



# How Do You Know Where Nanotechnology Research is Being Done at Your Institution?

# Where?

- 2x3 miles
- 1.6 million sq. ft.
- \$764 million



# How Do We Know Anything?

- Purchase records
- Grant applications
- Interviews
- Walking around
- Staff knowledge
- Survey



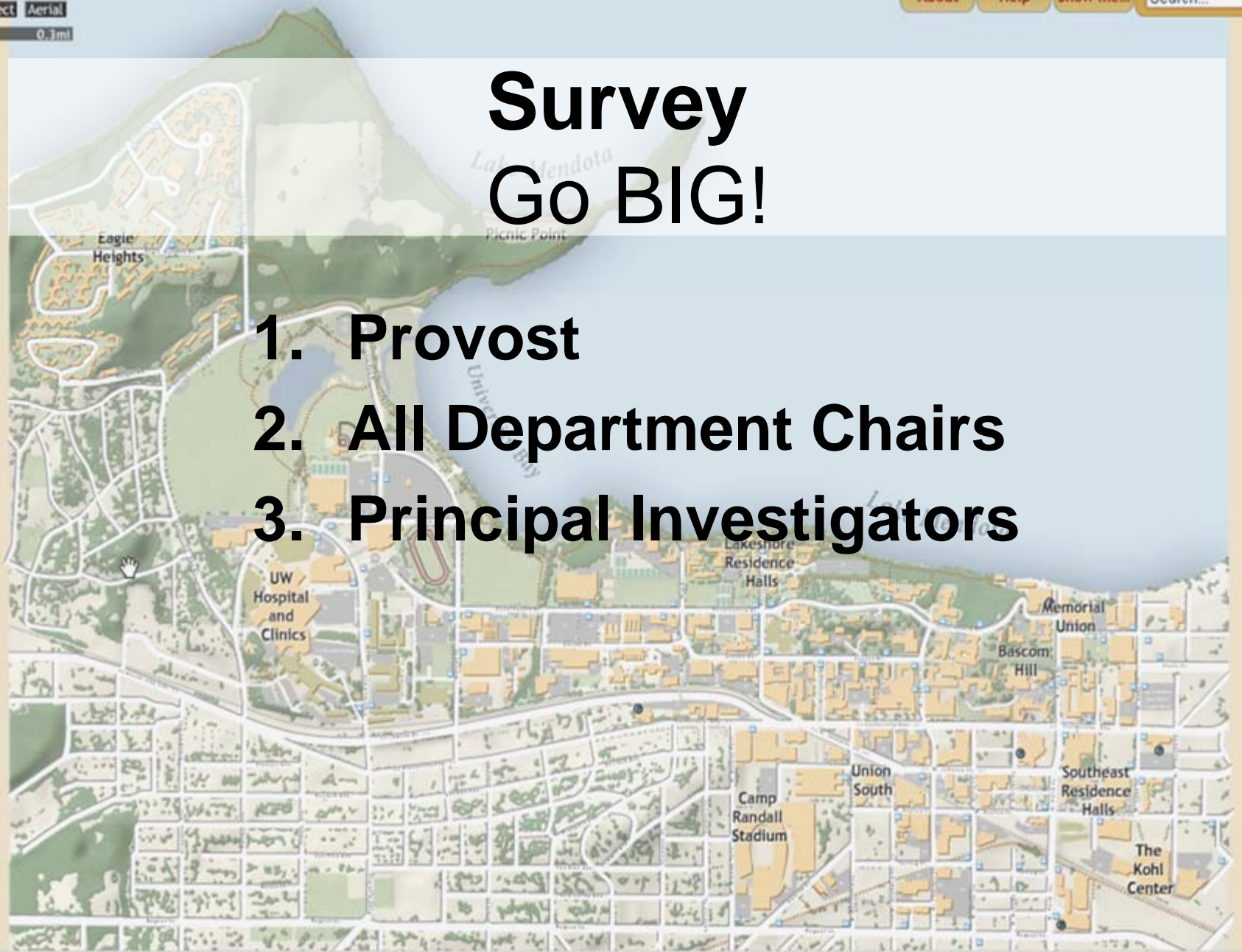
# What do we want to know?

- Do you create or handle nano-sized materials in any aspect of your research?
- Do you use or store hazardous gases in your lab?



