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APPENDIX E- ASSESSMENT TECHNIQUES

FROM APPENDIX A, ENVIRONMENTAL REVIEW GUIDE FOR COMMUNITY DEVELOPMENT BLOCK GRANT PROGRAMS UNDER TITLE I OF THE HOUSING AND COMMUNITY DEVELOPMENT ACT OF 1974, AS AMENDED (HUD-CPD-SEPTEMBER 1991).

APPENDIX E

[**NOTE:** The contents of this Appendix document first appeared as Appendix A of the September 1991 HUD publication, Environmental Review Guide for Community Development Block Grant Programs (HUD-CPD-782(2)). This publication pre-dates the NAHASDA Program, and the guidance was written for state and local CDBG managers and their staffs. However, the guidance can also be used by tribe and TDHE staffs to document compliance with environmental review requirements under NAHASDA and ICDBG Programs. It has therefore been provided as an Appendix to this manual to further assist tribes in their efforts to better understand and document compliance with the HUD environmental review requirements at 24 CFR Part 58. The A-95 review process referred to in this document has been superceded by Executive Order 12372, *Intergovernmental Review of Federal Programs* . The Order does not apply to NAHASDA programs or ICDBG. (refer to 24 CFR 52 for a list of programs subject to this Order)]

ASSESSMENT TECHNIQUES

This chapter serves to direct the environmental analyst toward relevant detailed issues and impact criteria. For each impact category, key important issues and questions which should be considered have been listed. Also, technical assistance has been provided through the identification of appropriate techniques for assessment of direct and indirect impacts in each category. The analyst may use this chapter first as a reference for filling out the checklist and second for completing a detailed environmental assessment in the selected impact categories.

Each impact category or grouping of categories within this chapter has been organized as follows:

ORGANIZATION OF IMPACT CATEGORY OR GROUPING

Overview

This section defines the impact category and other relevant terms and concepts. It describes typically critical issues for CDBG and UDAG projects, which may influence the assessment of that impact category.

Assessment Questions

This section provides a set of key assessment questions to guide the analyst in determining the likelihood of significant impacts. The assessment questions are first used by the analyst when filling out the checklist and then later when the analyst focuses on a specific impact category as part of the more detailed impact assessment process.

Analysis Techniques

In this section the specific analysis techniques are presented which can be used in determining the impacts in that category. These techniques typically include the following:

- ❑ Review of Project Plans
- ❑ Review of Secondary Documents Including Maps, Comprehensive Plans and other EIS's
- ❑ Contacts with Local Experts
- ❑ Special Studies
- ❑ Field Observation

A brief discussion is included which is intended to guide the analyst in employing correctly each of the assessment techniques.

Policy Base (Including Standards and Legal Requirements)

This section outlines both official and commonly used standards and any statutory or regulatory requirements which relate to each of the categories of impact. Since many impact categories do not have adopted standards or legal requirements, this section is not included under each impact category.

Sources and References

Both secondary source material, special studies and guidance material such as text books and handbooks are included in this section. Possible contact persons also are listed.

Experts to Contact

The titles and typical agency locations of local experts are listed in this section. The listings are intended to be suggestive of typical experts found on the local level. The actual persons and agencies will vary from place to place.

Mitigation Measures

Measures which can be used to mitigate possible adverse impacts are listed in each impact category. This Chapter will include the discussion of assessment techniques in the following categories:

Land Development

- ❑ Conformance with Comprehensive Plans and Zoning
- ❑ Compatibility and Urban Impact

- ❑ Slop
- ❑ Erosion
- ❑ Soil Suitability
- ❑ Hazards and Nuisances, Including Site Safety
- ❑ Energy Consumption

Noise

- ❑ Noise Contribution and Effects of Ambient Noise on the Project

Air Quality

- ❑ Effects of Ambient Air Quality on Project and Contribution of Community Pollution Levels

Environmental Design and Historic Values

- ❑ Visual Quality – Coherence, Diversity, Compatible Use and Scale
- ❑ Historic, Cultural and Archaeological Resources

Socioeconomic

- ❑ Demographic/Community Character Change
- ❑ Displacement
- ❑ Employment and Income Patterns

Assessment Questions

1. Is the proposal consistent with complete components of the local or regional comprehensive plan, whether adopted or in draft stage? Is there a relevant state plan and is the proposal consistent?

