



Technology Area

DEFINITION

<i>Name</i>	Global Positioning Systems (GPS)
<i>Description</i>	<p>The Global Positioning System (GPS) is a worldwide radio-navigation system consisting of a constellation of satellites and their ground stations that are operated and maintained by the U.S. Department of Defense (DoD). Users access the system via handheld receivers (rover) and 'base station' units offering varying degrees of positional accuracy from centimeters to tens of meters. Some units come with data logger software and interfaces that allow descriptive data or attributes about collected features (points, lines, or polygons). Based on the functions provided and the level of positional accuracy, receivers can be grouped into three classes: recreation grade, mapping grade, and survey grade.</p>
<i>Rationale</i>	<p>An organization intending to collect the locations of real-world features must choose a tool capable of capturing data that adequately support its business needs. The organization's resources (i.e. staff, hardware, software) must also be sufficient to support the use and maintenance of the selected data collection tool. GPS is successful in virtually all data collection and navigation applications. Its capabilities are accessible using small inexpensive recreational receivers, mapping grade receivers, and highly accurate survey systems. GPS is being utilized in a wide variety of applications across the state including:</p> <ul style="list-style-type: none"> • Aviation and maritime tracking • Transportation networking • Asset and resource management • Land surveying • Emergency response • Guidance systems • Mining • Precision Agriculture • Mapping • Recreational activities
<i>Benefits</i>	<p>GPS data are used for many different resource or asset inventory, management, and tracking purposes within the state. GPS can provide accurate information on position, velocity, elevation and time from locations around the globe. Because the system uses radio waves to communicate, collection of locations is not hindered by weather conditions. When GPS data collection and processing procedures are properly used, users can:</p> <ul style="list-style-type: none"> • Accurately collect field locations of assets, resources, liabilities, and events for incorporation and analysis within a Geographic Information System (GIS) • Check for positional accuracy of existing data to insure quality control • Track positional changes in growth and/or movements of assets, resources, liabilities, and events through time

	<ul style="list-style-type: none"> • Navigate to a site or feature of interest as well as between general points of interest or between collected locations • Collect vertical data • Locate features not visible on maps, photographs, or other 'base' sources • Increase the efficiency of field data collection 		
ASSOCIATED ARCHITECTURE LEVELS			
<i>Specify the Domain Name</i>	Information		
<i>Specify the Discipline Name</i>	Geographic Information Technology (GIT)		
KEYWORDS			
<i>List Keywords</i>	GPS, Global Positioning System, satellites, data logger, beacon, Wide Area Augmentation System (WAAS), survey, navigation, latitude, longitude, Automatic Vehicle Location (AVL), Local Area Augmentation, Static Positioning, Differential Positioning, Selective Availability, Waypoint, Rover, Base Station, Tracking, Traversing, Community Base Station, Continuously Operating Reference Stations (CORS)		
ASSOCIATED COMPLIANCE COMPONENTS			
<i>List the Compliance Component Names</i>	GPS Accuracy Assessment – best practice Mapping Grade GPS Accuracy Survey Grade GPS Accuracy		
ASSOCIATED PRODUCT COMPONENTS			
<i>List the Product Component Names</i>	Recreation Grade GPS Mapping Grade GPS Survey Grade GPS		
CURRENT STATUS			
<i>Provide the Current Status</i>	<input type="checkbox"/> <i>In Development</i> <input type="checkbox"/> <i>Under Review</i> <input checked="" type="checkbox"/> <i>Approved</i> <input type="checkbox"/> <i>Rejected</i>		
AUDIT TRAIL			
<i>Creation Date</i>	5/28/2004	<i>Date Approved / Rejected</i>	10/12/04
<i>Reason for Rejection</i>			
<i>Last Date Reviewed</i>		<i>Last Date Updated</i>	
<i>Reason for Update</i>			