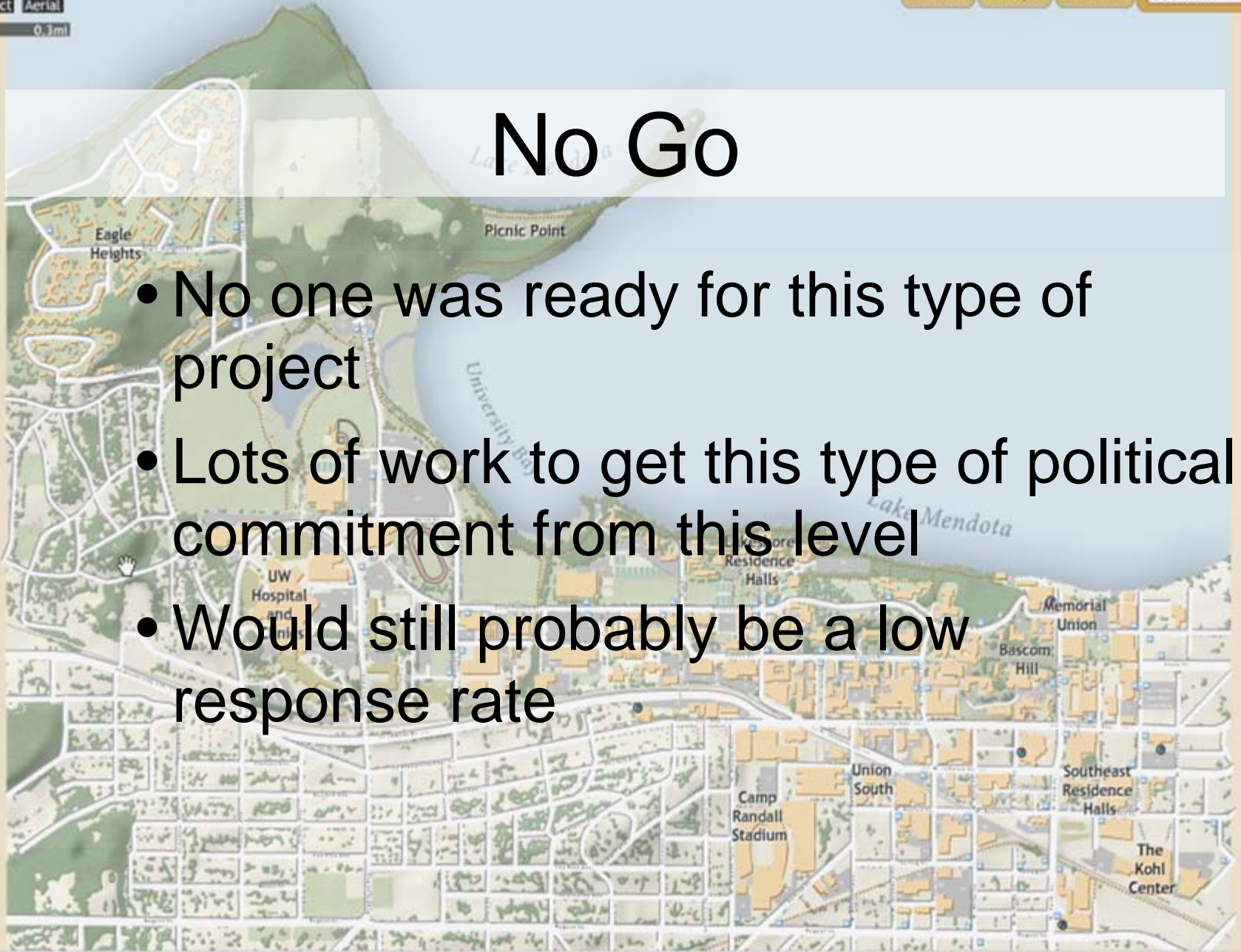
# Survey Go BIG!

1. Provost
2. All Department Chairs
3. Principal Investigators



# No Go

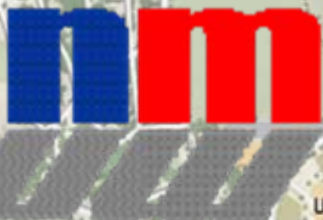
- No one was ready for this type of project
- Lots of work to get this type of political commitment from this level
- Would still probably be a low response rate



# Go Small



University of Wisconsin - Madison  
nanoscale science and engineering center



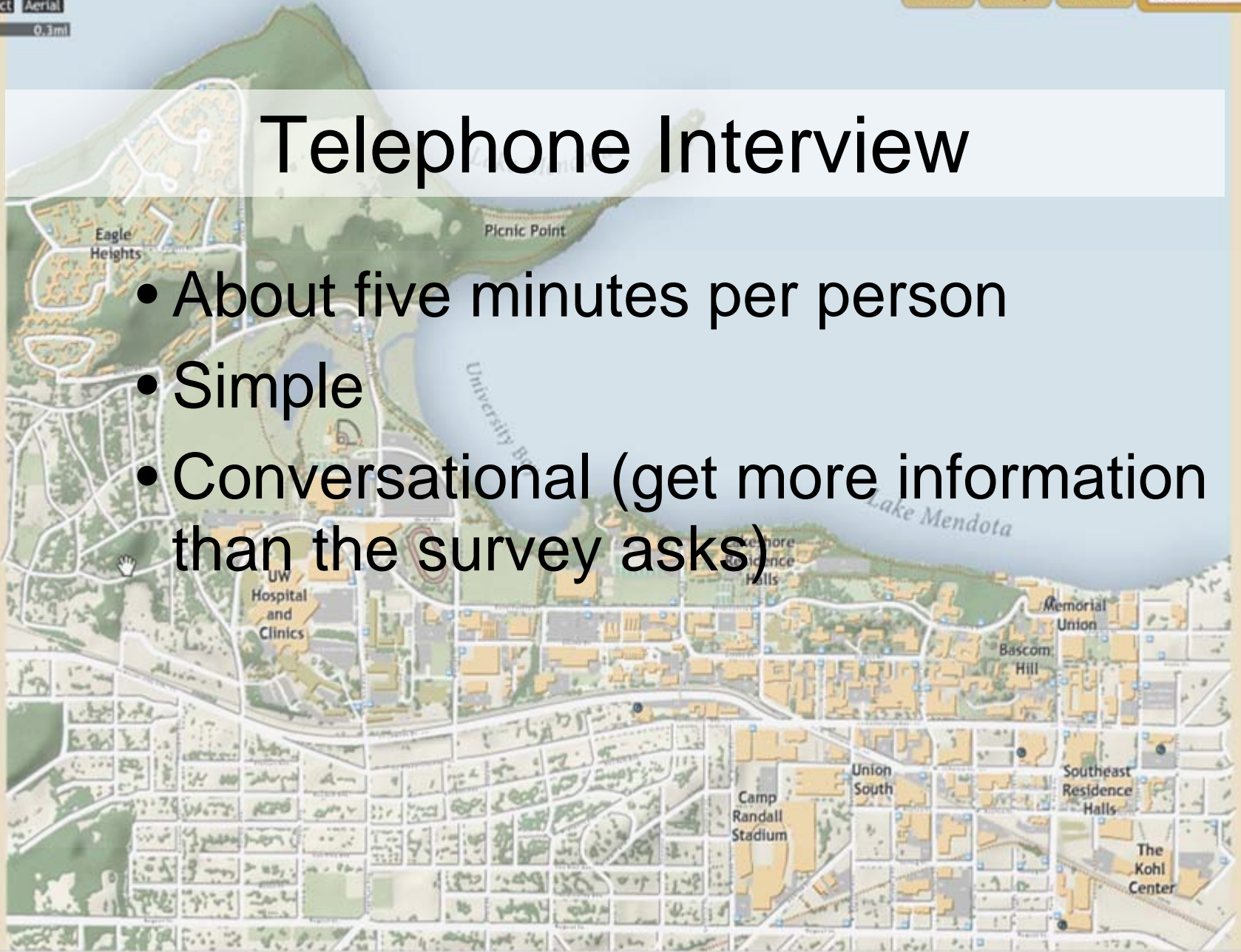
Materials Research Science and Engineering Center  
on Nanostructured Interfaces

