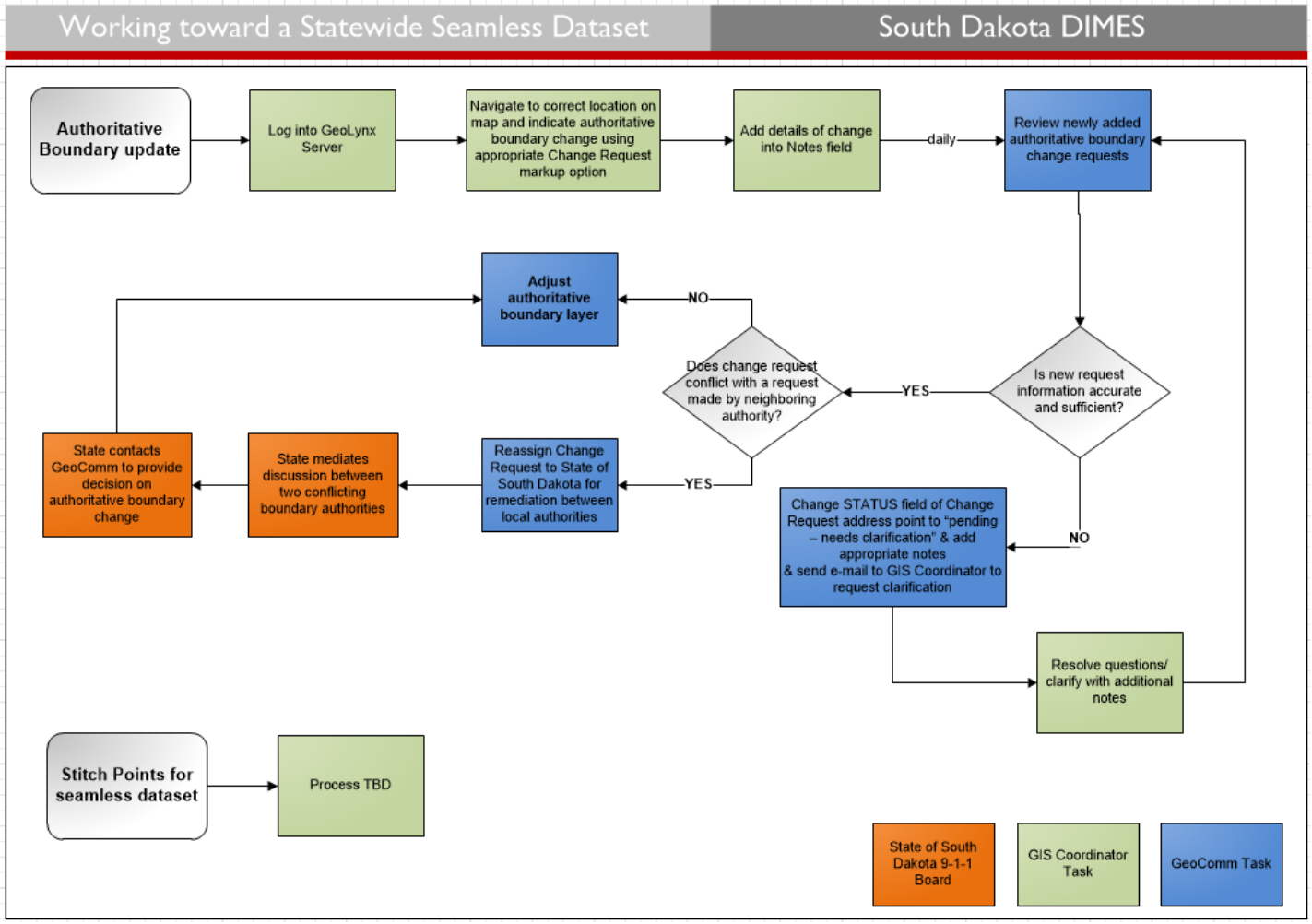
GeoLynx Server Change Request GIS Updates Workflow

The diagram below details the workflow for the Addressing Coordinator(s) to submit a new address or change request to the county GIS Coordinator through the Change Request module in GeoLynx Server. The Change Request module allows an Addressing Coordinator to log into GeoLynx Server and submit a new address or change request which then gets passed onto the GIS Coordinator to review and apply the new address to the county's address point layer.



Working Towards a Statewide Seamless Dataset Workflow

The diagram below details the workflow for a statewide seamless dataset. To have a seamless statewide dataset, each of the source entities will need to review and correct the boundaries as needed. This workflow allows the county's GIS Coordinator to log into GeoLynx Server to submit a request to change the authoritative boundary, which in turn allows GeoComm to make the appropriate adjustment. If conflicts arise with the adjacent county, the state 9-1-1 Coordination Board will mediate discussions between the two counties to resolve the boundary dispute.



DIMES Quality Assurance/Quality Control (QA/QC) reporting

As updated GIS datasets are submitted by source entities, each feature class in the dataset is first scanned for validity to be processed through QA/QC procedures. Once the validity of the data is determined, (i.e. not corrupt, matches documented schema) it is run through an established process to translate the dataset into the statewide data schema.

Following the translation, the datasets are run through a number of established manual and automated quality control processes and procedures before incorporation into the statewide dataset[1]. The results of the quality control checks are reported to the source entities in multiple ways.

Quality control check results

The GIS data quality control check and the GIS data to MSAG and ALI database synchronization check results provide detailed results to the individual source entities though the following methods.

- A zipped file containing both an Esri shapefile with point locations of the quality control checks' fallout and a .csv file with the same information in tabular format is available for download via the GeoLynx Server GIS Portal.
- A source entity, county, or city (the local entity maintaining the GIS data) can choose to download GeoLynx DMS Discrepancy Viewer, which is a tool to use within ArcGIS Desktop.

  The quality control check results will be available for the source entity to download within five business days following the source entity uploading a GIS dataset for processing.

GIS data QA/QC results in .csv and shapefile formats

The detailed quality control results, as described below, files in .csv and shapefile format are uploaded in a zipped file to the GeoLynx Server GIS Portal upon completion of quality control processes, giving the source entity the ability to download the results. GeoComm will notify the source entity when the results can be downloaded.

- .csv file of source 9-1-1 entity specific data results with latitude/longitude of the center of each fallout feature, and includes quality control result check name and description.
- Point layer shapefile of source 9-1-1 entity specific data results depicting the center of each fallout feature including quality control result check name and description.
- Shapefile or File GDB (geodatabase) of full dataset topology check results.
- ALI/MSAG Synchronization Errors (tabular format): It should be noted that the ALI and MSAG have no spatial component as these are only tabular databases. The results can only be provided in tabular format. For any ALI/MSAG errors, a description of the error will be provided for each address describing the error. (See "Understanding GIS Data QA/QC and ALI/MSAG to GIS Data Synchronization results)

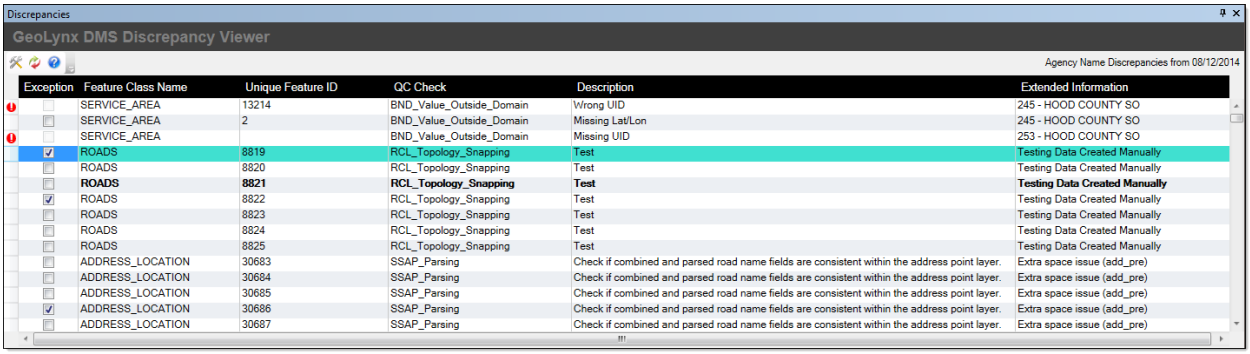
[1] Following the initial translation process, GeoComm runs a process to remove all <NULL> values in the submitted GIS data as these data issues will cause the QC process steps to malfunction.

GeoLynx DMS Discrepancy Viewer results

GeoLynx DMS Discrepancy Viewer enables users to interact with GIS data QA/QC results directly in ArcGIS for Desktop.

Using GeoLynx DMS Discrepancy Viewer, users can view up to 500,000 records within the grid. The results grid in GeoLynx DMS Discrepancy Viewer displays the most current GIS data quality control check results available for the source entity.

In addition to viewing the results, depending on individual dataset feature fields and attributes, offending features can be located and exceptions managed via the GeoLynx DMS Discrepancy Viewer grid. See the GIS data quality control checks table for QC Check descriptions and associated codes in the GIS data quality control check section of this guide.



