

## **Project 4 report**

### **Problem description**

Project 4 is about making a decision to demolish buildings on the main campus of the Ohio State University to improve the safety of university buildings. What is needed to be obtained in the end of the project is the information about:

- (1) how many and what buildings need to be demolished;
- (2) how many and what buildings will be affected by debris from the implosion of those buildings that are chosen for demolition.

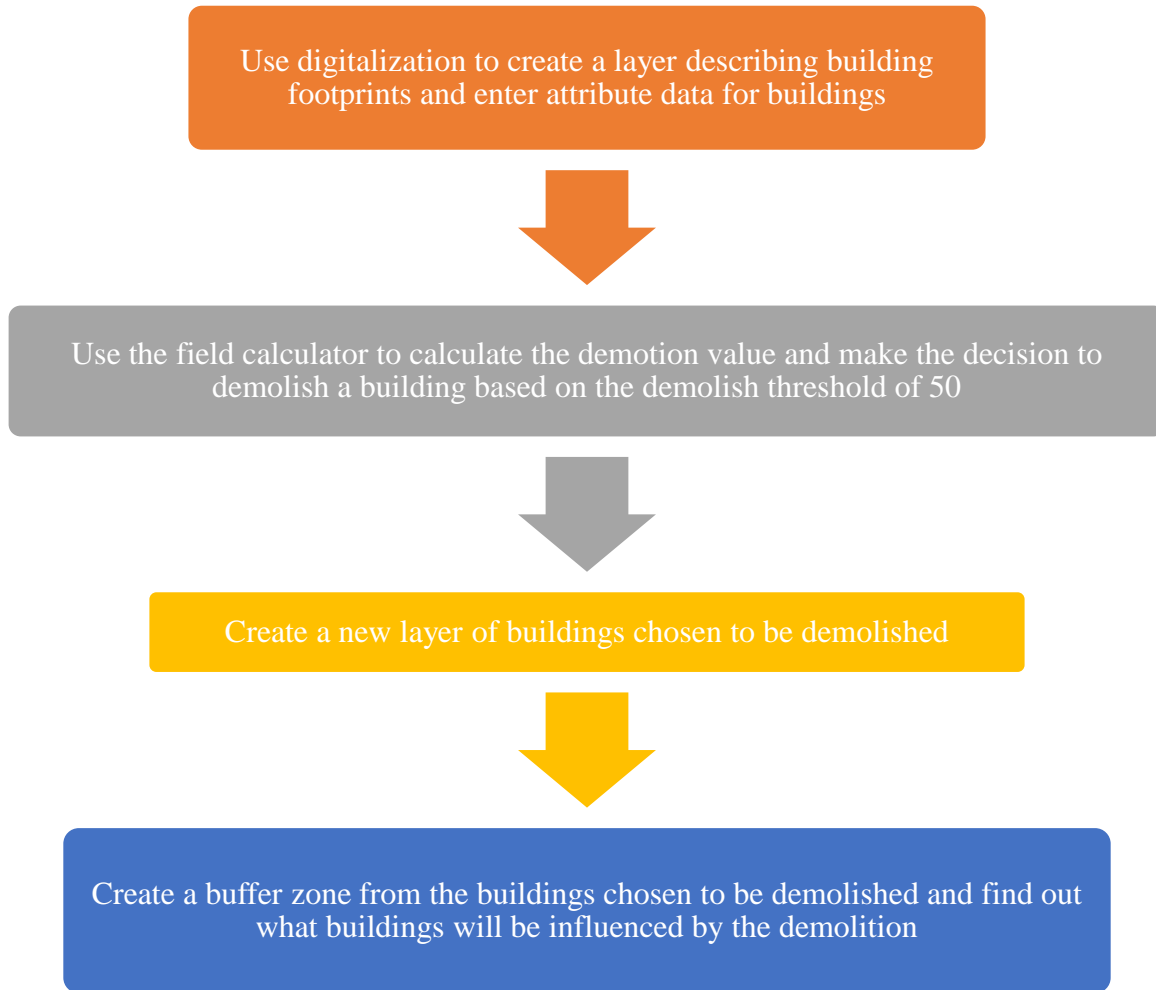
### **Definition of demolition values and impact zone**

The decision to demolish is based on building demolition values and the demolition threshold is set to be 50 in this case. The equation to get the demolition value is:

$$\text{Demolition value} = \frac{\text{the current year}}{\text{the built year}} \times \text{degradation}$$

