Guidelines and Standards for Selected Reference Tables in the IHFS Database

1.0 Introduction

The current configuration of the WHFS database allows entries without regard to upper/lower case, spelling, abbreviation, or correctness for that particular field. As a result, sharing of information for service backup between WFOs or coordination between WFOs and RFCs is difficult and tedious. To address this problem a team was formed in Central Region to standardize portions of the database that impact service backup and coordination. This team set out to construct a stable set of choices or standards for each of the portions (i.e. reference tables). Then to create an interface such that the user could update their database with the new standards. Future teams will focus on how to keep the databases current and to build an infrastructure such that data can be transferred and updated regularly and as instantaneously as possible. It has been proposed to the WHFS developers that we "lock" the database. If new entries are desired in the standardized fields an updated version could be delivered periodically. The current team consists of Central Region RFC, WFO and regional personnel. Members from Southern, Eastern and Western Region also took part in the discussion and duties.

Sixteen reference tables (and their foreign key ties) were identified for standardization. In the sections 2 through 13 below, each of the reference tables is discussed. In each section, the background and standards for each table is listed first followed by all the allowable entries for each. Section 14 provides background information on foreign keys and how these keys are used to maintain referential integrity of information in a database.

2.0 Network Table

The network table indicates the NWS program (climatology, meteorology and/or hydrology) supported by observed data at a COOP station. Use the **network** column for the correct entry. Description is not part of this table but is provided as supplemental information for this document. Definitions for A, B, & C network stations obtained from WSOM B-17 chapter. The table is single column table, 3-character field and upper case.

Network	Description
A	the basic climate network. Supposed to be set up on a nominal grid of 25 miles, as close as 20 miles in rapidly varying climate regimes, as far as 30 > miles in homogeneous areas. Must at least measure precip, usually also daily max and min temperatures. "A" network includes Reference Climate Stations, Historical Climate Network, and Reference Climate Network.
B	network with no specific spacing criteria, used to support Hydrology. The F&P rain gage sites are in this network, and are published in the HPD. "B" network 8" SRG data may or may not be published in the state CD.
C	other sites not needed for the A or B network, but used for "public service"; long record stations with 50 or more years of records; research, experimental, and special purpose stations.
AB	see A and B descriptions above
AC	see A and C descriptions above
ABC	see A, B and C descriptions above

BC	see B and C descriptions above
U	Unofficial COOP station
Unk	unknown/not defined (exception to upper case rule for this table)

3.0 River Forecast Center Table

This table identifies which River Forecast Center has responsibility for each forecast and data point. Use the **acronym** column for the correct entry. The description, location and identifier information are not part of the table but are provided as supplemental information for this document. The table is single column, 5-character field and upper case.

Acronym	Description	Location	Identifier
ABRFC	Arkansas-Red Basin	Tulsa, OK	TUA
APRFC	Alaska-Pacific	Anchorage, AK	ACR
CBRFC	Colorado Basin	Salt Lake City, UT	STR
CNRFC	California-Nevada	Sacramento, CA	RSA
LMRFC	Lower Mississippi	Slidell, LA	ORN
MARFC	Mid-Atlantic	State College, PA	RHA
MBRFC	Missouri Basin	Pleasant Hill, MO	KRF
NCRFC	North Central	Chanhassen, MN	MSR
NERFC	Northeast	Tauton, MA	TAR
NWRFC	Northwest	Portland, OR	PTR
OHRFC	Ohio	Wilmington, OH	TIR
SERFC	Southeast	Peachtree City, GA	ALR
WGRFC	West Gulf	Fort Worth, TX	FWR
Unk	unknown/not defined (exception to upper case rule for this table)		

4.0 Weather Forecast Office & Hydrologic Service Area Tables

The WFO/HSA table describes which office has responsibility at a station. Use the **identifier** column for the correct entry. The name column is provided as supplemental information for this document. Information for this table was extracted from the "dbf" file obtained from the following NWS web site: http://www.awips.noaa.gov/mapdata/newcat/ The table is single column table, 3-character field and upper case. Additional information on office identifiers is contained in Appendix A.

Identifier	Name
ABQ	Albuquerque, NM
ABR	Aberdeen, SD
AFC	Anchorage, AK
AFG	Fairbanks, AK
AJK	Juneau, AK
AKQ	Wakefield, VA
ALY	Albany, NY
AMA	Amarillo, TX
APX	North Central Lower Michigan
ARX	La Cross, WI
BGM	Binghamton, NY
BIS	Bismarck, ND
BMX	Birmingham, AL
BOI	Boise, ID
BOU	Denver/Boulder, CO
BOX	Boston, MA
BRO	Brownsville, TX

BTV	Burlingtion, VT
BUF	Buffalo, NY
BYZ	Billings, MT
CAE	Columbia, SC
CAR	Caribou, ME
CHS	Charleston, SC
CLE	Cleveland, OH
CRP	Corpus Christi, TX
CTP	Central Pennsylvania
CYS	Cheyenne, WY
DDC	Dodge City, KS
DLH	Duluth, MN
DMX	Des Moines, IA
DTX	Detroit, MI
DVN	Quad Cities, IA
EAX	Kansas City/Pleasant Hill, MO
EKA	Eureka, CA
EPZ	El Paso, TX
EWX	Austin/San Antonio, TX
EYW	Key West, FL
FFC	Atlanta, GA
FGF	Eastern North Dakota
FGZ	Flagstaff, AZ
FSD	Sioux Falls, SD
FWD	Dallas/Fort Worth, TX
GGW	Glasgow, MT
GID	Hastings, NE
GJT	Grand Junction, CO
GLD	Goodland, KS
GRB	Green Bay, WI
GRR	Grand Rapids, MI
GSP	Greenville,/Spartanburg, SC
GUM	Guam
GYX	Portland, ME
HFO	Honolulu, HI
HGX	Houston/Galveston, TX
HNX	San Josquin Valley, CA
HUN	Huntsville, AL
ICT	Wichita, KS
ILM	Wilmington, NC
ILN	Cincinnati, OH
ILX	Central Illinois
IND	Indianapolis, IN
IWX	Northern Indiana, IN
JAN	Jackson, MS
JAX	Jacksonville, FL
JKL	Jackson, KY
LBF	North Platte, NE
LCH	Lake Charles, LA
LIX	New Orleans/Baton Rouge, LA
LKN	Elko, NV
LMK	Louisville, KY
LOT	Chicago, IL
LOX	Los Angeles, CA
LSX	St. Louis, MO
LUB	Lubbock, TX
LWX	Baltimore, MD/Washington D.C.
LZK	Little Rock, AR
MAF	Midland/Odessa, TX
MEG	Memphis, TN
MFL	Miami, FL
MFR	Medford, OR
MHX	Morehead City, NC
MKX	Milwaukee, WI
MLB	Melbourne, FL
MOB	Mobile, AL
MPX	Minneapolis, MN
MQT	Marquette, MI
MRX	Knoxville/Tri Cites, TN
MSO	Missoula, MT
MTR	San Francisco Bay Area, CA
OAX	Omaha, NE
OHX	Nashville, TN
OKX	New York City, NY
OTX	Spokane, WA
OUN	Oklahoma City, OK
PAH	Paducah, KY
PBZ	Pittsburgh, PA
PDT	Pendleton, OR
PHI	Philadelphia, PA
PIH	Pocatello/Idaho Falls, ID
PQR	Portland, OR
PSR	Phoenix, AZ
PUB	Pueblo, CO
RAH	Raleigh/Durham, NC
REV	Reno, NV
RIW	Riverton, WY
RLX	Charleston, WV
RNK	Roanoke, VA
SEW	Seattle/Tacoma, WA
SGF	Springfield, MO
SGX	San Diego, CA
SHV	Sheveport, LA
SJT	San Angelo, TX
SJU	San Juan, PR
SLC	Salt Lake City, UT
STO	Sacramento, CA
TAE	Tallahassee, FL
TBW	Tampa Bay Area, FL
TFX	Great Falls, MT
TOP	Topeka, KS
TSA	Tulsa, OK
TWC	Tucson, AZ
UNR	Rapid City, SD
VEF	Las Vegas, NV
UNK	unknown/not defined

