

## **Siting with Respect to Hazardous Commercial Facilities**

In many communities, the freight system—rail, trucking, marine and air—carries hazardous cargo. This cargo is often stored for periods of time in freight terminals, rail yards, and port facilities. Poor planning can place residential and other highly sensitive uses in far too close proximity to facilities that have hazardous materials.

The U.S. Department of Housing and Urban Development (HUD) was mandated by the Housing Act 1949 and the Housing and Urban Development Act of 1969 (42 USC 1441 (a)) to assure that all HUD-assisted projects were located in a safe and healthful environment. Sub-part C of 24 CFR Part 51 provides the regulatory authority for the implementation of this mandate. As part of the implementation HUD commissioned two extremely useful guidebooks regarding siting of residential projects near hazardous facilities, and the urban development siting with respect to hazardous commercial/industrial facilities in 1987 and 1984 respectively (these can be ordered through HUD).

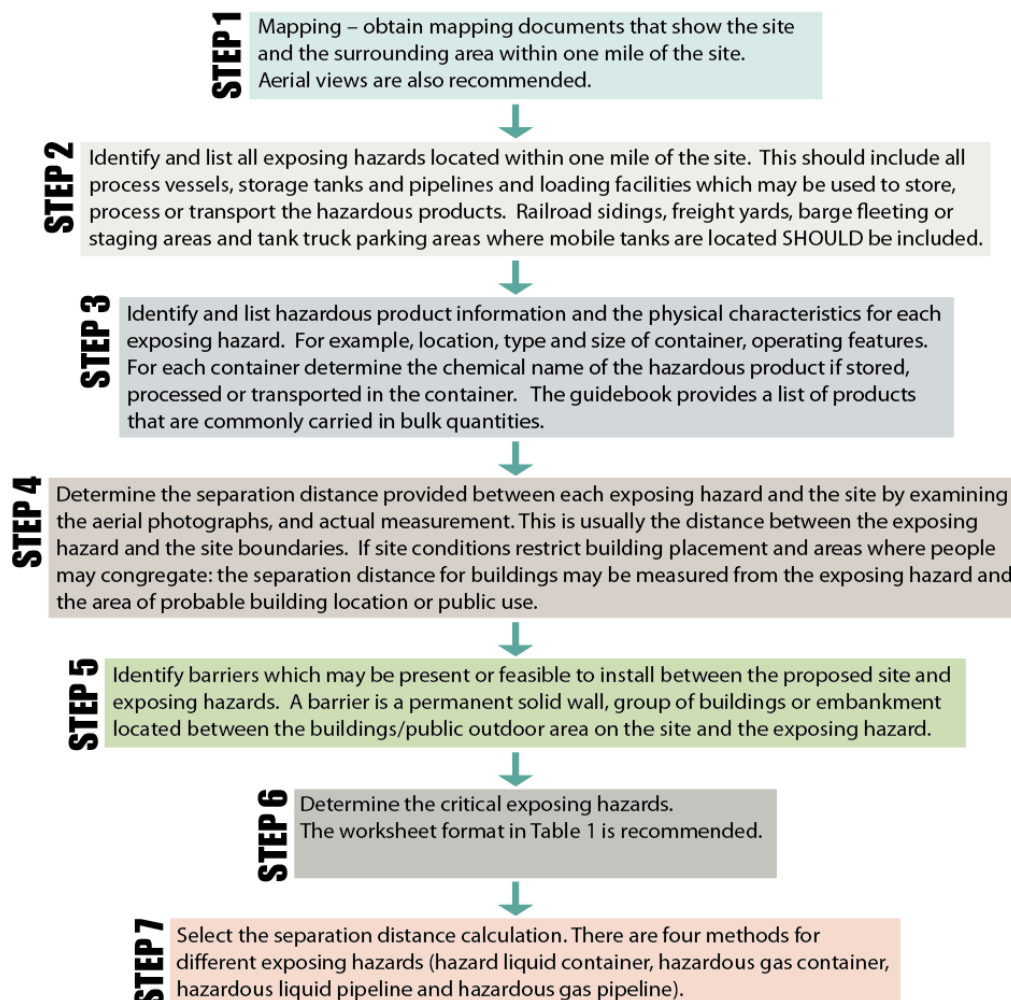
The HUD guidebooks create and provide useful guidance to apply a standard method and calculation for determining and establishing an acceptable separation distance (ASD) for different hazardous materials. The applicability of these methodologies for any type of development around freight facilities or corridors we consider to be extremely useful for planning departments as they develop any comprehensive plans and new zoning changes, and for developers as they create any plans (sub-division or other) that may be in proximity to a freight facility or freight corridor that serves hazardous material manufacture and delivery.