2. Is the proposed project consistent with other plans including those prepared by area wide planning agencies, special districts and boards and state agencies in various functional areas?

3. Is the proposed project consistent with adopted community or area wide policies and goals?

4. Does the proposed project comply with existing zoning and subdivision regulations? If not, does the proposal require a zoning variance?

Analysis Techniques

To undertake this assessment, it is first necessary to determine if the proposed project is in conformance with existing zoning, subdivision control or other land use regulations of the community with respect to factors such as allowed use, height and scale of the building, adequacy of parking, access and landscaped areas.

Following a zoning review, the project should then be evaluated for consistency with plans. Some agencies may not have planning documents and may need to be contacted directly to determine if a proposed project is consistent with proposed actions of that agency.

This analysis is similar to the A-95 Review process. However, because it is performed by the CDBG agency in-house prior to the formal A-95 review procedure, it offers the community the opportunity to modify the project, as necessary, prior to the more formal A-95 review by the appropriate reviewing agencies. The State Clearinghouse and the Metropolitan Planning Organization (MPO) should be contacted for assistance in initially compiling the inventory of relevant plans and agencies. The goal of the review should be the following:

1. Identify areas of agreement and conflict between the proposed project and existing plans.

2. Identify policies and programs which could adversely affect the project or be adversely affected by the project.

These should be fully documented with either a source or a personal citation.

Policy Base (Including Standards and Legal Requirements)

The CEQ regulations require that agencies consider “the possible conflicts with… regional, state, and local land use plans, policies, and controls for the area concerned.”

Sources and References

The Model Land Development Code, prepared by the American Law Institute, provides a basic legal reference to zoning and land use regulation generally.

Another basic source is by Robert H. Twiss, “Linking the EIS to the Planning Process,” **Environmental Impact assessment Guidelines and Commentary** (Thomas Dickert and Katherine Domeny (eds.), Berkeley: University of California, 1974).

LAND DEVELOPMENT

- ❑ Conformance with Comprehensive Plans and Zoning
- ❑ Compatibility and Urban Impact
- ❑ Slope
- ❑ Erosion
- ❑ Soil Suitability
- ❑ Hazards, Nuisances, and Site Safety
- ❑ Hazards (thermal Explosive Hazards and Airport Clear Zones)
- ❑ Energy Consumption

CONFORMANCE WITH COMPREHENSIVE PLANS AND ZONING

Overview

It is important to ensure that a proposed project is consistent with a community's long range goals and policies as articulated in its comprehensive plans. A community's zoning ordinance is the principal legal tool available for the implementation of its master plan and for the definition of the community's land use policies. While not all communities have zoning, in those communities where zoning exists it regulate development patterns including construction, alteration or use of buildings, structures, or land.

A proposed project may not be in conformance with existing zoning but may be in conformance with general development plans and policies. Such projects may require either a change in the zoning or a special permit through an appeals process. The need for a change in the zoning should not, by itself, be interpreted as an adverse environmental effect.

Comprehensive plans are intended to encompass plans and goals relating to a wide variety of areas including transportation, housing improvement, recreation, social and human service, health, economic development and utilities. These plans are prepared by a variety of agencies and boards, including municipal and county government, special districts, area-wide planning agencies, and state agencies. An assessment of the degree of conflict or consistency with local and regional plans must take into account the fact that the power to prepare and implement plans is highly decentralized, both on a geographic and an administrative or governmental basis. Some communities even require that local zoning be consistent with adopted plans. (See A. Delatons, Land use Controls in the U.S., MIT Press).

Experts to Contact

- ❑ Regional Planning Agency and A-95 Review Coordinator
- ❑ Zoning Review Officer or Administrator
- ❑ Planning Commission/Director
- ❑ State Planning Office

Mitigation Measures

If the project is inconsistent with zoning and if neither a special permit nor a change in zoning is contemplated, then the project must be modified to make it conform to zoning (e.g., reduce the density or height). Or its location could be changes to achieve zoning conformance by relocating it to a less restrictive zone. If the project is inconsistent with comprehensive plans then some modification of the project or the plans may be required. The assessment process can help identify where new or revised plans are needed.

