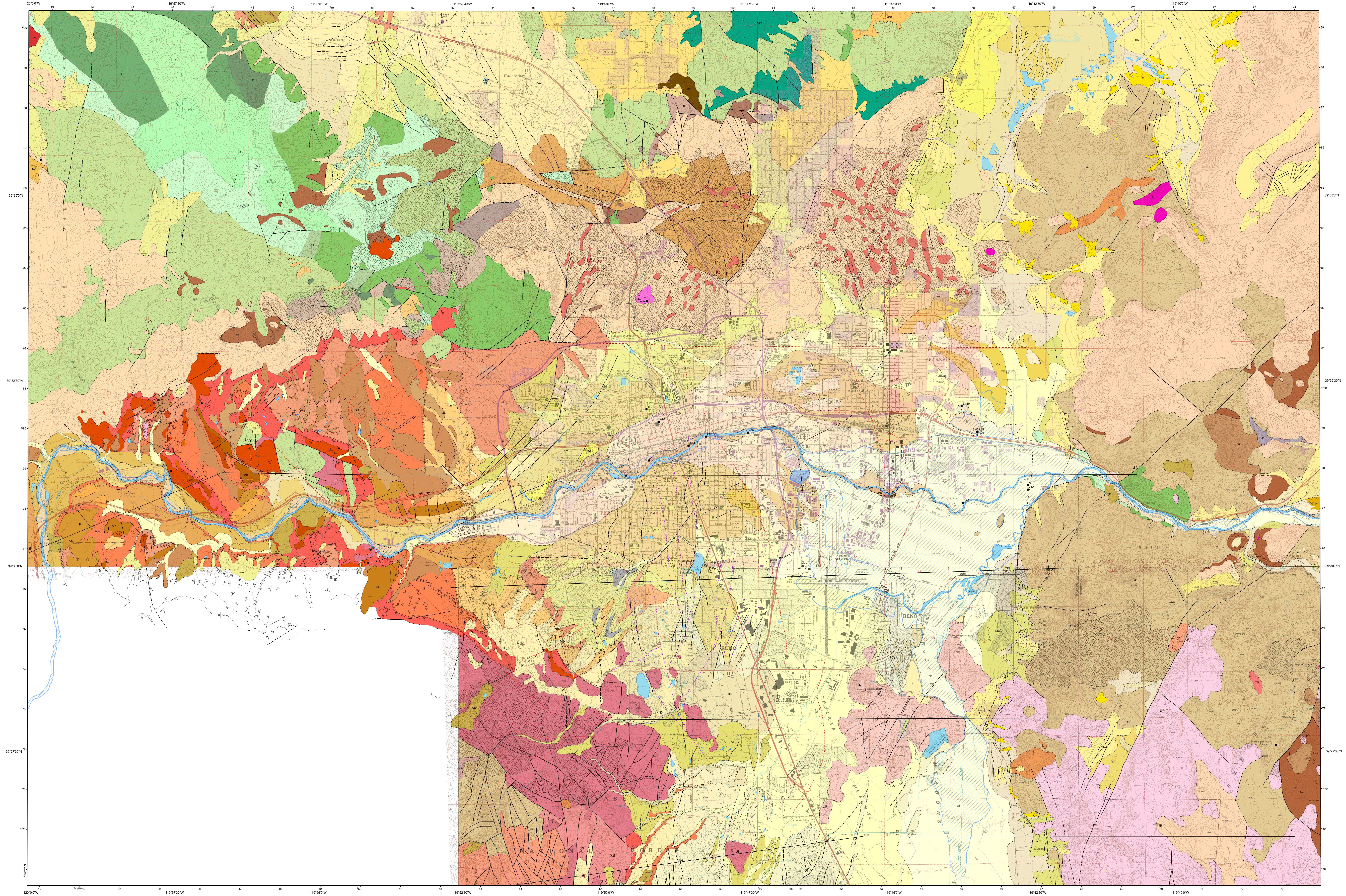
Prepared as part of the STATEMAP component of the National Cooperative Geologic Mapping Program in cooperation with the U.S. Geological Survey.


120°0'0"W
119°57'30"W
119°55'0"W
119°52'30"W
119°50'0"W
119°47'30"W
119°45'0"W
119°42'30"W
119°40'0"W
39°35'0"N
39°32'30"N
39°30'0"N
39°27'30"N
RENO
SPARKS
Golden Valley
Black Springs
Verdi
Lawton
West Reno
LEMMON VALLEY
SPANISH SPRINGS
VIRGINIA RANGE
PAH RAH RANGE
TOIYABE NATIONAL FOREST
TRUCKEE MEADOWS
RENO CANNON INTERNATIONAL AIRPORT
B
B'
C
C'
D
D'
E
E'

PRELIMINARY REVISED GEOLOGIC MAPS OF THE RENO URBAN AREA, NEVADA

Alan R. Ramelli[1], Christopher D. Henry[1], and Jerome P. Walker[3]

