

⋮  
Geographic Information System (GIS) Subcommittee

*Address Database and Address  
Road Centerline Content  
Standards*



**Approved by the Standing Committee on Geographic Information  
April 19, 2000**

South Carolina Information Resource Council

·  
·  
·  
·  
·  
·  
·

---

# Information Resource Council GIS Subcommittee

## *Address Database and Address Road Centerline Content Standards*

### **Statement of Purpose**

This report provides reasonable address database and road centerline attribute data content standards for the state of South Carolina. It is intended as a guide for information technology professionals implementing address based relational database and geographic information systems to facilitate the effective use, understanding, automation, and integration of such data. The standards are meant to be useable by all levels of government and by the private sector. These standards are designed to facilitate database and data consistency among the address information systems.

Within this scope, these standards contain the components integral to the creation, maintenance, usability, and exchange of address related information within traditional relational database and geographic information systems. These standards do not limit the ability of participants to collect, maintain, or append additional variables to their address information systems. Rather, these standards are designed to ensure compatibility among the various address information systems to ensure data quality and consistency, to ease data integration and exchange, to improve data mining and manipulation, and to enhance application development activities.

The standards are designed to follow US Postal Service standards and to comply with other existing standards including those for E-911 systems.

## Address Database Standards

The quality of address data throughout government impacts the effective and efficient use of public resources. When government entities deliver a service, rely heavily on the US Postal Service (bulk mailing), or want to consolidate client transportation and/or service delivery between agencies, address information quality is often the link to increased efficiency.

Address quality can be measured and standardized with off-the-shelf software using US Postal Service (USPS) certified Address AIS products. The USPS standards are an acceptable format for the National Emergency Number Association (NENA) which coordinated Emergency 911 activities including street naming and addressing. For example:

Before Standardization	After Standardization
Apt 230 5505 Sunsette	5505 W Sunset Blvd Apt 230
Hollwoode Ca 90083	Hollywood Ca 90028-8521

In the above example, 5505 Sunsette, 90083 was standardized against a postal database to become 5505 W SUNSET BLVD, 90028. What if 5505 Sunset Ave, 5505 Sunset St, and 5505 Sunset Blvd can all be found in the latter zipcode? Which standardized street address is correct? Zipcodes and street type data are crucial components of the correct and standardized address.

The physical location of a client, service, or structure is also lost when PO Boxes, mail forwarding/billing addresses, or other non-geographic descriptions such as “across from Wal-Mart” qualify as address data. Automated address standardization is no substitute for complete and correct data entry.

Because of the growing population of people with PO BOX mailing addresses, government address data systems must collect both the physical location and mailing address of clients and services.

*Example: Address Database*

HouseNum	HouseSuf	Prefix	Name	Type	Unit	UnitNum	City	State	Zip	Zip+4	MailAdd	MailCity	MailState	MailZip	MailPlus4	R_Route	Date
325	1/2	N	MAIN	ST	APT	A	COLUMBIA	SC	29201	1284	325 N MAIN ST						09-25-1999
327		N	MAIN	ST			COLUMBIA	SC	29201	1284	327 N MAIN ST						01-17-2000
950		N	TRENHOLM	RD	UNIT	5	SHANDON	SC	29206		1802 PO BOX 502	COLUMBIA	SC	29201	1956		01-17-2000
120	1/2		AUGUSTA	HWY	S		AIKEN	SC	29801		1627 PO BOX 1000	AUGUSTA	GA	36306	2125		05-07-1999
50			WAGNER	RD			WAGNER	SC	29803		1504 50 WAGNER RD					RR 2 BOX 5	01-17-2000

### Recommended Address Data Components

	Attribute Field Description	Example Input	Field Type	Field Width	Field Name
1	Primary Address Number	325	Numeric	5	HouseNum
2	House Number Suffix	1/2	Character	4	HouseSuf
3	Prefix Directional	N	Character	2	Prefix
4	Street name	Main	Character	35	Name
5	Street Type	St	Character	4	Type
6	Suffix Directional	E	Character	2	Suffix
7	Secondary Address Identifier	Apt	Character	4	Unit
8	Secondary Address Range	12	Character	4	UnitNum
9	City/Town	Columbia	Character	25	City
10	State	SC	Character	2	State
11	Zipcode	29201	Numeric	5	Zipcode
12	Plus Four Code (+4)	1284	Numeric	4	Plus4
13	Mailing Address (PO Box)	PO Box 502	Character	40	MailAdd
14	Mailing Community	Lexington	Character	25	MailCity
15	Mailing State	SC	Character	2	MailState
16	Mailing Zipcode	29072	Numeric	5	MailZip
17	Mailing Plus Four Code (+4)	1867	Numeric	4	MailPlus4
18	Rural Route Box, HC, or RD	Christine Apts	Character	25	Reside
19	Date (Entry/Modify)	01-17-2000	Character	10	Date

