http://www.mtholyoke.edu/acad/intrel/hiroshim.htm
http://www.childrenofthemanhattanproject.org/HISTORY/ERC-1.htm
http://www.yale.edu/lawweb/avalon/abomb/mpmenu.htm

Link to maps showing the hypocenters of Nagasaki and Hiroshima:
http://www-sdc.med.nagasaki-u.ac.jp/n50/disaster/D-map.gif

Component 4, Part 3
Structural and Environmental Damage
(Distance from Hypocenters)

Hiroshima and Nagasaki

According to the Hiroshima Peace Site (2006), because the atomic bomb was dropped almost directly over the Hiroshima's center and because Hiroshima was located in relatively flat terrain, massive and instantaneous damage resulted in the city's almost complete destruction (90% of all buildings were destroyed). Figure 1 is an aerial view of the destroyed city of Hiroshima taken by United States Air Force Pilot of the Enola Gay, Paul Tibbets.

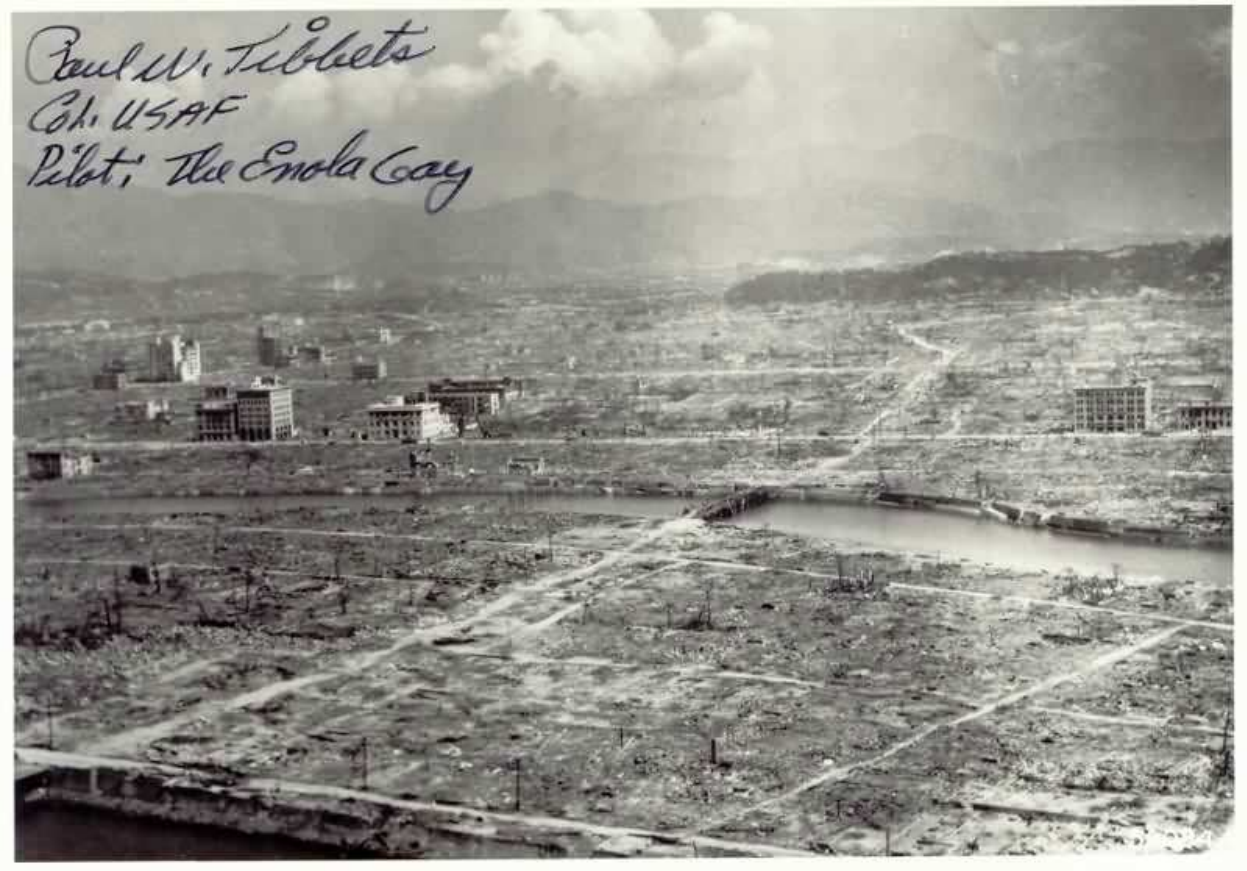

Figure 1 - Photo Credit: The Manhattan Project Heritage Preservation Association, Inc.

The degree of structural and environmental destruction correlated directly with distance from the hypocenter of the bomb. Figure 2 is a map of the degree of destruction radiating outward from the hypocenter (Hiroshima).

