

latitude, longitude, and elevation. Once the positions are identified and monuments are established to mark the positions, the area is considered to be under geodetic control. Our report concerned primarily horizontal control which identifies positions of known latitude and longitude. The Environmental Science Administration, Department of Commerce, has the responsibility for establishing a nationwide network of geodetic control points, and the Bureau of the Budget has the responsibility for coordinating geodetic surveying activities in the Federal Government.

Other Federal agencies—including the Geological Survey, Department of the Interior, in its national mapping program and the Bureau of Public Roads, Department of Commerce, in its highway programs—also establish geodetic control points. These geodetic control points generally are established, however, only to standards required for individual program needs and, for the most part, do not meet the standards of accuracy required to extend the national network. Consequently, the Environmental Science Services Administration plans to resurvey most of the same areas to establish geodetic control points that will meet the standards of the national network.

We believe that, if the initial surveys could be made to national network standards, substantial savings in effort and cost would result, because it would not be necessary for the Environmental Science Services Administration to resurvey the same areas. On the basis of data available during our review, we estimated that past or planned expenditures for geodetic surveys which would not contribute to the national network of geodetic control by the Bureau of Public Roads under its highway programs would total about \$30 million and by the Geological Survey under the topographic map program would total about \$15 million.

The Bureau of the Budget, in June 1966, agreed that it should continue to press for improved coordination and efficiency in the conduct of the Government's Geodetic control activities but doubted that it was either desirable or possible to ensure that all geodetic control work would extend the national network. Subsequently, in September 1966, the Bureau of the Budget advised us that the Geological Survey and the Environmental Science Services Administration had entered into an agreement whereby horizontal geodetic control to national network standards would be achieved as a part of the Geological Survey's topographic map program.

The agreement provides that, where other requirements are equal, preference in the authorization of mapping will be given to an area which has been basically controlled over an area which does not contain basic control. The Geological Survey will continue to advise the Environmental Science Services Administration of its mapping plans so that it may accomplish as much of the basic control as possible. In situations where a portion of a large uncontrolled area must be mapped, however, the Geological Survey will establish horizontal control to national network standards, with proper connections to existing control points.

We believe that this agreement is an important step in the right direction. In our opinion, however, a more economical arrangement may be possible by requiring Geological Survey to perform all the basic control required for those areas which are presently uncontrolled and which it plans to map under its current mapping program. Such an arrangement would result in only one field operation by the Geological Survey, whereas, if the Environmental Science Services Administration performs the control prior to the time the Geological Survey does its mapping, two field operations would be required—one by the Environmental Science Services Administration to establish the control and one by the Geological Survey to identify and utilize the control for mapping purposes.

The various agencies, in commenting on this matter, did not indicate that any specific action would be taken to improve the coordination of the geodetic surveying activities of the Bureau of Public Roads and other Federal agencies with those of the Environmental Science Services Administration. In our opinion, geodetic control surveys should be performed to national network standards whenever such surveys are performed in an area where they will fit into the overall nationwide geodetic control plan and whenever such control would eliminate the need for the Environmental Science Services Administration to resurvey the same area.

Accordingly, we recommended that the Director, Bureau of the Budget, determine whether the geodetic surveying activities conducted by Federal agencies