5.0 State Table

The state table describes which state (or province) the station is physically placed. Use the **code** column for the correct entry. Although the table was not designed with Canadian provinces and Mexican states in mind, several offices process data from sites located Canada and Mexico to support hydrologic forecasts. In addition to the states, territories and possessions of the United States, information on Canadian provinces and Mexican states has been provided. The information for this table was obtained from a variety of internet sources. FIPS and NCDC codes are provided as supplemental information for this document. The table contains two columns, two-character Post Office code field (upper case) and 20-char name field (mixed case).

5.1 United States

Code	Name	NCDC	FIPS
AL	Alabama	01	01
AK	Alaska	50	02
AZ	Arizona	02	04
AR	Arkansas	03	05
CA	California	04	06
CO	Colorado	05	08
CT	Connecticut	06	09
DE	Delaware	07	10
DC	District of Columbia	18	11
FL	Florida	08	12
GA	Georgia	09	13
HI	Hawaii	51	15
ID	Idaho	10	16
IL	Illinois	11	17
IN	Indiana	12	18
IA	Iowa	13	19
KS	Kansas	14	20
KY	Kentucky	15	21
LA	Louisiana	16	22
ME	Maine	17	23
MD	Maryland	18	24
MA	Massachusetts	19	25
MI	Michigan	20	26
MN	Minnesota	21	27
MS	Mississippi	22	28
MO	Missouri	23	29
MT	Montana	24	30
NE	Nebraska	25	31
NV	Nevada	26	32
NH	New Hampshire	27	33
NJ	New Jersey	28	34
NM	New Mexico	29	35
NY	New York	30	36
NC	North Carolina	31	37
ND	North Dakota	32	38
OH	Ohio	33	39
OK	Oklahoma	34	40
OR	Oregon	35	41
PA	Pennsylvania	36	42
RI	Rhode Island	37	44
SC	South Carolina	38	45
SD	South Dakota	39	46
TN	Tennessee	40	47
TX	Texas	41	48
UT	Utah	42	49
VT	Vermont	43	50
VA	Virginia	44	51
WA	Washington	45	53
WV	West Virginia	46	54
WI	Wisconsin	47	55
WY	Wyoming	48	56
PR	Puerto Rico	66	72
VI	Virgin Islands	67	78
AS	American Samoa	XX	60
FM	Federated Micronesia	XX	64
GU	Guam	XX	66
MH	Marshall Islands	XX	68
MP	N. Mariana Islands	XX	69
PW	Palau	XX	70
UM	Midway Islands	XX	74
ZZ	Coastal	XX	XX
XX	State Not Defined	XX	XX

5.2 Canada and Russia

No supplemental information on Nuavut territory was found.

Code	Name	NCDC	FIPS
AB	Alberta	68	01
BC	British Columbia	69	02
MB	Manitoba	70	03
NB	New Brunswick	71	04
NF	Newfoundland	72	05
NT	Northwest Terr.	73	06
NS	Nova Scotia	74	07
ON	Ontario	75	08
PE	Prince Edward Island	76	09
PQ	Quebec	77	10
SK	Saskatchewan	78	11
YT	Yukon	79	12
NU	Nuavut	XX	13
RU	Russia	XX	XX

5.3 Mexico

No source for 2-character abbreviations was found for the Mexican states. Codes assigned were made-up and coordinated with interested RFCs.

Code	Name	FIPS
AG	Aguascalientes	01
BN	Baja California Norte	02
BS	Baja California Sur	03
CM	Campeche	04
CI	Chiapas	05
CH	Chihuahua	06
CZ	Coahuila de Zaragoza	07
CL	Colima	08
DF	Distrito Federal	09
DU	Durango	10
GN	Guanajuato	11
GE	Guerrero	12
HD	Hidalgo	13
JA	Jalisco	14
MX	Mexico	15
MC	Michoacan de Ocampo	16
MR	Morelos	17
NA	Nayarit	18
NL	Nuevo Leon	19
OA	Oaxaca	20
PU	Puebla	21
QA	Queretaro de Arteaga	22
QR	Quintana Roo	23
SI	Sinaloa	25
SO	Sonora	26
TB	Tabasco	27
TM	Tamaulipas	28
TL	Tlaxcala	29
VL	Veracruz-Llave	30
YU	Yucatan	31
ZA	Zacatecas	32

6.0 Counties Table

The county table describes the name of the county where the station is physically located. Use the **county name** column for the correct entry. Information for this table was extracted from "dbf" file obtained from the following NWS web site: http://www.awips.noaa.gov/mapdata/newcat/. The primary and secondary backup WFOs

are not included. Information on these assignments can be found in ROMLs for each region. The table contains six columns including a 20-char county name field (mixed case), a 2-char Post Office state code field (upper case), 3-char county FIPS code, 3-char primary WFO field (upper case), 3-char primary backup WFO field (upper case), and 3-char secondary backup WFO field (upper case). County names longer then 20 characters were coordinated with contacts at various RFCs.

