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U. S. Department of Commerce

Charles Sawyer, Secretary

Coast and Geodetic Survey

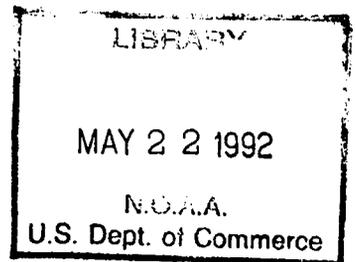
Robert F. A. Studts, Director

Special Publication No. 256

PLANE COORDINATE PROJECTION TABLES
MAINE



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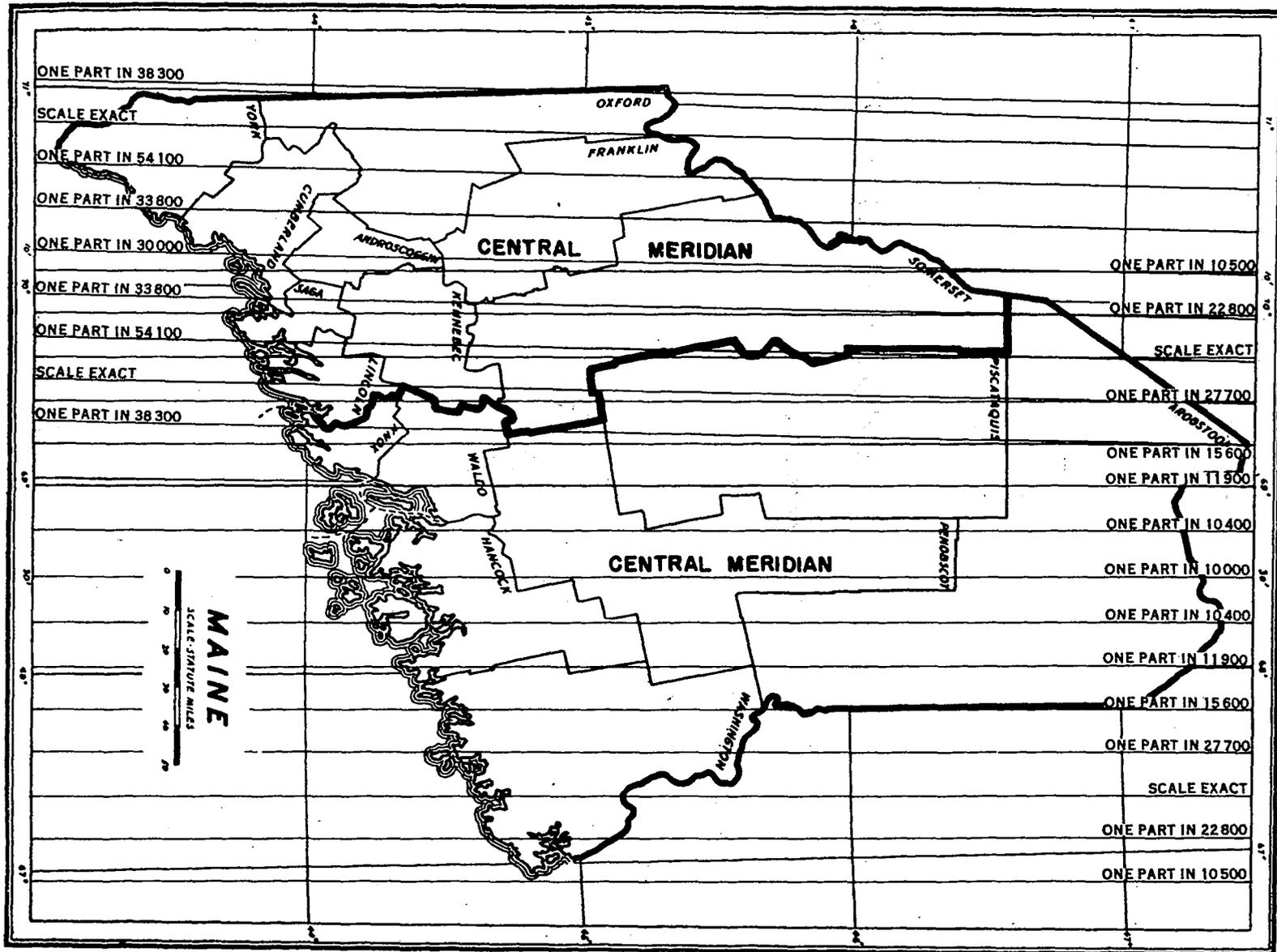
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STATE PLANE COORDINATE ZONES AND SCALE FACTORS



U. S. DEPARTMENT OF COMMERCE
COAST AND GEODETIC SURVEY

Foreword

The plane coordinate system used in this State is based on the transverse Mercator projection using a reduced scale for the central meridian of the zone. The tables in this publication are to be used for the conversion of geographic positions to plane coordinates or plane coordinates to geographic positions. The constants of the projection are listed with the tables.

The methods of computation have been designed for machine calculation. All of the functions that are required are given in this publication.

The formulas and sample computations which follow show the general methods for computing either type of coordinates.

Plane coordinates from geographic positions

$$x = x' + 500,000$$

$$x' = H \cdot \Delta\lambda'' \pm a b$$

$$y = y_0 + V \left(\frac{\Delta\lambda''}{100} \right)^2 \pm c$$

Grid azimuth = geodetic azimuth - $\Delta\alpha$ - second term

$$\Delta\alpha'' = \Delta\lambda'' \sin \phi + g$$

where

y_0 , H, V, and a are based on the latitude
of the geographic position,

and

b, c, and g are based on $\Delta\lambda''$.

X-5560

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$$\Delta\lambda'' = \text{Central Meridian} - \lambda$$

and

$\Delta\alpha''$ is the convergence of the meridian at the station with respect to the Central Meridian.

The second term for the reduction of geodetic to grid azimuths may be neglected for most work. However, for lines five miles or more in length if the same degree of accuracy is desired as is obtained by geographic computations, this term should be evaluated and used.

$$\text{Second term} = \frac{(y_2 - y_1)(2x_1' + x_2')}{(6\rho_0^2 \sin 1'')_g}$$

Geographic positions from plane coordinates

$$P (x'/10,000)^2 + d = V (\Delta\lambda''/100)^2 + c$$

$$y_0 = y - P (x'/10,000)^2 - d$$

Obtain the latitude from the table of y_0 .

Use latitude to obtain H from the table.

$$x' = x - 500,000$$

$$\text{approximate } \Delta\lambda'' = x' \div H.$$

Determine a from latitude and b from approximate $\Delta\lambda$

then

$$\Delta\lambda'' = (x' \mp a b) \div H$$

$$\Delta\alpha'' = Mx' - e$$

M is based on the y and e on the x and y of the plane coordinates.

PLANE COORDINATES ON TRANSVERSE MERCATOR PROJECTION
(Condensed form for calculating-machine computation)

State Maine Zone East Central meridian 68° 30' 00".000

Station	<u>Libby, 1941</u>	<u>Michaud (U.S.G.S.), 1942</u>		
ϕ	<u>46° 32' 46".920</u>	<u>47° 02' 12".659</u>		
λ	<u>68 24 25.489</u>	<u>68 37 29.366</u>		
$\Delta\lambda = \text{Central mer.} - \lambda$	<u>+ 0° 05' 34".511</u>	<u>- 0° 07' 29".366</u>		
$\Delta\lambda''$	<u>+ 334.511</u>	<u>- 449.366</u>		
$\left(\frac{\Delta\lambda''}{100}\right)^2$	<u>11.190</u>	<u>20.193</u>		
H	<u>69.892 342</u>	<u>69.260 175</u>		
V	<u>1.230 114</u>	<u>1.228 831</u>		
a	<u>+ 0.635</u>	<u>+ 0.173</u>		
b				
$x' = H \cdot \Delta\lambda \pm ab$	<u>+ 23,379.87</u>	<u>- 31,123.36</u>		
$V \left(\frac{\Delta\lambda''}{100}\right)^2 \pm c$	<u>13.763</u>	<u>24.810</u>		
Tabular y	<u>989,111.64</u>	<u>1,167,981.76</u>		
x	<u>523,379.87</u>	<u>468,876.64</u>		
y	<u>989,125.40</u>	<u>1,168,006.57</u>		
$\Delta\alpha''$	<u>+ 242.83</u>	<u>- 328.84</u>		
$\Delta\alpha$	<u>+ 4 02.8</u>	<u>- 5 28.8</u>		
Geod. Az. to Az. Mk.	<u>281 27 50.4</u>	<u>187 11 59.5</u>		
Grid Az. to Az. Mk.	<u>281 23 48</u>	<u>187 17 28</u>		

$$x = x' + 500,000$$

$$y = \text{Tab. } y + V \left(\frac{\Delta\lambda''}{100}\right)^2 \pm c$$

$$\Delta\alpha'' = \Delta\lambda'' \sin \phi + g$$

$$\text{Grid Az.} = \text{Geod. Az.} - \Delta\alpha$$

H and $V = \text{Tab. } H$ and $\text{Tab. } V$.