With contributions by John W. Bell[1], Patricia H. Cashman[2], Craig M. dePolo[1], Larry J. Garside[1], P. Kyle House[1], James H. Trexler[2], and Michael C. Widmer[4]

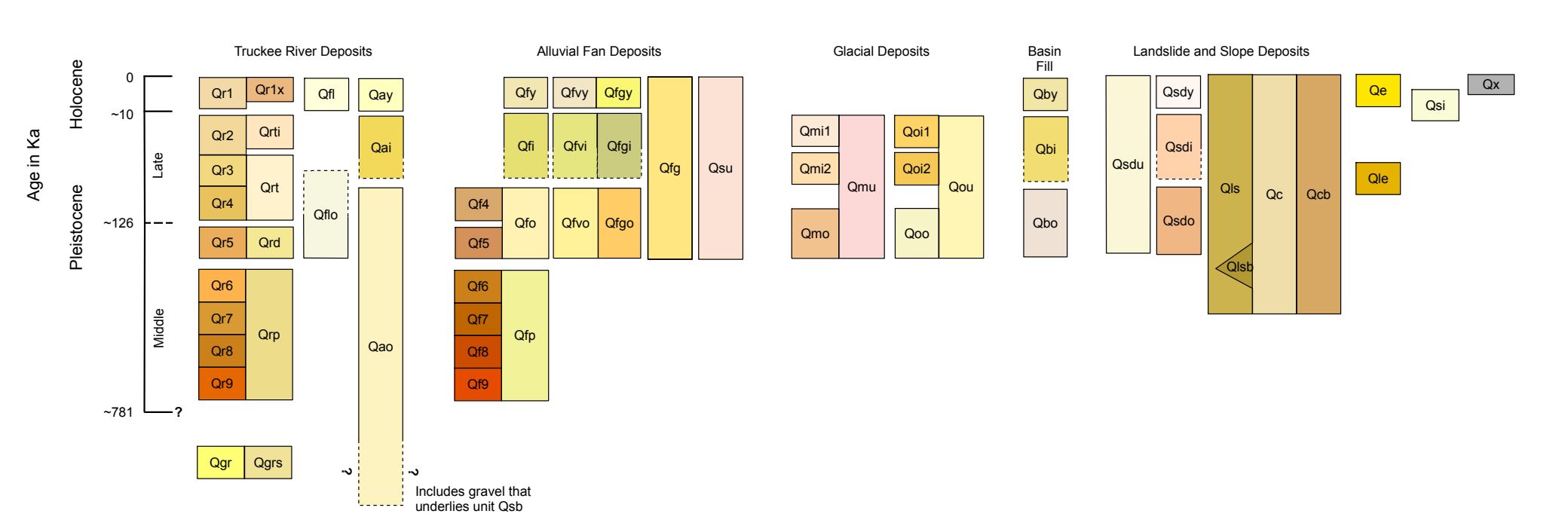
Plate 1 of 3

[1]Nevada Bureau of Mines and Geology; [2]Department of Geological Sciences, University of Nevada, Reno; [3]Consulting Geologist; [4]Washoe County Department of Water Resouces