COMPATIBILITY AND URBAN IMPACT

Overview

The man-made environment consists of differing types of land use: commercial, industrial, residential, recreation, and open space. It also takes place in areas of differing land use density. Central city areas, particularly along the East Coast, for example, contain higher densities of development than rural areas, small towns or newer western communities. In terms of residential uses, density is measured by number of dwelling units or people per unit per land area, usually the acre. In most communities density is governed by the local zoning ordinance. Some communities have no zoning; Houston, Texas is one example.

Issues to consider under this category are:

❑ **Urban Impact** – Certain types of federally assisted activities can have an adverse impact on the economic viability of a city's central business district. For example, situating a UDAG-assisted shopping center at the fringe of a city can serve to undermine the financial stability of downtown commercial establishments. Similarly, CDBG funded infrastructure improvements made at the edge of an urbanized area (e.g. sewer and water lines) may serve to induce development in underdeveloped portions of a community thus creating sprawl with resulting environmental and social costs. In some situations, the impacts of induced development may be highly desirable. CDBG funded infrastructure improvements made in the inner city may stimulate private investment and thereby help revitalize a lagging section of a community.

- **Land Use Compatibility** – Certain types of land uses may be compatible with one another. For example, it may be incompatible to locate a new housing development in a newly industrialized area.

Assessment Questions

1. What are the existing land uses adjacent to the proposed project? Do the abutters and neighbors think the proposed project will be incompatible with existing uses?

2. Will the project have an adverse effect on the economy of a core city area? Will it contribute to urban sprawl? Will it displace economic activity from a central business district?

3. Will the proposed project result in induced development which will alter existing land use or which will be incompatible with the existing scale and density of development? Are the changes which will result from any induced development regarded by the community as beneficial or negative?

4. Does the proposed project contribute to reducing the racial, ethnic, and income segregation of the area's housing?

Analysis Techniques

Analyze the existing project plans. If the proposal involves a new community facility such as a new sewer line, what is the service capacity of the new facility? How much new development will likely take place due to new facilities? Can this new growth be accommodated by the community services? Will this growth provide increased housing opportunities for low and moderate income or minority persons?

Consult secondary data sources to establish existing land uses and trends in development. These include:

- **Land Use Maps and Zoning Maps** which show general land use patterns in the community. Review how land use has changed in recent years prior to the current proposal.

- **Aerial Photos** can be useful in showing areas with large vacant land tracts and areas where new development is taking place.

- **Public Infrastructure Plans** – These are useful in identifying likely locations where new growth will take place, locations where new highways and/or sewer and water lines are planned.

- **Building Permit Records** indicate where new development or rehab activity is taking place.

- **Property Ownership and Title Transfer** data, where available, can reveal areas where real estate development interests are active.

Is this new induced growth consistent with community land use plans? Will the project serve to displace any existing uses? What are the trade-off issues to consider in this displacement?

Policy Base (Including Standards and Legal Requirements)

There is no Federal legislation specifically addressing urban impact issues. Local zoning laws, plans, and codes should be examined for their various requirements.

Sources and References

Schaeman, Philip. **Using an Impact Measurement System to Evaluate Land Development**. Washington, DC: The Urban Institute, 1976.

HUD Land Planning Bulletins.

The Costs of Sprawl, Council on Environmental Quality, HUD and EPA, Washington, DC USGPO 1974 (Stock No. 041-011-00021-1).

Experts to Contact

- Planners at local and area-wide planning agencies

- Zoning Officer

- City Planning Department

Mitigation Measures

The location of the project could be altered or protective measures could be instituted to safeguard existing land uses, for example, the possible granting of tax abatements for certain types of land uses, such as threatened agricultural use.

Community facilities and services could be expanded to service a development which is regarded as consistent with local and federal growth policies, particularly urban impact, despite its location at the fringe of a developed area.

SLOPE

Overview

Slope refers to changes in the physical features of the land: its elevation, orientation, and its topography. Such alteration is associated with construction on hillsides where changes in the visual character of the site may occur and where slop instability, erosion, and/or drainage problems may result. In some localities, hillsides are likely to house native plant communities which could be lost as a result of topographic alteration.