- This is the main area where nanscale research is being done at UW-Madison
- Two center directors to contact
- 54 P. I.s



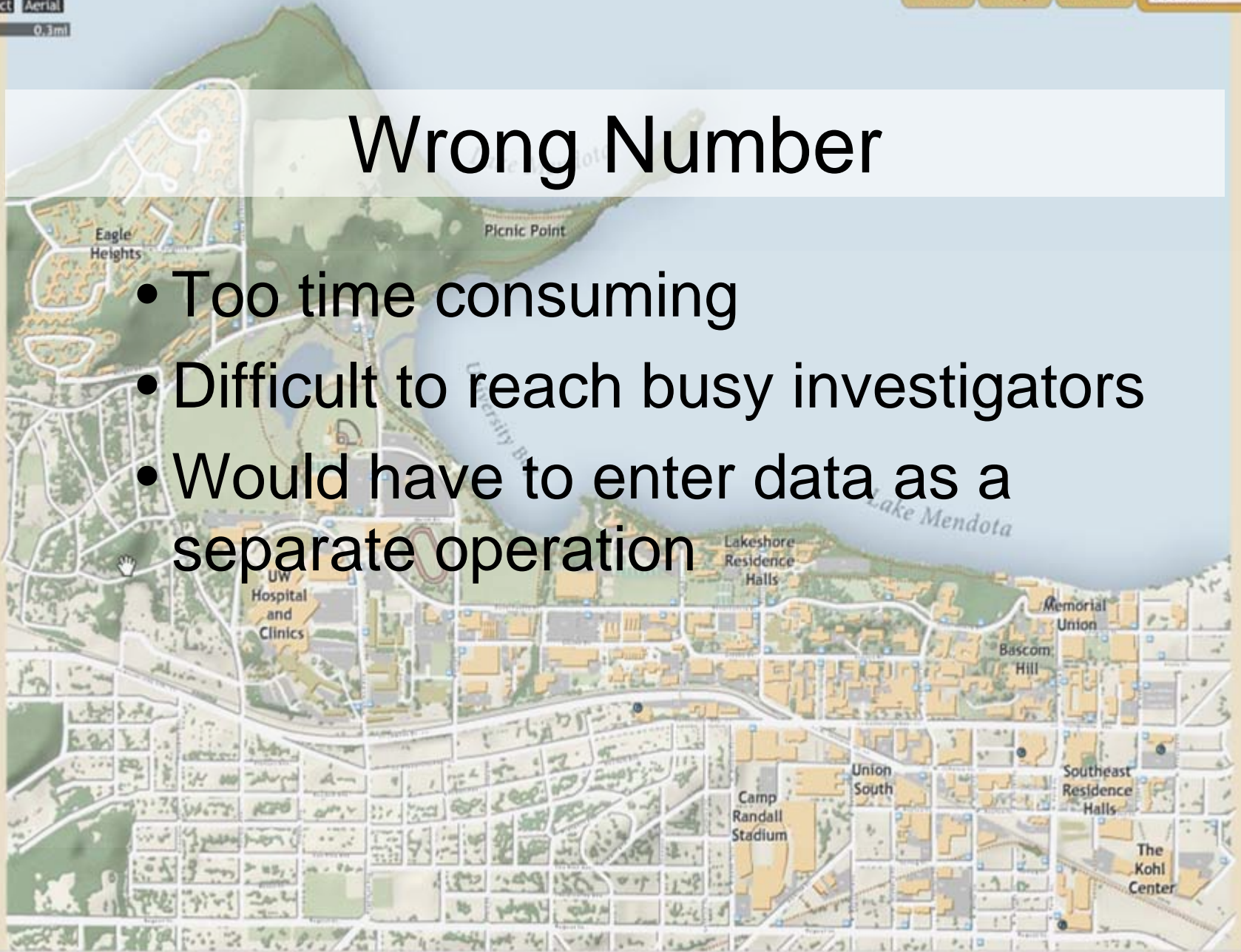
# Telephone Interview

- About five minutes per person
- Simple
- Conversational (get more information than the survey asks)



# Wrong Number

- Too time consuming
- Difficult to reach busy investigators
- Would have to enter data as a separate operation