Exception	Feature Class Name	Unique Feature ID	QC Check	Description	Extended Information
!	SERVICE_AREA	13214	BND_Value_Outside_Domain	Wrong UID	245 - HOOD COUNTY SO
	SERVICE_AREA	2	BND_Value_Outside_Domain	Missing Lat/Lon	245 - HOOD COUNTY SO
!	SERVICE_AREA		BND_Value_Outside_Domain	Missing UID	253 - HOOD COUNTY SO
	ROADS	8819	RCL_Topology_Snapping	Test	Testing Data Created Manually
	ROADS	8820	RCL_Topology_Snapping	Test	Testing Data Created Manually
	ROADS	**8821**	**RCL_Topology_Snapping**	**Test**	**Testing Data Created Manually**
	ROADS	8822	RCL_Topology_Snapping	Test	Testing Data Created Manually
	ROADS	8823	RCL_Topology_Snapping	Test	Testing Data Created Manually
	ROADS	8824	RCL_Topology_Snapping	Test	Testing Data Created Manually
	ROADS	8825	RCL_Topology_Snapping	Test	Testing Data Created Manually
	ADDRESS_LOCATION	30683	SSAP_Parsing	Check if combined and parsed road name fields are consistent within the address point layer.	Extra space issue (add_pre)
	ADDRESS_LOCATION	30684	SSAP_Parsing	Check if combined and parsed road name fields are consistent within the address point layer.	Extra space issue (add_pre)
	ADDRESS_LOCATION	30685	SSAP_Parsing	Check if combined and parsed road name fields are consistent within the address point layer.	Extra space issue (add_pre)
	ADDRESS_LOCATION	30686	SSAP_Parsing	Check if combined and parsed road name fields are consistent within the address point layer.	Extra space issue (add_pre)
	ADDRESS_LOCATION	30687	SSAP_Parsing	Check if combined and parsed road name fields are consistent within the address point layer.	Extra space issue (add_pre)

Note: To install GeoLynx DMS Discrepancy Viewer, see Appendix B.

Understanding GIS data QA/QC and ALI/MSAG to GIS data synchronization results

As part of the DIMES managed services, detailed quality control check results are provided to the source entities for informational purposes, identification of issues, and discrepancy resolution tracking purposes. This section is intended to provide an overview of the checks performed and a description of the intent of the checks.

GIS data quality control checks

This table provides detailed descriptions of each GIS data quality control check result. These values will be reflected in both the monthly report and the detailed results files.

Code:	QC Check:	Discrepancy description:
100	RCL_No_Value	RCL: No value found in a critical field
101	RCL_Value_Outside_Domain	RCL: Invalid value outside of acceptable values found in a critical field
102	RCL_Parsing	RCL: Separated street name fields do not match combined street field
103	RCL_Range_Overlap	RCL: Range overlaps with the ranges of another side of a road

Code:	QC Check:	Discrepancy description:
104	RCL_Range_Parity	RCL: Range parity issue with mix of odd and even values on a side
105	RCL_Range_FROM_Higher	RCL: FROM range higher than TO range
200	RCL_Topology_Snapping	RCL: Segment is not snapped to adjacent segments
201	RCL_Topology_BND	RCL: Segment is not broken at or following one or more boundaries
202	RCL_Segment_Length	RCL: Segment length is too short
203	RCL_Topology_Dangle	RCL: Segment ends in dangling node
300	SSAP_No_Value	SSAP: No value found in a critical field
301	SSAP_Value_Outside_Domain	SSAP: Invalid value outside of acceptable values found in a critical field
302	SSAP_Parsing	SSAP: Separated house number and street name fields do not match combined address field
304	SSAP_RCL_Range_Compare	SSAP: Street name in SSAP does not match street name in RCL layer or address does not fit in the range on a side of a road
400	SSAP_RCL_Segment_Compare	SSAP: Address spatially located on the wrong block/segment in RCL layer
401	SSAP_RCL_Parity_Compare	SSAP: Address spatially located on the wrong side of the segment in RCL layer
402	SSAP_Duplicate	SSAP: Address occurs more than once in SSAP layer[2]
500	BND_No_Value	BND: No value found in a critical field
501	BND_Value_Outside_Domain	BND: Invalid value outside of acceptable values found in a critical field
600	BND_Topology_Gap	BND: Gap found between feature and other polygons in layer
601	BND_Topology_Overlap	BND: Feature overlaps with other polygons in layer

[2] The duplicate address check combines is accomplished through a concatenation of the following SSAP fields: TRIM([ADDRESS]& [ESN] & [MSAGCommunity] & [PostalCode] & [Building] & [Floor] & [Unit] & [Room] & [Seat] & [LOC]).

Additional exception codes

This table provides the list of additional exception code options to be utilized for features that should be removed or modified prior to quality control due to special circumstances.

Code:	Use:
999	Road centerline feature and SSAP features to be completely removed from submitted dataset prior to quality control process. These features will not be provisioned to the statewide dataset.
701	Left ranges in road centerline feature will be zeroed out before starting QC (for dual carriageways)
702	Right ranges in road centerline feature will be zeroed out before starting QC (for dual carriageways)
703	Only first point found with this address will be retained, and duplicates removed. To ensure that these duplicates are truly in the same location on the map (not true duplication errors of addresses in different locations), before removing the ones marked with this code they are checked to make sure they are in the same physical location.

GIS data to MSAG and ALI database synchronization check results and descriptions

Result:	Description:	Possible resolutions to resolve the data synchronization:
Error – Address blank	The address information in the 9-1-1 database or MSAG is blank.	Verify the accuracy of the 9-1-1 database or MSAG record. Check with the database provider to determine if the 9-1-1 database or MSAG record should be deleted or updated.
Error – No house number	The road name exists in the roads file, but no address number is in the address field of the 9-1-1 database or the low and/or high fields of the MSAG.	Verify the accuracy of the 9-1-1 database or MSAG record. Check with the database provider to determine if the 9-1-1 database or MSAG record should be deleted or updated.
Fail – No matching street name found	The street name in the 9-1-1 database or MSAG was not found in the roads file.	Is the road misspelled? Is the road missing a suffix or directional? Does the road exist?
Fail – Address is higher than existing house numbers	The street name exists in the primary search layer, but the address number in the address field is higher than the 9-1-1 database or the low and/or high fields of the MSAG.	Verify the accuracy of the 9-1-1 database or MSAG record. Check with the database provider to determine if the 9-1-1 database or MSAG record should be deleted or updated.
Fail – Address is lower than existing house numbers	The street name exists in the primary search layer, but the address number in the address field is lower than the 9-	Verify the accuracy of the 9-1-1 database or MSAG record. Check with the database provider to

Result:	Description:	Possible resolutions to resolve the data synchronization:
	1-1 database or the low and/or high fields of the MSAG.	determine if the 9-1-1 database or MSAG record should be deleted or updated.
Fail – Address lies between existing house numbers	The street name exists in the primary search layer, but the address number in the address field lies between existing house numbers in the 9-1-1 database or the low and/or high fields of the MSAG.	Verify the accuracy of the 9-1-1 database or MSAG record. Check with the database provider to determine if the 9-1-1 database or MSAG record should be deleted or updated.
Fail – Address could not be found in compatible ranges	The street name exists in the roads file, but the 9-1-1 database record or MSAG address range does not locate within the existing road ranges.	Request any new extensions to a road from the county assessor or survey department. Confirm the accuracy of the house numbers assigned. Confirm the accuracy of the ranges in the roads layer.
Fail – Address falls in a Gap in the compatible ranges	The street name exists in the roads file, but the 9-1-1 database record or MSAG address range is located in between the existing road ranges.	Request any new extensions to a road from the county assessor or survey department. Confirm the accuracy of the house numbers assigned. Confirm the accuracy of the ranges in the roads layer.
Fail – Address is higher than compatible ranges	The street name exists in the roads file, but the 9-1-1 database record or MSAG address range is higher than the existing road ranges.	Request any new extensions to a road from the county assessor or survey department. Confirm the accuracy of the house numbers assigned. Confirm the accuracy of the ranges in the roads layer.
Fail – Address is lower than compatible ranges	The street name exists in the roads file, but the 9-1-1 database record or MSAG address range is lower than the existing road ranges.	Request any new extensions to a road from the county assessor or survey department. Confirm the accuracy of the house numbers assigned. Confirm the accuracy of the ranges in the roads layer.
Fail – Address found only in a different boundary	The street name exists in the roads file, but the 9-1-1 database record or MSAG address range is located in the wrong ESN boundary.	Verify the accuracy of the 9-1-1 database or MSAG record. Verify the accuracy of the ESN layer. Verify boundaries with fire, law, and medical departments. Also, verify rescue boundaries.
Fail – Address found outside of refining boundary	The street name exists in the roads file, but the 9-1-1 database record or MSAG address range is located outside all the ESN boundaries.	Verify the accuracy of the 9-1-1 database or MSAG record. Verify the accuracy of the ESN layer.

Result:	Description:	Possible resolutions to resolve the data synchronization:
		Verify boundaries with fire, law, and medical departments. Also, verify rescue boundaries.
Fail – Address found multiple times, but not in desired boundary	The street name and range was found multiple times in the roads file, but not in the desired ESN boundary.	Each occurrence of the address needs to be reviewed. It needs to be determined if the address was found multiple times due to overlapping ranges, or if the address occurs multiple times in the county. Verify boundaries with fire, law, and medical departments. Also, verify rescue boundaries.
Fail – Address found multiple times in the desired boundary	The 9-1-1 database record or MSAG address range is located on multiple road segments within the correct boundary.	Verify that the correct address ranges are assigned. Verify that the address ranges do not overlap. Is the road name correct? Is the boundary name correct (ESN or Community in Address Points, or ESNL/R or Comm L/R in Road Centerline?

Standard operating procedures

This section provides standard operating procedures (SOP) and instructions on the GIS data, MSAG and ALI database requirements for source entity data submission into the DIMES and instructions on how to resolve discrepancies reported in the quality control check results and fallout reported from the GIS data, MSAG, and ALI database synchronization checks.

Data requirements for GIS datasets submitted by 9-1-1 Source Entities

Field mapping

The field mapping between source 9-1-1 entity level GIS data schema to the statewide DIMES data schema established during the initial load phase of the DIMES project needs to be adhered to for subsequent GIS data submissions and successful processing into the statewide DIMES dataset. If changes are made to the source 9-1-1 entity data schema, either due to efforts to move toward the DIMES data schema or to meet other end user needs, an updated field mapping spreadsheet needs to be submitted to GeoComm prior to or at the time of the submission of the modified dataset. This ensures that the necessary ETL process modifications are made in time for successful processing of the newly submitted dataset into the statewide DIMES dataset.