Excessive grading will often alter the groundwater level, which may cause the slow death of trees and ground cover, and in turn destroy wildlife habitat.

Since erosion, slope stability and drainage characteristics depend not only on the steepness of the slope but also on the materials of which it is composed, soils sustainability (discussed later in this Guide) needs to be considered in any analysis of slope conditions.

Assessment Questions

The following questions can be used to determine: (a) if the project will significantly affect or be affected by the slope conditions; and (b) if the slope is unstable, potential problems which may require remedy.

1. Does the proposal call for development on a steep slope and, if so, does its design plan include measures to overcome potential erosion, slope stability, and runoff problems?

2. Does the county, local, or site-specific soil survey mention that stables are unstable for any of the soils on the site?

3. Is there a history of slope failure in the project area environs?

4. Is there visual indication of previous slides or slumps in the project area, such as cracked walls or tilted tress or fences?

Analysis Techniques

It is recommended that communities with potential slope impacts relate their actions to a map of the area in order to establish if the project location is in an area of significant slope. An example of such a map is provided here.

Visual Indication of Unstable Slopes (Field Observation)

- ❑ Indications of previous slides or slumps in the project area.

- ❑ Cracking of top of slope shows movement.

- ❑ Movement or tilting of fence, retaining walls, utility poles, or trees.

- ❑ Slowly developing and widening cracks in the ground or paved areas.
- ❑ Hummocky undulations on mid to lower slopes.
- ❑ Breakage of underground utility lines.
- ❑ New cracks in plaster, tile, brickwork, or foundations.
- ❑ Outside walls, walks, or stairs pulling away from the building.
- ❑ Leakage from swimming pools.
- ❑ Doors or windows that stick or jam may be caused by slope movement.

Policy Base (Including Standards and Legal Requirements)

There is no Federal legislation specifically addressing slope stability issues. HUD Minimum Property Standards establish requirements for the stability of slopes and embankments. Some states and localities including Colorado, San Mateo County, California, and Cincinnati, Ohio have established slop construction regulations. These usually deal with a combination of factors: hillside management in relation to land use, lot size, drainage, foundation design, and sewage disposal.

A restrictive soil zoning district proposed by the Metropolitan Council in the Twin Cities area in Minnesota would prohibit commercial and industrial development on slopes steeper than 12% and would require that developers of residential property on such slopes prove that construction techniques employed would overcome the site's limitations. Pittsburgh has slope zoning districts. The table below presents slope suitability standards for urban areas.

Sources and References

1. US Soil Conservation Service, County Soil Surveys (to be consulted for more in-depth tests).

2. U.S. Geological Survey, topographic maps, Federal, State, and local geologic mapping programs now commonly include an assessment of landslide hazards, and the resulting maps identify known slides as well as potentially unstable slopes, especially in urban areas.

3. USGS. **Nature to be Commanded**, Geological Survey Professional Paper 950. Washington, DC, 1978.

4. USGS. **Facing Geologic and Hydrologic Hazards: Earth Science Considerations**, Geological Survey Professional Paper 1240-B. Washington, DC, 1981.

Experts to Contact

- ❑ Civil Engineer
- ❑ Geologist
- ❑ Soils Scientist

Mitigation Measures

Architectural and engineering designs which addresses site problems adequately; to be determined by appropriate local agency (building inspector, city engineer, city building department, etc.)

Development on steep slopes should be avoided if at all possible. Such land is usually more suited for park or open space use. If developed, the densities should be very low and grading should be avoided wherever possible.

EROSION

Overview

Erosion, transport, and sedimentation are the processes by which the land surface is worn away (by the action of wind and water), moved to and deposited in another location. While commonly considered an agricultural problem, erosion in the urban context, resulting from land clearance and construction can be equally serious. In urbanized areas, erosion can cause structural damage in buildings by undermining foundation support. It can pollute surface waters with sediment and increase the possibility flooding, by filling river or stream channels and urban storm drains.

Erosion results from the interaction of physical characteristics (topography, soil type, ground cover), wind and water action and human use at any one site. Some soils are less stable than others and are consequently more susceptible to erosion. Loosely consolidated soils (e.g., sands) and those of small particle size (e.g., fine silts) are more susceptible to erosion. By contrast, soils with high moisture and clay content are more resistant to erosion. Wind erosion is most likely to occur in arid or semi-arid regions where the low moisture content reduces the cohesiveness of indigenous soils.