# Go Monkey

Example Website Survey - Windows Internet Explorer

[http://surveymonkey.com/Users/49773506/Surveys/616663714970/4BB164A4-7B82-407C-8820-4DB3F13B3181.asp?U=616663714970&DO\\_NOT\\_COPY](http://surveymonkey.com/Users/49773506/Surveys/616663714970/4BB164A4-7B82-407C-8820-4DB3F13B3181.asp?U=616663714970&DO_NOT_COPY)

Example Website Survey [Exit this survey >>](#)

**\* 15. How long have you been working with nano-sized materials at the UW?**

- Less than one year
- 1-2 years
- 2-4 years
- 4-8 years
- More than 8 years

**16. Please let us know what materials you work with**

	In what capacity do you work with these materials?	In what form are these nanomaterials primarily used?	How much of this material do you use in each procedure?
Carbon (e.g., fullerenes, nanotubes)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Polymers (e.g., latex)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Biological materials (DNA origami, nano-bio composites)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Silicates	<input type="text"/>	<input type="text"/>	<input type="text"/>
Silicon	<input type="text"/>	<input type="text"/>	<input type="text"/>
Metal chalcogenides (e.g., CdS, CdSe, semiconductor "quantum dots")	<input type="text"/>	<input type="text"/>	<input type="text"/>
Metal oxides (e.g., TiO <sub>2</sub> , ZnO, MgO)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Metals (e.g., gold nanoparticles)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other A (List material in question 12)	<input type="text"/>	<input type="text"/>	<input type="text"/>
Other B (List material in question 12)	<input type="text"/>	<input type="text"/>	<input type="text"/>