When ab is $-$, decrease $H \cdot \Delta\lambda$ numerically
 $+$, increase $H \cdot \Delta\lambda$ numerically

g increases $\Delta\lambda'' \cdot \sin \phi$ numerically

6 GEODETIC POSITIONS FROM TRANSVERSE MERCATOR COORDINATES
(CALCULATING MACHINE COMPUTATION)

STATE - ZONE Maine - East

Station Dun, 1944

X	592,192.30		Y	204,303.46
C	- 500,000.00		$P(\frac{X'}{10,000})^2 + d$	- 198.52
X'	+ 92,192.30		Y_0	204,104.94
P	2.33545		Approx. $\Delta\lambda = X' \div H$	+ 1,270
d	+ 0.02		$\Delta\lambda = (X' \mp ab) \div H$	+ 1,269.768
H	72.605763		$\Delta\lambda$	+ 21 09.768
a	b	- 0.292 + 0.611	Central Meridian	68 30 00.000
ϕ	44° 23' 35.807		$\lambda = \text{C.M.} - \Delta\lambda$	68° 08' 50.232

Station Pendleton, 1934

X	397,824.29		Y	170,788.98
C	- 500,000.00		$P(\frac{X'}{10,000})^2 + d$	- 243.06
X'	- 102,175.71		Y_0	170,545.92
P	2.32800		Approx. $\Delta\lambda = X' \div H$	- 1,405
d	+ 0.02		$\Delta\lambda = (X' \mp ab) \div H$	- 1,405.069
H	72.719511		$\Delta\lambda$	- 23 25.069
a	b	- 0.333 + 0.665	Central Meridian	68 30 00.000
ϕ	44° 18' 04.381		$\lambda = \text{C.M.} - \Delta\lambda$	68° 53' 25.069

Station

X			Y	
C	-		$P(\frac{X'}{10,000})^2 + d$	-
X'			Y_0	
P			Approx. $\Delta\lambda = X' \div H$	"
d			$\Delta\lambda = (X' \mp ab) \div H$	"
H			$\Delta\lambda$	"
a	b		Central Meridian	
ϕ			$\lambda = \text{C.M.} - \Delta\lambda$	"

Station

X			Y	
C	-		$P(\frac{X'}{10,000})^2 + d$	-
X'			Y_0	
P			Approx. $\Delta\lambda = X' \div H$	"
d			$\Delta\lambda = (X' \mp ab) \div H$	"
H			$\Delta\lambda$	"
a	b		Central Meridian	
ϕ			$\lambda = \text{C.M.} - \Delta\lambda$	"

When a b is $\frac{+, \text{ decrease}}{-, \text{ increase}}$ X' numerically

Constants for Maine

Constant	Zone	
	East	West
Central Meridian	68° 30' 00" 000	70° 10' 00" 000
log R	-434.3	-144.8
Scale reduction (Central Meridian)	1 : 10,000	1 : 30,000
$\log \left(\frac{1}{6\rho_0^2} \right)_g$	4.580 4893 -20	4.580 5344 -20
$\log \left(\frac{1}{6\rho_0^2 \sin 1''} \right)_g$	9.894 9144 -20	9.894 9595 -20
$\left(\frac{1}{6\rho_0^2 \sin 1''} \right)_g$	0.7851×10^{-10}	0.7852×10^{-10}

TRANSVERSE MERCATOR PROJECTION

MAINE
EAST ZONE

Lat.	y. feet	Δy per second	H	ΔH per second	V	ΔV per second	a
43 45	-30 373.93	101.245 83	73.396 609	339.55	1.230 544	0.53	-.580
43 46	-24 299.18	101.246 17	73.376 236	339.65	1.230 576	0.53	-.573
43 47	-18 224.41	101.246 50	73.355 857	339.75	1.230 608	0.52	-.565
43 48	-12 149.62	101.246 67	73.335 472	339.87	1.230 639	0.53	-.558
43 49	-6 074.82	101.247 00	73.315 080	339.97	1.230 671	0.50	-.550
43 50	0 0.00	101.247 33	73.294 682	340.07	1.230 701	0.50	-.543
43 51	6 074.84	101.247 67	73.274 278	340.18	1.230 731	0.50	-.536
43 52	12 149.70	101.247 83	73.253 867	340.27	1.230 761	0.48	-.528
43 53	18 224.57	101.248 33	73.233 451	340.38	1.230 790	0.48	-.521
43 54	24 299.47	101.248 50	73.213 028	340.48	1.230 819	0.47	-.513
43 55	30 374.38	101.248 83	73.192 599	340.60	1.230 847	0.47	-.506
43 56	36 449.31	101.249 17	73.172 163	340.68	1.230 875	0.47	-.498
43 57	42 524.26	101.249 33	73.151 722	340.80	1.230 903	0.45	-.491
43 58	48 599.22	101.249 83	73.131 274	340.90	1.230 930	0.45	-.483
43 59	54 674.21	101.250 00	73.110 820	341.00	1.230 957	0.43	-.476
44 00	60 749.21		73.090 360		1.230 983		-.468

TRANSVERSE MERCATOR PROJECTION

MAINE
EAST ZONE

Lat.	y_0 feet	Δy_0 per second	H	ΔH per second	V	ΔV per second	a
44 00	60 749.21	101.250 33	73.090 360	341.10	1.230 983	0.43	-.468
44 01	66 824.23	101.250 67	73.069 894	341.22	1.231 009	0.42	-.461
44 02	72 899.27	101.250 83	73.049 421	341.32	1.231 034	0.43	-.453
44 03	78 974.32	101.251 33	73.028 942	341.42	1.231 060	0.40	-.446
44 04	85 049.40	101.251 50	73.008 457	341.52	1.231 084	0.42	-.438
44 05	91 124.49	101.251 83	72.987 966	341.63	1.231 109	0.40	-.431
44 06	97 199.60	101.252 17	72.967 468	341.73	1.231 133	0.38	-.423
44 07	103 274.73	101.252 50	72.946 964	341.83	1.231 156	0.38	-.416
44 08	109 349.88	101.252 67	72.926 454	341.93	1.231 179	0.38	-.408
44 09	115 425.04	101.253 00	72.905 938	342.03	1.231 202	0.37	-.401
44 10	121 500.22	101.253 33	72.885 416	342.15	1.231 224	0.37	-.393
44 11	127 575.42	101.253 67	72.864 887	342.23	1.231 246	0.35	-.386
44 12	133 650.64	101.253 83	72.844 353	342.35	1.231 267	0.35	-.378
44 13	139 725.87	101.254 33	72.823 812	342.45	1.231 288	0.35	-.371
44 14	145 801.13	101.254 50	72.803 265	342.57	1.231 309	0.33	-.363
44 15	151 876.40	101.254 83	72.782 711	342.65	1.231 329	0.32	-.356
44 16	157 951.69	101.255 17	72.762 152	342.77	1.231 348	0.33	-.349
44 17	164 027.00	101.255 33	72.741 586	342.87	1.231 368	0.30	-.341
44 18	170 102.32	101.255 83	72.721 014	342.97	1.231 386	0.32	-.334
44 19	176 177.67	101.256 00	72.700 436	343.07	1.231 405	0.30	-.326
44 20	182 253.03	101.256 33	72.679 852	343.17	1.231 423	0.30	-.319
44 21	188 328.41	101.256 67	72.659 262	343.28	1.231 441	0.28	-.312
44 22	194 403.81	101.256 83	72.638 665	343.38	1.231 458	0.27	-.304
44 23	200 479.22	101.257 33	72.618 062	343.48	1.231 474	0.28	-.297
44 24	206 554.66	101.257 50	72.597 453	343.58	1.231 491	0.27	-.289
44 25	212 630.11	101.257 83	72.576 838	343.70	1.231 507	0.25	-.282
44 26	218 705.58	101.258 17	72.556 216	343.78	1.231 522	0.25	-.275
44 27	224 781.07	101.258 33	72.535 589	343.90	1.231 537	0.25	-.267
44 28	230 856.57	101.258 83	72.514 955	344.00	1.231 552	0.23	-.260
44 29	236 932.10	101.259 00	72.494 315	344.10	1.231 566	0.23	-.252
44 30	243 007.64	101.259 33	72.473 669	344.20	1.231 580	0.22	-.245
44 31	249 083.20	101.259 67	72.453 017	344.32	1.231 593	0.22	-.238
44 32	255 158.78	101.259 83	72.432 358	344.42	1.231 606	0.22	-.230
44 33	261 234.37	101.260 33	72.411 693	344.52	1.231 619	0.20	-.223
44 34	267 309.99	101.260 50	72.391 022	344.62	1.231 631	0.20	-.215
44 35	273 385.62	101.260 83	72.370 345	344.72	1.231 643	0.18	-.208
44 36	279 461.27	101.261 17	72.349 662	344.82	1.231 654	0.18	-.201
44 37	285 536.94	101.261 33	72.328 973	344.93	1.231 665	0.17	-.193
44 38	291 612.62	101.261 83	72.308 277	345.02	1.231 675	0.17	-.186
44 39	297 688.33	101.262 00	72.287 576	345.13	1.231 685	0.17	-.178
44 40	303 764.05	101.262 33	72.266 868	345.23	1.231 695	0.15	-.171
44 41	309 839.79	101.262 67	72.246 154	345.33	1.231 704	0.15	-.164
44 42	315 915.55	101.262 83	72.225 434	345.43	1.231 713	0.13	-.156
44 43	321 991.32	101.263 33	72.204 708	345.53	1.231 721	0.13	-.149
44 44	328 067.12	101.263 50	72.183 976	345.65	1.231 729	0.13	-.141
44 45	334 142.93	101.263 83	72.163 237	345.73	1.231 737	0.12	-.134
44 46	340 218.76	101.264 17	72.142 493	345.85	1.231 744	0.12	-.127
44 47	346 294.61	101.264 33	72.121 742	345.95	1.231 751	0.10	-.119
44 48	352 370.47	101.264 83	72.100 985	346.05	1.231 757	0.10	-.112
44 49	358 446.36	101.265 00	72.080 222	346.15	1.231 763	0.10	-.104
44 50	364 522.26	101.265 33	72.059 453	346.27	1.231 769	0.08	-.097
44 51	370 598.18	101.265 67	72.038 677	346.35	1.231 774	0.08	-.090
44 52	376 674.12	101.265 83	72.017 896	346.47	1.231 779	0.07	-.082
44 53	382 750.07	101.266 33	71.997 108	346.57	1.231 783	0.07	-.075
44 54	388 826.05	101.266 50	71.976 314	346.67	1.231 787	0.07	-.068
44 55	394 902.04	101.266 83	71.955 514	346.77	1.231 791	0.05	-.061
44 56	400 978.05	101.267 17	71.934 708	346.87	1.231 794	0.05	-.053
44 57	407 054.08	101.267 33	71.913 896	346.97	1.231 797	0.03	-.046
44 58	413 130.12	101.267 83	71.893 078	347.08	1.231 799	0.03	-.039
44 59	419 206.19	101.268 00	71.872 253	347.17	1.231 801	0.02	-.031
45 00	425 282.27		71.851 423		1.231 802		-.024