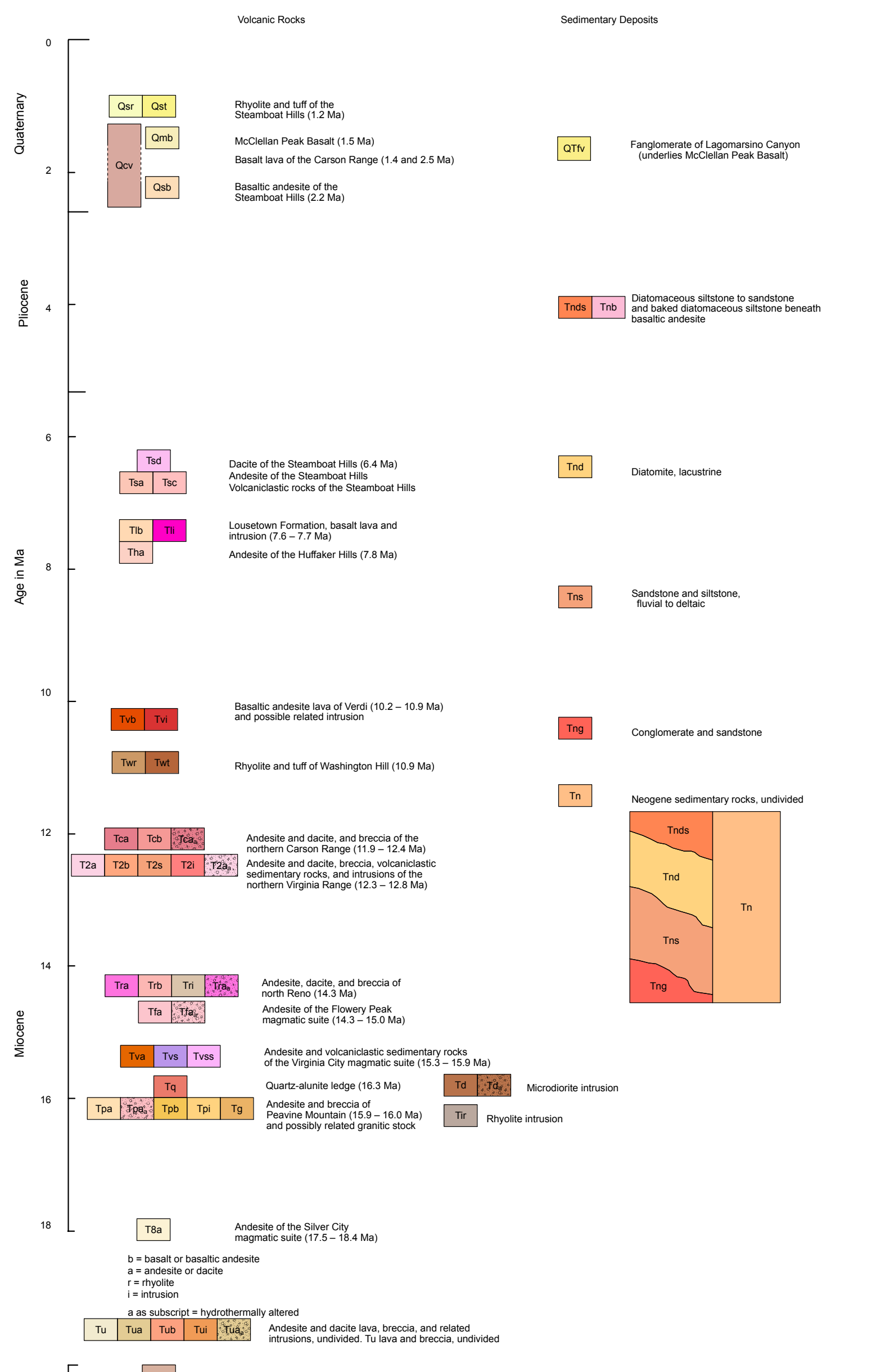
2011

Revised from published geologic maps:
NBMG Map 4Gg, Geologic map of the Verdi quadrangle, John W. Bell and Larry J. Garside (1987); NBMG Map 4Ag, Geologic map of the Reno quadrangle, Harold F. Bonham and Edward C. Bingler (1973); and NBMB Map 4Hg, Geologic map of the Vista quadrangle, John W. Bell and Harold F. Bonham (1987);
NBMG Map 5Ag, Geologic map of the Washoe City quadrangle, R.W. Tabor and S. Ellen (1975); NBMG Map 4Bg, Geologic map of the Mt. Rose NE quadrangle, Harold F. Bonham Jr. and David K. Rogers (1983); NBMG Map 4Fg, Geologic map of the Steamboat quadrangle, Harold F. Bonham Jr. and John W. Bell (1993)