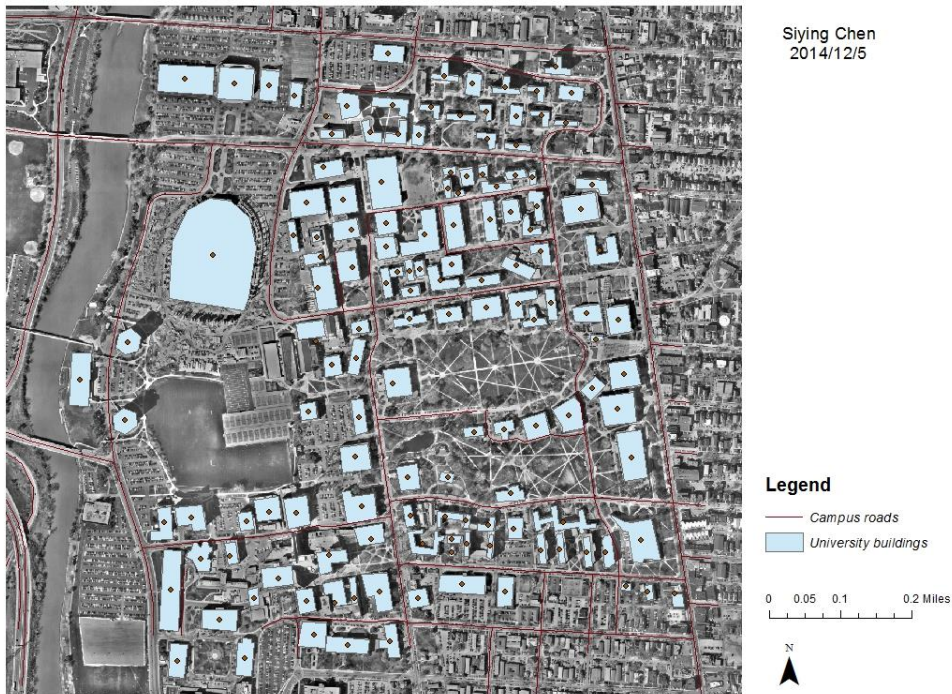
The impact zone of demolition is defined as areas extending from the footprint of buildings chosen for demolition to 250 feet outwards.