Figure 2 - Map Credit: [Hiroshima Peace Site]

By contrast, Nagasaki had virtually no buildings located directly under the hypocenter of the bomb, but studies of resultant blast damage patterns have indicated that the bomb dropped on

Nagasaki was much more effective than the one dropped on Hiroshima and the radius of damage was larger in Nagasaki than in Hiroshima (The Avalon Project). Figures 3 and 4 are aerial photographs of Nagasaki before and after the bomb was dropped. The level of destruction is unmistakable.

Aerial vew of Nagasaki before the nuclear attack [36]

Figure 3 - Photo Credit: Rain of Ruin:
The Atomic Decision Website

Aerial view of Nagasaki after nuclear attack [36]

Figure 4 - Photo Credit: Rain of Ruin:
[The Atomic Decision Website]

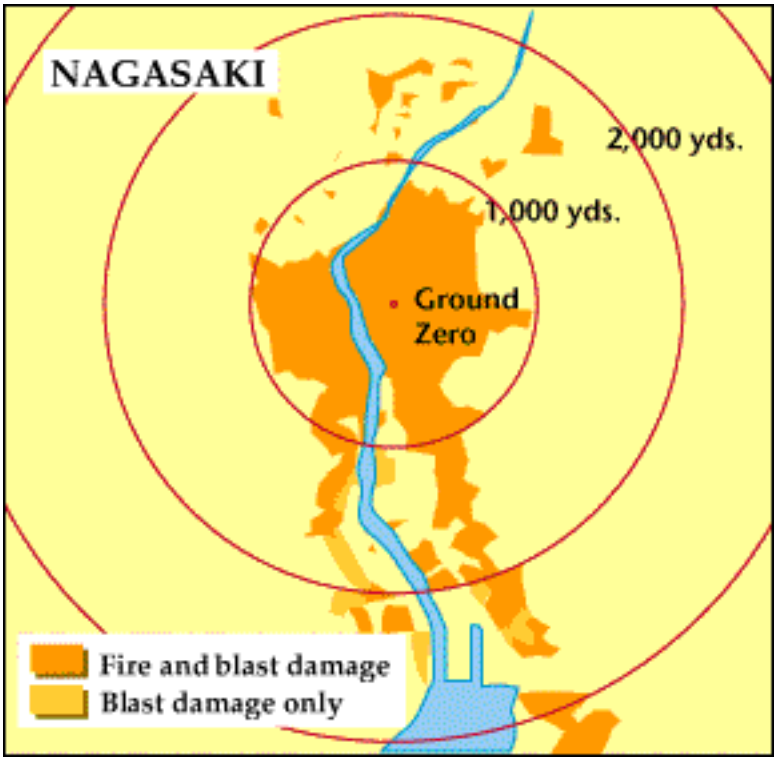

Figure 5 - Map Credit:
AtomicArchive.com

The structural damages incurred in both cities were the result of either the blast or pressure wave created from the blast, or fires. Primary fires resulted directly from the heat of the blast while secondary fires were initiated by the collapse of buildings containing equipment capable of producing fires (The Avalon Project at Yale Law School, 2006). A third type of fire occurred when primary and secondary fires spread to nearby areas or structures.

In the interactives portion of this section are two interactive diagrams of structural damage at Hiroshima and Nagasaki based on distance from the hypocenter. Embedded in the outlines are highlighted textual passages. Clicking on these passages will allow the user to view pertinent photos corresponding with the type of damage recorded at various distances from the hypocenters.

References

Atomic Archive (2006). *Atomic Bomb Damage of Nagasaki.* Retrieved November 2, 2006 fromhttp://www.atomicarchive.com/Maps/NagasakiMap.shtml.

Hiroshima Peace Site (2006). *The Damage Done.* Retrieved November 2, 2006 fromhttp://www.pcf.city.hiroshima.jp/peacesite/English/Stage1/1-1E.html.

Rain of Ruin: *The Atomic Decision Website (2006).* Bombings. Retrieved November 2, 2006 fromhttp://library.thinkquest.org/05aug/01128/home.htm.

The Manhattan Project Heritage Preservation Association, Inc. (2006). *The Joseph Papalia Collection*. Retrieved November 2, 2006 from http://www.childrenofthemanhattanproject.org/.

Component 4, Part 4
Human Health Effects of Radiation
(Hiroshima and Nagasaki)

Radiation Dosages Received Per Distance From Hypocenters

The physiological effects to humans from the atomic bombings of Hiroshima and Nagasaki are directly related to the distance individuals were from the hypocenters of the bombs at the time of the attacks. Figure 1 is a graph comparing casualties based upon varying distances from the Hiroshima hypocenter.