Note: ETL process modifications may take up to three business days.

Critical fields/attributes

The following feature classes and fields are critical for Next Generation 9-1-1 (NG9-1-1) purposes and/or successful quality control and synchronization check processes. Certain fields are expected to have attributes following NENA standards (USPS Publication 28 standards[3]). The fields are street pre-directional and post-directional, and street type fields in both Site/Structure Address Points and Road Centerlines.

If GIS data updates only occur in one or two counties within a source 9-1-1 entity, the source 9-1-1 entity can choose to submit data for only these counties rather than for the entire dataset. The Data Source field needs to be populated to allow for processing of only counties or cities rather than whole source 9-1-1 entity dataset.

The following identifies the other critical fields that are checked during the GIS data validation process.

- Road centerline
  - Address range fields (is it an integer field, no <Null> values)
  - Combined street name field (<Null> or blank values)
  - MSAG community Left and Right field for <Null> or blank values
  - ESN community Left and Right fields for <Null> or blank values
- Site/structure address point
  - House number field (is it an integer field, no <Null> values or zeros)
  - Combined address field (<Null> or blank values)
  - MSAG community field (<Null> or blank values)
  - ESN field (<Null> or blank values)
  - Parsed street field “RD” (<Null> or blank values)
- Service area polygons
  - DISP field (<Null> or blank values)
- Municipal boundary layer
  - IncorporatedMunicipality (<Null> or blank values)
- County boundaries layer
  - County field (<Null> or blank values)

[3] A list of USPS standard suffixes and pre- and post directionals used for the **value outside of domain check** can be found in Appendix A.

MSAG and ALI database format requirements

It is assumed that the 911 Board will receive the MSAG and ALI databases at a minimum annual basis. These will need to be submitted to GeoComm by the state to allow GeoComm to perform synchronization checks and report the results back to each source 9-1-1 entity for review and correction.

For submissions, utilize the MSAG report provided by the state, if separate, merge each county's records into the first tab of the spreadsheet, then delete all non-addressable records and submit the MSAG to GeoComm for the comparison. The following MSAG data must be removed:

- FX Records
- VoIP records
- Wireless records
- Fictitious records: blank to blank, zero to zero

If your county submits ALI TN data separately from the state it may need to be modified to remove all non-addressable records. Merge each county's records into the first tab of the spreadsheet, then delete all non-addressable records from the ALI database including:

- Customer names associated with each TN record
- VOIP Records
- Wireless Records
- FX Records
- Fictitious Records: Blank to Blank, zero to zero

Correcting and managing QA/QC results

Use the guide below to correct discrepancies outlined in the QA/QC report and results files.

GIS data

The following lists examples of common map data discrepancies.

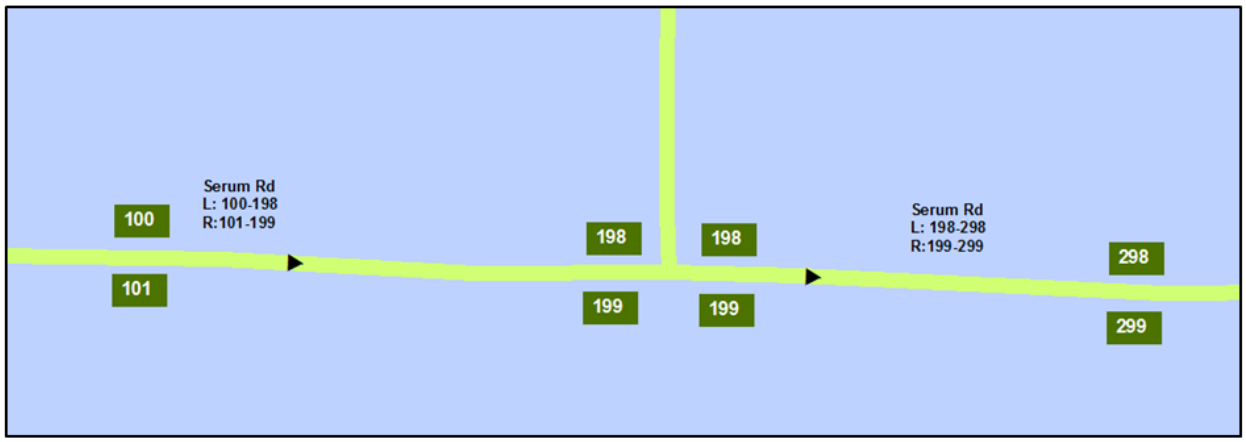
- Are roads broken at intersections and political boundaries?
- Are road ranges consistent with line direction?
- Are road segments snapped together?
- Add names to blank road name fields
- Road ranges should be checked to see that the high range is not lower than the low range

  Note: Some exceptions may exist
- Do boundary overlaps and/or gaps exist?

  Note: These discrepancies are removed by snapping all ESN nodes at joining sections

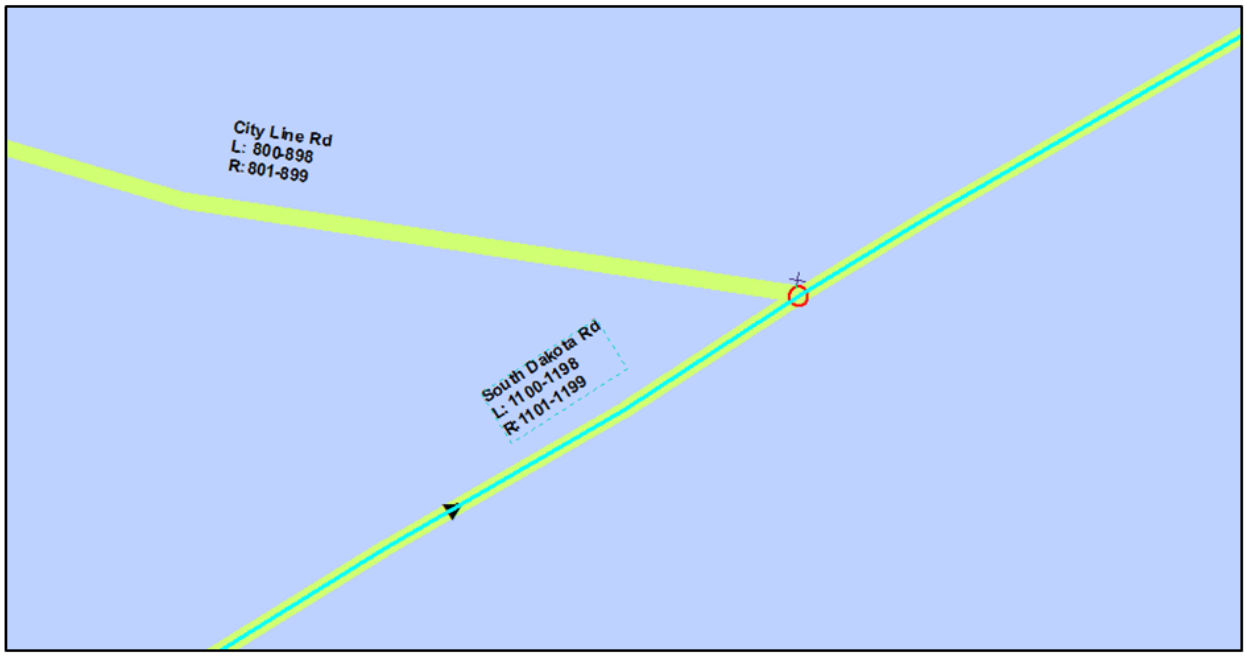
- Are roads snapped at political and emergency service zone boundaries?
- Duplicate addresses

Example 1. Road ranges and overlapping ranges



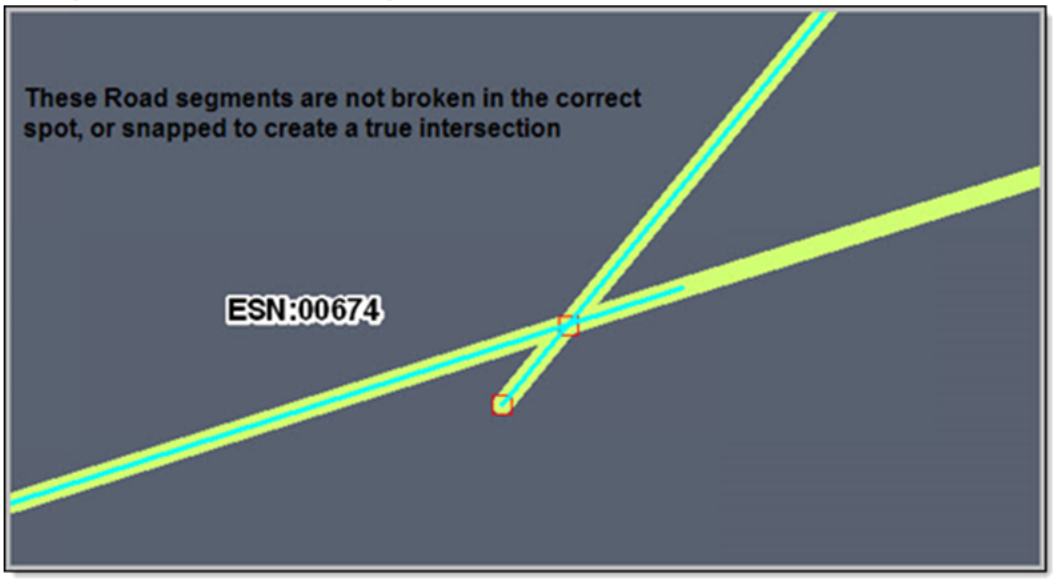
In example 1, the road ranges on Serum Rd overlap because both road segments contain **198** and **199**.