**17. Please list the other material(s) below**

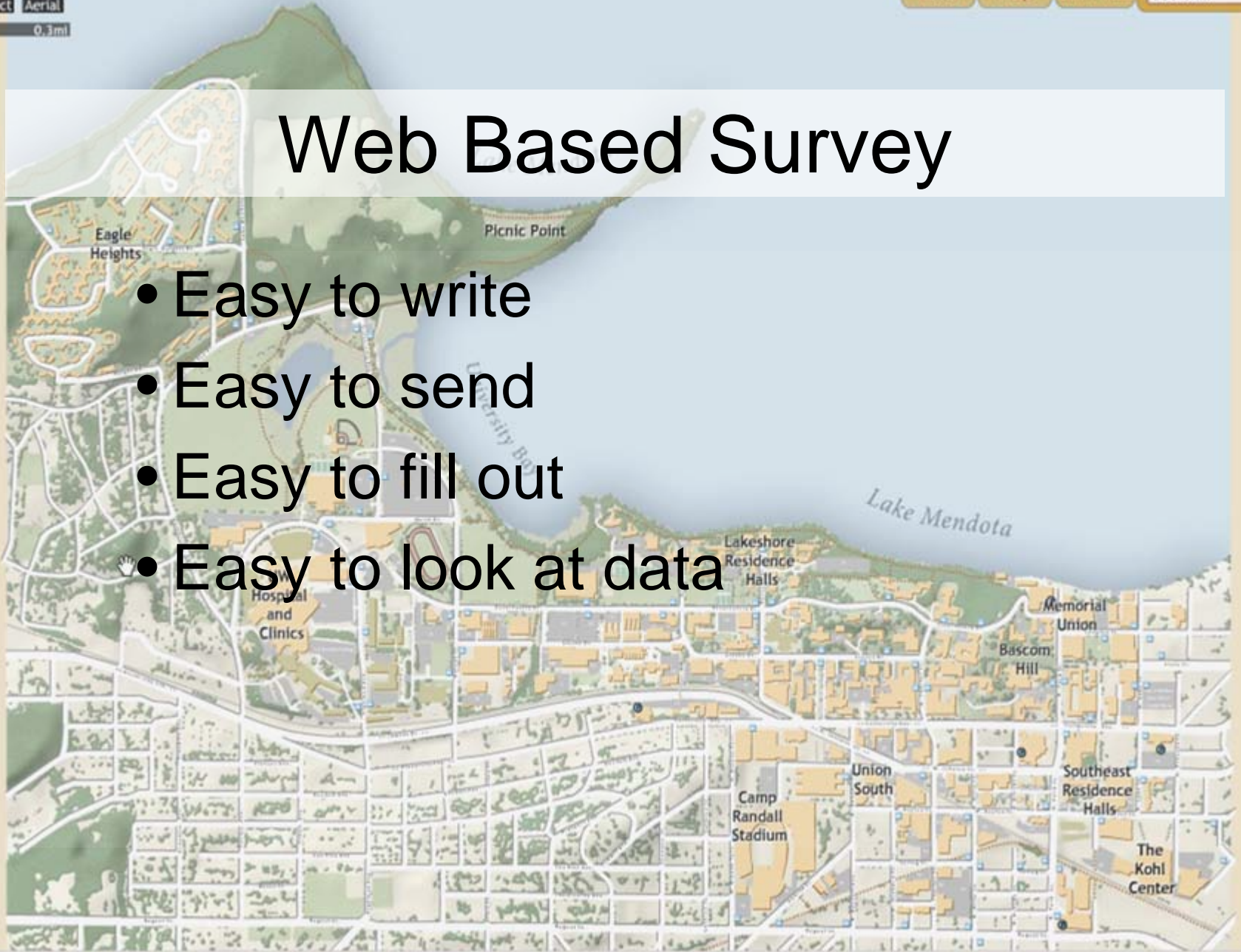
Other A

Other B

**18. Please add any comments or clarifications about the materials that you are using.**

# Web Based Survey

- Easy to write
- Easy to send
- Easy to fill out
- Easy to look at data

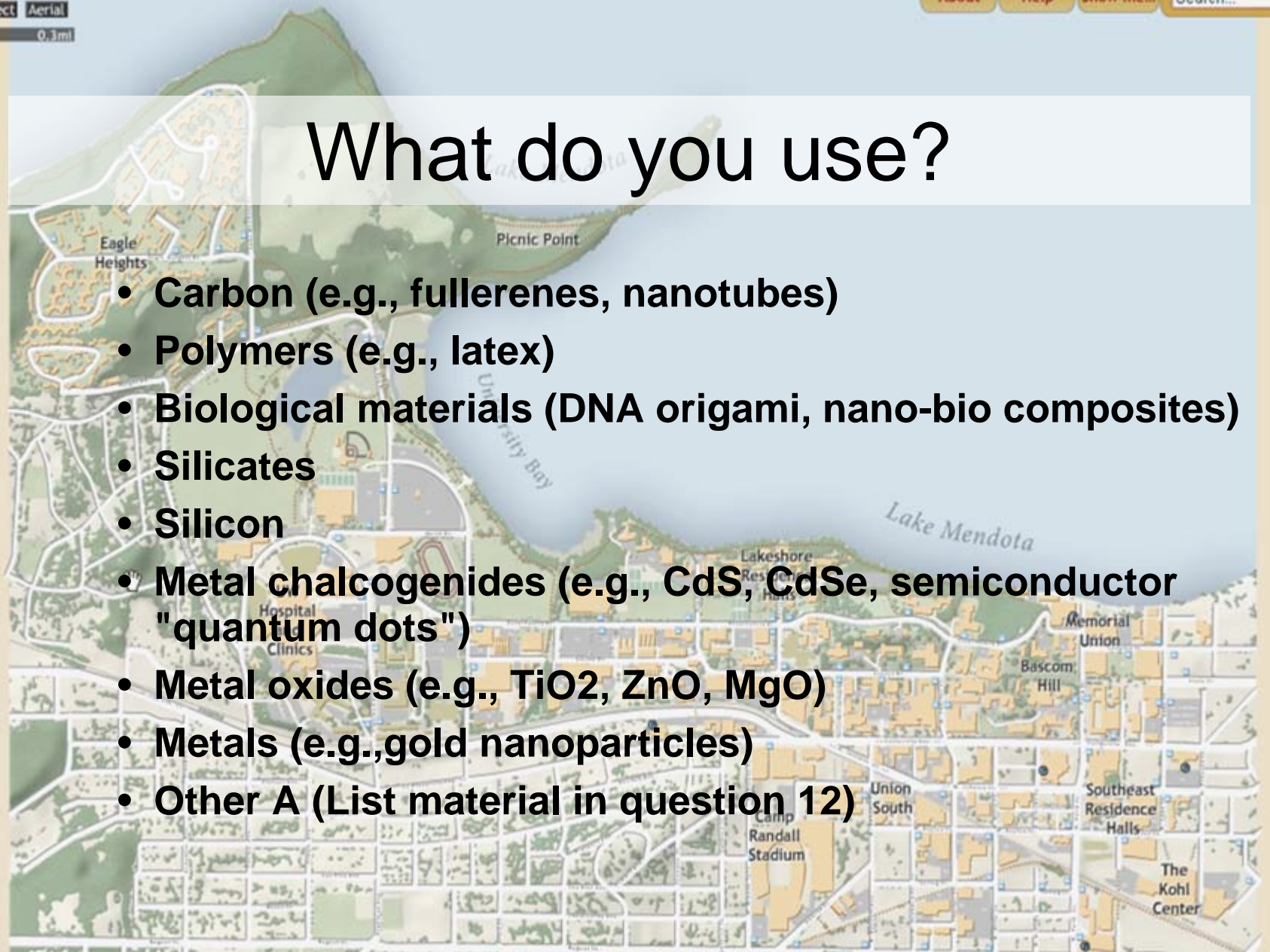


# Toxic Gases

- Arsine
- Phosphine
- Diborane
- Germane
- Silane
- Alkylsilanes
- Borontrifluoride
- Silicon tetrafluoride
- Hydrofluoric Acid (gas)
- Hydrochloric Acid (gas)