6.1 Listing by Central Region WFOs

County Name	State Code	FIPS	Primary WFO
Big Stone	MN	011	ABR
Traverse	MN	155	ABR
Brown	SD	013	ABR
Buffalo	SD	017	ABR
Campbell	SD	021	ABR
Clark	SD	025	ABR
Codington	SD	029	ABR
Corson	SD	031	ABR
Day	SD	037	ABR
Deuel	SD	039	ABR
Dewey	SD	041	ABR
Edmunds	SD	045	ABR
Faulk	SD	049	ABR
Grant	SD	051	ABR
Hamlin	SD	057	ABR
Hand	SD	059	ABR
Hughes	SD	065	ABR
Hyde	SD	069	ABR
Jones	SD	075	ABR
Lyman	SD	085	ABR
McPherson	SD	089	ABR
Marshall	SD	091	ABR
Potter	SD	107	ABR
Roberts	SD	109	ABR
Spink	SD	115	ABR
Stanley	SD	117	ABR
Sully	SD	119	ABR
Walworth	SD	129	ABR
Alcona	MI	001	APX
Alpena	MI	007	APX
Antrim	MI	009	APX
Arenac	MI	011	APX
Benzie	MI	019	APX
Charlevoix	MI	029	APX
Cheboygan	MI	031	APX
Chippewa	MI	033	APX
Crawford	MI	039	APX
Emmet	MI	047	APX
Gladwin	MI	051	APX
Grand Traverse	MI	055	APX
Iosco	MI	069	APX
Kalkaska	MI	079	APX
Leelanau	MI	089	APX
Mackinac	MI	097	APX
Manistee	MI	101	APX
Missaukee	MI	113	APX
Montmorency	MI	119	APX
Ogemaw	MI	129	APX
Oscoda	MI	135	APX
Otsego	MI	137	APX
Presque Isle	MI	141	APX
Roscommon	MI	143	APX
Wexford	MI	165	APX
Allamakee	IA	005	ARX
Chickasaw	IA	037	ARX
Clayton	IA	043	ARX
Fayette	IA	065	ARX
Floyd	IA	067	ARX
Howard	IA	089	ARX
Mitchell	IA	131	ARX
Winneshiek	IA	191	ARX
Dodge	MN	039	ARX
Fillmore	MN	045	ARX
Houston	MN	055	ARX
Mower	MN	099	ARX
Olmsted	MN	109	ARX
Wabasha	MN	157	ARX
Winona	MN	169	ARX
Adams	WI	001	ARX
Buffalo	WI	011	ARX
Clark	WI	019	ARX
Crawford	WI	023	ARX
Grant	WI	043	ARX
Jackson	WI	053	ARX
Juneau	WI	057	ARX
La Crosse	WI	063	ARX
Monroe	WI	081	ARX
Richland	WI	103	ARX
Taylor	WI	119	ARX
Trempealeau	WI	121	ARX
Vernon	WI	123	ARX
Adams	ND	001	BIS

Billings	ND	007	BIS
Bottineau	ND	009	BIS
Bowman	ND	011	BIS
Burke	ND	013	BIS
Burleigh	ND	015	BIS
Dickey	ND	021	BIS
Divide	ND	023	BIS
Dunn	ND	025	BIS
Emmons	ND	029	BIS
Foster	ND	031	BIS
Golden Valley	ND	033	BIS
Grant	ND	037	BIS
Hettinger	ND	041	BIS
Kidder	ND	043	BIS
La Moure	ND	045	BIS
Logan	ND	047	BIS
McHenry	ND	049	BIS
McIntosh	ND	051	BIS
McKenzie	ND	053	BIS
McLean	ND	055	BIS
Mercer	ND	057	BIS
Morton	ND	059	BIS
Mountrail	ND	061	BIS
Oliver	ND	065	BIS
Pierce	ND	069	BIS
Renville	ND	075	BIS
Rolette	ND	079	BIS
Sheridan	ND	083	BIS
Sioux	ND	085	BIS
Slope	ND	087	BIS
Stark	ND	089	BIS
Stutsman	ND	093	BIS
Ward	ND	101	BIS
Wells	ND	103	BIS
Williams	ND	105	BIS
Adams	CO	001	BOU
Arapahoe	CO	005	BOU
Boulder	CO	013	BOU
Broomfield	CO	014	BOU
Clear Creek	CO	019	BOU
Denver	CO	031	BOU
Douglas	CO	035	BOU
Elbert	CO	039	BOU
Gilpin	CO	047	BOU
Grand	CO	049	BOU
Jackson	CO	057	BOU
Jefferson	CO	059	BOU
Larimer	CO	069	BOU
Lincoln	CO	073	BOU
Logan	CO	075	BOU
Morgan	CO	087	BOU
Park	CO	093	BOU
Phillips	CO	095	BOU
Sedgwick	CO	115	BOU
Summit	CO	117	BOU
Washington	CO	121	BOU
Weld	CO	123	BOU
Banner	NE	007	CYS
Box Butte	NE	013	CYS
Cheyenne	NE	033	CYS
Dawes	NE	045	CYS
Kimball	NE	105	CYS
Morrill	NE	123	CYS
Scotts Bluff	NE	157	CYS
Sioux	NE	165	CYS
Albany	WY	001	CYS
Carbon	WY	007	CYS
Converse	WY	009	CYS
Goshen	WY	015	CYS
Laramie	WY	021	CYS
Niobrara	WY	027	CYS
Platte	WY	031	CYS
Barber	KS	007	DDC
Clark	KS	025	DDC
Comanche	KS	033	DDC
Edwards	KS	047	DDC
Ellis	KS	051	DDC
Finney	KS	055	DDC
Ford	KS	057	DDC
Grant	KS	067	DDC
Gray	KS	069	DDC
Hamilton	KS	075	DDC
Haskell	KS	081	DDC
Hodgeman	KS	083	DDC
Kearny	KS	093	DDC
Kiowa	KS	097	DDC
Lane	KS	101	DDC
Meade	KS	119	DDC
Morton	KS	129	DDC
Ness	KS	135	DDC
Pawnee	KS	145	DDC
Pratt	KS	151	DDC
Rush	KS	165	DDC
Scott	KS	171	DDC
Seward	KS	175	DDC
Stafford	KS	185	DDC
Stanton	KS	187	DDC
Stevens	KS	189	DDC
Trego	KS	195	DDC
Aitkin	MN	001	DLH
Carlton	MN	017	DLH
Cass	MN	021	DLH
Cook	MN	031	DLH
Crow Wing	MN	035	DLH