By adopting these address standards, agencies can develop custom data input forms that include pull down lists for specific address components such as prefix directionals, street types, suffix directionals, and state codes. The component address structure will also increase, for lack of a better term, manipulation of the address database for statistical and mapping purposes. In addition, agencies will be able to clean and sort the address data more efficiently by avoiding common extraction errors associated with data parsing and standardization.

*Example: Address Records **Before** Data Parsing and Standardization*

*(Using a Database not compliant with Proposed Address Content Standards)*

Street Address	Zipcode
987 1/2 Jolley Street Hwy N	29841
1000 N West St S	29205

*Example: Address Records After Data Parsing and Standardization  
(Using a Database not compliant with Proposed Address Content Standards)*

House #	Prefix	Street	Type	Suffix	Zipcode
987		Jolley St	Hwy	N	29841
1000	NW		St	S	29205

In the example above: if the address database subscribed to the proposed content standards, the address records would have been parsed in the following manner:

*Example: Address Records After Data Parsing and Standardization  
(Using a Database compliant with Proposed Address Content Standards)*

House	HouseSuf	Prefix	Street	Type	Suffix	Zipcode
987	1/2		Jolley Street	Hwy	N	29841
1000		N	West	St	S	29205

Example: Custom Data Input Form

**Client Database**

Last Name: CITIZEN      First Name: JOE      MI: B      SSN: 123456789

Gender:  Male  Female      Age: 27      Services Needed:  Transportation  Child Care  Training

House #: 987      House Suf: 1/2      Prefix Dir: None      Street Name: PARADISE      Type: AVE      Suffix Dir: None

Unit Type: APT      Unit #: 87      City: AIKEN      State: SC      Zip: 29205      Plus 4: 1867

Mail Address: PO BOX 502      Mail Community: CHARLESTON      Mail State: SC      Mail Zip: 29124      Mail Plus 4: 5025      Rural Route / Subdivision: PARADISE ESTATES

Date: 01-17-2000

Ok!      Cancel!

### Address Road Centerline Standards

Address geocoding using road centerlines requires specific data elements for accuracy and consistency. In order to reduce spatial error and ensure geocoding potential among all road centerline files, the following standards are proposed.

### Address Road Centerline Data Elements

	Attribute Field Description	Example Input	Field Type	Field Width	Field Name
1	Prefix Directional	N	Character	2	Prefix
2	Road Name	Lee	Character	35	Name
3	Road Type	St	Character	4	Type
4	Suffix Directional	S	Character	2	Suffix
5	Road Number	S-3-22	Character	10	RoadNum
6	Left Address Range Low	101	Numeric	5	Ladd1
7	Left Address Range High	175	Numeric	5	Ladd2
8	Right Address Range Low	100	Numeric	5	Radd1
9	Right Address Range High	176	Numeric	5	Radd2
10	Zipcode Left	29205	Numeric	5	ZipL
11	Zipcode Right	29205	Numeric	5	ZipR
12	Alternate Prefix		Character	2	AltPre
13	Alternate Name	Memorial	Character	35	AltName
14	Alternate Type	Hwy	Character	4	AltType
15	Alternate Suffix		Character	2	AltSuf