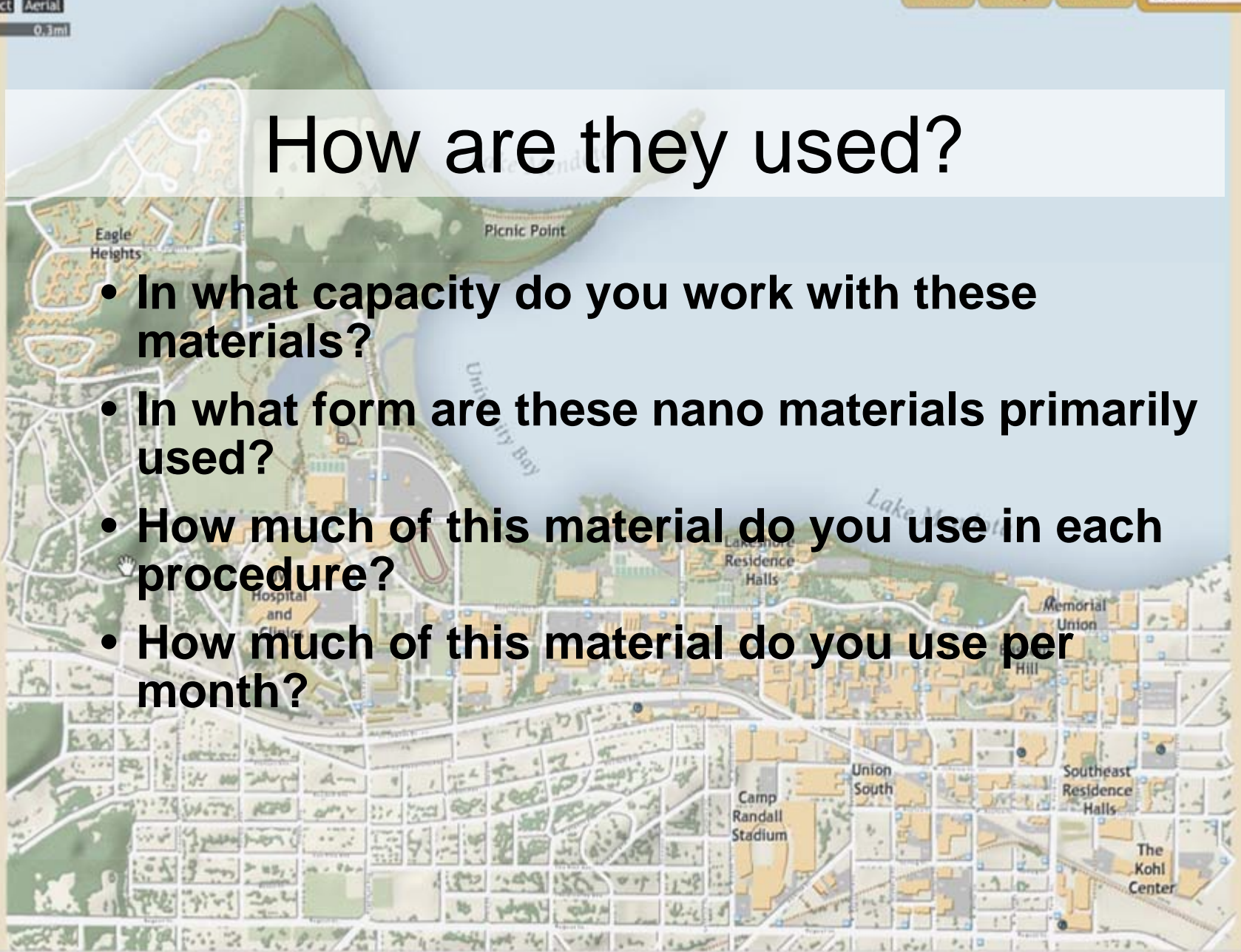


# What do you use?

- 
- Carbon (e.g., fullerenes, nanotubes)
  - Polymers (e.g., latex)
  - Biological materials (DNA origami, nano-bio composites)
  - Silicates
  - Silicon
  - Metal chalcogenides (e.g., CdS, CdSe, semiconductor "quantum dots")
  - Metal oxides (e.g., TiO<sub>2</sub>, ZnO, MgO)
  - Metals (e.g., gold nanoparticles)
  - Other A (List material in question 12)

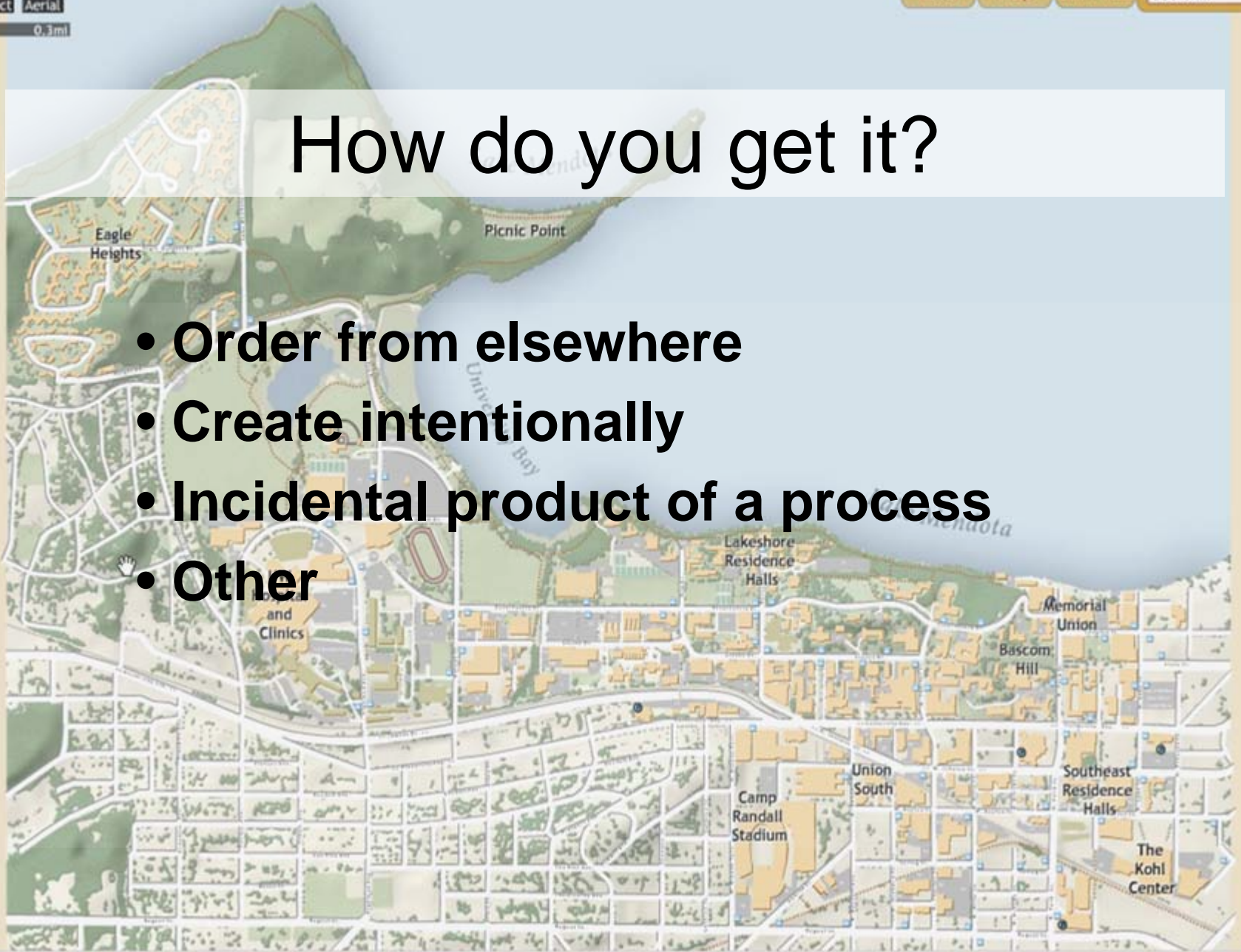
# How are they used?