TRANSVERSE MERCATOR PROJECTION

MAINE
EAST ZONE

Lat.	y ₀ feet	Δy ₀ per second	H	ΔH per second	v	ΔV per second	a
45 00	425 282.27	101.268 33	71.851 423	347.28	1.231 802	+ 0.02	-.024
45 01	431 358.37	101.268 67	71.830 586	347.37	1.231 803	0.00	-.017
45 02	437 434.49	101.268 83	71.809 744	347.48	1.231 803	0.00	-.009
45 03	443 510.62	101.269 33	71.788 895	347.58	1.231 803	0.00	-.002
45 04	449 586.78	101.269 50	71.768 040	347.68	1.231 803	- 0.02	+ .005
45 05	455 662.95	101.269 83	71.747 179	347.78	1.231 802	- 0.02	.013
45 06	461 739.14	101.270 17	71.726 312	347.90	1.231 801	- 0.03	.020
45 07	467 815.35	101.270 33	71.705 438	347.98	1.231 799	- 0.03	.027
45 08	473 891.57	101.270 83	71.684 559	348.08	1.231 797	- 0.03	.034
45 09	479 967.82	101.271 00	71.663 674	348.20	1.231 795	- 0.05	.042
45 10	486 044.08	101.271 33	71.642 782	348.30	1.231 792	- 0.05	.049
45 11	492 120.36	101.271 67	71.621 884	348.40	1.231 789	- 0.07	.056
45 12	498 196.66	101.271 83	71.600 980	348.48	1.231 785	- 0.07	.063
45 13	504 272.97	101.272 33	71.580 071	348.60	1.231 781	- 0.07	.071
45 14	510 349.31	101.272 50	71.559 155	348.70	1.231 777	- 0.08	.078
45 15	516 425.66	101.272 83	71.538 233	348.82	1.231 772	- 0.10	.085
45 16	522 502.03	101.273 17	71.517 304	348.90	1.231 766	- 0.08	.092
45 17	528 578.42	101.273 33	71.496 370	349.00	1.231 761	- 0.10	.099
45 18	534 654.82	101.273 83	71.475 430	349.12	1.231 755	- 0.12	.107
45 19	540 731.25	101.274 00	71.454 483	349.20	1.231 748	- 0.12	.114
45 20	546 807.69	101.274 33	71.433 531	349.32	1.231 741	- 0.12	.121
45 21	552 884.15	101.274 67	71.412 572	349.40	1.231 734	- 0.13	.128
45 22	558 960.63	101.274 83	71.391 608	349.52	1.231 726	- 0.15	.135
45 23	565 037.12	101.275 33	71.370 637	349.62	1.231 717	- 0.13	.143
45 24	571 113.64	101.275 50	71.349 660	349.70	1.231 709	- 0.15	.150
45 25	577 190.17	101.275 83	71.328 678	349.82	1.231 700	- 0.17	.157
45 26	583 266.72	101.276 17	71.307 689	349.92	1.231 690	- 0.17	.164
45 27	589 343.29	101.276 50	71.286 694	350.03	1.231 680	- 0.17	.171
45 28	595 419.88	101.276 67	71.265 692	350.12	1.231 670	- 0.18	.179
45 29	601 496.48	101.277 00	71.244 685	350.22	1.231 659	- 0.18	.186
45 30	607 573.10	101.277 33	71.223 672	350.33	1.231 648	- 0.20	.193
45 31	613 649.74	101.277 67	71.202 652	350.42	1.231 636	- 0.18	.200
45 32	619 726.40	101.278 00	71.181 627	350.53	1.231 625	- 0.22	.207
45 33	625 803.08	101.278 17	71.160 595	350.62	1.231 612	- 0.22	.214
45 34	631 879.77	101.278 50	71.139 558	350.73	1.231 599	- 0.22	.221
45 35	637 956.48	101.278 83	71.118 514	350.83	1.231 586	- 0.22	.229
45 36	644 033.21	101.279 17	71.097 464	350.92	1.231 573	- 0.23	.236
45 37	650 109.96	101.279 50	71.076 409	351.03	1.231 559	- 0.25	.243
45 38	656 186.73	101.279 67	71.055 347	351.13	1.231 544	- 0.25	.250
45 39	662 263.51	101.280 00	71.034 279	351.23	1.231 529	- 0.25	.257
45 40	668 340.31	101.280 33	71.013 205	351.33	1.231 514	- 0.27	.264
45 41	674 417.13	101.280 67	70.992 125	351.43	1.231 498	- 0.27	.271
45 42	680 493.97	101.281 00	70.971 039	351.53	1.231 482	- 0.27	.278
45 43	686 570.83	101.281 17	70.949 947	351.63	1.231 466	- 0.28	.285
45 44	692 647.70	101.281 67	70.928 849	351.73	1.231 449	- 0.30	.292
45 45	698 724.60	101.281 83	70.907 745	351.83	1.231 431	- 0.30	.300
45 46	704 801.51	101.282 00	70.886 635	351.93	1.231 413	- 0.30	.307
45 47	710 878.43	101.282 50	70.865 519	352.05	1.231 395	- 0.32	.314
45 48	716 955.38	101.282 67	70.844 396	352.13	1.231 376	- 0.32	.321
45 49	723 032.34	101.283 17	70.823 268	352.23	1.231 357	- 0.32	.328
45 50	729 109.33	101.283 33	70.802 134	352.33	1.231 338	- 0.33	.335
45 51	735 186.33	101.283 67	70.780 994	352.45	1.231 318	- 0.33	.342
45 52	741 263.35	101.283 83	70.759 847	352.53	1.231 298	- 0.35	.349
45 53	747 340.38	101.284 33	70.738 695	352.63	1.231 277	- 0.35	.356
45 54	753 417.44	101.284 50	70.717 537	352.75	1.231 256	- 0.35	.363
45 55	759 494.51	101.284 83	70.696 372	352.83	1.231 235	- 0.37	.371
45 56	765 571.60	101.285 17	70.675 202	352.95	1.231 213	- 0.37	.378
45 57	771 648.71	101.285 33	70.654 025	353.03	1.231 191	- 0.38	.385
45 58	777 725.83	101.285 83	70.632 843	353.15	1.231 168	- 0.38	.392
45 59	783 802.98	101.286 00	70.611 654	353.23	1.231 145	- 0.40	.399
46 00	789 880.14		70.590 460		1.231 121		.406

TRANSVERSE MERCATOR PROJECTION

MAINE
EAST ZONE

Lat.	y ₀ feet	Δy ₀ per second	H	ΔH per second	v	ΔV per second	a
46 00	789 880.14	101.286 33	70.590 460	353.33	1.231 121	- 0.40	+ .406
46 01	795 957.32	101.286 67	70.569 260	353.45	1.231 097	- 0.40	.413
46 02	802 034.52	101.287 00	70.548 053	353.53	1.231 073	- 0.42	.420
46 03	808 111.74	101.287 17	70.526 841	353.65	1.231 048	- 0.42	.427
46 04	814 188.97	101.287 50	70.505 622	353.73	1.231 023	- 0.43	.434
46 05	820 266.22	101.287 83	70.484 398	353.85	1.230 997	- 0.43	.441
46 06	826 343.49	101.288 17	70.463 167	353.93	1.230 971	- 0.45	.448
46 07	832 420.78	101.288 50	70.441 931	354.05	1.230 944	- 0.45	.455
46 08	838 498.09	101.288 67	70.420 688	354.13	1.230 917	- 0.45	.462
46 09	844 575.41	101.289 00	70.399 440	354.25	1.230 890	- 0.47	.469
46 10	850 652.75	101.289 33	70.378 185	354.35	1.230 862	- 0.47	.476
46 11	856 730.11	101.289 67	70.356 924	354.43	1.230 834	- 0.48	.483
46 12	862 807.49	101.290 00	70.335 658	354.55	1.230 805	- 0.48	.490
46 13	868 884.89	101.290 17	70.314 385	354.65	1.230 776	- 0.50	.497
46 14	874 962.30	101.290 67	70.293 106	354.73	1.230 746	- 0.50	.504
46 15	881 039.74	101.290 83	70.271 822	354.85	1.230 716	- 0.50	.511
46 16	887 117.19	101.291 00	70.250 531	354.95	1.230 686	- 0.52	.518
46 17	893 194.65	101.291 50	70.229 234	355.03	1.230 655	- 0.52	.525
46 18	899 272.14	101.291 67	70.207 932	355.15	1.230 624	- 0.53	.532
46 19	905 349.64	101.292 17	70.186 623	355.23	1.230 592	- 0.53	.539
46 20	911 427.17	101.292 33	70.165 309	355.33	1.230 560	- 0.53	.546
46 21	917 504.71	101.292 50	70.143 989	355.45	1.230 528	- 0.55	.553
46 22	923 582.26	101.293 00	70.122 662	355.53	1.230 495	- 0.57	.560
46 23	929 659.84	101.293 33	70.101 330	355.65	1.230 461	- 0.55	.567
46 24	935 737.44	101.293 50	70.079 991	355.73	1.230 428	- 0.57	.574
46 25	941 815.05	101.293 83	70.058 647	355.83	1.230 394	- 0.58	.581
46 26	947 892.68	101.294 17	70.037 297	355.95	1.230 359	- 0.58	.588
46 27	953 970.33	101.294 33	70.015 940	356.03	1.230 324	- 0.58	.595
46 28	960 047.99	101.294 83	69.994 578	356.13	1.230 289	- 0.60	.602
46 29	966 125.68	101.295 00	69.973 210	356.23	1.230 253	- 0.60	.609
46 30	972 203.38	101.295 33	69.951 836	356.33	1.230 217	- 0.62	.616
46 31	978 281.10	101.295 67	69.930 456	356.43	1.230 180	- 0.60	.623
46 32	984 358.84	101.295 83	69.909 070	356.53	1.230 144	- 0.63	.630
46 33	990 436.59	101.296 33	69.887 678	356.63	1.230 106	- 0.63	.637
46 34	996 514.37	101.296 50	69.866 280	356.73	1.230 068	- 0.63	.644
46 35	1 002 592.16	101.296 83	69.844 876	356.83	1.230 030	- 0.63	.651
46 36	1 008 669.97	101.297 17	69.823 466	356.93	1.229 992	- 0.65	.657
46 37	1 014 747.80	101.297 33	69.802 050	357.03	1.229 953	- 0.67	.664
46 38	1 020 825.64	101.297 83	69.780 628	357.12	1.229 913	- 0.67	.671
46 39	1 026 903.51	101.298 00	69.759 201	357.23	1.229 873	- 0.67	.678
46 40	1 032 981.39	101.298 33	69.737 767	357.33	1.229 833	- 0.68	.685
46 41	1 039 059.29	101.298 67	69.716 327	357.42	1.229 792	- 0.68	.692
46 42	1 045 137.21	101.298 83	69.694 882	357.53	1.229 751	- 0.68	.699
46 43	1 051 215.14	101.299 33	69.673 430	357.62	1.229 710	- 0.70	.706
46 44	1 057 293.10	101.299 50	69.651 973	357.72	1.229 668	- 0.72	.713
46 45	1 063 371.07	101.299 83	69.630 510	357.83	1.229 625	- 0.72	.720
46 46	1 069 449.06	101.300 17	69.609 040	357.92	1.229 582	- 0.72	.726
46 47	1 075 527.07	101.300 33	69.587 565	358.02	1.229 539	- 0.73	.733
46 48	1 081 605.09	101.300 83	69.566 084	358.12	1.229 495	- 0.73	.740
46 49	1 087 683.14	101.301 00	69.544 597	358.22	1.229 451	- 0.73	.747
46 50	1 093 761.20	101.301 33	69.523 104	358.32	1.229 407	- 0.75	.754
46 51	1 099 839.28	101.301 67	69.501 605	358.42	1.229 362	- 0.75	.761
46 52	1 105 917.38	101.301 83	69.480 100	358.52	1.229 317	- 0.77	.768
46 53	1 111 995.49	101.302 33	69.458 589	358.62	1.229 271	- 0.77	.774
46 54	1 118 073.63	101.302 50	69.437 072	358.70	1.229 225	- 0.77	.781
46 55	1 124 151.78	101.302 83	69.415 550	358.82	1.229 179	- 0.78	.788
46 56	1 130 229.95	101.303 17	69.394 021	358.90	1.229 132	- 0.78	.795
46 57	1 136 308.14	101.303 33	69.372 487	359.02	1.229 085	- 0.80	.802
46 58	1 142 386.34	101.303 83	69.350 946	359.10	1.229 037	- 0.80	.808
46 59	1 148 464.57	101.304 00	69.329 400	359.20	1.228 989	- 0.82	.815
47 00	1 154 542.81		69.307 848		1.228 940		.822