Example 2. Road topology/roads not broken at an intersection



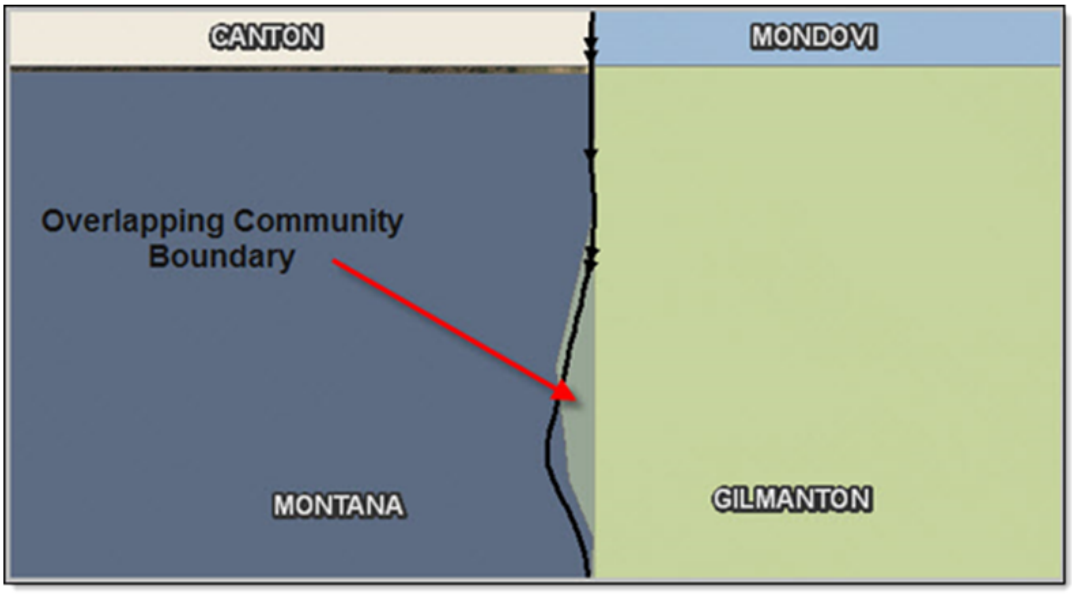
In example 2, the highlighted road segment (South Dakota Rd) should be broken at the intersection of City Line Rd.

Example 3. Intersection overlaps



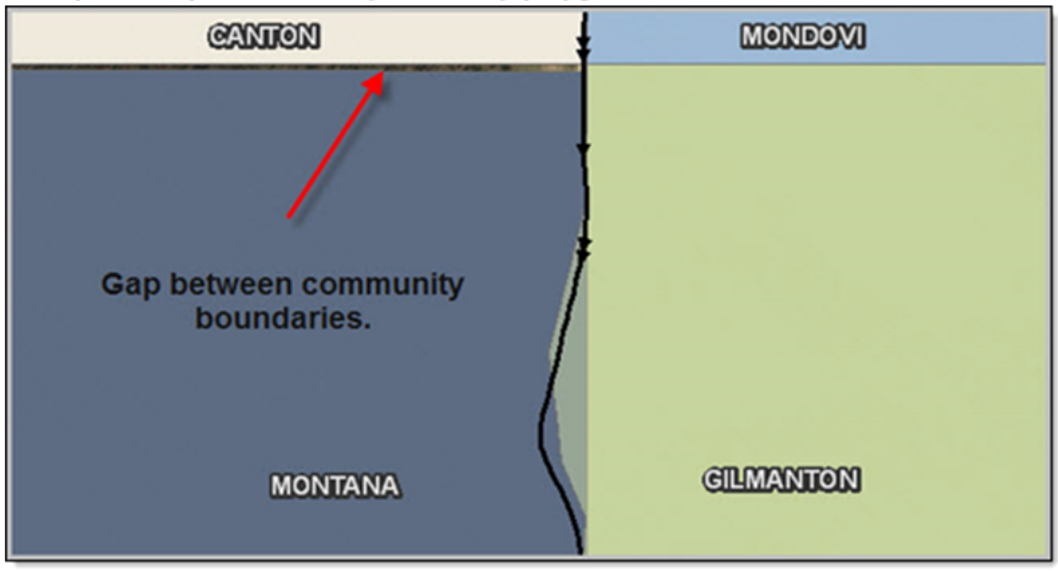
In example 3, the two highlighted road segments are not broken at the intersection. *Note that some crossing roads do not intersect in real space, such as overpasses. Their representative arcs may or may not be broken at the crossing point, depending on the procedures used by the data authority.*

Example 4. Community boundary polygon topology



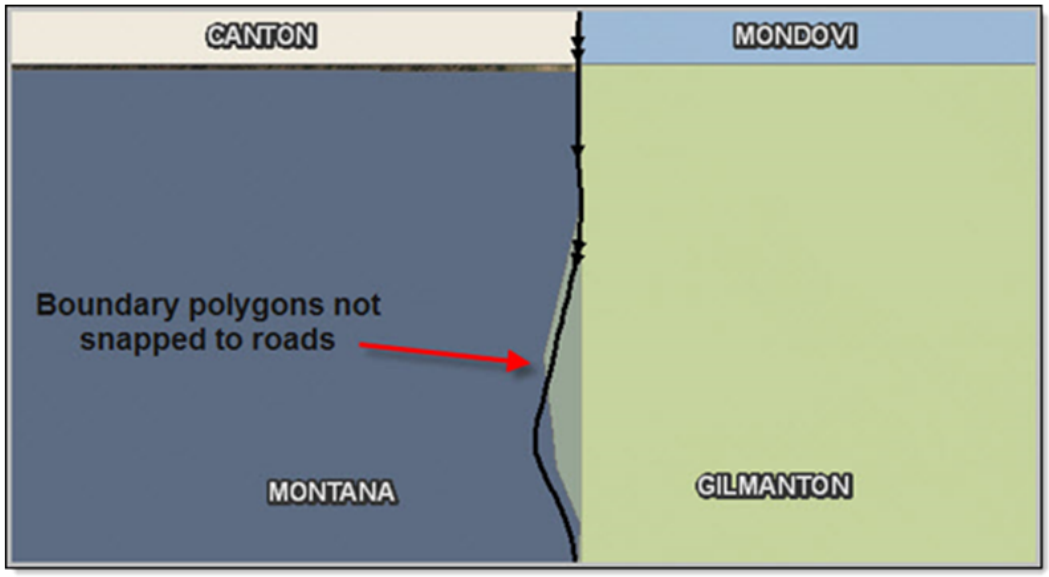
Example 4 illustrates an overlapping community boundary polygon. Once the correct boundary line has been determined for both communities, the appropriate adjustments need to be made to the boundary polygon layers to ensure they are accurate and snapped to each other.

Example 5. Gap in community boundary polygon



Example 5 illustrates a gap in a community boundary polygon. Once the correct boundary line has been determined for both communities, the appropriate adjustments need to be made to the boundary polygon layers to ensure they are accurate and snapped to each other

Example 6. Community boundary polygon not snapped to road segments



In example 6, the community boundary polygon is not snapped to the road segments. Once the correct boundary line and road centerline location has been determined, the appropriate adjustments need to be made to the road centerline and/or boundary polygon layers to ensure they are accurate and snapped to each other

Example 7. Duplicate address points found in multiple boundaries

The address of 101 Main St. will most likely be found in multiple communities and ESNs.

If the site/structure layer also assigns a community and/or ESN to the record, this is not an issue.

Example 8. Duplicate address points to represent multiple units

An apartment building is represented in the site/structure layer by multiple points with the same address. A unit identifier should be added to the site/structure address point to distinguish between points.

Managing exceptions to QC checks

The *GC_Exception* field is included for each feature class as outlined in the SD statewide data schema. The purpose of utilizing the *GC_Exception* field in one or more layers is to provide a mechanism to report GIS data features as exceptions to specific types of fallout results. In subsequent QA/QC reports, the same GIS data feature will not be reported as a discrepancy. The unique ID fields also need to be maintained and populated to process exceptions.

For more information on managing exceptions using the GeoLynx DMS Discrepancy Viewer tool, see the GeoLynx DMS Discrepancy Viewer help.

To manually maintain the *GC_Exception* field, rather than through the GeoLynx DMS Discrepancy Viewer, the *Codes* in the GIS data quality control checks table should be referenced by the entity managing the GIS dataset and should be added and separated by commas, no spaces (i.e.105,200,201).

ALI and MSAG to GIS data synchronization check results

The purpose of the ALI/MSAG to GIS data comparison is to have the two databases synchronized, and keeping the two databases in sync will be an on-going process until the ALI and MSAGs are eventually replaced. The discrepancies that result from the synchronization checks between the MSAG and the GIS data and the ALI database and the GIS data will require a coordinated effort between the GIS staff, 9-1-1 Database staff, and the 9-1-1 DBMS as changes to the ALI MSAG and/or changes to the GIS data will need to be made to resolve the discrepancies.

Statewide seamless dataset

In order to achieve a statewide seamless dataset, as desired for NG9-1-1, a number of guidelines and quality control mechanisms need to be put in place and followed. The information in this section provides an overview of guidelines and mechanisms needed to achieve a statewide seamless dataset.

Unique identifiers

The initial creation and subsequent maintenance of unique identifiers for all features submitted into the dataset is crucial. The unique identifiers need to be maintained at the local level by the person or department maintaining the GIS data that is ultimately fed into the statewide dataset in the DIMES. SD 9-1-1- Coordination Board established a standard naming convention for unique identifiers in each GIS data feature class.

See the statewide data schema in Appendix C for an example and explanation of the unique identifier standard naming convention established for each DIMES layer.