- In what capacity do you work with these materials?
- In what form are these nano materials primarily used?
- How much of this material do you use in each procedure?
- How much of this material do you use per month?



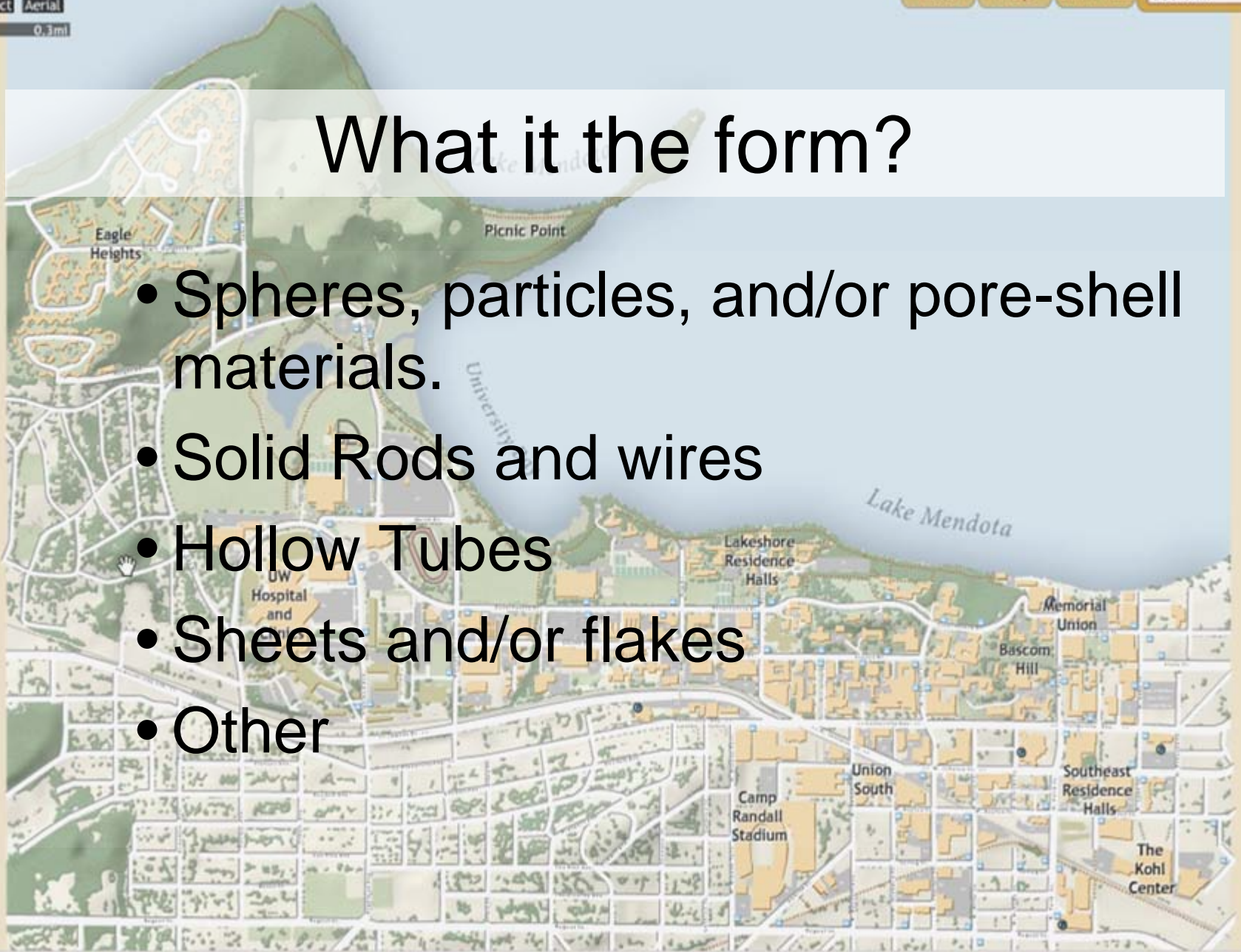
# How do you get it?