TRANSVERSE MERCATOR PROJECTION

MAINE
EAST ZONE

Lat.	y_0 feet	Δy_0 per second	H	ΔH per second	V	ΔV per second	a
47 00	1 154 542.81	101.304 33	69.307 848	359.30	1.228 940	- 0.82	+ .822
47 01	1 160 621.07	101.304 50	69.286 290	359.40	1.228 891	- 0.82	.829
47 02	1 166 699.34	101.305 00	69.264 726	359.50	1.228 842	- 0.83	.836
47 03	1 172 777.64	101.305 17	69.243 156	359.60	1.228 792	- 0.85	.842
47 04	1 178 855.95	101.305 50	69.221 580	359.68	1.228 741	- 0.83	.849
47 05	1 184 934.28	101.305 83	69.199 999	359.80	1.228 691	- 0.85	.856
47 06	1 191 012.63	101.306 17	69.178 411	359.88	1.228 640	- 0.87	.863
47 07	1 197 091.00	101.306 50	69.156 818	360.00	1.228 588	- 0.87	.870
47 08	1 203 169.39	101.306 67	69.135 218	360.08	1.228 536	- 0.87	.876
47 09	1 209 247.79	101.307 00	69.113 613	360.18	1.228 484	- 0.88	.883
47 10	1 215 326.21	101.307 33	69.092 002	360.28	1.228 431	- 0.88	.890
47 11	1 221 404.65	101.307 67	69.070 385	360.38	1.228 378	- 0.90	.897
47 12	1 227 483.11	101.307 83	69.048 762	360.48	1.228 324	- 0.90	.903
47 13	1 233 561.58	101.308 33	69.027 133	360.58	1.228 270	- 0.90	.910
47 14	1 239 640.08	101.308 50	69.005 498	360.68	1.228 216	- 0.92	.917
47 15	1 245 718.59	101.308 83	68.983 857	360.77	1.228 161	- 0.93	.924
47 16	1 251 797.12	101.309 00	68.962 211	360.88	1.228 105	- 0.92	.930
47 17	1 257 875.66	101.309 50	68.940 558	360.97	1.228 050	- 0.95	.937
47 18	1 263 954.23	101.309 67	68.918 900	361.07	1.227 993	- 0.93	.944
47 19	1 270 032.81	101.310 00	68.897 236	361.17	1.227 937	- 0.95	.950
47 20	1 276 111.41	101.310 33	68.875 566	361.27	1.227 880	- 0.95	.957
47 21	1 282 190.03	101.310 67	68.853 890	361.37	1.227 823	- 0.97	.964
47 22	1 288 268.67	101.310 83	68.832 208	361.45	1.227 765	- 0.97	.970
47 23	1 294 347.32	101.311 33	68.810 521	361.55	1.227 707	- 0.98	.977
47 24	1 300 426.00	101.311 50	68.788 828	361.67	1.227 648	- 0.98	.984
47 25	1 306 504.69	101.311 83	68.767 128	361.75	1.227 589	- 0.98	.991
47 26	1 312 583.40	101.312 00	68.745 423	361.85	1.227 530	- 1.00	.997
47 27	1 318 662.12	101.312 50	68.723 712	361.95	1.227 470	- 1.00	1.004
47 28	1 324 740.87	101.312 67	68.701 995	362.03	1.227 410	- 1.02	1.011
47 29	1 330 819.63	101.313 00	68.680 273	362.15	1.227 349	- 1.02	1.017
47 30	1 336 898.41	101.313 33	68.658 544	362.25	1.227 288	- 1.02	1.024
47 31	1 342 977.21	101.313 67	68.636 809	362.33	1.227 227	- 1.03	1.031
47 32	1 349 056.03	101.313 83	68.615 069	362.43	1.227 165	- 1.03	1.037
47 33	1 355 134.86	101.314 17	68.593 323	362.53	1.227 103	- 1.05	1.044
47 34	1 361 213.71	101.314 50	68.571 571	362.63	1.227 040	- 1.05	1.050
47 35	1 367 292.58	101.314 83	68.549 813	362.73	1.226 977	- 1.07	1.057
47 36	1 373 371.47	101.315 17	68.528 049	362.82	1.226 913	- 1.07	1.064
47 37	1 379 450.38	101.315 33	68.506 280	362.93	1.226 849	- 1.07	1.070
47 38	1 385 529.30	101.315 67	68.484 504	363.02	1.226 785	- 1.08	1.077
47 39	1 391 608.24	101.316 00	68.462 723	363.12	1.226 720	- 1.08	1.083
47 40	1 397 687.20		68.440 936		1.226 655		1.090

TRANSVERSE MERCATOR PROJECTION

MAINE
WEST ZONE

Lat.	y ₀ feet	Δy ₀ per second	H	ΔH per second	v	ΔV per second	a
42 50	0.00	101.236 17	74.512 420	333.80	1.228 214	0.92	-1.000
42 51	6 074.17	101.236 33	74.492 392	333.92	1.228 269	0.92	-.992
42 52	12 148.35	101.236 83	74.472 357	334.02	1.228 324	0.90	-.985
42 53	18 222.56	101.237 00	74.452 316	334.12	1.228 378	0.90	-.977
42 54	24 296.78	101.237 33	74.432 269	334.23	1.228 432	0.90	-.969
42 55	30 371.02	101.237 50	74.412 215	334.32	1.228 486	0.88	-.962
42 56	36 445.27	101.238 00	74.392 156	334.45	1.228 539	0.88	-.954
42 57	42 519.55	101.238 17	74.372 089	334.53	1.228 592	0.87	-.946
42 58	48 593.84	101.238 50	74.352 017	334.65	1.228 644	0.87	-.938
42 59	54 668.15	101.238 83	74.331 938	334.75	1.228 696	0.85	-.931
43 00	60 742.48		74.311 853		1.228 747		-.923

