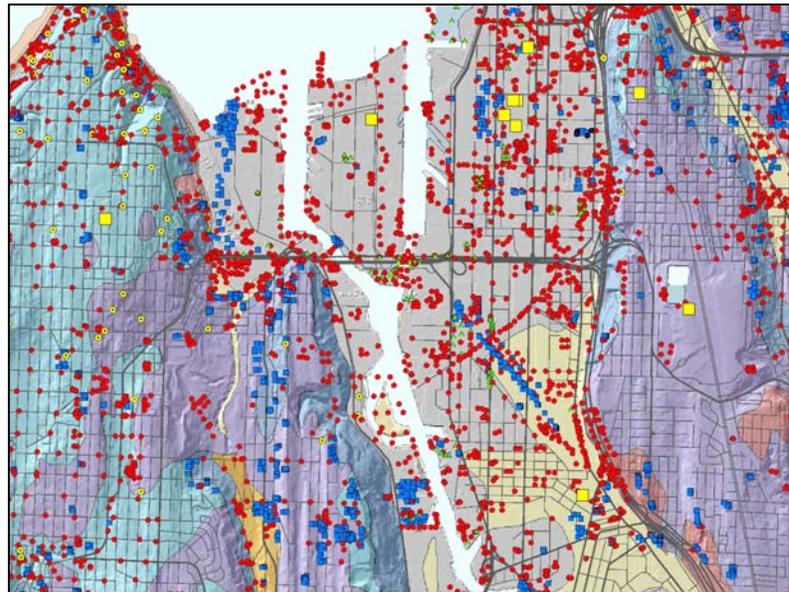


## The New Geologic Map and Geodatabase of Seattle – a Fact Sheet

The City of Seattle now has the most detailed geologic map and digital database in the country, thanks to the City's foresight in addressing geologic hazards and an unprecedented collaboration between the City of Seattle, the University of Washington, the U.S. Geological Survey (USGS), local agencies, local geotechnical firms, professional geologists, and individual citizens. The map and all supporting data are available to the public via the internet at <http://geomapnw.ess.washington.edu>.

The map is the result of new field mapping and database efforts spanning the years 1999 to 2004 and funded by the City of Seattle and the USGS. Data from more than **36,000** exploration points (geotechnical borings, test pits, monitoring wells, excavations, and outcrops) were compiled in a spatial database and used in developing this geologic map (see example at right). Updating of this information, as new exploration and construction takes place, continues thanks to ongoing City support.



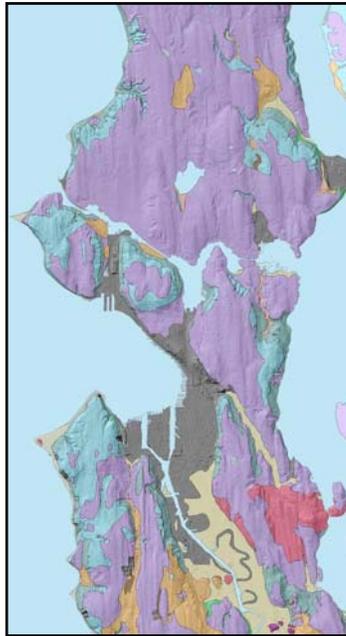
This city-wide map is a composite of 4 individual maps in various stages of review and publication as 1:12,000-scale USGS SIM-series maps. The first of these, the Geologic Map of Northwestern Seattle, is available on the USGS web site (<http://pubs.usgs.gov/sim/2005/2903/>); the remaining quadrants will be available soon and are already compiled in a new progress report and associated map (<http://pubs.usgs.gov/of/2005/1252/>).

Prior to this work, the City was covered only by the Preliminary Geologic Map of Seattle (by Waldron and others, USGS Map I-354, Scale 1:31,680). Among the many changes between the 1962 map and the current effort is the recognition and delineation of the **Seattle Fault Zone**, now widely recognized as posing a significant threat to residents and infrastructure of the greater Seattle region. In Seattle, evidence for offset along the Seattle fault includes uplifted beach deposits, down-dropped tidal marshes, offset strata, and deformation such as sheared and tightly folded strata near the leading (northern) edge of the fault. The new geologic map displays those areas where several parallel strands of the Seattle fault have either broken the ground surface or caused deformation of geologic materials, providing a basis for further scientific investigation of the fault zone and improved understanding of its potential risk to the region.