Unique identifiers can be created and maintained following more than one method. Manually updating features' unique identifiers as road segments, address points, or polygon layers are added or changed is not recommended as this method is tedious and error prone. Esri has provided a solution which can be configured to the SD DIMES specific naming convention. This solution can be found in the Attribute Assistant tool. The Attribute Assistant tool is part of the Address Management toolset in the ArcGIS for Local Government templates. The following links provide an introduction and overview of Attribute Assistant, as well as details on tool configuration and links to download the tool. This is an Esri supported tool and any troubleshooting or technical issues will need to be handled by Esri.

- Address Data Management toolset (10.2)
- Address Data Management toolset (10.1)
- Attribute Assistant add-in overview

Authoritative boundary layer

The Authoritative Boundary represents the geographic area which a 9-1-1 Authority is given responsibility for providing and maintaining data for an ECRF/LVF. A given 9-1-1 Authority may provide authoritative GIS data for its entire content, the entirety of one layer, or a set of elements within a layer.

The Authoritative Boundary:

- *provides explicit geographic areas that an ECRF / LVF uses to obtain the definitive answer for a Location to Service Translation (LoST) query*
- *is used by the ECRF / LVF to determine if gaps and/or overlaps exist within the Authoritative datasets*
- *is used to determine where discrepancy reports related to GIS data will be sent*

The SD 9-1-1 Coordination Board decided to utilize the county boundary polygon layer as a starting point for the Authoritative Boundary. Jurisdictions are asked to make adjustments to these polygons for their coverage area as deemed necessary. GeoComm will process the changes into the NG9-1-1 dataset.

Conflicts will be passed to the SD 9-1-1 Coordination Board for resolution. See the *Working Towards a Statewide Seamless Dataset Workflow*

An authoritative boundary layer for the SD source entities should be a GIS polygon layer depicting the 9-1-1 Program boundaries. No overlaps should exist between the 9-1-1 Program boundaries, as well as no unintentional gaps. If there is no 9-1-1 Program coverage due to other non-SD agency coverage, then this should be represented at gaps in the statewide authoritative boundary layer.

It is essential to develop and maintain an accurate authoritative boundary layer. This layer's polygon boundaries also act as a guide to follow to ensure Public Safety Answering Point (PSAP) boundaries and service zone boundaries do not have overlaps or unintentional gaps. Overlaps and unintentional gaps may cause incorrect call routing in a NG9-1-1 environment, or incorrect or unclear call transfer and dispatch of emergency service responders.

Accessing the statewide GIS datasets from GIS Portal

Full dataset. Full statewide dataset downloadable via GeoLynx Server GIS Portal.

Partial Dataset. Partial dataset (city, county or region) will be made available upon request to the GeoComm GIS Services Bureau.

Important: The DIMES dataset is output to an ArcGIS 10.2 Geodatabase. Any ArcGIS licensing level (Basic, Standard, or Advanced) can be used to view output data.

GeoComm Services Bureau support information

GeoComm is available to provide support if needed. Regular office hours are Monday through Friday, 8:00 a.m. – 4:30 p.m. After hours emergency support is best reached by calling 1.866.837.7379.

South Dakota (SD) Services Bureau contact information is below followed by GeoComm's response time commitment.

Phone	**E-mail**
1.888.436.2666	SD911DIMES@geo-comm.com
8:00 a.m. – 4:30 p.m. M–F	8:00 a.m. – 4:30 p.m. M–F

When calling in for support, ask for the *SD team*. If routed to the automated answering service during regular business hours, choose the "GIS" option, then ask for the SD team.

If calling for assistance with critical or major impact to the system after regular business hours and on weekends choose the "Tech Support" option.

Priority:	Description:	Response time:
Critical Impact – Service Not Available	• Service is unavailable or halted • Data is unavailable or nonfunctional • Service productivity or functionality is severely compromised • There is a complete loss of service for all End Users and there is no ability to avoid or reduce the incident via a workaround.	Less than two clock hours 24 x 7
Major Impact – Severely Impaired	• Service performance/functionality for all End users is seriously impaired or degraded • Data accuracy is seriously impaired • There is no ability to avoid or reduce the effect of the incident via a workaround.	Less than four clock hours 24 x 7
Minor Impact – Minimal Degraded Performance or Functionality; Single User Issues	• Service has encountered a non-critical issue with minimal loss of performance/functionality • Data accuracy is minimally degraded • May be identified as a functional defect • Complete stoppage of a single End User • A partial loss of service for an End User and there is a way to reduce the effect or completely avoid the impact of the incident via a workaround at a reasonable cost	Less than 16 business hours Monday through Friday 8 a.m. to 5 p.m. Central Standard Time
Low Impact – Single User Application	• Service is unavailable or degraded (not a complete work stoppage) for a Single End User.	Less than 24 business hours Monday through Friday

Appendix A | USPS Publication 28 Street Suffixes and Directionals

GIS data attributes should follow these NENA USPS street suffixes publication standards.

Street Suffixes

GIS data attributes should follow these NENA USPS street suffixes publication standards.

ALY	CLB	CVS	FRG	HLS	LGT	NCK	PSGE	SHR	TRL	WAYS
ANX	CLF	CYN	FRGS	HOLW	LGTS	OPAS	PT	SHRS	TRLR	WL
ARC	CLFS	DL	FRK	HTS	LK	ORCH	PTS	SKWY	TRWY	WLS
AVE	CMN	DM	FRKS	HVN	LKS	OVAL	RADL	SMT	TUNL	XING
BCH	CMNS	DR	FRST	HWY	LN	PARK	RAMP	SPG	UN	XRD
BG	COR	DRS	FRY	INLT	LNDG	PARK	RD	SPGS	UNS	XRDS
BGS	CORS	DV	FT	IS	LOOP	PASS	RDG	SPUR	UPAS	
BLF	CP	EST	FWY	ISLE	MALL	PATH	RDGS	SPUR	VIA	
BLFS	CPE	ESTS	GDN	ISS	MDW	PIKE	RDS	SQ	VIS	
BLVD	CRES	EXPY	GDNS	JCT	MDWS	PKWY	RIV	SQS	VL	
BND	CRK	EXT	GLN	JCTS	MEWS	PKWY	RNCH	ST	VLG	
BR	CRSE	EXTS	GLNS	KNL	ML	PL	ROW	STA	VLGS	
BRG	CRST	FALL	GRN	KNLS	MLS	PLN	RPD	STRA	VLY	
BRK	CSWY	FLD	GRNS	KY	MNR	PLNS	RPDS	STRM	VLYS	
BRKS	CT	FLDS	GRV	KYS	MNRS	PLZ	RST	STS	VW	
BTM	CTR	FLS	GRVS	LAND	MSN	PNE	RTE	TER	VWS	
BYP	CTRS	FLT	GTWY	LCK	MT	PNES	RUE	TPKE	WALK	
BYU	CTS	FLTS	HBR	LCKS	MTN	PR	RUN	TRAK	WALK	
CIR	CURV	FRD	HBRS	LDG	MTNS	PRT	SHL	TRCE	WALL	
CIRS	CV	FRDS	HL	LF	MTWY	PRTS	SHLS	TRFY	WAY	

Street Directionals

N	NE
E	SE
S	NW
W	SW

Appendix B | GeoLynx DMS Discrepancy Viewer – Installing, setting up, and help documentation

The information below provides high-level instructions for installing and setting up GeoLynx DMS Discrepancy Viewer and accessing its help documentation.

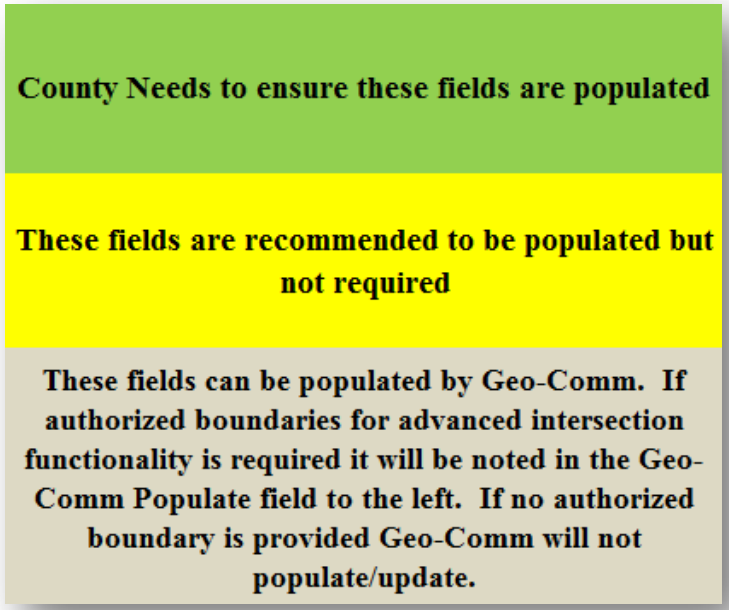
- GeoLynx DMS Discrepancy Viewer is downloadable from the SD DIMES Geolynx Server Portal
  - Click on “GIS Portal” on the top navigation bar
  - Click on and download “Discrepancy Viewer Download”
  - Save the file to a local location (C drive)
  - The GeoLynx DMS Discrepancy Viewer package includes a zip file with the GeoLynx DMS Discrepancy Viewer installer and installation instructions.

  Note: The zip file is password protected. Please contact GeoComm to request the password.

  - After installation, help documentation to assist in setting up and using GeoLynx DMS Discrepancy Viewer is provided within the product. To access the help documentation, click the  button to toggle on GeoLynx DMS Discrepancy Viewer and click  in the toolbar.
  - When setting up the URL in the Discrepancy Viewer, please use the following URL: https://sdarc.geo-comm.com/Reports/ and add your source entity’s name (e.g.: District 1, District 3, Pennington,).

  Note: The URL must begin with HTTPS; HTTP is not supported.

Appendix C | South Dakota statewide data schema



All fields listed are color coded. You can reference the key to the left for the given colors.