Lyon	MN	083	FSD
Murray	MN	101	FSD
Nobles	MN	105	FSD
Pipestone	MN	117	FSD
Rock	MN	133	FSD
Dakota	NE	043	FSD
Dixon	NE	051	FSD
Aurora	SD	003	FSD
Beadle	SD	005	FSD
Bon Homme	SD	009	FSD
Brookings	SD	011	FSD
Brule	SD	015	FSD
Charles Mix	SD	023	FSD
Clay	SD	027	FSD
Davison	SD	035	FSD
Douglas	SD	043	FSD
Gregory	SD	053	FSD
Hanson	SD	061	FSD
Hutchinson	SD	067	FSD
Jerauld	SD	073	FSD
Kingsbury	SD	077	FSD
Lake	SD	079	FSD
Lincoln	SD	083	FSD
McCook	SD	087	FSD
Miner	SD	097	FSD
Minnehaha	SD	099	FSD
Moody	SD	101	FSD
Sanborn	SD	111	FSD
Turner	SD	125	FSD
Union	SD	127	FSD
Yankton	SD	135	FSD
Jewell	KS	089	GID
Mitchell	KS	123	GID
Osborne	KS	141	GID
Phillips	KS	147	GID
Rooks	KS	163	GID
Smith	KS	183	GID
Adams	NE	001	GID
Buffalo	NE	019	GID
Clay	NE	035	GID
Dawson	NE	047	GID
Fillmore	NE	059	GID
Franklin	NE	061	GID
Furnas	NE	065	GID
Gosper	NE	073	GID
Greeley	NE	077	GID
Hall	NE	079	GID
Hamilton	NE	081	GID
Harlan	NE	083	GID
Howard	NE	093	GID
Kearney	NE	099	GID
Merrick	NE	121	GID
Nance	NE	125	GID
Nuckolls	NE	129	GID
Phelps	NE	137	GID
Polk	NE	143	GID
Sherman	NE	163	GID
Thayer	NE	169	GID
Valley	NE	175	GID
Webster	NE	181	GID
York	NE	185	GID
Archuleta	CO	007	GJT
Chaffee	CO	015	GJT
Delta	CO	029	GJT
Dolores	CO	033	GJT
Eagle	CO	037	GJT
Garfield	CO	045	GJT
Gunnison	CO	051	GJT
Hinsdale	CO	053	GJT
La Plata	CO	067	GJT
Mesa	CO	077	GJT
Moffat	CO	081	GJT
Montezuma	CO	083	GJT
Montrose	CO	085	GJT
Ouray	CO	091	GJT
Pitkin	CO	097	GJT
Rio Blanco	CO	103	GJT
Routt	CO	107	GJT
San Juan	CO	111	GJT
San Miguel	CO	113	GJT
Daggett	UT	009	GJT
Grand	UT	019	GJT
San Juan	UT	037	GJT
Uintah	UT	047	GJT
Cheyenne	CO	017	GLD
Kit Carson	CO	063	GLD
Yuma	CO	125	GLD
Cheyenne	KS	023	GLD
Decatur	KS	039	GLD
Gove	KS	063	GLD
Graham	KS	065	GLD
Greeley	KS	071	GLD
Logan	KS	109	GLD
Norton	KS	137	GLD
Rawlins	KS	153	GLD
Sheridan	KS	179	GLD
Sherman	KS	181	GLD
Thomas	KS	193	GLD
Wallace	KS	199	GLD
Wichita	KS	203	GLD
Dundy	NE	057	GLD
Hitchcock	NE	087	GLD
Red Willow	NE	145	GLD
Brown	WI	009	GRB

Henderson	KY	101	PAH
Hickman	KY	105	PAH
Hopkins	KY	107	PAH
Livingston	KY	139	PAH
Lyon	KY	143	PAH
McCracken	KY	145	PAH
McLean	KY	149	PAH
Marshall	KY	157	PAH
Muhlenberg	KY	177	PAH
Todd	KY	219	PAH
Trigg	KY	221	PAH
Union	KY	225	PAH
Webster	KY	233	PAH
Bollinger	MO	017	PAH
Butler	MO	023	PAH
Cape Girardeau	MO	031	PAH
Carter	MO	035	PAH
Mississippi	MO	133	PAH
New Madrid	MO	143	PAH
Perry	MO	157	PAH
Ripley	MO	181	PAH
Scott	MO	201	PAH
Stoddard	MO	207	PAH
Wayne	MO	223	PAH
Alamosa	CO	003	PUB
Baca	CO	009	PUB
Bent	CO	011	PUB
Conejos	CO	021	PUB
Costilla	CO	023	PUB
Crowley	CO	025	PUB
Custer	CO	027	PUB
El Paso	CO	041	PUB
Fremont	CO	043	PUB
Huerfano	CO	055	PUB
Kiowa	CO	061	PUB
Lake	CO	065	PUB
Las Animas	CO	071	PUB
Mineral	CO	079	PUB
Otero	CO	089	PUB
Prowers	CO	099	PUB
Pueblo	CO	101	PUB
Rio Grande	CO	105	PUB
Saguache	CO	109	PUB
Teller	CO	119	PUB
Yellowstone Natl Pk	MT	113	RIW
Big Horn	WY	003	RIW
Fremont	WY	013	RIW
Hot Springs	WY	017	RIW
Johnson	WY	019	RIW
Lincoln	WY	023	RIW
Natrona	WY	025	RIW
Park	WY	029	RIW
Sublette	WY	035	RIW
Sweetwater	WY	037	RIW
Teton	WY	039	RIW
Washakie	WY	043	RIW
Bourbon	KS	011	SGF
Cherokee	KS	021	SGF
Crawford	KS	037	SGF
Barry	MO	009	SGF
Barton	MO	011	SGF
Benton	MO	015	SGF
Camden	MO	029	SGF
Cedar	MO	039	SGF
Christian	MO	043	SGF
Dade	MO	057	SGF
Dallas	MO	059	SGF
Dent	MO	065	SGF
Douglas	MO	067	SGF
Greene	MO	077	SGF
Hickory	MO	085	SGF
Howell	MO	091	SGF
Jasper	MO	097	SGF
Laclede	MO	105	SGF
Lawrence	MO	109	SGF
McDonald	MO	119	SGF
Maries	MO	125	SGF
Miller	MO	131	SGF
Morgan	MO	141	SGF
Newton	MO	145	SGF
Oregon	MO	149	SGF
Ozark	MO	153	SGF
Phelps	MO	161	SGF
Polk	MO	167	SGF
Pulaski	MO	169	SGF
St. Clair	MO	185	SGF
Shannon	MO	203	SGF
Stone	MO	209	SGF
Taney	MO	213	SGF
Texas	MO	215	SGF
Vernon	MO	217	SGF
Webster	MO	225	SGF
Wright	MO	229	SGF
Anderson	KS	003	TOP
Brown	KS	013	TOP
Clay	KS	027	TOP
Cloud	KS	029	TOP
Coffey	KS	031	TOP
Dickinson	KS	041	TOP
Douglas	KS	045	TOP
Franklin	KS	059	TOP
Geary	KS	061	TOP
Jackson	KS	085	TOP
Jefferson	KS	087	TOP