A key factor in erosion is the land cover. Undisturbed vegetated areas are less susceptible to erosion than surfaces which have been exposed. The greater the slope the more likely the occurrence of erosion, because steep slopes (often defined as 12% +) increase the velocity of runoff.

Assessment Questions

1. Does the project involved development of an erosion sensitive area (near water, on a steep slope, on a sandy or silty soil)? If so, is erosion control included as part of the plan?

2. Does the proposed project create slopes by cut and fill?

3. Does site clearance require vegetation removal? How many acres will be cleared and for how long?

4. Is there evidence of erosion or sedimentation?

Analysis Techniques

Field Observations

A variety of secondary sources, as listed below, provide guidance as to assessment techniques. In addition, field observation can help indicate a site's erosion potential. Evidence of past erosion can be observed if active rills or gullies, stream bank erosion, sediment fans or muddy water are found near the site. Silty or sandy soils and high slopes are also indications of erosion potential.

Policy Base (Including Standards and Legal Requirements)

While no Federal legislation specifically addresses erosion concerns, they should be considered under the general provisions of NEPA. In many communities, local building codes, subdivision regulations, and hillside zoning ordinances address the issue of erosion and control techniques to be used during site preparation and actual construction.

In order to determine locations with serious erosion potential, it is useful to consult both solid classification and topographic maps. If your community has not prepared such maps, the following sources should be helpful:

Sources and References

Topographic quadrangle maps available from the U.S. Geological Survey are available for most areas and present slope gradients and hydrologic features (ponds, streams, etc.).

U.S. Soil Conservation Service **Soil Survey Maps** can be used to classify soil types on a project site. The "Unified Classifications" included on the map legend indicates soil erodibility.

To help in use of the maps listed above, the following documents provide instruction in the causes and control of erosion:

1. National Academy of Sciences, **Slope Protection for Residential Development**, Washington, DC, NAS, 1969.

2. Tourbier, J. and Westmacott, R., **Water Resources Protection Measures In Land Development – A Handbook**. Newark, Delaware, University of Delaware, Water Resource Center, 1974.

3. USEPA. **Processes, Procedures and Methods to Control Pollution Resulting from All Construction Activity**. Washington, DC, 197 (EPA 430/9-73-007).

4. Urban Land Institute, **Residential Erosion and Sediment Control**, Washington DC, 1978.

5. USGS. **Nature to be Commanded**, Geological Survey Professional Paper 950. Washington, DC, 1978.

Experts to Contact

The following specialists could be consulted:

- ❑ City or County Engineer
- ❑ Soil Conservationist – Soil Conservation Service County Office
- ❑ Landscape Architect
- ❑ Soils Engineer – State or local highway department

Mitigation Measures

If it is determined that a location has a potential erosion problem, project plans should be reviewed to determine if the need for erosion control measures has been properly addressed.

Good site design and construction practice should include (1) a plan that fits the contours of the site and keeps grading to a minimum; (2) retaining vegetative cover until construction start-up, clearing only that area needed for construction at any one time; and (3) providing temporary cover when extended exposure is unavoidable such as grass, sod, mulch, burlap, or plastic. Despite these precautions, to some extent erosion may be inevitable. Sediment control measures – such as the construction of sediment barriers, traps, and basins – can help reduce potential damage and should be considered as part of a thorough impact mitigation effort.

There are three basic approaches to reducing potential wind erosion: 1) maintain soil cohesiveness (by wetting disturbed areas and by avoiding unnecessary traffic on construction sites); 2) create or maintain vegetation or ground cover; and 3) reduce wind action (by scheduling construction to avoid high wind seasons, by planting or preserving tree lines or hedgerows perpendicular and upwind of the construction site, and by erecting artificial wind barriers, such as snow fences, if needed).

SOIL SUITABILITY

Overview

Soil suitability is the physical capacity of a soil to support a particular land use. To be suitable for a building, for example, a soil must be capable of adequately supporting its foundation without settling or cracking. The soil should be well drained so that basements remain dry, and so that septic systems can be installed in localities not served by sewers. Soil depth is an important factor and must be adequate for the excavation of basements, sewers, and underground utility trenches. Surface soils need to be capable of supporting plantings. How well a soil is able to support development is a function of several factors including: its composition, texture, density, moisture content, depth, drainage, and slope. Surface and bedrock geological conditions will also affect site suitability for development.