## Analysis process

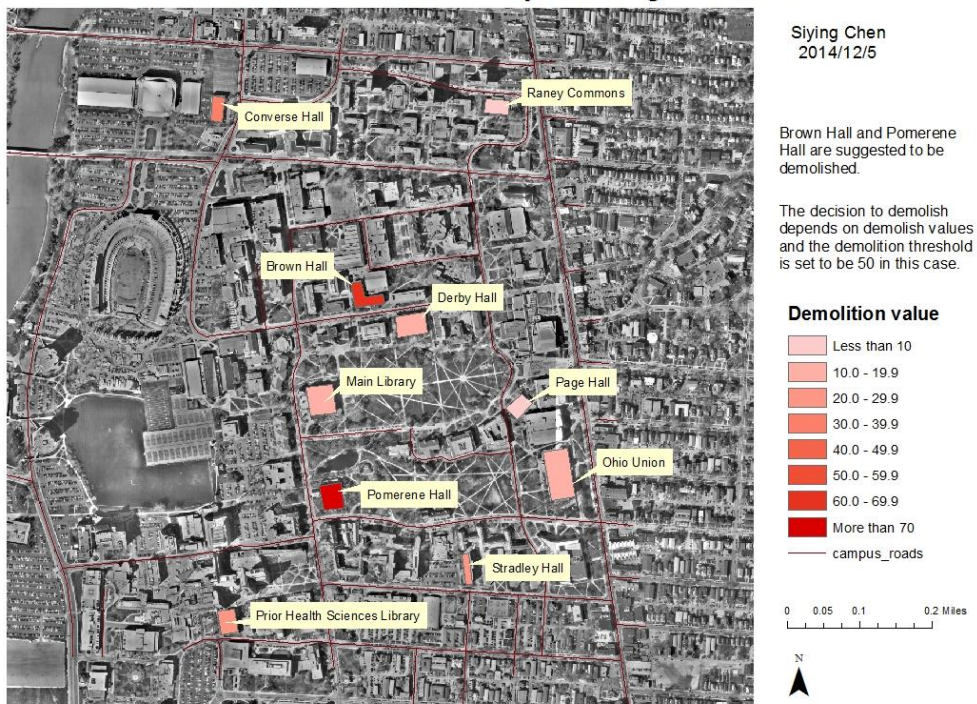


## Analysis result

### Distribution of university buildings in OSU

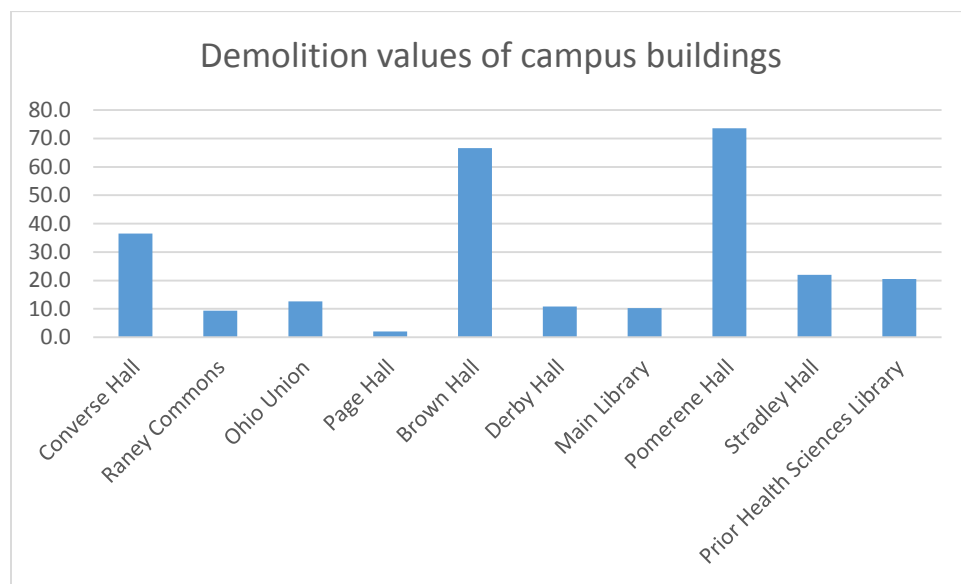


### Demolition values of university buildings in OSU



Two buildings are having a demolition value higher than 50. They are Brown Hall and Pomerene Hall, with demolition values of 66.6 and 73.6 respectively. Hence, these two buildings will be chosen to be demolished.

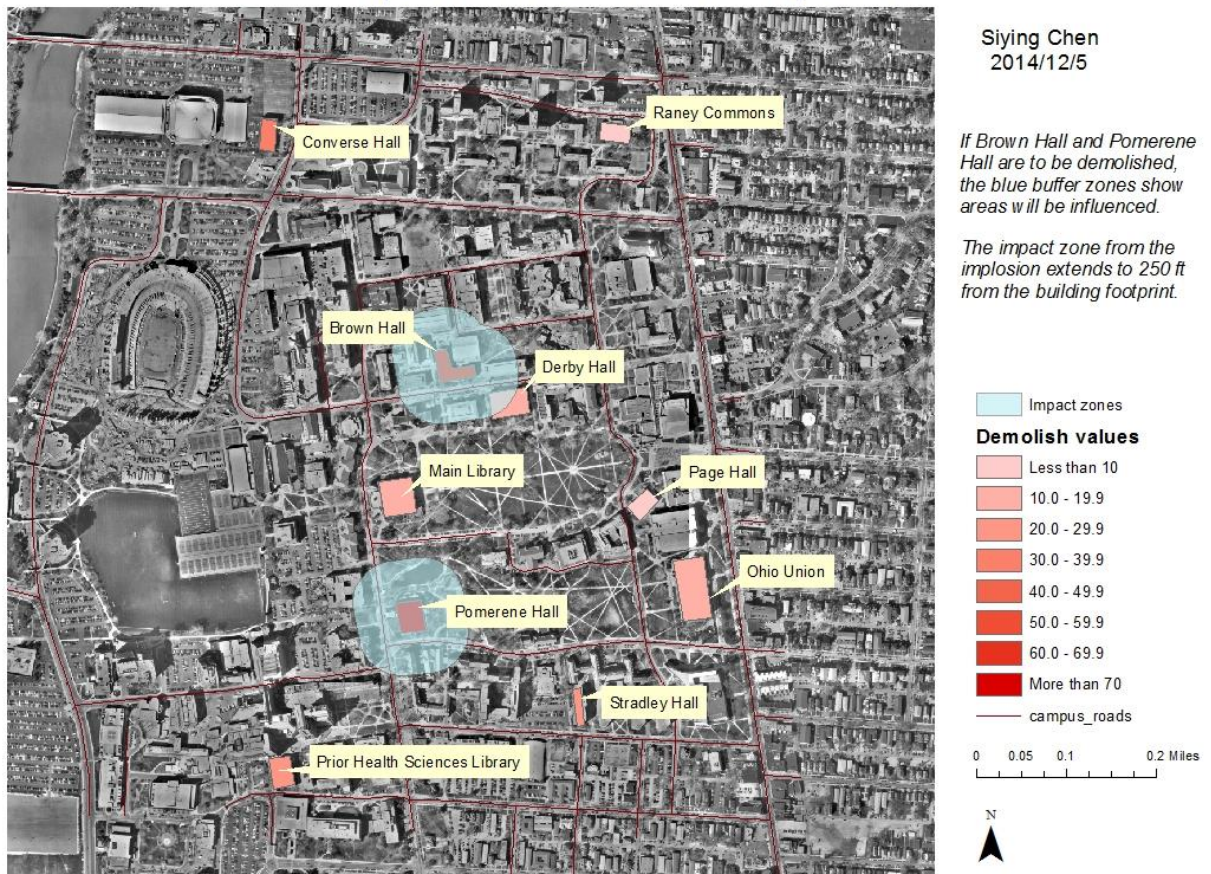
Name	Year	Demolition value
Converse Hall	1941	36.5
Raney Commons	1967	9.4
Ohio Union	1951	12.6
Page Hall	2004	2.0
Brown Hall	1903	66.6
Derby Hall	1906	10.8
Main Library	1912	10.2
Pomerene Hall	1922	73.6
Stradley Hall	1959	22.0
Prior Health Sciences Library	1973	20.5