Unk	HD	Unk	Unk	Unk	QR	Unk	Unk
Unk	JA	Unk	Unk	Unk	SI	Unk	Unk
Unk	MX	Unk	Unk	Unk	SO	Unk	Unk
Unk	MC	Unk	Unk	Unk	TB	Unk	Unk
Unk	MR	Unk	Unk	Unk	TM	Unk	Unk
Unk	NA	Unk	Unk	Unk	TL	Unk	Unk
Unk	NL	Unk	Unk	Unk	VL	Unk	Unk
Unk	OA	Unk	Unk	Unk	YU	Unk	Unk
Unk	PU	Unk	Unk	Unk	ZA	Unk	Unk
Unk	QA	Unk	Unk				

7.0 COOP Communications Table

The Coop communications table describes the way COOP information is passed to the WFO. Use the **comms** column for the correct entry. Entries based on review of coopcomms table for several WFOs and consultation with CR/SOD. The descriptions are examples of some of the more common names for the comms type. It is provided as supplemental information for this document. This is a single column table with 10-character field and mixed case.

Comms	Description/Examples
Phone-in	ttphone, touchtone, INWATS, TEL, CELLULAR, WATS
Phone-out	Dial-up, ADP
Internet	WxCoder
ROSA	CompuWx, COMPU-ROSA, COMPUROSA
Mail	B-91
Microwave	KEWS
Radio	Radio,shortwave & HAM
Other	FLT SVC, Service A
Unk	unknown/not defined

8.0 COOP Recipient Table

The Coop recipient table describes which WFO is the primary receiver of a particular COOP site. Use the WFO 3 letter identifier, found in section 3, to define the correct entry. The table is single column with a 15-character field and upper case. Entries are based on review of cooprecip table for several WFOs and consultation with CR/SOD.

- Unk for Unknown/not defined (exception to upper case rule for this table)

9.0 COOP Sponsor Table

The Coop sponsor table describes the entity responsible upkeep and cost of a particular station. Use the **Sponsor** column for the correct entry. The source for this table is table 3.13 pg.151 of the CSSA manual located at the following web site and consultation with CR/SOD.

http://www.nws.noaa.gov/om/coop/Publications/cssamanual.pdf . Network and description information are provided as supplemental information for this document. The table is single column, 7-character field and upper case.

Sponsor	Network	Description
FC-1	B	Salary and Expenses
S&E	A	Salary and Expenses (Climatological)
S&E (A)	C	Salary and Expenses (Agricultural)
S&E (B)	A	Salary and Expenses (Benchmark Station)
S&E (H)	B	Salary and Expenses (Hydrological)
S&E (M)	B	Salary and Expenses (Mount St. Helens)
S&E (P)	C	Salary and Expenses (Public Service)
S&E (®)	C	Salary and Expenses (Marine)
ASSO	BC	Associate
BPA-1	B	Bonneville Power Administration
FC-2	B	Lower Mississippi River
FC-5	B	Willamette River
FC-6	B	Yazoo River
FC-7	B	Red River
FC-8	B	Wallace Lake Reservoir
FC-9	B	Middle Arkansas River
FC-10	B	Huntington District
FC-11	B	Louisville District
FC-12	B	Nashville District
FC-13	B	Mobile Reporting Network
FC-15	B	St. Francis River
FC-16	B	Lower Arkansas River
FC-17	B	Snake River
FC-18	B	Delaware River
FC-20	B	Quachita River
FC-21	B	Upper Trinity Basin
FC-22	B	Brazos River
FC-23	B	North Conche River
FC-24	B	Buffalo Bayou
FC-25	B	Bayou Bodcou Reservoir
FC-26	B	Texarkana Reservoir
FC-27	B	Farrell's Bridge Reservoir
FC-28	B	Morringsport Reservoir
FC-30	B	Roanoke River
FC-32	B	Middle Mississippi River
FC-35	B	Leon River
FC-36	B	Savannah River
FC-39	B	Geneses River
FC-40	B	HO RDS Creek Reservoir
FC-42	B	Guadalupe River
FC-43	B	Intra-Costal Canal
FC-44	B	Naches River
FC-46	B	San Francisco District
FC-48	B	Albuquerque District
FC-49	B	Philadelphia District
FC-50	B	Omaha District
FC-51	B	Puerto Rico District
FC-52	B	Norfolk District

IRPN-1	B	Dept of the Interior
IRPN-2	B	Dept of the Interior
IRPN-3	B	Dept of the Interior
IRPN-4	B	Dept of the Interior
IRPN-5	B	Dept of the Interior
IRPN-6	B	Dept of the Interior
IRPN-7	B	Dept of the Interior
IRPN-8	B	Dept of the Interior
PRHN	B	Puerto Rico Hydrologic Network
SCS-1	B	Natural Resources Conservation Service
SJRA	B	Sand Jacinto River Authority
Unk		unknown/not defined (exception to upper case rule for this table).

10.0 DCP Owner Table

The DCP owner table describes which entity is responsible for the DCP. Note, the use of the **Generic Entries** column may be adequate for many sites. The program manager must decide the level of detail they want to provide. Entries were developed based on review of entries in several WFO tables, review of NESDIS/HADS identification system. A simple approach was taken with the acronyms so that they would be easily recognizable. The description is provided as supplemental information for this document. The table is a single column, 10-character field with a combination of upper case and mixed case.