M/C/O field descriptions and type codes

The M/C/O field is used to indicate whether the attribute in that field is Mandatory, Conditional or Optional.

- **Mandatory** – should always be filled out/attributed for every feature
- **Conditional** – if it is relevant/exists for a specific feature, it should be attributed (i.e. a pre-directional is part of the street name, such as in S Main St – so "S" needs to be added into that field)
- **Optional** – Road Class or One-way are optional. They are not critical for NG9-1-1 call routing, so you can add the information if you find it useful, but it isn't required.

Type codes are Alpha, Numeric, Date, and Float. This information is based on NENA standards and not Esri specific. It does not differentiate between long and short integer, etc., simply states "numeric". GeoComm chose to use Data Type = Long Integer for all fields listed as Type = N in the data schema spreadsheet.

ROAD CENTERLINES						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
SourceOfData	**Yes**	M	A	75	Source of Data: Agency that last updated the record, usually the name of the 9-1-1 Authority. This may be represented by the domain name of the agency. Example: arcgis.sd.gov	
DateUpdated	**Yes**	M	D	26	Date Updated: Date of last update	
EffectiveDate	**Yes**	M	D	26	Effective Date: Date the new layer information goes into effect	This can be the same as the DateUpdated if no Effective Date exists
RCL_Unique_ID	**Yes**	M	A	100	RCL_Unique_ID: ID for each Road Segment ID that is guaranteed to be unique in a set of aggregated data. This could be a combination of the feature ID and the 9-1-1 Authority's domain name in the format shown in the example. Example: RCL_207@AURORA_SD	GeoComm to add on County Value
Country		M	A	2	Country: The name of a country represented by its two-letter ISO 3166-1 English country alpha-2 code elements in capital ASCII letters. Example: US	Yes

ROAD CENTERLINES						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
StateLeft		M	A	2	State Left: Two alpha-character U.S. State abbreviation as defined by USPS Publication 28, or Canadian province abbreviation equivalent, on the Left side of the road segment. Example: SD (South Dakota), ND (North Dakota)	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
StateRight		M	A	2	State Right: Two alpha-character U.S. State abbreviation as defined by USPS Publication 28, or Canadian province abbreviation equivalent, on the Right side of the road segment. Example: SD (South Dakota), ND (North Dakota)	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
CountyLeft		M	A	40	County Left: County Name, or equivalent, on the Left side of the road segment, completely spelled out	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
CountyRight		M	A	40	County Right: County Name, or equivalent, on the Right side of the road segment, completely spelled out	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.

ROAD CENTERLINES						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
MunicipalityLeft		M	A	100	Incorporated Municipality Left: The name of the incorporated municipality where the address is located, on the Left side of the road segment. Only used if a named municipality exists, otherwise populate with "Unincorporated". Example: Rapid City	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
MunicipalityRight		M	A	100	Incorporated Municipality Right: The name of the incorporated municipality where the address is located, on the Right side of the road segment. Only used if a named municipality exists, otherwise populate with "Unincorporated". Example: Rapid City	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
MunicipalityDivisionLeft		C	A	100	Municipality Division Left: The name of a Municipality Division, either within an incorporated municipality or in an unincorporated portion of a county, or both, on the Left side of the road segment. Example: Ward 5, Friendship District	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.

ROAD CENTERLINES						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
MunicipalityDivisionRight		C	A	100	Municipality Division Right: The name of a Municipality Division, either within an incorporated municipality or in an unincorporated portion of a county, or both, on the Right side of the road segment. Example: Ward 5, Friendship District	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
NeighborhoodLeft		O	A	100	Neighborhood Community Left: The name of an unincorporated neighborhood, subdivision or area, either within an incorporated municipality or in an unincorporated portion of a county or both, where the address is located, on the Left side of the road segment.	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
NeighborhoodRight		O	A	100	Neighborhood Community Right: The name of an unincorporated neighborhood, subdivision or area, either within an incorporated municipality or in an unincorporated portion of a county or both, where the address is located, on the Right side of the road segment.	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
AddressRangePrefixLeft		C	A	15	Address Range Prefix Left: That part of an address preceding the numeric address, on the Left side of the road segment. Example: "101-" in 101-123 Grid	

ROAD CENTERLINES						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
					Way Dr	
AddressRangePrefixRight		C	A	15	Address Range Prefix Right: That part of an address preceding the numeric address, on the Right side of the road segment. Example: "2N3W-" in 2N3W-124 Township Dr	
LeftFROMAddress	**Yes**	M	N	6	Left FROM Address: The address on the Left side of the road segment at the FROM node.	
LeftTOAddress	**Yes**	M	N	6	Left TO Address: The address on the Left side of the road segment at the TO node.	
RightFROMAdress	**Yes**	M	N	6	Right FROM Address: The address on the Right side of the road segment at the FROM node.	
RightTOAddress	**Yes**	M	N	6	Right TO Address: The address on the Right side of the road segment at the TO node.	
ParityLeft		M	A	1	Parity Left: Parity of Address Range on the Left side of the road segment. Valid entries: E, O, B, Z for Even, Odd, Both, or Zero (if the range is 0 to 0).	Yes
ParityRight		M	A	1	Parity Right: Parity of Address Range on the Right side of the road segment. Valid entries: E, O, B, Z for Even, Odd, Both, or Zero (if the range is 0 to 0).	Yes

ROAD CENTERLINES						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
PostalCommunityLeft		C	A	40	Postal Community Name Left: The city name for the ZIP code of an address as given in the USPS City State file, or its Canadian equivalent, on the Left side of the road segment.	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
PostalCommunityRight		C	A	40	Postal Community Name Right: The city name for the ZIP code of an address as given in the USPS City State file, or its Canadian equivalent, on the Right side of the road segment.	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
PostalCodeLeft		C	A	7	Postal Code Left: A system of 5-digit codes that identifies the individual USPS Post Office or metropolitan area delivery station associated with an address, or its Canadian equivalent, on the Left side of the road segment. Do not include any ZIP plus 4. Example: 57580	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
PostalCodeRight		C	A	7	Postal Code Right: A system of 5-digit codes that identifies the individual USPS Post Office or metropolitan area delivery station associated with an address, or its Canadian equivalent, on the Right side of the road segment. Do not include any ZIP plus 4. Example: 57580	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.

ROAD CENTERLINES						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
ESNLeft		C	A	5	ESN Left: Emergency Service Number associated with the location of the address as identified by the MSAG, on the Left side of the road segment.	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
ESNRight		C	A	5	ESN Right: Emergency Service Number associated with the location of the address as identified by the MSAG, on the Right side of the road segment.	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
MSAGCommunityLeft		C	A	30	MSAG Community Left: Valid service community name on the Left side of the road segment as identified by the MSAG.	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
MSAGCommunityRight		C	A	30	MSAG Community Right: Valid service community name on the Right side of the road segment as identified by the MSAG.	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.

ROAD CENTERLINES						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
StreetNamePreModifier	**Yes**	O	A	15	Street Name Pre Modifier: A word or phrase that precedes the Street Name element but is separated from it by a Street Name Pre Type or a Street Name Pre Directional or both. Valid Entries include but are not limited to: Access, Alternate, Business, Bypass, Connector, Extended, Extension, Loop, Old, Overpass, Private, Public, Ramp, Scenic, Spur, Underpass.	
StreetNamePreDirectional	**Yes**	C	A	2	Street Name Pre Directional: A word preceding the Street Name that indicates the direction taken by the street from an arbitrary starting point or line, or the sector where it is located. Valid Entries: N, S, E, W, NE, NW, SE, SW	
StreetNamePreType	**Yes**	C	A	20	Street Name Pre Type: A word or phrase that precedes the Street Name element and identifies a type of thoroughfare in a complete street name. Must always be spelled out.	
StreetName	**Yes**	M	A	60	Street Name: The legal street name as assigned by the local addressing authority.	If source data is not parsed into separate fields if will be loaded into this field.

ROAD CENTERLINES						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
StreetNamePostType	**Yes**	C	A	4	Street Name Post Type: A word or phrase that follows the Street Name element and identifies a type of thoroughfare in a complete street name. Valid entries are limited to the abbreviations listed in USPS Publication 28 Appendix C1.	
StreetNamePostDirectional	**Yes**	C	A	2	Street Name Post Directional: A word following the Street Name that indicates the direction taken by the street from an arbitrary starting point or line, or the sector where it is located. Valid entries: N, S, E, W, NE, NW, SE, SW	
StreetNamePostModifier	**Yes**	C	A	12	Street Name Post Modifier: A word or phrase that follows and modifies the Street Name, but is separated from it by a Street Name Post Type or a Street Name Post Directional or both. Valid entries include, but are not limited to: Access, Alternate, Business, Bypass, Connector, Extended, Extension, Loop, Overpass, Private, Public, Ramp, Scenic, Spur, Underpass	
STREET		M	A	115	Combined Street: Combined street name (PRM+PRD+STP+RD+STS+POD	GeoComm to populate from above fields, Concatenation

ROAD CENTERLINES						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
					+POM)	of parsed fields.
SpeedLimit		O	N	3	Speed Limit: Posted Speed in mph	
OneWay		O	A	2	One-way direction of travel. **B** or **Blank** – travel in both directions allowed **FT** – One-way traveling from FROM node to TO node **TF** – One way traveling from TO node to FROM Node	
RoadClass		O	A	15	**Primary** **Secondary** **Local** (City, Neighborhood, or Rural Road) **Ramp** **Service** (usually along a limited access highway) **Vehicular Trail** (4WD, snowmobile) **Walkway** (Pedestrian Trail, Boardwalk) **Alley** **Private** (service vehicles, logging, oil fields, ranches, etc.) **Parking Lot** **Trail** (Ski, Bike, Walking / Hiking Trail) **Other**	
GC_EXCEPTION		M	A	75	GC_EXCEPTION: Feature Exception codes - see code translator to be provided by GeoComm.	