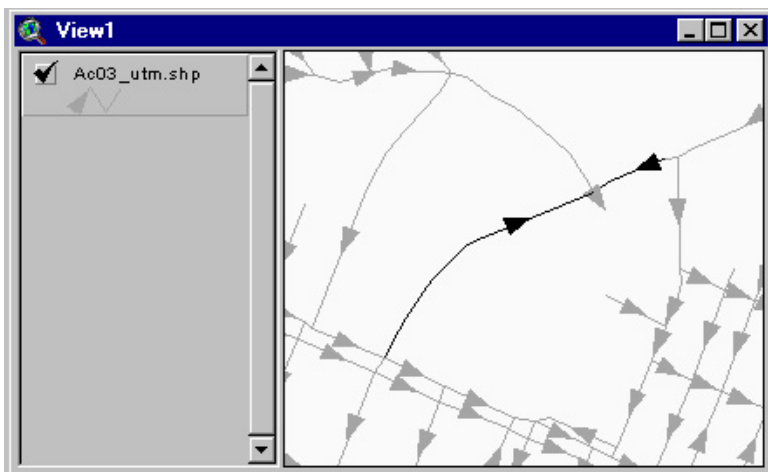
16	ESN Left	555	Character	5	ESNL
17	ESN Right	556	Character	5	ESNR
18	Community Left	Columbia	Character	30	CommuneL
19	Community Right	Columbia	Character	30	CommuneR
20	Date (Add/Modify)	01-17-2000	Character	10	Date

Example: Road Centerlines Attribute Table

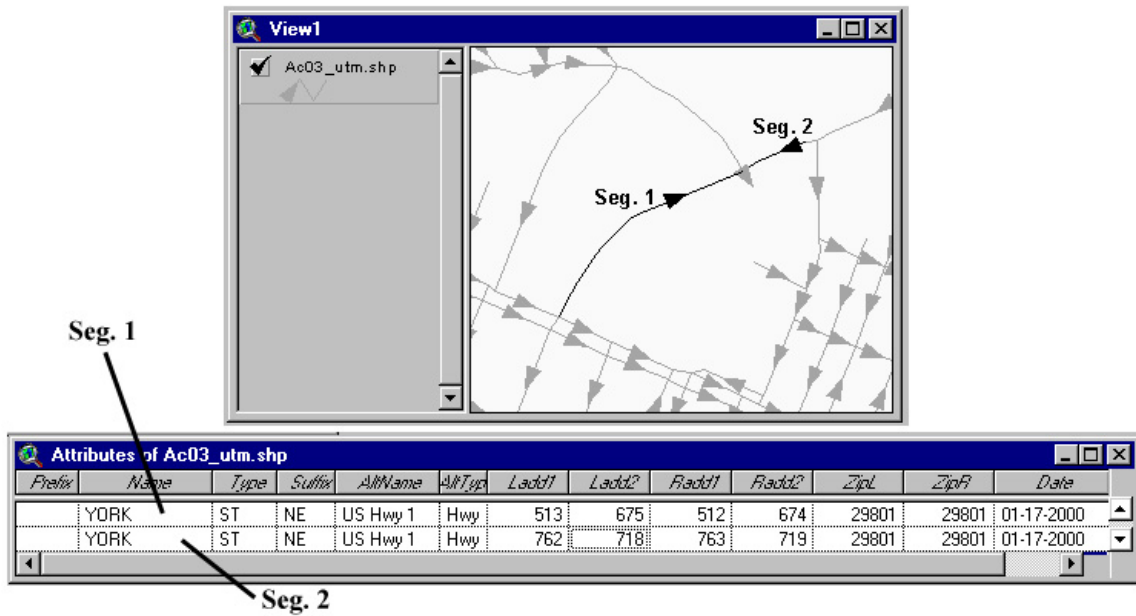
Prefix	Name	Type	Suffix	AltName	AltTyp	Ladd1	Ladd2	Radd1	Radd2	ZipL	ZipR	Date
YORK	ST	NE	US Hwy 1	Hwy	762	718	763	719	29801	29801	01-17-2000	
YORK	ST	NE	US Hwy 1	Hwy	513	675	512	674	29801	29801	01-17-2000	

All road centerline files should be cleaned and contain current topology to ensure proper address range information and to include address breaks at all road intersections. Segment parity should also be validated to ensure proper left/right address range assignments. Road centerline files are made up of individual line segments. The arc (flow) direction of these line segments depends on how each was digitized or captured when compiling the digital centerline file. Parity refers to the directional relationship between connected line segments. When connected line segments have inconsistent parity (different flow directions), then address range information is opposite and reverse for each segment. This means that the odd address range for the first segment is coded to the left side, while the odd address range for the second segment is coded to the right side in reverse order. In other words, a geocoded address would appear on the wrong side of the road because segment parity was inconsistent. Segment parity inconsistencies can be corrected in two ways: 1) by flipping the segment attributes or 2) by flipping the direction of one of the line segments.