Generic Entries	Description
Assoc	Associate such as private companies, power plants, watershed districts
BLM	Bureau of Land Management
COE	U.S. Army Corps of Engineers
NWS	National Weather Service
USBR	U.S. Bureau of Reclamation
USGS	U.S. Geological Survey
BIA	Bureau of Indian Affairs
BPA	Bonneville Power Adminstration
DOD	Department of Defense
NOS	National Ocean Service
NPS	National Park Service
NRCS	National Resources and Conservation Service
TVA	Tennessee Valley Authority
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
CANADA-WS	Water Survey of Canada
City	City owned
County	County owned
State	State owned
NWFWMD	Northwest Florida Water Management District
SFWMD	South Florida Water Management District
SWFWMD	Southwest Florida Water Management District
SRWMD	Suwannee River Water Management District

SJRWMD	St John's River Water Management District
RA	River Authority
PortAuth	Port Authority
PrivUtil	Private Utility
BasinCom	Basin Commission
Other	owned by agency not specified
Unk	unknown owner

U.S. Army Corps of Engineers

Entries	Description
Great Lakes and Ohio River Division	
COEBUF	USACE - Buffalo District
COECHI	USACE - Chicago District
COEDTW	USACE - Detroit District
COEHTS	USACE - Huntington District
COELOU	USACE - Louisville District
COEBNA	USACE - Nashville District
COEPIT	USACE - Pittsburgh District
COEMEM	USACE - Memphis District
COENEW	USACE - New Orleans District
COERKI	USACE - Rock Island District
COESTL	USACE - St. Louis District
COESTP	USACE - St. Paul District
COEVIC	USACE - Vicksburg District
North Atlantic Division	
COEBWI	USACE - Baltimore District
COEBOS	USACE - New England District (Boston)
COENYC	USACE - New York District
COEORF	USACE - Norfolk District
COEPHL	USACE - Philadelphia District
Northwestern Division	
COEMKC	USACE- Kansas City District
COEOMA	USACE - Omaha District
COEPDX	USACE - Portland District
COESEA	USACE - Seattle District
COEALW	USACE - Walla Walla District
Pacific Ocean Division	
COEAED	USACE - Alaska District (Elmendorf AFB)
COEHNL	USACE - Honolulu District
South Atlantic Division	
COECHS	USACE - Charleston District
COEJAX	USACE - Jacksonville District
COEMOB	USACE - Mobile District
COESAV	USACE - Savannah District
COEILM	USACE - Wilmington District
South Pacific Division	
COEABQ	USACE - Albuquerque District
COELAX	USACE - Los Angeles District
COESAC	USACE - Sacramento District
COESFO	USACE - San Francisco District
Southwestern Division	
COEDFW	USACE - Fort Worth District
COEGLS	USACE - Galveston District
COELIT	USACE - Little Rock District
COETUL	USACE - Tulsa District

Other

COECRREL	USACE - Cold Regions Research and Engineering Lab

U.S. Geological Survey

Entries	Description
USGSAL	Alabama - Montgomery
USGSAK	Alaska - Anchorage
USGSAZ	Arizona - Tucson
USGSAR	Arkansas - Little Rock
USGSCA	California - Sacramento
USGSCO	Colorado - Lakewood
USGSCT	Connecticut - East Hartford
USGSDE	Delaware - Dover
USGSFL	Florida - Tallahassee
USGSGA	Georgia - Atlanta
USGSHI	Hawaii - Honolulu
USGSID	Idaho - Boise
USGSIL	Illinois - Urbana
USGSIN	Indiana - Indianapolis
USGSIA	Iowa - Iowa City
USGSKS	Kansas - Lawrence
USGSKY	Kentucky - Louisville
USGSLA	Louisiana - Baton Rouge
USGSME	Maine - Augusta
USGSMD	Maryland - Baltimore
USGSMA	Massachusetts - Northborough
USGSMI	Michigan - Lansing
USGSMN	Minnesota - Mounds View
USGSMS	Mississippi - Pearl
USGSMO	Missouri - Rolla
USGSMT	Montana - Helena

USGSNE	Nebraska - Lincoln
USGSNV	Nevada - Carson City
USGSNH	New Hampshire - Pembroke
USGSNJ	New Jersey - West Trenton
USGSNM	New Mexico - Albuquerque
USGSNY	New York - Troy
USGSNC	North Carolina - Raleigh
USGSND	North Dakota - Bismarck
USGSOH	Ohio - Columbus
USGSOK	Oklahoma - Oklahoma City
USGSOR	Oregon - Portland
USGSPA	Pennsylvania - New Cumberland
USGSRI	Rhode Island - Providence
USGSSC	South Carolina - Columbia
USGSSD	South Dakota - Rapid City
USGSTN	Tennessee - Nashville
USGSTX	Texas - Austin
USGSUT	Utah - West Valley City
USGSVT	Vermont - Pembroke
USGSVA	Virginia - Richmond
USGSWA	Washington - Tacoma
USGSWV	West Virginia - Charleston
USGSWI	Wisconsin - Middleton
USGSWY	Wyoming - Cheyenne
USGSCAR	Caribbean - Guaynabo, Puerto Rico

U.S. Bureau of Reclamation

Entries	Description
USBRPNR	Pacific Northwest Region - Boise, ID
USBRMPR	Mid Pacific Region - Sacramento, CA
USBRUCR	Upper Colorado Region - Salt Lake City, UT
USBRLCR	Lower Colorado Region - Boulder City, NV
USBRGPR	Great Plains Region - Billings, MT

State Agencies

Entries	Description
STATEAL	Alabama
STATEAK	Alaska
STATEAZ	Arizona
STATEAR	Arkansas
STATECA	California
STATECO	Colorado
STATECT	Connecticut
STATEDE	Delaware
STATEFL	Florida
STATEGA	Georgia
STATEHI	Hawaii
STATEID	Idaho
STATEIL	Illinois
STATEIN	Indiana
STATEIA	Iowa
STATEKS	Kansas
STATEKY	Kentucky
STATELA	Louisiana
STATEME	Maine
STATEMD	Maryland
STATEMA	Massachusetts
STATEMI	Michigan
STATEMN	Minnesota
STATEMS	Mississippi
STATEMO	Missouri
STATEMT	Montana
STATENE	Nebraska
STATENV	Nevada
STATENH	New Hampshire
STATENJ	New Jersey
STATENM	New Mexico
STATENY	New York
STATENC	North Carolina
STATEND	North Dakota
STATEOH	Ohio
STATEOK	Oklahoma
STATEOR	Oregon
STATEPA	Pennsylvania
STATERI	Rhode Island
STATESC	South Carolina
STATESD	South Dakota
STATETN	Tennessee
STATETX	Texas
STATEUT	Utah
STATEVT	Vermont
STATEVA	Virginia
STATEWA	Washington
STATEWV	West Virginia
STATEWI	Wisconsin
STATEWY	Wyoming

11.0 Gage Owner, Gage Maintenance, Telemetry Owner and Telemetry Payor Tables

The gage and telemetry owner tables describe the entity ultimately responsible for gage. The gage maintenance table describes who performs upkeep on the gage. The telemetry payor table describes the group responsible for paying for the phone line to the site. Use the **Name** column for the correct entry. Entries are based on review of these tables for several WFOs and consultation with CR/SOD. The tables are single column 10-character fields with a combination of mixed case and upper case.