TRANSVERSE MERCATOR PROJECTION

MAINE
WEST ZONE

Lat.	y ₀ feet	Δy ₀ per second	H	ΔH per second	V	ΔV per second	a
43 00	60 742.48	101.239 17	74.311 893	334.85	1.228 747	0.85	-.923
43 01	66 816.83	101.239 33	74.291 762	334.97	1.228 798	0.83	-.915
43 02	72 891.19	101.239 67	74.271 664	335.07	1.228 848	0.83	-.908
43 03	78 965.57	101.240 00	74.251 560	335.17	1.228 898	0.83	-.900
43 04	85 039.97	101.240 33	74.231 450	335.28	1.228 948	0.82	-.892
43 05	91 114.39	101.240 67	74.211 333	335.38	1.228 997	0.82	-.885
43 06	97 188.83	101.240 83	74.191 210	335.48	1.229 046	0.80	-.877
43 07	103 263.28	101.241 17	74.171 081	335.60	1.229 094	0.80	-.869
43 08	109 337.75	101.241 50	74.150 945	335.70	1.229 142	0.80	-.861
43 09	115 412.24	101.241 83	74.130 803	335.80	1.229 190	0.78	-.854
43 10	121 486.75	101.242 17	74.110 655	335.92	1.229 237	0.78	-.846
43 11	127 561.28	101.242 33	74.090 500	336.02	1.229 284	0.77	-.838
43 12	133 635.82	101.242 83	74.070 339	336.12	1.229 330	0.77	-.831
43 13	139 710.39	101.243 00	74.050 172	336.23	1.229 376	0.77	-.823
43 14	145 784.97	101.243 17	74.029 998	336.32	1.229 422	0.75	-.816
43 15	151 859.56	101.243 67	74.009 819	336.45	1.229 467	0.73	-.808
43 16	157 934.18	101.243 83	73.989 632	336.53	1.229 511	0.75	-.800
43 17	164 008.81	101.244 33	73.969 440	336.65	1.229 556	0.72	-.793
43 18	170 083.47	101.244 50	73.949 241	336.75	1.229 599	0.73	-.785
43 19	176 158.14	101.244 67	73.929 036	336.85	1.229 643	0.72	-.778
43 20	182 232.82	101.245 17	73.908 825	336.95	1.229 686	0.72	-.770
43 21	188 307.53	101.245 33	73.888 608	337.07	1.229 729	0.70	-.762
43 22	194 382.25	101.245 83	73.868 384	337.17	1.229 771	0.68	-.755
43 23	200 457.00	101.246 00	73.848 154	337.28	1.229 812	0.70	-.747
43 24	206 531.76	101.246 17	73.827 917	337.37	1.229 854	0.68	-.740
43 25	212 606.53	101.246 67	73.807 675	337.48	1.229 895	0.67	-.732
43 26	218 681.33	101.246 83	73.787 426	337.60	1.229 935	0.67	-.724
43 27	224 756.14	101.247 17	73.767 170	337.68	1.229 975	0.67	-.717
43 28	230 830.97	101.247 50	73.746 909	337.80	1.230 015	0.65	-.709
43 29	236 905.82	101.247 83	73.726 641	337.90	1.230 054	0.65	-.702
43 30	242 980.69	101.248 17	73.706 367	338.02	1.230 093	0.63	-.694
43 31	249 055.58	101.248 33	73.686 086	338.10	1.230 131	0.63	-.686
43 32	255 130.48	101.248 67	73.665 800	338.23	1.230 169	0.63	-.679
43 33	261 205.40	101.249 00	73.645 506	338.32	1.230 207	0.62	-.671
43 34	267 280.34	101.249 33	73.625 207	338.42	1.230 244	0.62	-.664
43 35	273 355.30	101.249 50	73.604 902	338.53	1.230 281	0.62	-.656
43 36	279 430.27	101.250 00	73.584 590	338.63	1.230 318	0.60	-.648
43 37	285 505.27	101.250 17	73.564 272	338.75	1.230 354	0.58	-.641
43 38	291 580.28	101.250 50	73.543 947	338.83	1.230 389	0.58	-.633
43 39	297 655.31	101.250 83	73.523 617	338.95	1.230 424	0.58	-.626
43 40	303 730.36	101.251 00	73.503 280	339.05	1.230 459	0.57	-.618
43 41	309 805.42	101.251 33	73.482 937	339.15	1.230 493	0.57	-.611
43 42	315 880.50	101.251 83	73.462 588	339.27	1.230 527	0.57	-.603
43 43	321 955.61	101.252 00	73.442 232	339.35	1.230 561	0.55	-.596
43 44	328 030.73	101.252 17	73.421 871	339.47	1.230 594	0.53	-.588
43 45	334 105.86	101.252 67	73.401 503	339.58	1.230 626	0.53	-.581
43 46	340 181.02	101.252 83	73.381 128	339.67	1.230 658	0.53	-.573
43 47	346 256.19	101.253 17	73.360 748	339.78	1.230 690	0.52	-.566
43 48	352 331.38	101.253 50	73.340 361	339.88	1.230 721	0.52	-.558
43 49	358 406.59	101.253 83	73.319 968	339.98	1.230 752	0.52	-.551
43 50	364 481.82	101.254 00	73.299 569	340.10	1.230 783	0.50	-.543
43 51	370 557.06	101.254 50	73.279 163	340.18	1.230 813	0.50	-.536
43 52	376 632.33	101.254 67	73.258 752	340.30	1.230 843	0.48	-.528
43 53	382 707.61	101.255 00	73.238 334	340.42	1.230 872	0.48	-.521
43 54	388 782.91	101.255 17	73.217 909	340.50	1.230 901	0.47	-.513
43 55	394 858.22	101.255 67	73.197 479	340.62	1.230 929	0.47	-.506
43 56	400 933.56	101.255 83	73.177 042	340.72	1.230 957	0.47	-.498
43 57	407 008.91	101.256 17	73.156 599	340.82	1.230 985	0.45	-.491
43 58	413 084.28	101.256 50	73.136 150	340.92	1.231 012	0.45	-.483
43 59	419 159.67	101.256 83	73.115 695	341.03	1.231 039	0.43	-.476
44 00	425 235.08		73.095 233		1.231 065		-.468

TRANSVERSE MERCATOR PROJECTION

MAINE
WEST ZONE

Lat.	y. feet	Δy . per second	H	ΔH per second	V	ΔV per second	a
44 00	425 235.08	101.257 17	73.095 233	341.13	1.231 065	0.43	-.468
44 01	431 310.51	101.257 33	73.074 765	341.23	1.231 091	0.42	-.461
44 02	437 385.95	101.257 67	73.054 291	341.33	1.231 116	0.43	-.453
44 03	443 461.41	101.258 00	73.033 811	341.45	1.231 142	0.40	-.446
44 04	449 536.89	101.258 33	73.013 324	341.55	1.231 166	0.42	-.438
44 05	455 612.39	101.258 50	72.992 831	341.65	1.231 191	0.40	-.431
44 06	461 687.90	101.258 83	72.972 332	341.75	1.231 215	0.38	-.423
44 07	467 763.43	101.259 17	72.951 827	341.85	1.231 238	0.38	-.416
44 08	473 838.98	101.259 50	72.931 316	341.95	1.231 261	0.38	-.408
44 09	479 914.55	101.259 83	72.910 799	342.07	1.231 284	0.37	-.401
44 10	485 990.14	101.260 17	72.890 275	342.17	1.231 306	0.37	-.393
44 11	492 065.75	101.260 33	72.869 745	342.27	1.231 328	0.35	-.386
44 12	498 141.37	101.260 67	72.849 209	342.37	1.231 349	0.35	-.378
44 13	504 217.01	101.261 00	72.828 667	342.47	1.231 370	0.35	-.371
44 14	510 292.67	101.261 33	72.808 119	342.58	1.231 391	0.33	-.363
44 15	516 368.35	101.261 50	72.787 564	342.68	1.231 411	0.32	-.356
44 16	522 444.04	101.261 83	72.767 003	342.78	1.231 430	0.33	-.349
44 17	528 519.75	101.262 17	72.746 436	342.88	1.231 450	0.30	-.341
44 18	534 595.48	101.262 50	72.725 863	342.98	1.231 468	0.32	-.334
44 19	540 671.23	101.262 83	72.705 284	343.10	1.231 487	0.30	-.326
44 20	546 747.00	101.263 17	72.684 698	343.20	1.231 505	0.30	-.319
44 21	552 822.79	101.263 33	72.664 106	343.30	1.231 523	0.28	-.312
44 22	558 898.59	101.263 67	72.643 508	343.40	1.231 540	0.27	-.304
44 23	564 974.41	101.264 00	72.622 904	343.52	1.231 556	0.28	-.297
44 24	571 050.25	101.264 33	72.602 293	343.60	1.231 573	0.27	-.289
44 25	577 126.11	101.264 50	72.581 677	343.72	1.231 589	0.25	-.282
44 26	583 201.98	101.264 83	72.561 054	343.82	1.231 604	0.25	-.275
44 27	589 277.87	101.265 17	72.540 425	343.92	1.231 619	0.25	-.267
44 28	595 353.78	101.265 50	72.519 790	344.02	1.231 634	0.23	-.260
44 29	601 429.71	101.265 83	72.499 149	344.13	1.231 648	0.23	-.252
44 30	607 505.66	101.266 17	72.478 501	344.23	1.231 662	0.22	-.245
44 31	613 581.63	101.266 33	72.457 847	344.33	1.231 675	0.22	-.238
44 32	619 657.61	101.266 67	72.437 187	344.43	1.231 688	0.22	-.230
44 33	625 733.61	101.267 00	72.416 521	344.53	1.231 701	0.20	-.223
44 34	631 809.63	101.267 33	72.395 849	344.65	1.231 713	0.20	-.215
44 35	637 885.67	101.267 50	72.375 170	344.73	1.231 725	0.18	-.208
44 36	643 961.72	101.267 83	72.354 486	344.85	1.231 736	0.18	-.201
44 37	650 037.79	101.268 17	72.333 795	344.95	1.231 747	0.17	-.193
44 38	656 113.88	101.268 50	72.313 098	345.05	1.231 757	0.17	-.186
44 39	662 189.99	101.268 83	72.292 395	345.15	1.231 767	0.17	-.178
44 40	668 266.12	101.269 17	72.271 686	345.25	1.231 777	0.15	-.171
44 41	674 342.27	101.269 33	72.250 971	345.37	1.231 786	0.15	-.164
44 42	680 418.43	101.269 67	72.230 249	345.45	1.231 795	0.13	-.156
44 43	686 494.61	101.270 00	72.209 522	345.57	1.231 803	0.13	-.149
44 44	692 570.81	101.270 33	72.188 788	345.67	1.231 811	0.13	-.141
44 45	698 647.03	101.270 50	72.168 048	345.77	1.231 819	0.12	-.134
44 46	704 723.26	101.270 83	72.147 302	345.87	1.231 826	0.12	-.127
44 47	710 799.51	101.271 17	72.126 550	345.97	1.231 833	0.10	-.119
44 48	716 875.78	101.271 50	72.105 792	346.07	1.231 839	0.10	-.112
44 49	722 952.07	101.271 83	72.085 028	346.18	1.231 845	0.10	-.104
44 50	729 028.38	101.272 17	72.064 257	346.28	1.231 851	0.08	-.097
44 51	735 104.71	101.272 33	72.043 480	346.38	1.231 856	0.08	-.090
44 52	741 181.05	101.272 67	72.022 697	346.48	1.231 861	0.07	-.082
44 53	747 257.41	101.273 00	72.001 908	346.58	1.231 865	0.07	-.075
44 54	753 333.79	101.273 33	71.981 113	346.68	1.231 869	0.07	-.068
44 55	759 410.19	101.273 50	71.960 312	346.78	1.231 873	0.05	-.061
44 56	765 486.60	101.273 83	71.939 505	346.90	1.231 876	0.05	-.053
44 57	771 563.03	101.274 33	71.918 691	346.98	1.231 879	0.03	-.046
44 58	777 639.49	101.274 50	71.897 872	347.10	1.231 881	0.03	-.039
44 59	783 715.96	101.274 67	71.877 046	347.20	1.231 883	0.02	-.031
45 00	789 792.44		71.856 214		1.231 884		-.024