Quaternary Strata of the Reno Area

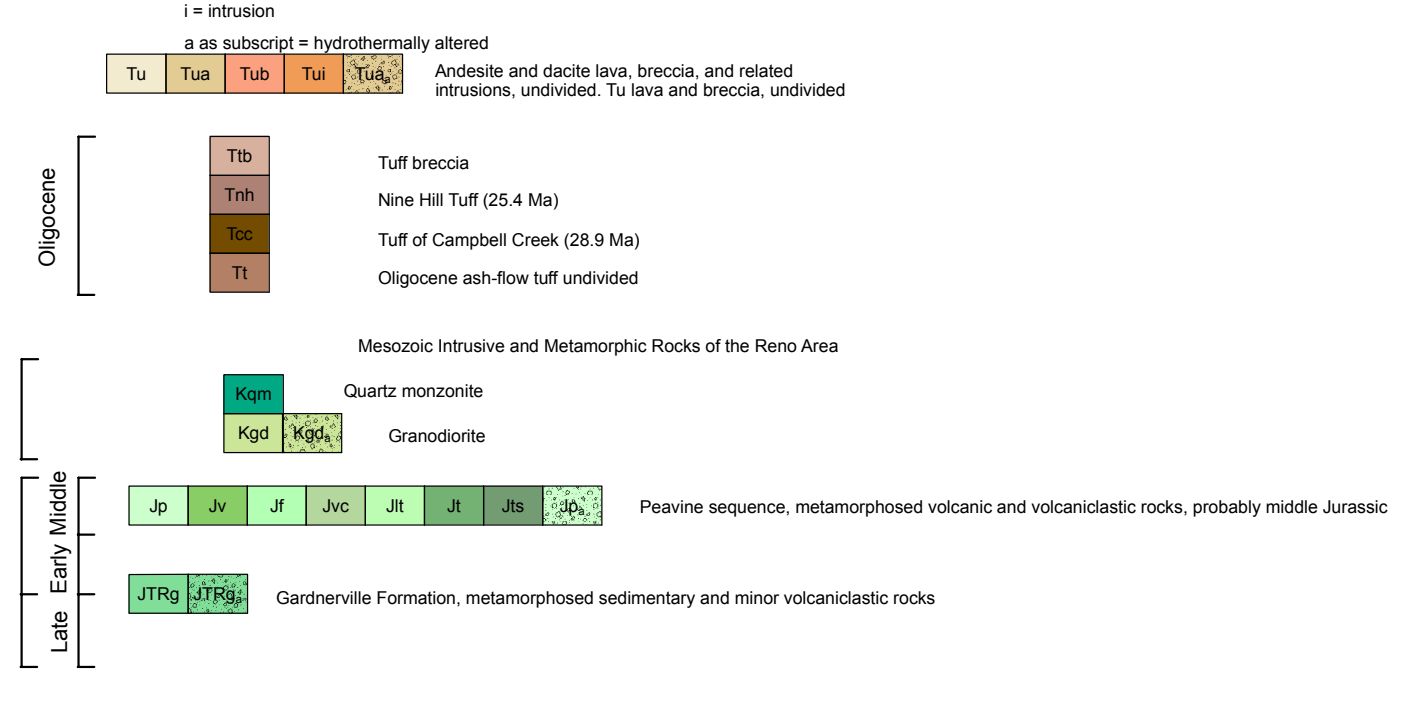

Truckee River Deposits
Alluvial Fan Deposits
Glacial Deposits
Basin Fill
Landslide and Slope Deposits
Age in Ka
Holocene
Pleistocene
Late
Middle
0
~10
~126
~781
?
Qr1
Qr1x
Qfl
Qay
Qr2
Qrti
Qai
Qr3
Qrt
Qflo
Qr4
Qr5
Qrd
Qao
Qr6
Qr7
Qr8
Qr9
Qrp
Qgr
Qgrs
Includes gravel that underlies unit Qsb
Qfy
Qfvy
Qfgy
Qfi
Qfvi
Qfgi
Qf4
Qf5
Qfo
Qfvo
Qfgo
Qf6
Qf7
Qf8
Qf9
Qfp
Qfg
Qsu
Qmi1
Qmi2
Qmo
Qmu
Qoi1
Qoi2
Qoo
Qou
Qby
Qbi
Qbo
Qsdu
Qsdy
Qsdi
Qsdo
Qls
Qlsb
Qc
Qcb
Qe
Qle
Qsi
Qx