- Order from elsewhere
- Create intentionally
- Incidental product of a process
- Other



# What is the form?

- Spheres, particles, and/or pore-shell materials.
- Solid Rods and wires
- Hollow Tubes
- Sheets and/or flakes
- Other



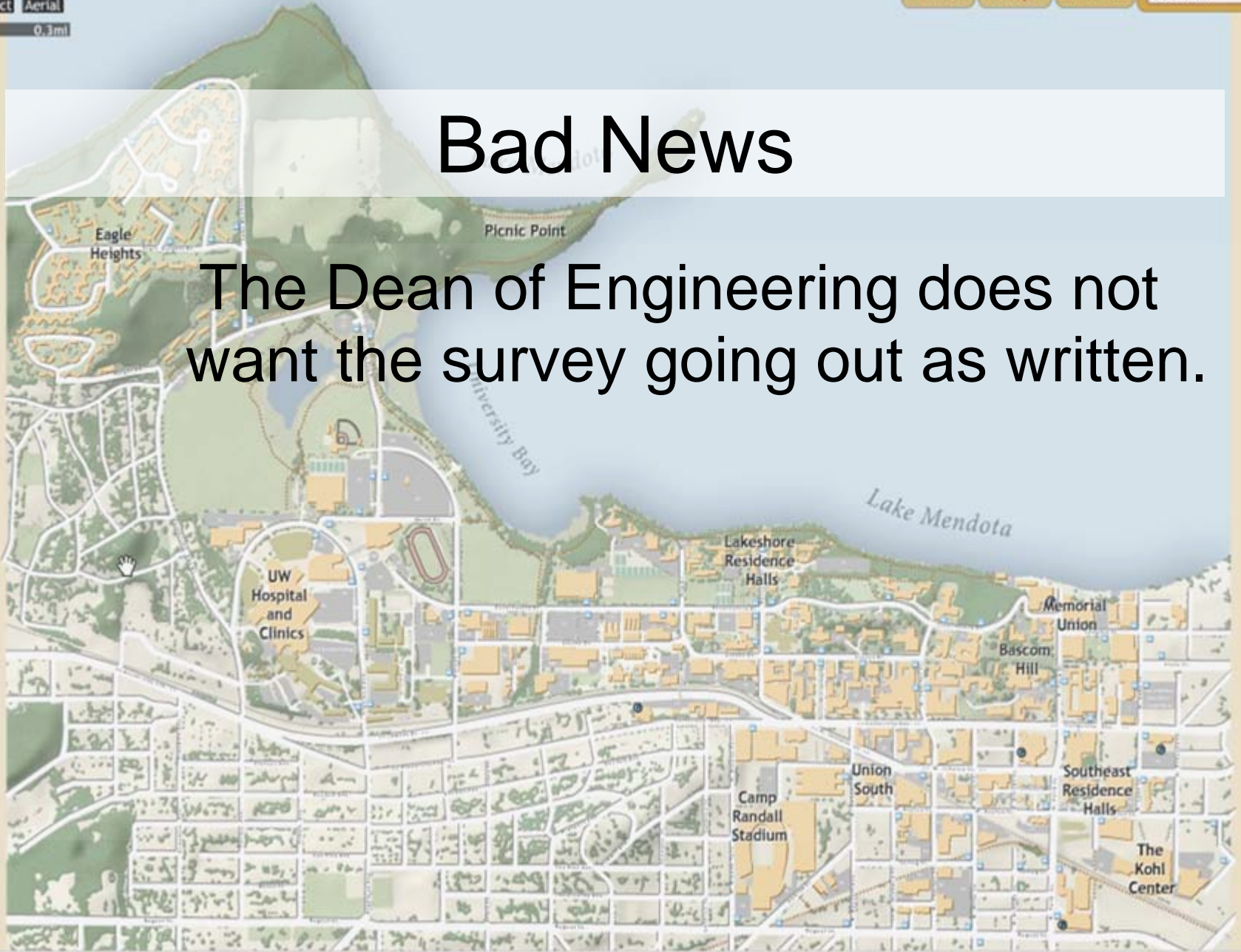
# How much?

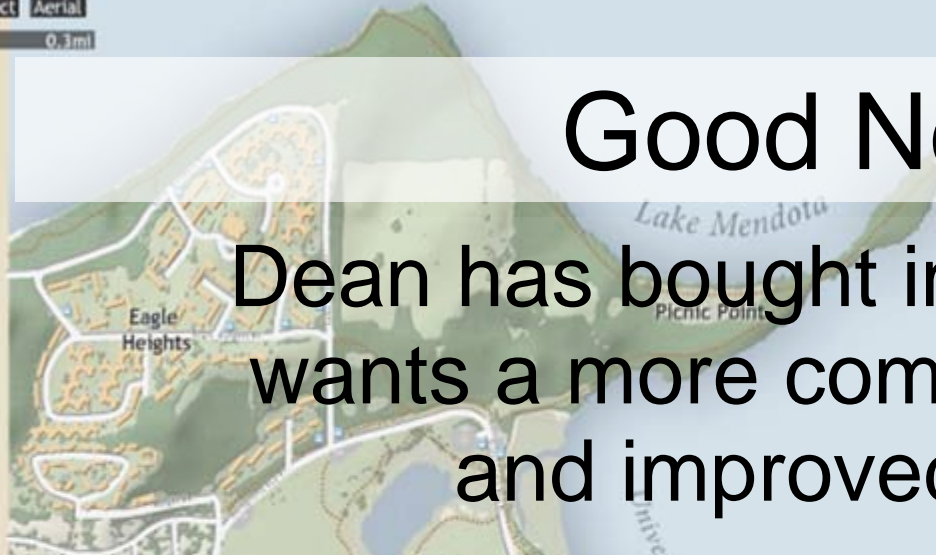
- < 1 milligram
- Milligrams
- Grams
- Kilograms



# Bad News

The Dean of Engineering does not want the survey going out as written.





# Good News

Dean has bought into our project but wants a more comprehensive survey and improved distribution.



# Lessons

- Start small
- Use technology
- Get top admin interest early
- Do what works in the departments you are looking at