### **URBAN DEVELOPMENT SITING WITH RESPECT TO HAZARDOUS COMMERCIAL INDUSTRIAL FACILITIES**

This guidebook provides a series of steps for the planner to use to determine an acceptable separation distance between a hazardous facility and residential development. Seven steps are outlined for data collection and calculation methods. A series of tables are also provided to calculate whether the proposed development falls within the acceptable distance curves created for multiple types of hazardous materials.

It is recommended that this type of analysis is conducted for any development proposed in proximity to a freight facility that handles hazardous materials.

**FIGURE 1: STEPS TO CONDUCT SITE EVALUATION REVIEW**



**TABLE 1: EXPOSING HAZARD DATA COLLECTION WORKSHEET**

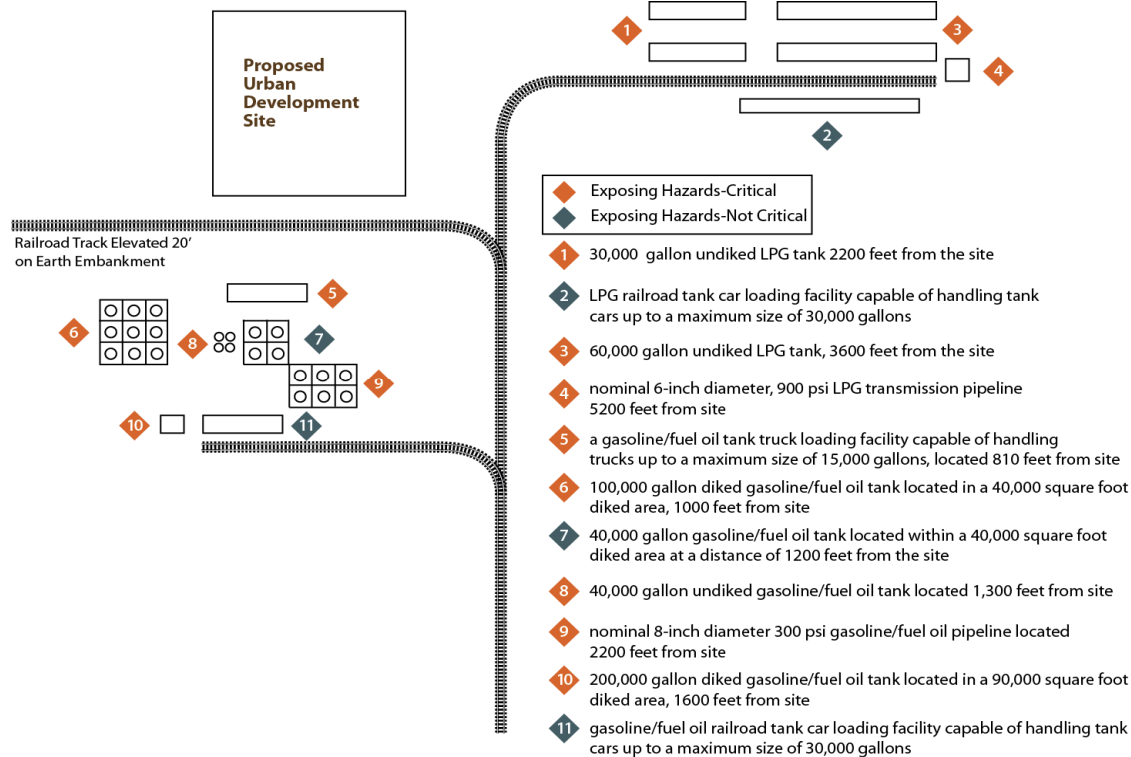
Exposing Hazard Number	Exposing Hazard Location	Container or Pipeline	Container Volume	Hazardous Gas or Liquid	Diked Area Around Exposing Hazard	Minimum Separation Distance Provided	Is this a critical Exposing Hazard	Rules Applied
Insert Data	Insert Data	Insert Data	Insert Data	Insert Data	Insert Data	Insert Data	Y/N	Insert Rule