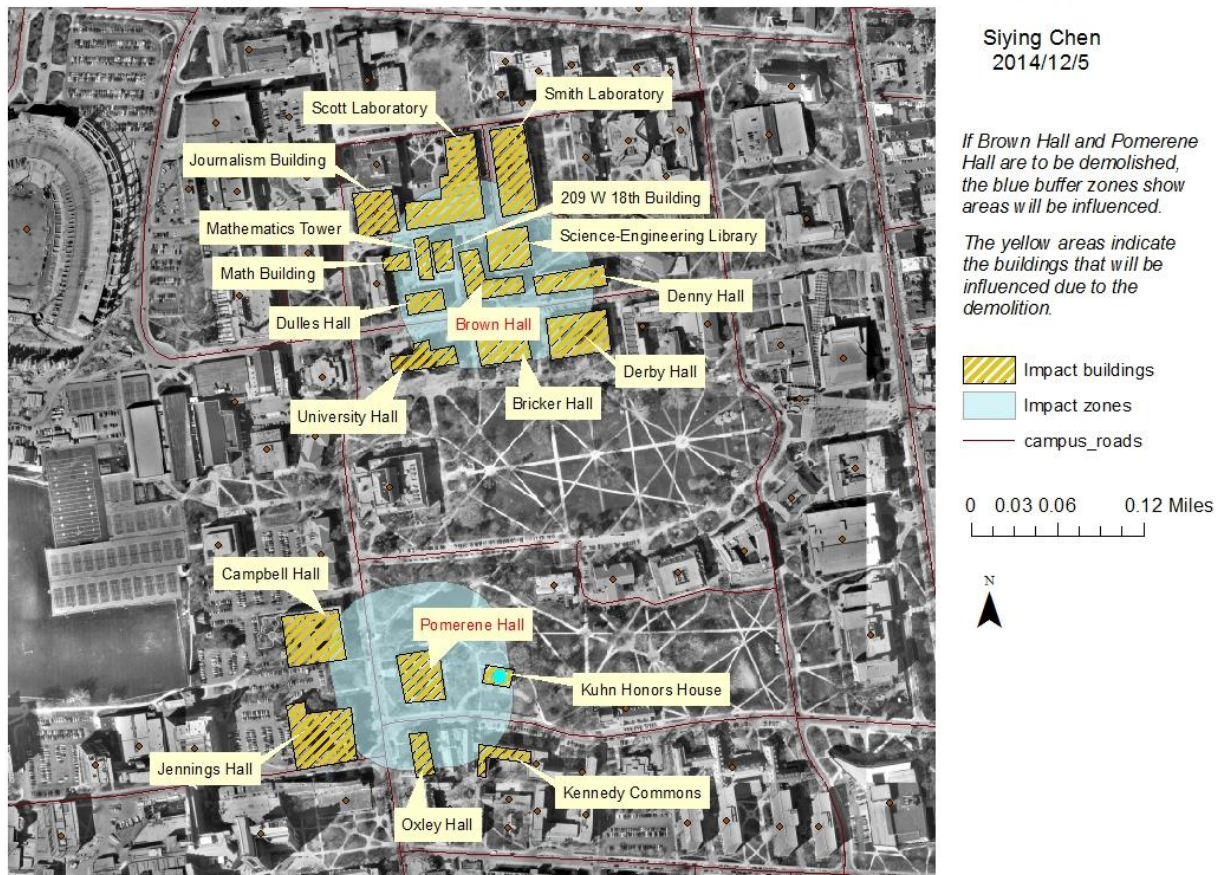


If Brown Hall and Pomerene Hall are going to be demolished, the impact zone of implosion will be showed as the following:

### The impact zones from the implosion



## Buildings that will be influenced due to the demolition



According to the buffer zone created, 17 buildings (Brown Hall and Pomerene Hall not included) will be influenced. They are Scott laboratory, Smith Laboratory, Journalism Building, Mathematics Tower, Math Building, Dulles Hall, University Hall, Briker Hall, Derby Hall, Denny Hall, Science-Engineering Library, 209 W 18<sup>th</sup> Building, Campbell Hall, Jennings Hall, Kuhn Honors House, Kennedy Commons and Oxley Hall.