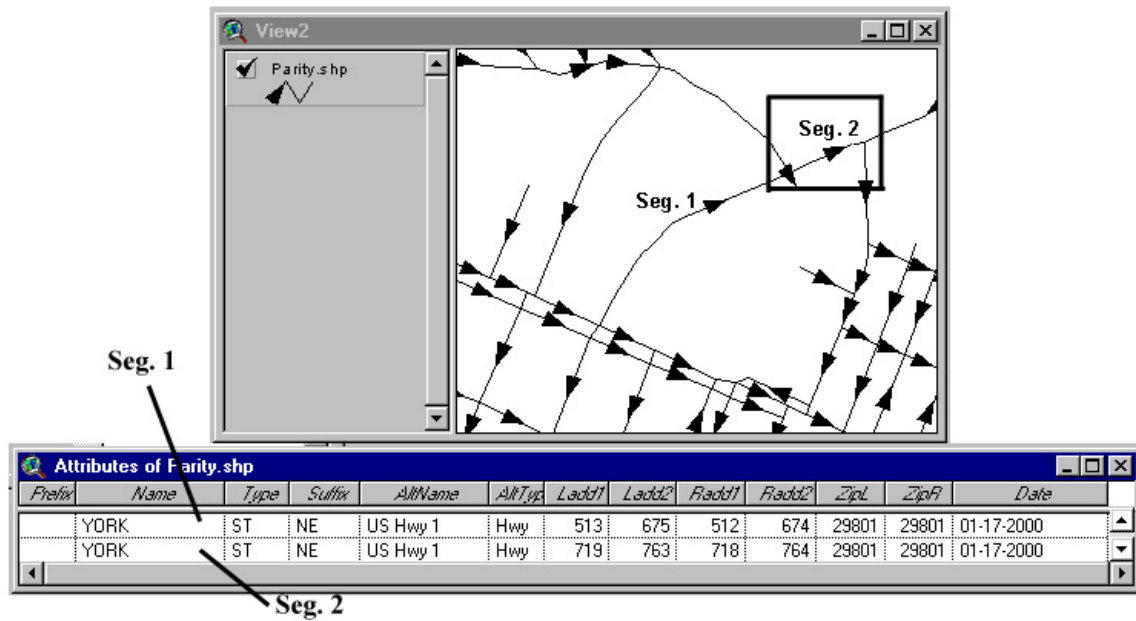
Example: Inconsistent Segment Parity



Example: Parity Correction by Attribute Adjustment



Example: Parity Correction by Changing Segment Direction



**Important Notes!**

1. The Data transaction field should be included for both address databases and road centerline (GIS) files. This field is necessary for tracking additions to or



modifications of the attribute files and for enabling date queries of information within the attribute files for data assessment and data exchange purposes.

2. This document only makes recommendations involving address attribute information for road centerline files. It does not cover additional road characteristic elements beneficial to transportation planning and pavement management activities. Please see the transportation road centerline content standard for information on these additional data elements.

### **Appendix: US Postal Service Street Addressing Standards**

The following tables list the standard street prefix, type, suffix, and secondary unit abbreviations for the US Postal Service.

<b>Prefix Directionals</b>	<b>Abbrev.</b>
East	E
West	W
North	N
South	S
Northeast	NE
Northwest	NW
Southeast	SE
Southwest	SW

<b>Street Types</b>	<b>Abbrev.</b>
Alley	ALY
Annex	ANX
Arcade	ARC

Avenue	AVE
Bayou	BYU
Beach	BCH
Bend	BND
Bluff	BLF
Bluffs	BLFS
Bottom	BTM
Boulevard	BLVD
Branch	BR

<b>Street Types</b>	<b>Abbrev.</b>
Bridge	BRG
Brook	BRK
Brooks	BRKS
Burg	BG
Burges	BGS
Bypass	BYP
Camp	CP
Canyon	CYN
Cape	CPE
Causeway	CSWY
Center	CTR
Centers	CTRS
Circle	CIR
Circles	CIRS
Cliff	CLF
Cliffs	CLFS
Club	CLB
Common	CMN

Commons	CMNS
Corner	COR
Corners	CORS
Course	CRSE
Court	CT
Courts	CTS
Cove	CV
Coves	CVS
Creek	CRK
Crescent	CRES
Crest	CRST
Crossing	XING
Crossroad	XRD
Crossroads	XRDS
Curve	CURV