Cenozoic Volcanic and Sedimentary Rocks of the Reno Area

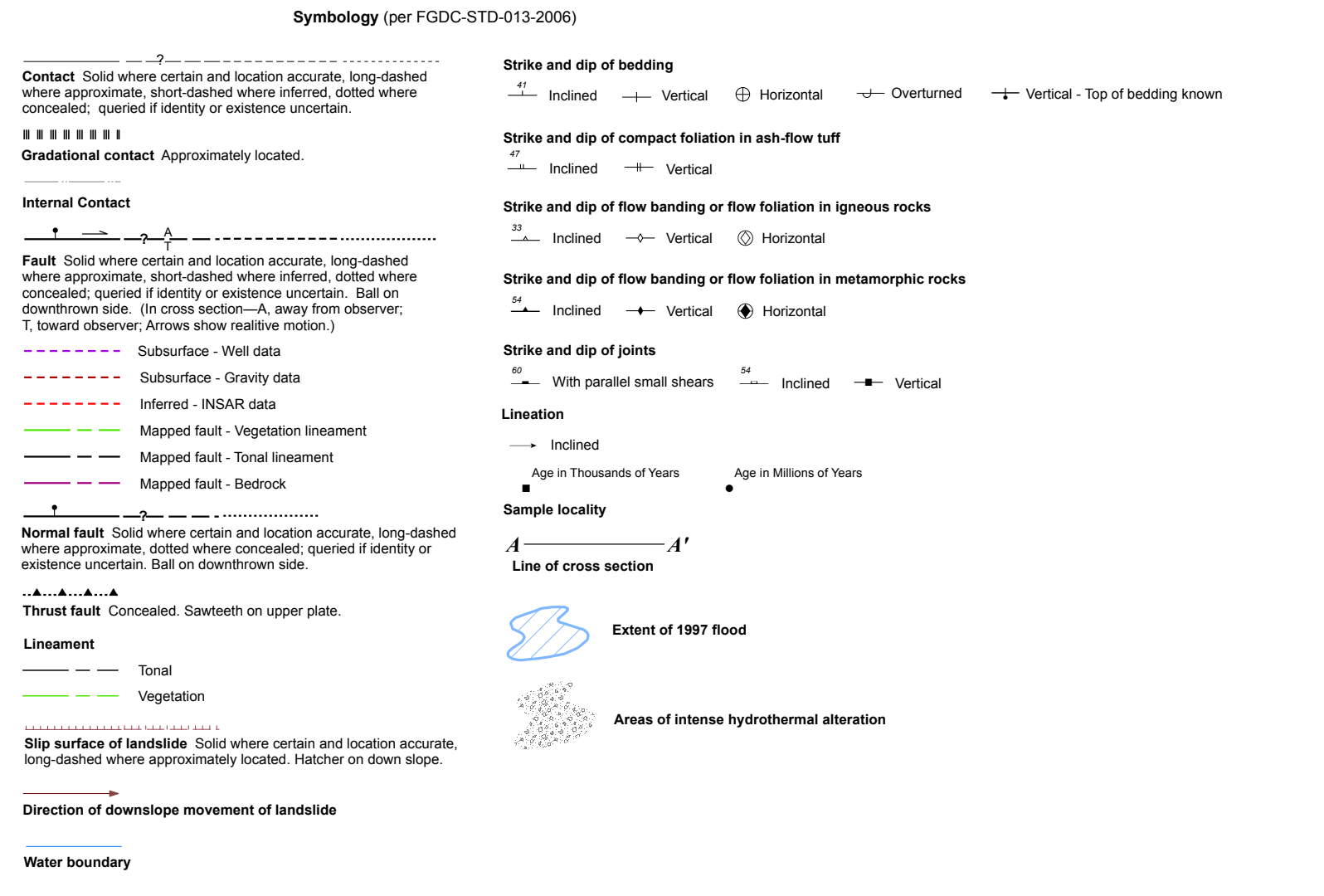

Volcanic Rocks
Sedimentary Deposits
Age in Ma
Quaternary
Pliocene
Miocene
0
2
4
6
8
10
12
14
16
18
Qsr
Qst
Rhyolite and tuff of the Steamboat Hills (1.2 Ma)
Qcv
Qmb
McClellan Peak Basalt (1.5 Ma)
Basalt lava of the Carson Range (1.4 and 2.5 Ma)
Qsb
Basaltic andesite of the Steamboat Hills (2.2 Ma)
QTfv
Fanglomerate of Lagomarsino Canyon (underlies McClellan Peak Basalt)
Tnds
Tnb
Diatomaceous siltstone to sandstone and baked diatomaceous siltstone beneath basaltic andesite
Tsd
Tsa
Tsc
Dacite of the Steamboat Hills (6.4 Ma)
Andesite of the Steamboat Hills
Volcaniclastic rocks of the Steamboat Hills
Tnd
Diatomite, lacustrine
Tlb
Tli
Lousetown Formation, basalt lava and intrusion (7.6 – 7.7 Ma)
Tha
Andesite of the Huffaker Hills (7.8 Ma)
Tns
Sandstone and siltstone, fluvial to deltaic
Tvb
Tvi
Basaltic andesite lava of Verdi (10.2 – 10.9 Ma) and possible related intrusion
Tng
Conglomerate and sandstone
Twr
Twt
Rhyolite and tuff of Washington Hill (10.9 Ma)
Tn
Neogene sedimentary rocks, undivided
Tnds
Tnd
Tns
Tng
Tn
Tca
Tcb
Tcaa
Andesite and dacite, and breccia of the northern Carson Range (11.9 – 12.4 Ma)
T2a
T2b
T2s
T2i
T2aa
Andesite and dacite, breccia, volcaniclastic sedimentary rocks, and intrusions of the northern Virginia Range (12.3 – 12.8 Ma)
Tra
Trb
Tri
Traa
Andesite, dacite, and breccia of north Reno (14.3 Ma)
Tfa
Tfaa
Andesite of the Flowery Peak magmatic suite (14.3 – 15.0 Ma)
Tva
Tvs
Tvss
Andesite and volcaniclastic sedimentary rocks of the Virginia City magmatic suite (15.3 – 15.9 Ma)
Tq
Quartz-alunite ledge (16.3 Ma)
Td
Tda
Microdiorite intrusion
Tpa
Tpaa
Tpb
Tpi
Tg
Andesite and breccia of Peavine Mountain (15.9 – 16.0 Ma) and possibly related granitic stock
Tir
Rhyolite intrusion
T8a
Andesite of the Silver City magmatic suite (17.5 – 18.4 Ma)

b = basalt or basaltic andesite
a = andesite or dacite
r = rhyolite
i = intrusion

a as subscript = hydrothermally altered


Tu
Tua
Tub
Tui
Tuaa
Andesite and dacite lava, breccia, and related intrusions, undivided. Tu lava and breccia, undivided
Oligocene
Ttb
Tuff breccia
Tnh
Nine Hill Tuff (25.4 Ma)
Tcc
Tuff of Campbell Creek (28.9 Ma)
Tt
Oligocene ash-flow tuff undivided
Mesozoic Intrusive and Metamorphic Rocks of the Reno Area
Cretaceous
Kqm
Quartz monzonite
Kgd
Kgda
Granodiorite
Jurassic
Triassic
Early
Middle
Late
Jp
Jv
Jf
Jvc
Jlt
Jt
Jts
Jpa
Peavine sequence, metamorphosed volcanic and volcaniclastic rocks, probably middle Jurassic
JTRg
JTRga
Gardnerville Formation, metamorphosed sedimentary and minor volcaniclastic rocks

Symbology (per FGDC-STD-013-2006)


41
47
33
54
60
54
A
T
?
A
A'

Contact Solid where certain and location accurate, long-dashed where approximate, short-dashed where inferred, dotted where concealed; queried if identity or existence uncertain.