Name	Description
Assoc	Associate such as private companies, power plants, watershed districts
BasinCom	Basin Commission
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BPA	Bonneville Power Administration
City	City/town/village/municipality
COE	U.S. Army Corps of Engineers
County	County
CRREL	Cold Regions Research and Engineering Lab
DOD	Department of Defense
FAA	Federal Aviation Administration
NOS	National Ocean Service
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NWFWMD	Northwest Florida Water Management District
NWS	National Weather Service / U.S. Weather Bureau
Obsvr	Observer
PortAuth	Port Authority
PrivUtil	Private Utility
RA	River authority
SFWMD	South Florida Water Management District
SJRWMD	St John's River Water Management District
SRWMD	Suwannee River Water Management District
State DEM	State Department of Emergency Management (or equiv.)
State DNR	State Department of Natural Resources (or equiv.)
State DOT	State Department of Transportation (or equiv.)
State DWR	State Division of Water Resources (or equiv.)
State EPA	State Environmental Protection Agency (or equiv.)
State OGA	State Other Government Agency
SWFWMD	Southwest Florida Water Management District
TVA	Tennessee Valley Authority
USBR	U.S. Bureau of Reclamation
USCG	U.S. Coast Guard
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
Other	other

Unk	unknown/not defined

12.0 Gage Type Table

The gage type table describes the kind of device that provides stream or precipitation measurements. Use either the **Stream**, **Precipitation** or **Miscellaneous Type** column for the correct input. Entries are based on review of gage type table for several WFOs. Also referenced USGS Water Supply Paper 2175 "*Measurement and Computation of Streamflow: Volume 1. Measurement of Stage and Discharge*" 1982. The table is a single column 10-character field in lower case only.

Stream

Type	Description
bubble	The pressure of the water in an orifice tube is measured against a known pressure of gas. These gages have a non-submersible pressure transducer as an integral part of the system, and slowly release bubbles of either air, or an inert gas such as nitrogen from a tank. Manometer, Fluid, Accubar, PS-2 and Sta-com are included in this type.
bubble r/o	Similar to a bubble gage but with read out capability.
chain	A marked chain is lowered down from a bridge until it reaches the water surface. This type of gage is rarely used today.
crest	Only the crest of the stream is recorded, usually by depositing some sort of floating indicator on a measuring tube.
doppler	The flow of a stream is determined by measuring the frequency or phase shift of reference sound wave in the stream.
flowmeter	The flow of a stream is measured by recording the rotational velocity of spinning cups submerged in the stream.
elect tape	A metal tape is lowered until the water surface is reached which is indicated by an electric sensor or meter.
float	A float moves with the water surface inside of a well.
laser	A laser beam is bounced off of the water surface from a platform with a known elevation.
microwave	A gage based on radar or microwave technology.
pres trans	A submerged pressure transducer measures the water pressure above. Most stream gages in ALERT and IFLOWS networks are this type.
profile	A slope profile gage consists of a marker or series of markers anchored in the bank above the level that can be damaged by ice movement. Markers usually are rods driven into the bank with a brass cap bench mark attached to the top of the rod. The profile of the bank is surveyed to establish ground elevation corresponding to taped distance measurements from the markers. The surveying data are used to calculate

	water stages from the slope distances measured by the observer.
reference	Not really a gage but stream heights are determined by the inundation of reference points of a known elevation. Stages between reference points are estimated.
slope	Markings along the ground on a sloped surface, which are gradually submerged. Frequently, slope gages will measure stream heights at low flows while vertical staffs will be used for higher flows. Inclined staff gages are this type.
sonic	A sound wave is bounced off of the water surface from a platform with a known elevation.
staff	A vertical indicator, continuously marked, is manually read. The active portion of the staff is partially submerged. Staffs frequently are broken into several sections. Markings painted on a surface are this type.
tape	A portable tape and weight are used to measure the distance from a known elevation on a structure, such as a reference point on a bridge rail, to the water surface. The stage above datum is either calculated, or a customized tape is reverse-wound and set to read stage directly.
wireweight	A weight attached to a wire is manually lowered down until the weight reaches the water surface, which is sometimes indicated by an electrical sensor. Canfield and Type A gages are this type.

Precipitation

Type	Description
htipping	heated tipping bucket
manual	Precipitation is caught in a container and measured manually. Standard precipitation gages are this type.
snowovrflw	Snow overflow gage
snowpillow	Precipitation gage which acts as a pressure transducer and determines a liquid equivalent.
tipping	Precipitation is funneled into a two-sided bucket with a known volume which tips over when full and sends an electric pulse which is accumulated. Most ALERT, IFLOWS, and ASOS precipitation gages are this type.
weighing	Precipitation is caught and weighed. The elapsed precipitation is determined by subtracting the current reading from the reading at the start of an event. Most of these must be manually emptied after a period of time. Fisher-Porter and Universal gages are this type.

Miscellaneous Entries (Stream or Precipitation)

Type	Description
Other	Any stream gage/precipitation gage which does not fit into the above categories (exception to lower case rule for this table)
Unk	Unknown/not defined (exception to lower case rule for this table)

13.0 Telemetry Type Table

The telemetry type table describes the kind of device that transmits and may record gage data. Use the **Device** column for the correct entry. Entries are based on review of several WFOs telemetry type tables. Note that the letter following the some of the devices has been eliminated for simplification. The table is a single column table 10-character field all in lower case.

