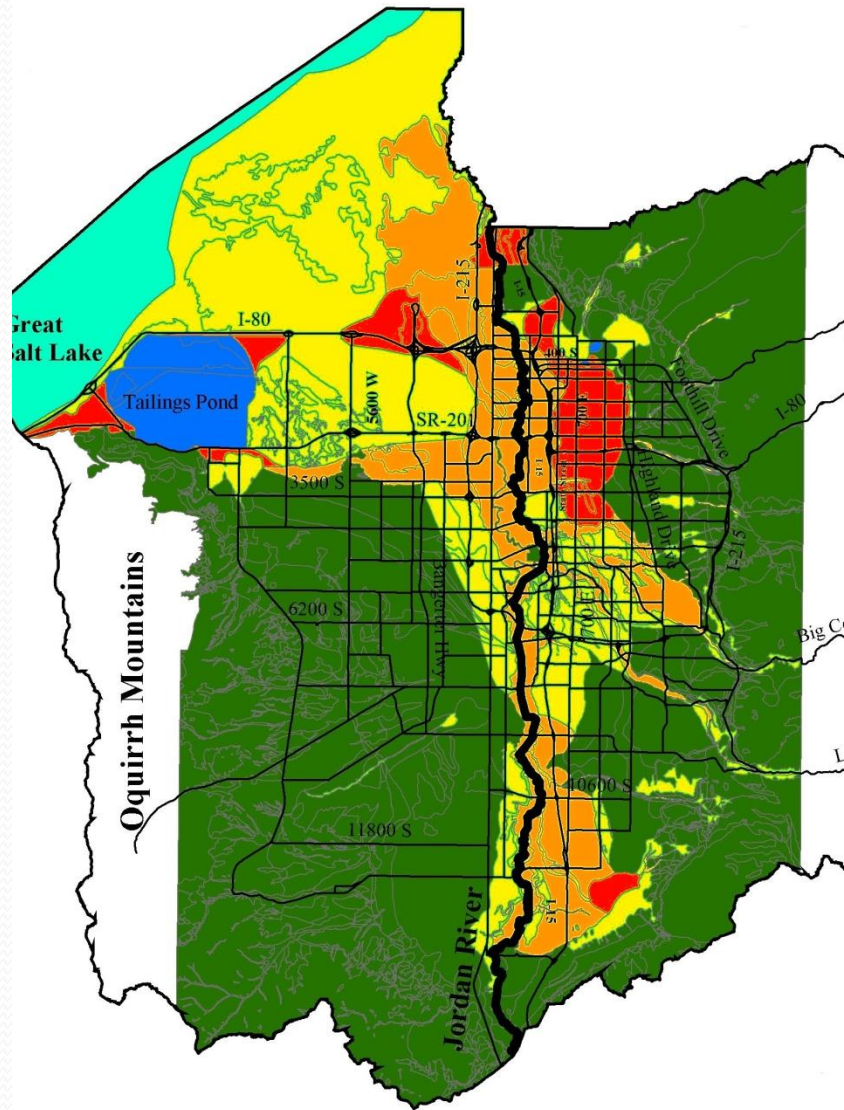


# Utah Liquefaction Advisory Group (ULAG)



## Progress Report on Liquefaction Working Group

February 28, 2007  
Salt Lake City, Utah

Steven F. Bartlett, Ph.D., P.E.  
Assistant Professor  
University of Utah

# ULAG Members and Participants



**UtahState**

**BYU**

BRIGHAM YOUNG  
UNIVERSITY



## Members

**Steve Bartlett, UUCE, Facilitator**

**Barry Solomon, UGS liaison**

**Bill Turner, Earthtec**

**Les Youd, BYUCE**

**Kyle Rollins, BYUCE**

**Loren Anderson, USUCEE**

**David Simon, SBI**

**Mark Petersen, USGS**

**Clifton Farnsworth, UDOT**

**Travis Gerber, BYUCE**

**Jim Bay, USUCEE**

**Grant Gummow, UDOT**

**Aurelian Trandafir, UUGG**

**Jim Higbee, UDOT**

# Utah's Plan for Developing the Next Generation of Liquefaction Hazard Maps

## Objective 1

### Develop Probabilistic Liquefaction Hazard Maps for Urban Counties in Utah

**Salt Lake County**

**Utah County**

**Davis County**

**Weber County**

**Cache County**

# Utah's Plan for Developing the Next Generation of Liquefaction Hazard Maps

## Objective 1 (cont.)

### Types of Maps

- (1) Liquefaction Triggering Maps
- (2) Lateral Spread Displacement Hazard Maps
- (3) Liquefaction-Induced Ground Settlement Maps

# Utah's Plan for Developing the Next Generation of Liquefaction Hazard Maps

## Objective 2

**Develop ARC GIS Programs for Implementing Probabilistic Mapping Procedures for Other Regions in U.S.**

- **Strong ground motion hazard estimates from PSHA and National Strong Motion Mapping Program**
- **User methods based on ArcGIS algorithms**
- **Subsurface GIS database that complements surface geology mapping**

# Utah's Plan for Developing the Next Generation of Liquefaction Hazard Maps

## Objective 3

### Establish and Populate a Subsurface Geotechnical Database for Public Use

- **Geotechnical Evaluations**
- **Land Use Planning**
- **Research**
- **Potential Partners**
  - **UDOT**
  - **Salt Lake County and Cities**

# Utah's Plan for Developing the Next Generation of Liquefaction Hazard Maps

## Objective 4

### Education and Public Outreach

- **User Friendly Maps**
- **Assist Counties in Implementation and Ordinances**
- **Outreach Seminars and Website**

# Status (Previous Work)

FY 2004

- Database (N. Salt Lake Co.)
- M=7 lateral spread displacement hazard map (N. Salt Lake Co.)

FY 2005

- Database (S. Salt Lake Co.)



# Status (2006)

- Prob. liquefaction potential map (S. Salt Lake Co.) (Task 3)
  - completed for all of Salt Lake Co. (draft)
  - will revise with new input from 2006 USGS strong motion maps
- Prob. liquefaction triggering map M=7 earthquake (Salt Lake Co.) (Task 4)
  - in progress (point estimates completed – need to generalize to map)
- Prob. lateral spread displacement map (N. Salt Lake Co.) (Task 5)
  - on hold pending input from 2006 USGS strong motion maps
- M=7 lateral spread displacement map (Salt Lake Co.) (Task 6)
  - completed (draft )
- Downtown ground failure investigations (Task 7)
  - completed investigations
  - writing report
- CPT correlations (Task 2)
  - completed analysis