ROAD NAME ALIAS						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
SourceOfData	**Yes**	M	A	75	Source of Data: Agency that last updated the record, usually the name of the 9-1-1 Authority. This may be represented by the domain name of the agency. Example: arcgis.sd.gov	
DateUpdated	**Yes**	M	D	26	Date Updated: Date of last update	
EffectiveDate	**Yes**	M	D	26	Effective Date: Date the new layer information goes into effect	This can be the same as the DateUpdated if no Effective Date exists
Alias_Unique_ID	**Yes**	M	A	100	Alias_Unique_ID: ID that is guaranteed to be unique in a set of aggregated data. This could be a combination of the feature ID and the 9-1-1 Authority's domain name in the format shown in the example. Example: ALIAS_207@Aurora_SD	GeoComm to add County Value
RCL_Unique_ID	**Yes**	M	A	100	RCL_Unique_ID : The RCL_Unique_ID from the Road Centerlines layer that corresponds to the segment the alias name is assigned to. Within the Road Name Alias Table the RCL_Unique_ID may be repeated for each Road Name Alias assigned to that Road Segment. The RCL_Unique_ID must be universally unique for each road segment, but may be repeated in this table for each Road Name	GeoComm to add County Value

ROAD CENTERLINES						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
					Alias that is assigned to that road segment.	
AliasPreModifier		C	A	15	Alias Pre Modifier: A word or phrase that precedes the Alias Street Name element but is separated from it by an Alias Pre Type or an Alias Pre Directional or both. Valid Entries include but are not limited to: Access, Alternate, Business, Bypass, Connector, Extended, Extension, Loop, Old, Overpass, Private, Public, Ramp, Scenic, Spur, Underpass.	
AliasPreDirectional		C	A	2	Alias Pre Directional: A word preceding the Alias Street Name that indicates the direction taken by the street from an arbitrary starting point or line, or the sector where it is located. Valid Entries: N, S, E, W, NE, NW, SE, SW	
AliasPreType		O	A	20	Alias Pre Type: A word or phrase that precedes the Alias Street Name element and identifies a type of thoroughfare in a complete street name. Must always be spelled out.	

ROAD CENTERLINES						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
AliasStreetName	**Yes**	M	A	60	Alias Street Name: The Alias Street Name assigned to the road segment.	If source data is not parsed into separate fields if will be loaded into this field.
AliasPostType		C	A	4	Alias Post Type: A word or phrase that follows the Alias Street Name element and identifies a type of thoroughfare in a complete street name. Valid entries are limited to the abbreviations listed in USPS Publication 28 Appendix C1	
AliasPostDirectional		C	A	2	Alias Post Directional: A word following the Alias Street Name that indicates the direction taken by the street from an arbitrary starting point or line, or the sector where it is located. Valid Entries: N, S, E, W, NE, NW, SE, SW	
AliasPostModifier		C	A	12	Alias Post Modifier: A word or phrase that follows and modifies the Alias Street Name, but is separated from it by an Alias Post Type or an Alias Post Directional or both. Valid Entries include, but are not limited to: Access, Alternate, Business, Bypass, Connector, Extended, Extension, Loop, Overpass, Private, Public, Ramp,	

ROAD CENTERLINES						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
					Scenic, Spur, Underpass	
AliasSTREET		M	A	115	Combined Alias Street: Combined Alias street name (AliasPRM+AliasPRD+AliasSTP +AliasRD+AliasSTS+AliasPOD+ AliasPOM)	Yes, Contenated from parsed fields above

SITE STRUCTURE POINTS						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
Source	**Yes**	M	A	75	Source of Data: Agency that last updated the record, usually the name of the 9-1-1 Authority. This may be represented by the domain name of the agency. Example: arcgis.sd.gov	
Updated	**Yes**	M	D	26	Date Updated: Date of last update	
Effective	**Yes**	O	D	26	Effective Date: Date the new layer information goes into effect	This can be the same as the DateUpdated if no Effective Date exists
Site_Unique_ID	**Yes**	M	A	100	Site_Unique_ID: ID that is guaranteed to be unique in a set of aggregated data. This could be a combination of the feature ID and the 9-1-1 Authority's domain name in the format shown in the example. Example: SITE_207@AURORA_SD	GeoComm to add County Value
Country		M	A	2	Country: The name of a country represented by its two-letter ISO 3166-1 English country alpha-2 code elements in capital letters. Example: US	Yes
State		M	A	2	State: Two alpha-character U.S. State abbreviation as defined by USPS Publication 28, or Canadian province abbreviation equivalent.	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.

SITE STRUCTURE POINTS						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
					Example: SD (South Dakota), ND (North Dakota)	
County		C	A	40	County: County Name, or equivalent, completely spelled out, as given in INCITS 31:2009	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
IncorporatedMunicipality		M	A	100	Incorporated Municipality: The incorporated municipality name where the address is located. Only used if a named municipality exists, otherwise populate with "Unincorporated". Example: Rapid City	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
UnincorporatedCommunity		C	A	100	Unincorporated Community: Unincorporated community name, either within an incorporated municipality or in an unincorporated portion of a county, or both. Example: Ward 5, Friendship District	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
Neighborhood		C	A	100	Neighborhood Community : The name of a neighborhood community, subdivision or area, either within an incorporated municipality or in an unincorporated portion of a	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.

SITE STRUCTURE POINTS						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
					county or both, where the address is located.	
AddressNumberPrefix		O	A	15	Address Number Prefix: An extension of the address number that precedes it and further identifies a location along a thoroughfare or within a defined area. Example: "101-" in 101-123 Grid Way Dr	
AddressNumber	**Yes**	C	N	6	Address Number: The numeric identifier of a location along a thoroughfare or within a defined community.	
AddressNumberSuffix		C	A	15	Address Number Suffix: An extension of the address number that follows it and further identifies a location along a thoroughfare or within a defined area. Example: “1/2” in 101 ½ Oak St, “B” in 345B Jay Ave	
StreetNamePreModifier		O	A	15	Street Name Pre Modifier: A word or phrase that precedes the Street Name element but is separated from it by a Street Name Pre Type or a Street Name Pre Directional or both. Valid Entries include but are not limited to: Access, Alternate,	

SITE STRUCTURE POINTS						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
					Business, Bypass, Connector, Extended, Extension, Loop, Old, Overpass, Private, Public, Ramp, Scenic, Spur, Underpass.	
StreetNamePreDirectional		C	A	2	Street Name Pre Directional: A word preceding the Street Name that indicates the direction taken by the street from an arbitrary starting point or line, or the sector where it is located. Valid Entries: N S E W NE NW SE SW	
StreetNamePreType		O	A	20	Street Name Pre Type: A word or phrase that precedes the Street Name element and identifies a type of thoroughfare in a complete street name. Must always be spelled out.	
StreetName	**Yes**	M	A	60	Street Name: The legal street name as assigned by the local addressing authority.	If source data is not parsed into separate fields if will be loaded into this field.
StreetNamePostType		C	A	4	Street Name Post Type: A word or phrase that follows the Street Name element and identifies a type of thoroughfare in a complete street name. Valid entries are limited to the abbreviations listed in USPS Publication 28 Appendix C1.	

SITE STRUCTURE POINTS						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
StreetNamePostDirectional		C	A	2	Street Name Post Directional: A word following the Street Name that indicates the direction taken by the street from an arbitrary starting point or line, or the sector where it is located. Valid Entries: N S E W NE NW SE SW	
StreetNamePostModifier		O	A	12	Street Name Post Modifier: A word or phrase that follows and modifies the Street Name, but is separated from it by a Street Name Post Type or a Street Name Post Directional or both. Valid Entries include, but are not limited to: Access, Alternate, Business, Bypass, Connector, Extended, Extension, Loop, Overpass, Private, Public, Ramp, Scenic, Spur, Underpass.	
ADDRESS		M	A	155	Combined Address: Combined address (AddressNumberPrefix+AddressNumber+AddressNumberSuffix & StreetNamePreModifier+StreetNamePreDirectional+StreetNamePreType+StreetName+StreetNamePostType+StreetNamePostDirectional+StreetNamePostModifier)	Yes, Contatenated from parsed addressing

SITE STRUCTURE POINTS						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
ESN		C	A	5	ESN: Emergency Service Number associated with the location of the address as identified by the MSAG.	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
MSAGCommunity		C	A	30	MSAG Community: Valid service community name associated with the location of the address as identified by the MSAG.	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
PostalCommunity		C	A	40	Postal Community Name: The city name for the ZIP code of an address as given in the USPS City State file, or its Canadian equivalent.	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
PostalCode		C	A	7	Postal Code: A system of 5-digit codes that identifies the individual USPS Post Office or metropolitan area delivery station associated with an address, or its Canadian equivalent. Do not include any ZIP plus 4. Example: 57580	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
ZIP_Plus4		O	A	4	ZIP Plus 4: The ZIP plus 4 code (without the dash) Example: 1234	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.