TRANSVERSE MERCATOR PROJECTION

MAINE
WEST ZONE

Lat.	y_0 feet	Δy_0 per second	H	ΔH per second	V	ΔV per second	a
45 00	789 792.44	101.275 17	71.856 214	347.30	1.231 884	+ 0.02	-.024
45 01	795 868.95	101.275 33	71.835 376	347.40	1.231 885	0.00	-.017
45 02	801 945.47	101.275 67	71.814 532	347.50	1.231 885	0.00	-.009
45 03	808 022.01	101.276 00	71.793 682	347.62	1.231 885	0.00	-.002
45 04	814 098.57	101.276 33	71.772 825	347.70	1.231 885	- 0.02	+.005
45 05	820 175.15	101.276 50	71.751 963	347.82	1.231 884	- 0.02	.013
45 06	826 251.74	101.277 00	71.731 094	347.90	1.231 883	- 0.03	.020
45 07	832 328.36	101.277 17	71.710 220	348.02	1.231 881	- 0.03	.027
45 08	838 404.99	101.277 50	71.689 339	348.12	1.231 879	- 0.03	.034
45 09	844 481.64	101.277 67	71.668 452	348.22	1.231 877	- 0.05	.042
45 10	850 558.30	101.278 17	71.647 559	348.32	1.231 874	- 0.05	.049
45 11	856 634.99	101.278 33	71.626 660	348.42	1.231 871	- 0.07	.056
45 12	862 711.69	101.278 67	71.605 755	348.53	1.231 867	- 0.07	.063
45 13	868 788.41	101.279 00	71.584 843	348.62	1.231 863	- 0.07	.071
45 14	874 865.15	101.279 33	71.563 926	348.72	1.231 859	- 0.08	.078
45 15	880 941.91	101.279 67	71.543 003	348.83	1.231 854	- 0.10	.085
45 16	887 018.69	101.279 83	71.522 073	348.93	1.231 848	- 0.08	.092
45 17	893 095.48	101.280 17	71.501 137	349.02	1.231 843	- 0.10	.099
45 18	899 172.29	101.280 50	71.480 196	349.13	1.231 837	- 0.12	.107
45 19	905 249.12	101.280 83	71.459 248	349.23	1.231 830	- 0.12	.114
45 20	911 325.97	101.281 00	71.438 294	349.33	1.231 823	- 0.12	.121
45 21	917 402.83	101.281 33	71.417 334	349.43	1.231 816	- 0.13	.128
45 22	923 479.71	101.281 83	71.396 368	349.53	1.231 808	- 0.15	.135
45 23	929 556.62	101.282 00	71.375 396	349.63	1.231 799	- 0.13	.143
45 24	935 633.54	101.282 17	71.354 418	349.73	1.231 791	- 0.15	.150
45 25	941 710.47	101.282 67	71.333 434	349.85	1.231 782	- 0.17	.157
45 26	947 787.43	101.282 83	71.312 443	349.93	1.231 772	- 0.17	.164
45 27	953 864.40	101.283 17	71.291 447	350.05	1.231 762	- 0.17	.171
45 28	959 941.39	101.283 50	71.270 444	350.13	1.231 752	- 0.18	.179
45 29	966 018.40	101.283 83	71.249 436	350.25	1.231 741	- 0.18	.186
45 30	972 095.43	101.284 17	71.228 421	350.35	1.231 730	- 0.20	.193
45 31	978 172.48	101.284 33	71.207 400	350.45	1.231 718	- 0.18	.200
45 32	984 249.54	101.284 67	71.186 373	350.55	1.231 707	- 0.22	.207
45 33	990 326.62	101.285 00	71.165 340	350.65	1.231 694	- 0.22	.214
45 34	996 403.72	101.285 33	71.144 301	350.75	1.231 681	- 0.22	.221
45 35	1 002 480.84	101.285 50	71.123 256	350.85	1.231 668	- 0.22	.229
45 36	1 008 557.97	101.285 83	71.102 205	350.95	1.231 655	- 0.23	.236
45 37	1 014 635.12	101.286 33	71.081 148	351.05	1.231 641	- 0.25	.243
45 38	1 020 712.30	101.286 50	71.060 085	351.17	1.231 626	- 0.25	.250
45 39	1 026 789.49	101.286 67	71.039 015	351.25	1.231 611	- 0.25	.257
45 40	1 032 866.69	101.287 17	71.017 940	351.35	1.231 596	- 0.27	.264
45 41	1 038 943.92	101.287 33	70.996 859	351.47	1.231 580	- 0.27	.271
45 42	1 045 021.16	101.287 67	70.975 771	351.55	1.231 564	- 0.27	.278
45 43	1 051 098.42	101.288 00	70.954 678	351.67	1.231 548	- 0.28	.285
45 44	1 057 175.70	101.288 33	70.933 578	351.75	1.231 531	- 0.30	.292
45 45	1 063 253.00	101.288 67	70.912 473	351.87	1.231 513	- 0.30	.300
45 46	1 069 330.32	101.288 83	70.891 361	351.95	1.231 495	- 0.30	.307
45 47	1 075 407.65	101.289 17	70.870 244	352.07	1.231 477	- 0.32	.314
45 48	1 081 485.00	101.289 50	70.849 120	352.15	1.231 458	- 0.32	.321
45 49	1 087 562.37	101.289 83	70.827 991	352.27	1.231 439	- 0.32	.328
45 50	1 093 639.76	101.290 00	70.806 855	352.37	1.231 420	- 0.33	.335
45 51	1 099 717.16	101.290 50	70.785 713	352.47	1.231 400	- 0.33	.342
45 52	1 105 794.59	101.290 67	70.764 565	352.57	1.231 380	- 0.35	.349
45 53	1 111 872.03	101.291 00	70.743 411	352.67	1.231 359	- 0.35	.356
45 54	1 117 949.49	101.291 33	70.722 251	352.75	1.231 338	- 0.35	.363
45 55	1 124 026.97	101.291 50	70.701 086	352.87	1.231 317	- 0.37	.371
45 56	1 130 104.46	101.291 83	70.679 914	352.97	1.231 295	- 0.37	.378
45 57	1 136 181.97	101.292 33	70.658 736	353.07	1.231 273	- 0.38	.385
45 58	1 142 259.51	101.292 50	70.637 552	353.17	1.231 250	- 0.38	.392
45 59	1 148 337.06	101.292 67	70.616 362	353.27	1.231 227	- 0.40	.399
46 00	1 154 414.62		70.595 166		1.231 203		.406

