



# GDOT Publications

## Policies & Procedures

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**Form Word:** 4420-1c - Policy 4420-1 Georgia State Plane - Cross-sectional View - South to North

**Section:** Plane Coordinate System

**Office/Department:** Office of Design Policy & Support

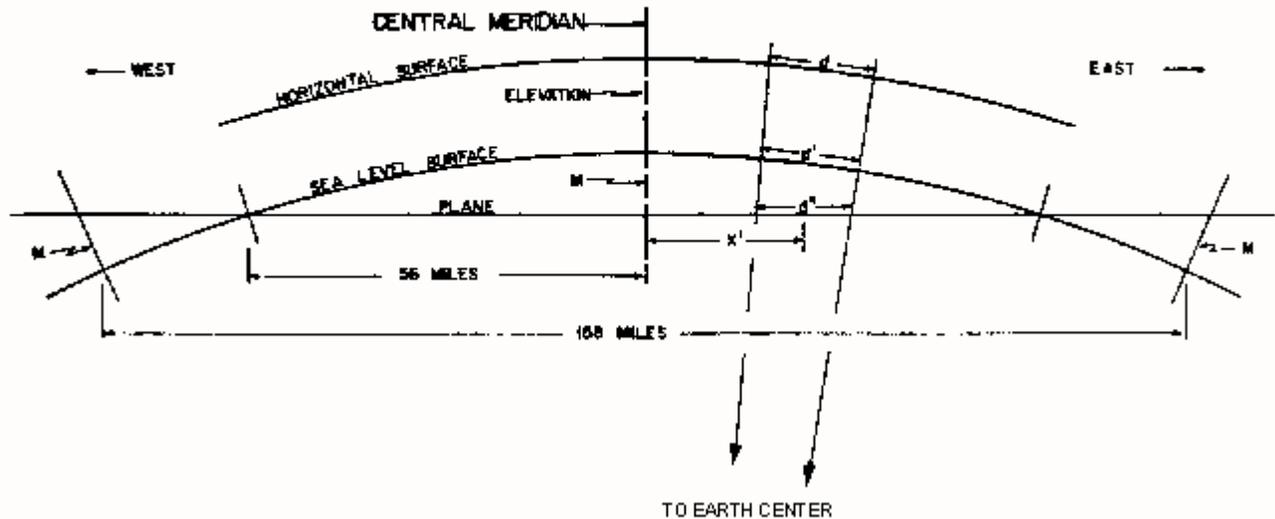
**Reports To:** Division of Engineering

**Contact:** 404-631-1000

See [below](#)

# GEORGIA STATE PLANE

## CROSS-SECTIONAL VIEW LOOKING FROM SOUTH TO NORTH



### SAME FOR BOTH ZONES

$R = \text{APPX EARTH RADIUS (20,900,000 FT)}$

$SL = I E/R$

$M = R/10000$

$SF = ((R M)/\text{COS}(\text{ARCTAN}(X' / (R M)))) / R$

$d = \text{HORIZONTAL DISTANCE}$

$d' = d \times SL$

$d' = \text{SEA LEVEL DISTANCE}$

$CF = SL \times S F \text{ or } SL + SF 1$

$d'' = \text{PLANE OR GRID DISTANCE}$

$d' = d' \times SF$

$E = \text{ELEVATION}$

OR

$X = \text{EASTING PLANE COORDINATE}$

$d' = d \times CF$

$X' = \text{MEAN DISTANCE FROM CENTRAL MERIDIAN}$

$SL = \text{SEA LEVEL FACTOR}$

$SF = \text{SCALE OR GRID FACTOR}$

$CF = \text{COMBINED FACTOR}$

## EXAMPLE DISTANCE REDUCTION

GIVEN: MEAN X = 458265.83 Ft.    SL = 0.9999460  
MEAN E = 1127.56 Ft.    X' = 41734.17 Ft.  
d = 526.934 Ft.    SF = 0.9999020  
CF = 0.9998480  
d' = d × SL = 526.906 Ft.  
d'' = d' × SF = d × CF = 526.854 Ft.

**References:**

None.

**History:**

copied to GDOT Publications v.02.00.00: 03/21/12