*All exposing hazards must have the separation distance evaluated unless is excluded by one of eleven rules developed for where two or more hazardous items are together*

A series of tables are provided to calculate the acceptable height and width acceptable separation distances. This is followed by a section that provides an example site separation distance evaluation for a proposed urban development site. Excerpts from this are provided below.

Figure 2 shows the map layout of this proposed urban development site.

**FIGURE 2 – PROPOSED URBAN DEVELOPMENT SITE AND EXPOSING HAZARDS LOCATED NEARBY**



**TABLE 2: EXPOSING HAZARDS AND DISTANCES**

Exposing Hazard Number	Exposing Hazard Description and Distance to Site
1	Two rows of undiked, 30,000 gallon LPG tanks, 20 tanks per row, located 2200 to 3200 feet from site
2	Railroad car loading facility capable of handling up to five 30,000 LPG railroad tank cars, located 3000 to 4800 feet from site
3	Two rows of undiked, 60,000 gallon LPG tanks, 10 tanks per row, located 3600 to 5000 feet from site
4	Nominal 6-inch diameter, 900 psi LPG transmission pipeline, located with 5200 feet from site. The pipeline is equipped with excess flow valves which will stop the product flow within one and one half minutes if the pipeline breaks
5	Gasoline fuel oil tank truck loading facility capable of handling tank trucks up to 15,000 gallons capacity, located 810 feet from site
6	Nine diked, 100,000 gallon gasoline tanks located 1000 to 1600 feet from the site. The diked area around each tank is 40,000 square feet
7	Four diked 40,000 gallon gasoline/fuel oil tanks located 1200 to 1600 feet from the site. The diked area around each tank is 40,000 square feet
8	Four undiked 40,000 gallon gasoline/fuel oil tanks located 1300 to 1600 feet from site
9	Six 220,000 gasoline/fuel oil tanks located 1600 to 2000 feet from the site. The diked area around each tank is 90,000 square feet
10	Nominal 8-inch diameter, 300 psi gasoline/fuel oil supply pipeline located 2200 feet from site. The pipeline is equipped with excess flow valves which stop the product flow within two minutes if the pipeline breaks.
11	Railroad car loading facility capable of handling 30,000 gallon gasoline/fuel oil railroad tank cars, located 2000 feet from site

In this example eight are exposing hazards that will require a separation distance evaluation (exposing hazards 1, 3, 4, 5, 6, 8, 9 and 10). The guidebook then fills in the recommended data collection worksheet with the exposing hazardous details. Table 2 gives an excerpt of what this looks like.

**TABLE 3: EXPOSING HAZARD DATA COLLECTION WORKSHEET**

Exposing Hazard Number	Exposing Hazard Location	Container or Pipeline	Container Volume	Hazardous Gas or Liquid	Diked Area Around Exposing Hazard	Minimum Separation Distance Provided	Is this a critical Exposing Hazard	Rules Applied
1	2200-3200 feet east of site	40 containers	30,000 gallons each	Gas	None	2200 feet	Yes – Tank closest to the site is exposing hazard	4 and 6
5	810 feet south of site	Containers (mobile tanks)	15,000 gallons maximum tank and truck size	Liquid	None	810 feet	Yes	3
11	200 feet south of site	Containers (mobile tanks)	30,000 gallons maximum tank size	Liquid	None	2000 feet	No exposing Hazard #8 is greater risk to site	2

The guidebook utilizes the acceptable separation distance tables that are provided in the book and determines if each of these exposing hazards are properly separated from the site. All of the exposing hazards were found to be properly separated from the site.