TRANSVERSE MERCATOR PROJECTION

MAINE
WEST ZONE

Lat.	y ₀ feet		Δy ₀ per second	H		ΔH per second	V		ΔV per second	a	
46 00	1 154	414.62	101.293	17	70.595	166	353.37	1.231	203	- 0.40	+ .406
46 01	1 160	492.21	101.293	33	70.573	964	353.47	1.231	179	- 0.40	.413
46 02	1 166	569.81	101.293	67	70.552	756	353.57	1.231	155	- 0.42	.420
46 03	1 172	647.43	101.294	00	70.531	542	353.65	1.231	130	- 0.42	.427
46 04	1 178	725.07	101.294	33	70.510	323	353.77	1.231	105	- 0.43	.434
46 05	1 184	802.73	101.294	67	70.489	097	353.87	1.231	079	- 0.43	.441
46 06	1 190	880.41	101.294	83	70.467	865	353.97	1.231	053	- 0.45	.448
46 07	1 196	958.10	101.295	17	70.446	627	354.07	1.231	026	- 0.45	.455
46 08	1 203	035.81	101.295	50	70.425	383	354.17	1.230	999	- 0.45	.462
46 09	1 209	113.54	101.295	83	70.404	133	354.27	1.230	972	- 0.47	.469
46 10	1 215	191.29	101.296	00	70.382	877	354.37	1.230	944	- 0.47	.476
46 11	1 221	269.05	101.296	50	70.361	615	354.47	1.230	916	- 0.48	.483
46 12	1 227	346.84	101.296	67	70.340	347	354.57	1.230	887	- 0.48	.490
46 13	1 233	424.64	101.297	00	70.319	073	354.67	1.230	858	- 0.50	.497
46 14	1 239	502.46	101.297	33	70.297	793	354.77	1.230	828	- 0.50	.504
46 15	1 245	580.30	101.297	50	70.276	507	354.87	1.230	798	- 0.50	.511
46 16	1 251	658.15	101.297	83	70.255	215	354.97	1.230	768	- 0.52	.518
46 17	1 257	736.02	101.298	33	70.233	917	355.07	1.230	737	- 0.52	.525
46 18	1 263	813.92	101.298	50	70.212	613	355.17	1.230	706	- 0.53	.532
46 19	1 269	891.83	101.298	67	70.191	303	355.27	1.230	674	- 0.53	.539
46 20	1 275	969.75	101.299	17	70.169	987	355.37	1.230	642	- 0.53	.546
46 21	1 282	047.70	101.299	33	70.148	665	355.47	1.230	610	- 0.55	.553
46 22	1 288	125.66	101.299	67	70.127	337	355.57	1.230	577	- 0.57	.560
46 23	1 294	203.64	101.300	00	70.106	003	355.65	1.230	543	- 0.55	.567
46 24	1 300	281.64	101.300	33	70.084	664	355.77	1.230	510	- 0.57	.574
46 25	1 306	359.66	101.300	67	70.063	318	355.87	1.230	476	- 0.58	.581
46 26	1 312	437.70	101.300	83	70.041	966	355.95	1.230	441	- 0.58	.588
46 27	1 318	515.75	101.301	17	70.020	609	356.07	1.230	406	- 0.58	.595
46 28	1 324	593.82	101.301	50	69.999	245	356.15	1.230	371	- 0.60	.602
46 29	1 330	671.91	101.301	83	69.977	876	356.27	1.230	335	- 0.60	.609
46 30	1 336	750.02	101.302	00	69.956	500	356.37	1.230	299	- 0.62	.616
46 31	1 342	828.14	101.302	50	69.935	118	356.45	1.230	262	- 0.60	.623
46 32	1 348	906.29	101.302	67	69.913	731	356.55	1.230	226	- 0.63	.630
46 33	1 354	984.45	101.303	00	69.892	338	356.67	1.230	188	- 0.63	.637
46 34	1 361	062.63	101.303	17	69.870	938	356.75	1.230	150	- 0.63	.644
46 35	1 367	140.82	101.303	67	69.849	533	356.85	1.230	112	- 0.63	.651
46 36	1 373	219.04	101.303	83	69.828	122	356.97	1.230	074	- 0.65	.657
46 37	1 379	297.27	101.304	17	69.806	704	357.05	1.230	035	- 0.67	.664
46 38	1 385	375.52	101.304	50	69.785	281	357.15	1.229	995	- 0.67	.671
46 39	1 391	453.79	101.304	83	69.763	852	357.25	1.229	955	- 0.67	.678
46 40	1 397	532.08	101.305	17	69.742	417	357.35	1.229	915	- 0.68	.685
46 41	1 403	610.39	101.305	33	69.720	976	357.45	1.229	874	- 0.68	.692
46 42	1 409	688.71	101.305	67	69.699	529	357.55	1.229	833	- 0.68	.699
46 43	1 415	767.05	101.306	00	69.678	076	357.65	1.229	792	- 0.70	.706
46 44	1 421	845.41	101.306	33	69.656	617	357.75	1.229	750	- 0.72	.713
46 45	1 427	923.79	101.306	50	69.635	152	357.85	1.229	707	- 0.72	.720
46 46	1 434	002.18	101.307	00	69.613	681	357.93	1.229	664	- 0.72	.726
46 47	1 440	080.60	101.307	17	69.592	205	358.05	1.229	621	- 0.73	.733
46 48	1 446	159.03	101.307	50	69.570	722	358.15	1.229	577	- 0.73	.740
46 49	1 452	237.48	101.307	67	69.549	233	358.23	1.229	533	- 0.73	.747
46 50	1 458	315.94			69.527	739		1.229	489		.754

TRANSVERSE MERCATOR PROJECTION

MAINE

East and west zones

$\Delta \lambda''$	b	Δb	c	$\Delta \lambda''$	b	Δb	c
0	0.000	+0.052	0.000				
100	+0.052	+0.052	0.000	3100	+0.935	-0.015	-0.133
200	+0.104	+0.051	-0.001	3200	+0.920	-0.020	-0.135
300	+0.155	+0.051	-0.002	3300	+0.900	-0.024	-0.136
400	+0.206	+0.050	-0.003	3400	+0.876	-0.028	-0.135
500	+0.256	+0.050	-0.005	3500	+0.848	-0.034	-0.133
600	+0.306	+0.048	-0.007	3600	+0.814	-0.038	-0.131
700	+0.354	+0.048	-0.010	3700	+0.776	-0.043	-0.128
800	+0.402	+0.047	-0.014	3800	+0.733	-0.048	-0.124
900	+0.449	+0.046	-0.018	3900	+0.685	-0.053	-0.120
1000	+0.495	+0.045	-0.022	4000	+0.632	-0.059	-0.115
1100	+0.540	+0.042	-0.027	4100	+0.573	-0.064	-0.109
1200	+0.582	+0.042	-0.032	4200	+0.509	-0.071	-0.101
1300	+0.624	+0.039	-0.038	4300	+0.438	-0.075	-0.091
1400	+0.663	+0.038	-0.043	4400	+0.363	-0.082	-0.078
1500	+0.701	+0.035	-0.049	4500	+0.281	-0.087	-0.063
1600	+0.736	+0.033	-0.055	4600	+0.194	-0.094	-0.045
1700	+0.769	+0.031	-0.061	4700	+0.100	-0.100	-0.025
1800	+0.800	+0.029	-0.067	4800	0.000	-0.107	0.000
1900	+0.829	+0.026	-0.073	4900	-0.107	-0.113	+0.026
2000	+0.855	+0.024	-0.079	5000	-0.220	-0.120	+0.053
2100	+0.879	+0.021	-0.085	5100	-0.340	-0.127	+0.084
2200	+0.900	+0.017	-0.091	5200	-0.467	-0.134	+0.117
2300	+0.917	+0.015	-0.096	5300	-0.601	-0.141	+0.153
2400	+0.932	+0.011	-0.101	5400	-0.742	-0.148	+0.191
2500	+0.943	+0.008	-0.106	5500	-0.890	-0.156	+0.232
2600	+0.951	+0.005	-0.111	5600	-1.046	-0.163	+0.275
2700	+0.956	0.000	-0.116	5700	-1.209	-0.172	+0.321
2800	+0.956	-0.003	-0.121	5800	-1.381	-0.178	+0.371
2900	+0.953	-0.007	-0.125	5900	-1.559	-0.187	+0.426
3000	+0.946	-0.011	-0.130	6000	-1.746		+0.487

$$F = 6.85 \times 10^{-13}$$

TRANSVERSE MERCATOR PROJECTION

TABLE FOR g

$$\Delta\alpha'' = \sin \phi (\Delta\lambda'') + g$$

Latitude	$\Delta\lambda''$						
	0''	1000''	2000''	3000''	4000''	5000''	6000''
24°	0:00	0:00	0:02	0:07	0:17	0:33	0:58
25	0	0	0.02	0.07	0.17	0.34	0.59
26°	0.00	0.00	0.02	0.08	0.18	0.35	0.60
27	0	0	0.02	0.08	0.18	0.35	0.61
28	0	0	0.02	0.08	0.18	0.36	0.62
29	0	0	0.02	0.08	0.19	0.37	0.63
30	0	0	0.02	0.08	0.19	0.37	0.64
31°	0.00	0.00	0.02	0.08	0.19	0.37	0.64
32	0	0	0.02	0.08	0.19	0.38	0.65
33	0	0	0.02	0.08	0.19	0.38	0.65
34	0	0	0.02	0.08	0.19	0.38	0.65
35	0	0	0.02	0.08	0.19	0.38	0.65
36°	0.00	0.00	0.02	0.08	0.19	0.38	0.65
37	0	0	0.02	0.08	0.19	0.38	0.65
38	0	0	0.02	0.08	0.19	0.38	0.65
39	0	0	0.02	0.08	0.19	0.37	0.64
40	0	0	0.02	0.08	0.19	0.37	0.64
41°	0.00	0.00	0.02	0.08	0.19	0.37	0.63
42	0	0	0.02	0.08	0.18	0.36	0.63
43	0	0	0.02	0.08	0.18	0.36	0.62
44	0	0	0.02	0.08	0.18	0.35	0.61
45	0	0	0.02	0.08	0.18	0.35	0.60
46°	0.00	0.00	0.02	0.07	0.17	0.34	0.59
47	0	0	0.02	0.07	0.17	0.33	0.58
48	0	0	0.02	0.07	0.17	0.33	0.56
49	0	0	0.02	0.07	0.16	0.32	0.55
50	0.00	0.00	0.02	0.07	0.16	0.31	0.54

$$g = \left[\frac{C (\sin 1'') \cos^3 \phi}{2A^2} + F \right] (\Delta\lambda'')^3$$

A, C and F are position factors.

Y CORRECTION FOR COMPUTATION OF GEOGRAPHIC
POSITIONS FROM PLANE COORDINATES
TRANSVERSE MERCATOR PROJECTION, MAINE-EAST ZONE

$$P(x'/10,000)^2 + d = v(\Delta/100)^2 + c$$

P taken out for y-coordinate
d taken out for x'

y	P	ΔP	x'	d
0	2.29024	2203	0	0.00
100,000	2.31227	2222	50,000	0.00
200,000	2.33449	2241	100,000	+ 0.02
300,000	2.35690	2264	150,000	+ 0.04
400,000	2.37954	2287	200,000	+ 0.07
500,000	2.40241	2306	250,000	+ 0.08
600,000	2.42547	2330	300,000	+ 0.08
700,000	2.44877	2353	350,000	+ 0.04
800,000	2.47230	2376	400,000	- 0.04
900,000	2.49606	2400	425,000	- 0.09
1,000,000	2.52006	2424		
1,100,000	2.54430	2449		
1,200,000	2.56879	2474		
1,300,000	2.59353			

Y CORRECTION FOR COMPUTATION OF GEOGRAPHIC
POSITIONS FROM PLANE COORDINATES
TRANSVERSE MERCATOR PROJECTION MAINE-WEST ZONE

$$P (x'/10,000)^2 + d = v(\Delta^2/100)^2 + c$$

P taken out for y-coordinate
d taken out for x'

y	P	ΔP	x'	d
0	2.21165	2130	0	0.00
100,000	2.23295	2149	50,000	0.00
200,000	2.25444	2169	100,000	+ 0.01
300,000	2.27613	2188	150,000	+ 0.01
400,000	2.29801	2209	200,000	+ 0.01
500,000	2.32010	2228	250,000	+ 0.01
600,000	2.34238	2250	300,000	- 0.03
700,000	2.36488	2272	320,000	- 0.05
800,000	2.38760	2293		
900,000	2.41053	2315		
1,000,000	2.43368	2338		
1,100,000	2.45706	2361		
1,200,000	2.48067	2385		
1,300,000	2.50452	2408		
1,400,000	2.52860			