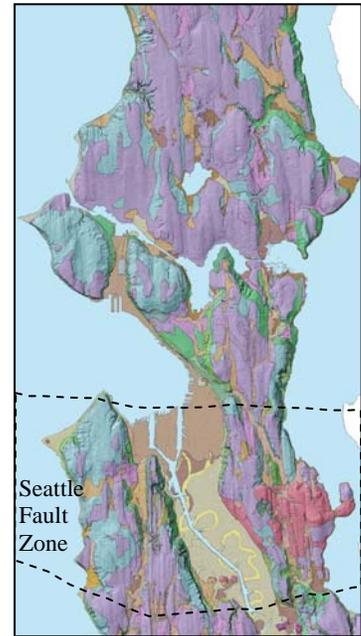
## Geologic Map of Seattle

Prior to this mapping/database project, we relied on the 1962 Preliminary Geologic Map of Seattle, by Waldron and others. To compare it with the new geologic map, we colored and digitized the original map (map on left).

After reviewing more than 36,000 boreholes and conducting field mapping, we have produced the new Geologic Map of Seattle (map on right). The new map shows more detail, contains 33 more geologic units, and has better age/stratigraphic control. It also shows the Seattle Fault zone. Geology is shown beneath filled and graded land, adding 9% more mapped land area. Landfills, fills, and graded and regarded areas are differentiated. Note that the till (purple) is less extensive in the new map and that more upland valleys are mapped (tans and browns) than were mapped in 1962.



Prel. Geologic Map of Seattle, 1962

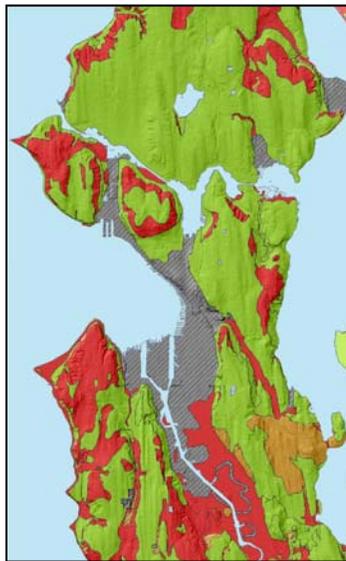


Geologic Map of Seattle, 2005

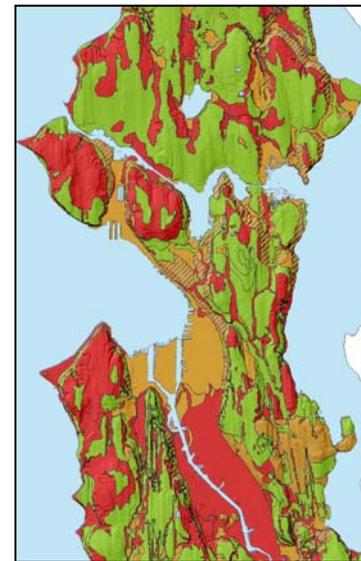
Based on 1962 geologic map, 25% of the total map area has high infiltration potential (assuming no buildings or pavement), based on qualitative estimation of permeability.

Based on 2005 geologic map, 43% of the total map area has high infiltrative potential; nearly double that of the 1962 map.

### Preliminary Infiltration Potential

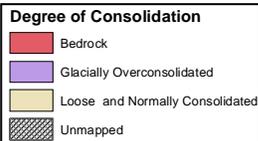


Based on 1962 Map

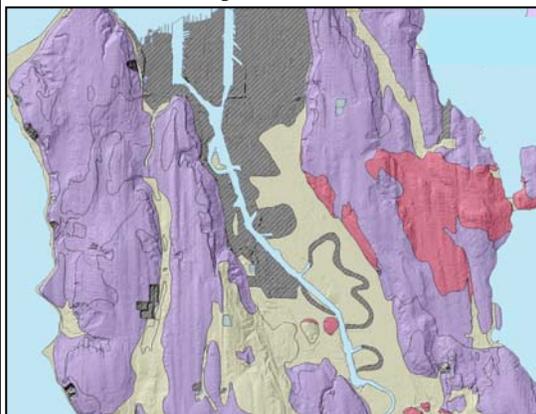


Based on 2005 Map

These two maps show the most significant materials for seismic shaking assessments in the Seattle area. The map on the left contains loose to normally consolidated deposits over 15% of its area (9% of the map is shown as modified-containing both overridden and loose deposits). The new map on the right shows 28% of the total map area as loose to normally consolidated, double that of the 1962 map.



Based on 1962 Map



### Potentially Weak Soil

Based on 2005 Map