SITE STRUCTURE POINTS						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
Building		O	A	75	Building: One among a group of buildings that have the same address number and complete street name. Example: Building 2, Terminal A	
Floor		O	A	75	Floor: A floor, story, or level within a building. Example: Floor 4, Mezzanine	
Unit		O	A	75	Unit: A group or suite of rooms within a building that are under common ownership or tenancy, typically having a common primary entrance. Example: Apartment 14, Suite 1100	
Room		O	A	75	Room: A single room within a building. Example: Lobby, Room 302	
Seat		O	A	75	Seat: A place where a person might sit within a building. Example: Seat, cubicle	
LOC		O	A	300	Additional Location: Additional location information, which is not a building, floor, unit, room or seat. Example: SW corner of warehouse	

SITE STRUCTURE POINTS						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
Landmark		O	A	150	Complete Landmark Name: The name by which a prominent feature is publically known or Vanity address Example: The White House, Harvard University	
PlaceType		C	A	50	Place Type: Type of feature identified by the address Example: office, store, school, residential	
Longitude		O	N	12	Longitude: In decimal degrees	Yes, Calculate Geometry
Latitude		O	N	11	Latitude: In decimal degrees	Yes, Calculate Geometry
Elevation		O	N	6	Elevation: Height above Mean Sea Level in meters	
GC_EXCEPTION		M	A	75	GC_EXCEPTION : Feature Exception codes - see code translator to be provided by GeoComm	

SERVICE AREA POLYGONS (PSAP, Fire, LAW, EMS… One template – four layers)						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
SourceOfData	**Yes**	M	A	75	Source of Data: Agency that last updated the record, usually the name of the 9-1-1 Authority. This may be represented by the domain name of the agency. Example: arcgis.sd.gov	
DateUpdated	**Yes**	M	D	26	Date Updated: Date of last update	
EffectiveDate	**Yes**	M	D	26	Effective Date: Date the new layer information goes into effect	This can be the same as the DateUpdated if no Effective Date exists
ES_Unique_ID	**Yes**	M	A	100	ES_Unique_ID: ID that is guaranteed to be unique in a set of aggregated data. This could be a combination of the feature ID and the 9-1-1 Authority's domain name in the format shown in the example. Example: PSAP_207@Aurora_SD	GeoComm to add on County Value
Country		M	A	2	Country: The name of a country represented by its two-letter ISO 3166-1 English country alpha-2 code elements in capital letters. Example: US	Yes
State		M	A	2	State: Two alpha-character U.S. State abbreviation as defined by USPS Publication 28, or Canadian province abbreviation equivalent, on the Left side of the road segment. Example: SD (South Dakota), ND (North Dakota)	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.

SERVICE AREA POLYGONS (PSAP, Fire, LAW, EMS… One template – four layers)						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
AgencyId	**Yes**	M	A	100	AgencyId: A domain name which is used to uniquely identify any agency. Example: arcgis.sd.gov	
RouteURI	**Yes**	M	URI	300	Route URI: URN/URL for Routing. Example: sip:sos.law@city.eoc.sd.us	
ServiceURN	**Yes**	M	URN	50	Service URN: The URN for the Emergency Service or other Well-Known Service Example: "urn:service:sos" for a PSAP or "urn:service:sos.ambulance" for an ambulance service.	
ServiceNumber		O	A	15	Service Number: The numbers that would be dialed on a 12 digit keypad to reach the emergency service appropriate for the location.	
Agency_vCard URI	**Yes**	M	URI	300	Agency vCard URI: URI for the vCARD of contact information.	
DisplayName	**Yes**	M	A	60	Display Name: Display Name of the Service Example: Rapid City PD	
GC_EXCEPTION		M	A	75	GC_EXCEPTION : Feature Exception codes - see code translator to be provided by GeoComm	

AUTHORITATIVE BOUNDARY						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Update / Notes**
SourceOfData	**Yes**	M	A	75	Source: Agency that last updated the record, usually the name of the 9-1-1 Authority. This may be represented by the domain name of the agency. Example: arcgis.sd.gov	
DateUpdated	**Yes**	M	D	26	Date Updated: Date of last update	
EffectiveDate	**Yes**	O	D	26	Effective Date: Date the new layer information goes into effect	This can be the same as the DateUpdated if no Effective Date exists
AB_Unique_ID	**Yes**	M	A	100	AB_Unique_ID: ID that is guaranteed to be unique in a set of aggregated data. This could be a combination of the feature ID and the 9-1-1 Authority's domain name in the format shown in the example. Example: AB_207@@Aurora_SD	GeoComm to add County Value
Country		M	A	2	Country: The name of a country represented by its two-letter ISO 3166-1 English country alpha-2 code elements in capital letters. Example: US	Yes
State		M	A	2	State: Two alpha-character U.S. State abbreviation as defined by USPS Publication 28, or Canadian province abbreviation equivalent. Example: SD (South Dakota), ND (North Dakota)	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.

AUTHORITATIVE BOUNDARY						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Update / Notes**
AgencyId	**Yes**	M	A	100	AgencyId: A domain name which is used to uniquely identify any agency. Example: arcgis.sd.gov	
DisplayName	**Yes**	M	A	60	Display_Name: Display Name of the Authoritative source entity. Example: Jones County SD	
GC_EXCEPTION		M	A	75	GC_EXCEPTION : Feature Exception codes - see code translator to be provided by GeoComm	

COUNTY BOUNDARIES						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
SourceOfData	**Yes**	M	A	75	Source of Data: Agency that last updated the record, usually the name of the 9-1-1 Authority. This may be represented by the domain name of the agency. Example: arcgis.sd.gov	
DateUpdated	**Yes**	M	D	26	Date Updated: Date of last update	
County_Unique_ID	**Yes**	M	A	100	County_Unique_ID: ID that is guaranteed to be unique in a set of aggregated data. This could be a combination of the feature ID and the 9-1-1 Authority's domain name in the format shown in the example. Example: COUNTY@Aurora_SD	GeoComm to add County Value
Country		M	A	2	Country: The name of a country represented by its two-letter ISO 3166-1 English country alpha-2 code elements in capital letters. Example: US	Yes
State		M	A	2	State: Two alpha-character U.S. State abbreviation as defined by USPS Publication 28, or Canadian province abbreviation equivalent. Example: sd (South Dakota), ND (North Dalota)	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
County	**Yes**	M	A	40	County: County Name, or equivalent, completely spelled out , as given in INCITS 31:2009	
GC_EXCEPTION		M	A	75	GC_EXCEPTION : Feature Exception codes - see code translator to be provided by GeoComm	

MUNICIPAL BOUNDARIES						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
SourceOfData	**Yes**	M	A	75	Source of Data: Agency that last updated the record, usually the name of the 9-1-1 Authority. This may be represented by the domain name of the agency. Example: arcgis.sd.gov	
DateUpdated	**Yes**	M	D	26	Date Updated: Date of last update	
EffectiveDate	**Yes**	M	D	26	Effective Date: Date the new layer information goes into effect	This can be the same as the DateUpdated if no Effective Date exists
Muni_Unique_ID	**Yes**	M	A	100	Muni_Unique_ID: ID that is guaranteed to be unique in a set of aggregated data. This could be a combination of the feature ID and the 9-1-1 Authority's domain name in the format shown in the example. Example: MUNI_207@Aurora_SD	GeoComm to add County Value
Country		M	A	2	Country: The name of a country represented by its two-letter ISO 3166-1 English country alpha-2 code elements in capital letters. Example: US	Yes

MUNICIPAL BOUNDARIES						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
State		M	A	2	State: Two alpha-character U.S. State abbreviation as defined by USPS Publication 28, or Canadian province abbreviation equivalent. Example: SD (South Dakota), ND (North Dakota)	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
County		M	A	40	County: County Name, or equivalent, completely spelled out, as given in INCITS 31:2009	Yes, with authorized boundary. Some fallouts may occur where centerlines not split at boundary. Will not overwrite existing data.
IncorporatedMunicipality	**Yes**	M	A	100	Incorporated Municipality: The name of the incorporated municipality where the address is located. Only used if a named municipality exists, otherwise populate with "Unincorporated" Example: Rapid City	
GC_EXCEPTION		M	A	75	GC_EXCEPTION : Feature Exception codes - see code translator to be provided by GeoComm	

CELL SECTOR LOCATION						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
SourceOfData	**Yes**	M	A	75	Agency that last updated the record, usually the name of the 9-1-1 Authority. This may be represented by the domain name of the agency	
DateUpdated	**Yes**	M	D	26	Date of last update using ISO 8601 format	
EffectiveDate	**Yes**	M	D	26	Date the new layer information goes into effect using ISO 8601 format	This can be the same as the DateUpdated if no Effective Date exists
Country		M	A	2	The name of a contry represented by its two-letter ISO 3166-1 English country alpha-2 code elements in capital letters	
State		M	A	2	Two alph-character U.S. State or Canadian province abbreviation as defined by USPS Publication 28	
County		M	A	40	County Name, or equivalent, completely spelled out, as given in INCITS 31:2009	
SiteID		C	A	10	Some carriers have cell site identifications unique for that cell site within the entire carrier network. Leave blank if not applicable	
SectorID	**Yes**	M	A	4	Cell sector face or Omni as provided by carrier.	
SwitchID		C	A	10	The Mobile Switch Center ID to which cell site is homed too	
MarketID		C	A	10	The Market ID associated with the Mobile Switch Center the cell site is homed too	
CellSiteID		C	A	10	Name provided by the wireless service provider, usually unique to the cell site	

CELL SECTOR LOCATION						
Field Name	**County Populated**	**M/C/O**	**Type**	**Field Width**	**Attribute Description**	**GeoComm Populate / Notes**
ESRD_Site_ID		C	N	10	The ESRD of the specific cell sector, if applicable, or the first number in the ESRK range for the PSAP	
LastESRK		C	N	10	Last number in the ESRK range for the PSAP. Not used for ESRD	
SectorOrientation	**Yes**	M	A	4	Antenna orientation associated with this location	
Technology					Type of radio protocol being utilized	
Longitude		O	N	12	Longitude: In decimal degrees	Yes, Calculate Geometry
Latitude		O	N	11	Latitude: In decimal degrees	Yes, Calculate Geometry

Appendix D | GeoLynx Server data upload instructions

Uploading

1. Access the SD DIMES data upload site through the following website: https://sd911dimes.geo-comm.com/ and follow link.
2. Click on “GIS Portal” on the top navigation bar
3. Click on “Upload GIS Data”

   Note: Data must be in a zipped folder