TRANSVERSE MERCATOR PROJECTION

Maine

$$\Delta\alpha = Mx' - e$$

y	East zone		West zone	
	M	ΔM	M	ΔM
0	0.009 4490	908	0.009 1242	879
100,000	0.009 5398	917	0.009 2121	887
200,000	0.009 6315	926	0.009 3008	895
300,000	0.009 7241	934	0.009 3903	903
400,000	0.009 8175	943	0.009 4806	911
500,000	0.009 9118	952	0.009 5717	919
600,000	0.010 0070	961	0.009 6636	929
700,000	0.010 1031	971	0.009 7565	937
800,000	0.010 2002	980	0.009 8502	946
900,000	0.010 2982	990	0.009 9448	955
1,000,000	0.010 3972	1001	0.010 0403	965
1,100,000	0.010 4973	1010	0.010 1368	974
1,200,000	0.010 5983	1021	0.010 2342	983
1,300,000	0.010 7004	1031	0.010 3325	994
1,400,000	0.010 8035		0.010 4319	

e

y \ x'	100,000	200,000	300,000	400,000
0	0.0	0.1	0.4	0.9
500,000	0.0	0.1	0.4	1.0
1,000,000	0.0	0.1	0.4	1.1

Transverse Mercator Projection for Maine (East)

x' (feet)	Scale in units of 7th place of logs	Scale expressed as a ratio	x' (feet)	Scale in units of 7th place of logs.	Scale expressed as a ratio
0	-434.3	0.9999000	175,000	-282.4	0.9999350
5,000	-434.2	0.9999000	180,000	-273.6	0.9999370
10,000	-433.8	0.9999001	185,000	-264.6	0.9999391
15,000	-433.2	0.9999003	190,000	-255.3	0.9999412
20,000	-432.3	0.9999005	195,000	-245.7	0.9999434
25,000	-431.2	0.9999007	200,000	-235.9	0.9999457
30,000	-429.8	0.9999010	205,000	-225.9	0.9999480
35,000	-428.2	0.9999014	210,000	-215.6	0.9999504
40,000	-426.4	0.9999018	215,000	-205.1	0.9999528
45,000	-424.2	0.9999023	220,000	-194.3	0.9999553
50,000	-421.9	0.9999029	225,000	-183.3	0.9999578
55,000	-419.3	0.9999035	230,000	-172.0	0.9999604
60,000	-416.4	0.9999041	235,000	-160.4	0.9999631
65,000	-413.3	0.9999048	240,000	-148.7	0.9999658
70,000	-410.0	0.9999056	245,000	-136.6	0.9999685
75,000	-406.4	0.9999064	250,000	-124.4	0.9999714
80,000	-402.6	0.9999073	255,000	-111.8	0.9999743
85,000	-398.5	0.9999082	260,000	-99.1	0.9999772
90,000	-394.2	0.9999092	265,000	-86.1	0.9999802
95,000	-389.5	0.9999103	270,000	-72.8	0.9999832
100,000	-384.7	0.9999114	275,000	-59.3	0.9999863
105,000	-379.6	0.9999126	280,000	-45.5	0.9999895
110,000	-374.3	0.9999138	285,000	-31.5	0.9999927
115,000	-368.7	0.9999151	290,000	-17.2	0.9999960
120,000	-362.9	0.9999164	295,000	-2.7	0.9999994
125,000	-356.8	0.9999178	300,000	+12.0	1.0000027
130,000	-350.5	0.9999193	305,000	+27.0	1.0000062
135,000	-343.9	0.9999208	310,000	+42.3	1.0000097
140,000	-337.1	0.9999224	315,000	+57.8	1.0000133
145,000	-330.0	0.9999240	320,000	+73.5	1.0000169
150,000	-322.7	0.9999257	325,000	+89.5	1.0000206
155,000	-315.2	0.9999274	330,000	+105.7	1.0000243
160,000	-307.3	0.9999292	335,000	+122.2	1.0000281
165,000	-299.3	0.9999311	340,000	+139.0	1.0000320
170,000	-291.0	0.9999330	345,000	+155.9	1.0000359

Transverse Mercator Projection for Maine (East)

x' (feet)	Scale in units of 7th place of logs	Scale expressed as a ratio
350,000	+173.2	1.0000399
355,000	+190.7	1.0000439
360,000	+208.3	1.0000480
365,000	+226.3	1.0000521
370,000	+244.6	1.0000563
375,000	+263.1	1.0000606
380,000	+281.8	1.0000649
385,000	+300.7	1.0000692
390,000	+320.0	1.0000737
395,000	+339.4	1.0000781
400,000	+359.1	1.0000827
405,000	+379.1	1.0000873
410,000	+399.3	1.0000919
415,000	+419.8	1.0000967
420,000	+440.5	1.0001014
425,000	+461.4	1.0001062
430,000	+482.6	1.0001111
435,000	+504.1	1.0001161
440,000	+525.8	1.0001211
445,000	+547.7	1.0001261
450,000	+569.9	1.0001312
455,000	+592.3	1.0001364
460,000	+615.0	1.0001416
465,000	+638.0	1.0001469
470,000	+661.2	1.0001522
475,000	+684.6	1.0001576

Transverse Mercator Projection for Maine (West)

x' (feet)	Scale in units of 7th place of logs.	Scale expressed as a ratio	x' (feet)	Scale in units of 7th place of logs.	Scale expressed as a ratio
0	-144.8	0.9999667	175,000	+7.1	1.0000016
5,000	-144.7	0.9999667	180,000	+15.8	1.0000036
10,000	-144.3	0.9999668	185,000	+24.9	1.0000057
15,000	-143.7	0.9999669	190,000	+34.2	1.0000079
20,000	-142.8	0.9999671	195,000	+43.8	1.0000101
25,000	-141.7	0.9999674	200,000	+53.6	1.0000123
30,000	-140.3	0.9999677	205,000	+63.6	1.0000146
35,000	-138.7	0.9999681	210,000	+73.9	1.0000170
40,000	-136.9	0.9999685	215,000	+84.5	1.0000195
45,000	-134.8	0.9999690	220,000	+95.2	1.0000219
50,000	-132.4	0.9999695	225,000	+106.3	1.0000245
55,000	-129.8	0.9999701	230,000	+117.6	1.0000271
60,000	-126.9	0.9999708	235,000	+129.1	1.0000297
65,000	-123.8	0.9999715	240,000	+140.9	1.0000324
70,000	-120.5	0.9999723	245,000	+152.9	1.0000352
75,000	-116.9	0.9999731	250,000	+165.2	1.0000380
80,000	-113.1	0.9999740	255,000	+177.7	1.0000409
85,000	-109.0	0.9999749	260,000	+190.5	1.0000439
90,000	-104.6	0.9999759	265,000	+203.5	1.0000469
95,000	-100.0	0.9999770	270,000	+216.7	1.0000499
100,000	-95.2	0.9999731	275,000	+230.3	1.0000530
105,000	-90.1	0.9999793	280,000	+244.0	1.0000562
110,000	-84.8	0.9999805	285,000	+258.0	1.0000594
115,000	-79.2	0.9999818	290,000	+272.3	1.0000627
120,000	-73.4	0.9999831	295,000	+286.8	1.0000660
125,000	-67.3	0.9999845	300,000	+301.6	1.0000694
130,000	-61.0	0.9999860	305,000	+316.6	1.0000729
135,000	-54.4	0.9999875	310,000	+331.8	1.0000764
140,000	-47.6	0.9999890	315,000	+347.3	1.0000800
145,000	-40.5	0.9999907	320,000	+363.1	1.0000836
150,000	-33.2	0.9999924			
155,000	-25.6	0.9999941			
160,000	-17.8	0.9999959			
165,000	-9.8	0.9999977			
170,000	-1.5	0.9999997			

CORRECTIONS TO NATURAL SCALE RATIOS*
(in units of the 7th decimal place)

For Lambert Projection				For Lambert or transverse Mercator Projection	
<u>$\Delta \phi'$ as argument</u>					
<u>$\Delta \phi'$</u>	<u>Corr'n</u> (Plus)	<u>$\Delta \phi'$</u>	<u>Corr'n</u> (Plus)	<u>Δy or Δx</u>	<u>Corr'n</u> (Plus)
1	0	31	34	10,000	0
2	0	32	36	20,000	0
3	0	33	38	30,000	1
4	1	34	40	40,000	2
5	1	35	43	50,000	2
6	1	36	45	60,000	3
7	2	37	48	70,000	5
8	2	38	51	80,000	6
9	3	39	53	90,000	8
10	4	40	56	100,000	10
11	4	41	59	110,000	11
12	5	42	62	120,000	14
13	6	43	65	130,000	16
14	7	44	68	140,000	19
15	8	45	71	150,000	21
16	9	46	74	160,000	24
17	10	47	77	170,000	27
18	11	48	81	180,000	31
19	13	49	84	190,000	34
20	14	50	88	200,000	38
21	15	51	91	210,000	42
22	17	52	95	220,000	46
23	19	53	98	230,000	50
24	20	54	102	240,000	55
25	22	55	106	250,000	59
26	24	56	110	260,000	64
27	26	57	114	270,000	69
28	27	58	118	280,000	74
29	29	59	122	290,000	80
30	32	60	126	300,000	86
				310,000	91
				320,000	97
				330,000	103
				340,000	110
				350,000	116

$\Delta \phi'$ is the difference in
latitude in minutes
of the ends of the line.

*Scale ratio interpolated for mean latitude or mean x' of the ends of a line and corrected by the above table is a true mean value accurate to within one in the seventh decimal place.