Gradational contact Approximately located.

Internal Contact

Fault Solid where certain and location accurate, long-dashed where approximate, short-dashed where inferred, dotted where concealed; queried if identity or existence uncertain. Ball on downthrown side. (In cross section—A, away from observer; T, toward observer; Arrows show realitive motion.)

- Subsurface - Well data
- Subsurface - Gravity data
- Inferred - INSAR data
- Mapped fault - Vegetation lineament
- Mapped fault - Tonal lineament
- Mapped fault - Bedrock

Normal fault Solid where certain and location accurate, long-dashed where approximate, dotted where concealed; queried if identity or existence uncertain. Ball on downthrown side.

Thrust fault Concealed. Sawteeth on upper plate.

Lineament

- Tonal
- Vegetation

Slip surface of landslide Solid where certain and location accurate, long-dashed where approximately located. Hatcher on down slope.

Direction of downslope movement of landslide

Water boundary

Strike and dip of bedding
Inclined Vertical Horizontal Overturned Vertical - Top of bedding known

Strike and dip of compact foliation in ash-flow tuff
Inclined Vertical

Strike and dip of flow banding or flow foliation in igneous rocks
Inclined Vertical Horizontal

Strike and dip of flow banding or flow foliation in metamorphic rocks
Inclined Vertical Horizontal

Strike and dip of joints
With parallel small shears Inclined Vertical

Lineation
Inclined

Sample locality
Age in Thousands of Years Age in Millions of Years

Line of cross section

Extent of 1997 flood

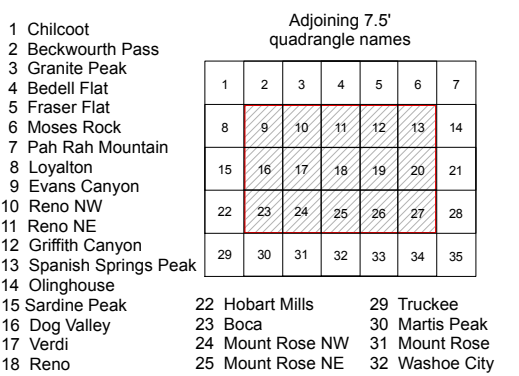
Areas of intense hydrothermal alteration

Suggested citation:

Ramelli, A.R., Henry, C.D., and Walker, J.P., *with contributions by* Bell, J.W., Cashman, P.H., dePolo, C.M., Garside, L.J., House, P.K., Trexler, J.H., and Widmer, M.C., 2011, Preliminary revised geologic maps of the Reno urban area, Nevada: Nevada Bureau of Mines and Geology Open-File Report 11-7, 3 plates, scale 1:24,000.

1 Chilcoot
2 Beckwourth Pass
3 Granite Peak
4 Bedell Flat
5 Fraser Flat
6 Moses Rock
7 Pah Rah Mountain
8 Loyalton
9 Evans Canyon
10 Reno NW
11 Reno NE
12 Griffith Canyon
13 Spanish Springs Peak
14 Olinghouse
15 Sardine Peak
16 Dog Valley
17 Verdi
18 Reno
19 Vista
20 Patrick
21 Derby Dam
22 Hobart Mills
23 Boca
24 Mount Rose NW
25 Mount Rose NE
26 Steamboat
27 Chalk Hills
28 Martin Canyon
29 Truckee
30 Martis Peak
31 Mount Rose
32 Washoe City
33 Virginia City
34 Flowery Peak
35 Misfits Flat

Adjoining 7.5' quadrangle names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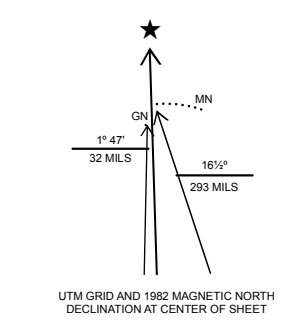
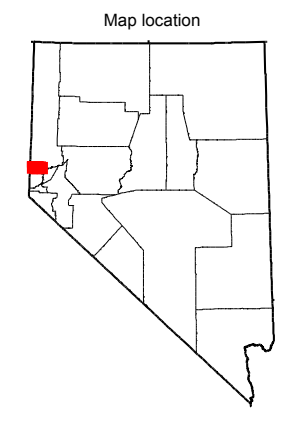

