

1 S.154

2 Introduced by Senators Hardy and Watson

3 Referred to Committee on Transportation

4 Date: May 9, 2023

5 Subject: General provisions; Vermont Coordinate System

6 Statement of purpose of bill as introduced: This bill proposes to establish the  
7 Vermont State Plane Coordinate System as the State's sole coordinate system  
8 used for defining and stating locations of points on the surface of the earth  
9 within the State of Vermont.

10 An act relating to the Vermont State Plane Coordinate System

11 It is hereby enacted by the General Assembly of the State of Vermont:

12 Sec. 1. 1 V.S.A. chapter 17 is amended to read:

13 CHAPTER 17. VERMONT STATE PLANE COORDINATE SYSTEM

14 § 671. VERMONT COORDINATE SYSTEMS DEFINED

15 The ~~systems~~ most recent system of plane coordinates, known as the State  
16 Plane Coordinate System, ~~which have~~ that has been established by the  
17 ~~National Ocean Service/National Geodetic Survey (formerly the U. S. Coast~~  
18 ~~and Geodetic Survey)~~ National Geodetic Survey or its successors for defining  
19 and stating the horizontal positions or locations of points on the surface of the

1 earth within the State of Vermont ~~are hereafter to be known and designated as~~  
2 the ~~“Vermont Coordinate System 1927 and the Vermont Coordinate System~~  
3 ~~1983.” shall be known as the Vermont State Plane Coordinate System.~~ The  
4 ~~term terms~~ “Vermont Coordinate System” is ~~and~~ “Vermont Plane Coordinate  
5 System” are synonymous with the term “Vermont State Plane Coordinate  
6 System.” ~~Previous versions of this system include “Vermont Coordinate~~  
7 ~~System 1927” and “Vermont Coordinate System 1983.”~~

8 § 672. COORDINATES DEFINED

9 (a) ~~The plane coordinate values for coordinates of a point on the earth’s~~  
10 ~~surface, to be used to express for expressing the horizontal geographic position~~  
11 ~~or location of such the point on in the appropriate zone of the Vermont State~~  
12 Plane Coordinate Systems, shall consist of two distances, expressed in:

13 (1) meters and decimals of a meter, or international feet and decimals of  
14 a foot, when using the Vermont State Plane Coordinate System or its  
15 successors;

16 (2) U.S. Survey feet and decimals of a foot when using the Vermont  
17 Coordinate System 1927 ~~and; or~~

18 (3) ~~expressed in~~ meters and decimals of a meter, or U.S. Survey feet and  
19 decimals of a foot, when using the Vermont Coordinate System 1983.

20 (b) One of ~~these~~ the distances described in subsection (a) of this section, to  
21 be known as the “east or x-coordinate,” shall give the ~~position in an east and-~~

1 ~~west direction~~ distance east of the y-axis; the other distance, to be known as  
2 the “north or y-coordinate,” shall give the ~~position in a north-and-south~~  
3 ~~direction~~ distance north of the x-axis. These ~~coordinates shall be made to~~  
4 ~~depend upon and conform to plane rectangular coordinate values for the~~  
5 ~~monumented points of the National Spatial Reference System established by~~  
6 ~~the U. S. Coast and Geodetic Survey, its predecessor, or its successors~~ The y-  
7 axis of any zone shall be parallel with the central meridian of that zone. The x  
8 axis of any zone shall be at right angles to the central meridian of that zone.

9 (c) One international foot equals 0.3048 meter exactly. For conversion of  
10 meters to international feet, multiply the meters by 3.280839895.

11 (d) The international foot shall be used for all foot distances and  
12 coordinates unless the distances or coordinates are tied to one of the legacy  
13 systems referenced in this section.

14 (e) The U.S. survey foot, which equals (1200)/(3937) meter, shall be  
15 superseded by the international foot specified in subsection (b) of this section,  
16 following guidance from the National Institute of Standards and Technology,  
17 the National Geodetic Survey, the National Ocean Service, and the National  
18 Oceanic and Atmospheric Administration.

19 § 673. ADDITIONAL DEFINITIONS

20 (a) The Vermont State Plane Coordinate System is the most recent system  
21 of plane coordinates established by the National Geodetic Survey, based on the

1 National Spatial Reference System, and known as the State Plane Coordinate  
2 System, for defining and stating the geographic positions or locations of points  
3 within the State of Vermont and shall be known as the Vermont State Plane  
4 Coordinate System.

5 (b) For purposes of more precisely defining the Vermont Coordinate  
6 System 1927, the following definition by the U.S. Coast and Geodetic Survey  
7 (now the National Ocean Service/National Geodetic Survey) is adopted:

8 ~~(b)~~(c) The Vermont Coordinate System 1927 is a transverse Mercator  
9 projection of the Clarke spheroid of 1866, having a central meridian 72  
10 degrees 30 minutes west of Greenwich, on which meridian the scale is set one  
11 part in 28,000 too small. The origin of coordinates is at the intersection of the  
12 meridian 72 degrees 30 minutes west of Greenwich and the parallel 42 degrees  
13 30 minutes north latitude. This origin is given the coordinates:  $x = 500,000$   
14 feet and  $y = 0$  feet.

15 ~~(c)~~(d) For purposes of defining the Vermont Coordinate System 1983, the  
16 following definition by the National Ocean Service/National Geodetic Survey  
17 is adopted. The Vermont Coordinate System 1983 is a transverse Mercator  
18 projection of the GRS 80 ellipsoid, having a central meridian 72 degrees 30  
19 minutes west of Greenwich, on which meridian the scale is set one part in  
20 28,000 too small. The origin of coordinates is at the intersection of the  
21 meridian 72 degrees 30 minutes west of Greenwich and the parallel 42 degrees

1 30 minutes north latitude. This origin is given the coordinates:  $x = 500,000$   
2 meters and  $y = 0$  meters.

3 (d)(e) The position of the Vermont Coordinate System 1983 shall be  
4 marked on the ground by existing or future survey stations established in  
5 conformity with standards adopted by the National Geodetic Survey or its  
6 successors for first-order or second-order work, or both, whose geodetic  
7 positions have been rigidly adjusted to the North American Datum 1983 (NAD  
8 1983).

9 § 674. RECORD

10 Coordinates based on ~~either~~ any Vermont Coordinate System, purporting to  
11 define the position of a point on a land boundary, presented to be recorded in  
12 any public land records or deed records shall be accompanied by a specific  
13 statement as to their basis and a description of the survey method used to  
14 determine them on the record plat or description of the survey.

15 § 675. RESTRICTION

16 The use of the terms "Vermont State Plane Coordinate System," "Vermont  
17 Coordinate System 1927," or "Vermont Coordinate System 1983" on any map,  
18 report of survey, or other document shall be limited to coordinates based on  
19 the respective Vermont Coordinate ~~Systems~~ System as defined in this chapter.

20 \* \* \*

1 ~~§ 679. TRANSITION~~

2       The Vermont Coordinate System 1927 shall not be used for projects  
3 commenced after January 1, 2000; and the Vermont Coordinate System 1983  
4 shall not be used for projects commenced after release of the Vermont State  
5 Plane Coordinate System by the National Geodetic Survey; the Vermont State  
6 Plane Coordinate System will be the sole system for projects commenced after  
7 ~~this date.~~

*§ 679. TRANSITION*

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commenced after January 1, 2000; and the Vermont Coordinate System 1983  
~~will be the sole system for projects commenced after this date shall not be used  
for projects commenced after release of the State Plane Coordinate System  
2022 by the National Geodetic Survey.~~*

8 Sec. 2. EFFECTIVE DATE

9       This act shall take effect on passage.