Device	Description
ALERT	Gage sends reports via radio across an ALERT network.
bdr301	Binary Digital Recorder (BDT) model 301
buoy	Gage sends reports across buoy network.
cr10	Campbell Recorder model 10
cr21	Campbell Recorder model 21
cr500	Campbell Recorder model 500
dah21	Design Analysis model H21
dah350	Design Analysis model H350
dedicated	Gage reports across dedicated phone or the internet lines. Includes ASOS, RAMOS, etc.
ds2h	Datasonde model 2H
handr524	Handar model 524
handr540	Handar model 540, NWS *Automatic Remote Collector* (ARC)
handr550	Handar model 550, NWS *Limited Automatic Remote Collector* (LARC)
handr555	Handar model 555, replacement for NWS LARC
handr560	Handar model 560
handr570	Handar model 570
IFLOWS	Gage sends reports via radio across an IFLOWS network
labrgc	Labarge model C
ls8901	Leopold Stevens model 8901
lsgs93	Leopold Stevens model GS93
mesonet	One of many types of regional or local gage networks
metburst	VHF radio signals are reflected at a steep angle off the ever present band of ionized meteorites existing from about 50 to 75 miles above the earth. Satellites are not involved; NRCS operates and control the entire system.
sutrn8200	Sutron model 8200
sutrn8210	Sutron model 8210
sutrn8400	Sutron model 8400
syngt3400	Synergetics model 3400
vitel1004	Vitel model 1004
talkamark	A telemark that talks
telemark	An almost obsolete device that makes a series of beeps.
Other	Any type of telemetry which does not fit into the above types (exception to lower case rule for this table).
Unk	unknown/not defined (exception to lower case rule for this table)

14.0 Foreign Key Connections

Foreign keys or constraints help a user maintain the integrity of information in a database by creating connections between a field in a reference table to a field in a meta-data table or another reference table. These connections may be one to one or one to many. For

example a reference table called rfc has a single field also called rfc. This table contains the 5-char acronyms for the 13 River Forecast Centers. In the meta-data table location there is also a field called rfc. A user can not define a value to the location table rfc field if the value is not in the rfc reference table. This prevents inconsistencies from occurring that might be due to typos or invalid values. The following table provides a listing of the relationship between the aforementioned 16 references tables and the many meta-data tables in the IHFS database.

Reference Table Name (field name)	Table Name (field name)
network (network)	location (network)
rfc (rfc)	location (rfc)
wfo (wfo)	location (wfo) counties (wfo) counties (primary_back) counties (secondary_back) nwrtransmitter (wfo)
hsa (hsa)	location (hsa)
state (state)	counties (state) eligzon (state) ==> zonenum (state) # observer (state) nwstransmitter (state)
counties (state)	location (state) countynum (state) countytransmit (state)
counties (county)	location (county) countynum (county) countytransmit (county)
coopcomms (comm)	observer (comm)
coopspons (spons)	observer (spons)
cooprecip (recip)	observer (recip)
dcpowner (owner)	dcp (owner)
gageowner (owner)	gage (owner)
gagemaint (maint)	gage (maint)
telmowner (owner)	telem (owner)
telmpayor (payor)	telem (payor)
gagetype (type)	gage (type)
telmtype (type)	telem (type)

eligzon is a reference table that was excluded from these guidelines. This table has 3 columns one of which is state. The state field

in the eligzon table is dependent upon the state table... but unlike other tables, the state field in zonenum is dependent upon the eligzon table; it is indirectly dependent upon the state table.

15.0 Primary Keys

A primary key is a column or group of columns whose values, when taken together, make the data in a row unique in that table. Generally every table has a primary key defined. For example a reference table called rfc has a single field also called rfc. This table contains the 5-char acronyms for the 13 River Forecast Centers. So that there are no duplicate entries in the rfc table the primary key is the rfc field. The following table provides a listing of the primary keys for each of the 16 references tables covered by this document.

Reference Table Name	Primary key field(s)
network	network
rfc	rfc
wfo	wfo
hsa	hsa
state	state
counties	county, state)
coopcomms	comm
coopspons	spons
cooprecip	recip
dcpowner	owner
gageowner	owner
gagemaint	maint
telmowner	owner
telmpayor	payor
gagetype	type
telmtype	type

As discussed in section 14, the data in these reference tables are referential constraints, or foreign keys, on other tables in the database. For example, gage type is a field in the gage table. This gage type field in the gage table must be populated with a value which has been previously defined in the gagetype reference table. This relationship is the foreign key. However, the gage type field along with the location id (lid) and the gage begin date combine to form the primary key on the gage table. Each entry in the gage table must be a unique combination of lid, gage begin date, and gage type. In this manner, the gage

type serves as both a foreign key and as part of the primary key definition for the gage table. Many of the reference table fields serve this dual role for other tables. Information on the primary key definitions and the foreign keys for all database tables can be found in the IHFS database documentation. The IHFS database documentation is available via the Hydro Database link on the WHFS Support Web Page (http://www.nws.noaa.gov/oh/hod_whfs).

Appendix A
Cross Reference of Current WFO Identifier to old WSFO/WSO Identifier

As part of the standardize and clean-up of the WFO and HSA tables, part of the clean-up involved ensuring the current office identifier was being used. In order to do this a cross-reference list of current office identifier to the old WSFO or WSO identifier had to be constructed. The following list which are by region, only include WFOs where the office identifier changed.

Current ID	Old ID
Central Region	
APX	APN
BOU	DEN
DMX	DSM
DTX	ARB
DVN	MLI
EAX	MCI
FGF	FAR
GID	GRI
IWX	FWA
LMK	SDF
LOT	CHI
LSX	STL
MKX	MKE
MPX	MSP
OAX	OMA
RIW	LND
UNR	RAP
Eastern Region	
GYX	PWM
PBZ	PIT
RAH	RDU
ALY	ALB
BOX	BOS
LWX	WBC
OKX	NYC
PHI	PHL
RLX	CRW
Southern Region	
BMX	BHM
EPZ	ELP
EWX	SAT
FFC	ATL
FWD	FTW
HGX	HOU
LIX	NEW
LUB	LBB
LZK	LIT
MEG	MEM
MFL	MIA
OHX	BNA
OUN	OKC
TAE	TLH
TBW	TBA
TSA	TUL
Western Region	
BYZ	BIL
FGZ	FLG
HNX	FAT
LKN	EKO
LOX	LAX
MTR	SFO
OTX	GEG
PQR	PDX
PSR	PHX
REV	RNO
SEW	SEA
SGX	SAN
STO	SAC
TFX	GTF
TWC	TUC
VEF	LAS
Alaska Region	
AFC	ANC
AFG	FAI
AJK	JNU
Pacific Region	
HFO	HNL