★
MN
GN
1° 47'
32 MILS
16½°
293 MILS

UTM GRID AND 1982 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

Map location



Quaternary Strata of the Truckee Meadows Area

Truckee River Deposits

Fluvial deposits (and outwash)

Qr1	Holocene to modern
Qr1x	Historic river deposits
Qr2, Qrti	Probable and definite Tioga age
Qr3, Qr4, Qrt	Younger and older Tahoe age; Qrt undivided
Qr5, Qrd	Probable and definite Donner Lake age
Qr6 to Qr9	Pre-Donner Lake age; 6 to 9 are progressively older
Qrp	Undivided pre-Donner Lake age
Qfl	Floodplain deposits
Qflo	Older floodplain deposits

Alluvial Deposits

Qay	Younger alluvium
Qai	Intermediate age alluvium (Tioga and older)
Qao	Older alluvial deposits (Middle and Early Pleistocene)

Alluvial Fan Deposits

Qfy	Holocene
Qfvy	Holocene fan deposits composed primarily of volcanic material
Qfgy	Holocene fan deposits composed primarily of granitic material
Qfi	Intermediate age fan deposits (Late Pleistocene)
Qfvi	Intermediate age fan deposits composed primarily of volcanic material
Qfgi	Intermediate age fan deposits composed primarily of granitic material
Qf4	Older fan deposits, probably early Tahoe age
Qf5	Older fan deposits, probably Donner Lake age
Qfo	Older fan deposits undivided (Early to Middle Pleistocene)
Qfvo	Older fan deposits composed primarily of volcanic material
Qfgo	Older fan deposits composed primarily of granitic material
Qfg	Undivided fan deposits composed primarily of granitic material
Qsu	Undivided sand deposits
Qf6 to Qf9	Pre-Donner Lake fan deposits; 6 to 9 are progressively older
Qfp	Undivided pre-Donner Lake age

Glacial Deposits

Qmi1	Intermediate age moraine deposits (probable Tioga age)
Qmi2	Intermediate age moraine deposits (probable Tahoe age)
Qmo	Older moraine deposits (largely Donner Lake age)
Qmu	Undivided moraine deposits
Qoi1	Intermediate age outwash deposits (probable Tioga age)
Qoi2	Intermediate age outwash deposits (probable Tahoe age)
Qoo	Older outwash deposits (largely Donner Lake age)
Qou	Undivided outwash deposits

Basin Fill Deposits

Qby	Holocene deposits
Qbi	Intermediate age deposits (Late Pleistocene)
Qbo	Older basin fill (Middle Pleistocene)

Landslide and Slope Deposits

Qls	Undivided landslide deposits
Qlsb	Undivided landslide blocks
Qsdy	Holocene deposits of Slide Mountain
Qsdi	Intermediated age deposits of Slide Mountain
Qsdo	Older deposits of Slide Mountain
Qsdu	Undivided deposits of Slide Mountain
Qc	Colluvial deposits
Qcb	Culluvial boulder deposits

Miscellaneous Deposits

Qx	Fill and tailings
Qe	Undivided eolian sand deposits
Qle	Eetza Formation; lacustrine deposits of Pleistocene Lake Lahontan
Qsi	Sinter deposits

Gravel of Reno

Qgr	Cobble gravel
Qgrs	Coarse sand

Quaternary – Tertiary? Sedimentary Deposits

QTfv	Fanglomerate of Lagomarsino Canyon; underlies 1.4 Ma McClellan Peak Basalt

Cenozoic and Mesozoic Rock Units

Quaternary volcanic rocks

Qsr	Rhyolite of the Steamboat Hills (1.2 Ma)
Qst	Tuff of the Steamboat Hills
Qcv	Basalt lava of the Carson Range (1.4 and 2.5 Ma)
Qmb	McClellan Peak Basalt (1.5 Ma)
Qsb	Basaltic andesite lava of the Steamboat Hills (2.2 Ma)

Neogene Sedimentary Deposits

Tnds	Diatomaceous siltstone to sandstone
Tnb	Baked diatomaceous siltstone beneath basaltic andesite of Verdi
Tnd	Diatomite, lacustrine
Tns	Sandstone and siltstone, fluvial to deltaic
Tng	Conglomerate and sandstone
Tn	Neogene sedimentary deposits, undivided