<b>Street Types</b>	<b>Abbrev.</b>
Dale	DL
Dam	DM
Divide	DV
Drive	DR
Drives	DRS
Estate	EST
Estates	ESTS
Expressway	EXPY
Extension	EXT
Extensions	EXTS
Fall	FALL
Falls	FLS
Ferry	FRY
Field	FLD
Fields	FLDS
Flat	FLT
Flats	FLTS

Ford	FRD
Fords	FRDS
Forest	FRST
Forge	FRG
Forges	FRGS
Fork	FRK
Forks	FRKS
Fort	FT
Freeway	FWY
Garden	GDN
Gardens	GDNS
Gateway	GTWY
Glen	GLN
Glens	GLNS

<b>Street Types</b>	<b>Abbrev.</b>
Green	GRN
Greens	GRNS
Grove	GRV
Groves	GRVS
Harbor	HBR
Harbors	HBRs
Haven	HVN
Heights	HTS
Highway	HWY
Hill	HL
Hills	HLS
Hollow	HOLW
Inlet	INLT
Island	IS
Islands	ISS
Isle	ISLE
Junction	JCT

Junctions	JCTS
Key	KY
Keys	KYS
Knoll	KNL
Knolls	KNLS
Lake	LK
Lakes	LKS
Land	Land
Landing	LNDG
Lane	LN
Light	LGT
Lights	LGTS
Loaf	LF
Lock	LCK
Locks	LCKS

<b>Street Types</b>	<b>Abbrev.</b>
Lodge	LDG
Loop	LOOP
Mall	MALL
Manor	MNR
Manors	MNRS
Meadow	MDW
Meadows	MDWS
Mews	MEWS
Mill	ML
Mills	MLS
Mission	MSN
Motorway	MTWY
Mount	MT
Mountain	MTN
Mountains	MTNS
Neck	NVK
Orchard	ORCH

Oval	OVAL
Overpass	OPAS
Park	PARK
Parks	PARKS
Parkway	PKWY
Parkways	PKWY
Pass	PASS
Passage	PSGE
Path	PATH
Pike	PIKE
Pine	PNE
Pines	PNES
Place	PL
Plain	PLN
Plains	PLNS
Plaza	PLZ

<b>Street Types</b>	<b>Abbrev.</b>
Point	PT
Points	PTS
Port	PRT
Ports	PRTS
Prairie	PR
Radial	RADL
Ramp	RAMP
Ranch	RNCH
Rapid	RPD
Rapids	RPDS
Rest	RST
Ridge	RDG
Ridges	RDGS
River	RIV
Road	RD
Roads	RDS

Route	RTE
Row	ROW
Rue	RUE
Run	RUN
Shoal	SHL
Shoals	SHLS
Shore	SHR
Shores	SHRS
Skyway	SKWY
Spring	SPG
Springs	SPGS
Spur	SPUR
Spurs	SPURS
Square	SQ
Squares	SQS
Station	STA
Stravenue	STRA

<b>Street Types</b>	<b>Abbrev.</b>
Stean	STRM
Street	ST
Streets	STS
Summit	SMT
Terrace	TER
Throughway	TRWY
Trace	TRCE
Track	TRAK
Trafficway	TRFY
Trail	TRL
Trailer	TRLR
Tunnel	TUNL
Turnpike	TPKE
Underpass	UPAS
Union	UN
Unions	UNS

Valley	VLV
Valleys	VLVS
Viaduct	VIA
View	VW
Views	VVS
Village	VLG
Villages	VLGS
Ville	VL
Vista	VIS
Walk	WALK
Walks	WALK
Wall	WALL
Way	WAY
Ways	WAYS
Well	WLS

Suffix Directionals	Abbrev.
East	E
West	W
North	N
South	S
Northeast	NE
Northwest	NW
Southeast	SE
Southwest	SW

Unit Designators	Abbrev.
Apartment	APT
Basement	BSMT
Building	BLDG
Department	DEPT
Floor	FL
Front	FRNT



Hanger	HNGR
Key	KEY
Lobby	LBBY
Lot	LOT
Lower	LOWR
Office	OFC
Penthouse	PH
Pier	PIER
Rear	REAR
Room	RM
Side	SIDE
Slip	SLIP
Space	SPC
Stop	STOP
Suite	STE
Trailer	TRLR
Unit	UNIT
Upper	UPPR