Pliocene and Miocene Igneous Rocks

Tsd	Dacite of the Steamboat Hills (6.4 Ma)
Tsa	Andesite of the Steamboat Hills
Tsc	Volcaniclastic rocks of the Steamboat Hills
Tlb	Lousetown Formation, basalt lava (7.6 – 7.7 Ma)
Tli	Lousetown Formation, basalt intrusion
Tha	Andesite of the Huffaker Hills (7.8 Ma)
Tvb	Basaltic andesite of Verdi, lava (10.2 – 10.9 Ma)
Tvi	Basaltic andesite of Verdi, intrusion
Twr	Rhyolite of Washington Hill (10.9 Ma)
Twt	Tuff of Washington Hill
Tca	Andesite and dacite lava of the northern Carson Range (11.9 – 12.4 Ma)
Tcb	Volcanic and sedimentary breccia of the northern Carson Range
T2a	Andesite and dacite lava of the northern Virginia Range (12.3 – 12.8 Ma)
T2b	Volcanic and sedimentary breccia of the northern Virginia Range
T2i	Andesite and dacite intrusions of the northern Virginia Range
T2s	Volcanic sedimentary deposits of the northern Virginia Range
Tra	Andesite and dacite lava of north Reno (14.3 Ma)
Trb	Volcanic and sedimentary breccia of north Reno
Tri	Andesite and dacite intrusions of north Reno
Tfa	Andesite lava of the Flowery Peak magmatic suite (14.3 – 15.0 Ma)
Tva	Andesite lava of the Virginia City magmatic suite, Steamboat Valley sequence (15.3 – 15.9 Ma)
Tvss	Volcaniclastic rocks of the Virginia City magmatic suite
Tvs	Andesite lava of the Virginia City magmatic suite, Alta Formation (15.3 – 15.9 Ma)
Tpa	Andesite lava of Peavine Mountain (15.9 – 16.0 Ma)
Tpb	Volcanic and sedimentary breccia of Peavine Mountain
Tpi	Andesite intrusions of Peavine Mountain
Tg	Granitic stock of Peavine Mountain(?)
Tq	Quartz-alunite ledge (16.3 Ma)
Td	Microdiorite intrusion
Tir	Rhyolite intrusion
T8a	Andesite lava of the Silver City magmatic suite (17.5 – 18.4 Ma)
Tu	Lava and breccia, undivided
Tua	Andesite and dacite lava, undivided
Tub	Volcanic and sedimentary breccia, undivided
Tui	Andesite and dacite intrusions, undivided

Oligocene ash-flow tuff

Ttb	Tuff breccia
Tnh	Nine Hill Tuff (25.4 Ma)
Tcc	Tuff of Campbell Creek (28.9 Ma)
Tt	Oligocene ash-flow tuff, undivided

Mesozoic Intrusive and Metamorphic Rocks

Cretaceous granitic rocks

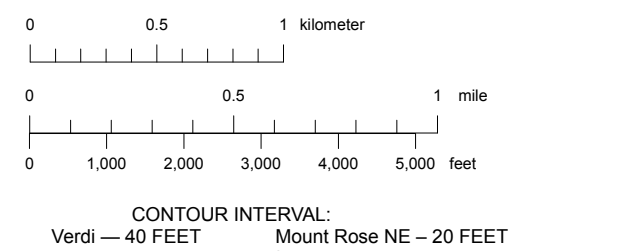
Kqm	Quartz monzonite
Kgd	Granodiorite

Jurassic-Triassic Metamorphic Rocks

Peavine sequence (probably middle Jurassic)

Jp	Metamorphosed volcanic and volcaniclastic rock, undivided
Jv	Metamorphosed andesite and dacite lava, intrusions, and breccia
Jf	Metamorphosed felsic volcanic rock
Jvc	Metamorphosed volcanic conglomerate and coarse sandstone
Jlt	Metamorphosed lithic rhyolite ash-flow tuff
Jt	Metamorphosed rhyolite ash-flow tuff
Jts	Metamorphosed air-fall tuff and tuffaceous sandstone
JTRg	Gardnerville Formation, metamorphosed sedimentary and minor volcaniclastic rock (Early Jurassic – Late Triassic)

Scale 1:24,000


0
0.5
1 kilometer
0
0.5
1 mile
0
1,000
2,000
3,000
4,000
5,000 feet

CONTOUR INTERVAL:
Verdi — 40 FEET
Reno — 20 FEET
Vista — 20 FEET
Mount Rose NE – 20 FEET
Steamboat – 20 FEET
Washoe City – 40 FEET

Projection: Universal Transverse Mercator, Zone 11,
North American Datum 1927 (m)

Base map: U.S. Geological Survey Verdi
7.5' quadrangle (1967, Photorevised 1982)
U.S. Geological Survey Reno
7.5' quadrangle (1967, Photorevised 1982)
U.S. Geological Survey Vista
7.5' quadrangle (1975, Photorevised 1982)

Base map: U.S. Geological Survey Mount Rose NE
7.5' quadrangle (1994)
U.S. Geological Survey Steamboat
7.5' quadrangle (1994)
U.S. Geological Survey Washoe City
7.5' quadrangle (1994)

Nevada Bureau of Mines and Geology
Mackay School of Earth Sciences and Engineering
College of Science
University of Nevada, Reno

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DRAFT
Preliminary geologic map
Has not undergone office or field review
Will be revised before publication

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by Matthew T. Richardson, Irene Seelye, and Jennifer Mauldin
First Edition, October 2011
Printed by Nevada Bureau of Mines and Geology

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