Development Issues. There are soils with poor drainage and poor permeability qualities. There are also soils with high shrink swell potential, high frost action potential, and with high side seepage potential. Each of these are characteristics which may cause problems for development if appropriate mitigation measures are not included in project design. It is, of course, not just the type of soil which creates problems for development but the soil combined with other features of the site including the height of the water table, the slope stability, and the potential of subsidence or settling of soils due to the extraction of mineral and geological deposits beneath the surface.

Nonetheless, it should be observed that most soils are suited for development, and many of the soil conditions which are adverse to development can be overcome by installation of drainage, replacement with structural fill or use of special foundations. While these measures add to project costs, in most urban areas the high cost of land makes these measures economically feasible. In rural localities these factors may justify the selection of an alternative development site.

Assessment Questions

1. Is there any visible evidence of soil problems- foundation cracking or settling, basement flooding, etc. – in the neighborhood of the project site?

2. Have soil borings been made for the area? Do they indicate marginal or unsatisfactory soil conditions?

3. If the answer to either of the above questions is yes and the proposed project involves either new construction or very substantial rehabilitation activities, does the project design include appropriate mitigation measures to address the problem of poor soil conditions?

Analysis Techniques

Initial Screening

An initial screening test should be performed to determine if the soils are compressible or unstable in foundation. Other sources which can be used are Soil Survey Maps prepared by the U.S. Soil Conservation Service, or soil maps prepared by the Army Corps of Engineers or state department of natural resources.

If the potential exists for any of the problems described below to be present at the project site, a site examination by a soils engineer or geologist will be needed.

Land Fill

A field observation can be useful in helping to determine if the site contains a former dump or land fill. Evidence of trash, random vegetative growth, odors, and/or rodents can be indicative. If it is determined that a building is to be constructed on filled ground, a test boring to determine soil stability and the possible presence of hazardous substances is needed. Sometimes land fills contain toxic chemicals (consult the section on "Hazards, Nuisances, and Site Safety" which follows). If buildings are to be placed on a land fill or dump, appropriate engineering principles and techniques must be followed.

Bearing Capacity

Foundation support capacity of a project site is defined by the bearing capacity of site soils and surficial geology. In general, well-drained coarse textured soils provide the best structural support. Poorly drained clay and organic soils provide the least support. Two frequently used rating scales for soil engineering performance are the American Association of State Highway Officials scale and the Unified Soil Classification system (Corps of Engineers). Both ratings are generally provided in Soil Conservation Service County Soil Surveys. Local building codes my also establish standards for soil bearing capacity.

For mid-rise or high-rise structures, or in those areas where bedrock is close to the surface, the bearing capacity of the geological substrate will be important. Geotechnical engineering standards can be used to interpret the potential structural loadings for various categories of surface/bedrock geology configurations; however, site specific analyses will still be needed for major structures.

Frost Susceptibility Liquefaction

The city or county engineer or a geologist may need to be contracted to determine if frost susceptibility is a problem, based upon consideration of the frost line, foundation depth, soil type, and water table. In general, poorly drained soils are more susceptible to frost action than

well-drained soils. The engineer or geologist may also need to be consulted to determine if liquefaction is a problem in the area. Sandy soils or filled areas in which high water table conditions exist are subject to liquefaction in the event of ground tremors or in the presence of large vibrating machinery. Under these circumstances, soil loses nearly all structural bearing capacity.

Shrink-Swell

This factor describes the volume change for a soil when the moisture content is varies. Soil with a high clay content, subject to changes in moisture due to groundwater withdrawal, drainage, increase in paved areas, etc. are the least suitable for development.

If the site has soil with a high shrink-swell potential, such as soil with high clay content, a soil engineer should be consulted to determine if settlement might occur due to changes in moisture content of the soil.

Subsidence

Ground sinking can lead to the collapse of existing structures, changes in drainage and vegetation, and safety hazards. Conditions which may indicate subsidence include: extensive underground (shaft/tunnel) mining; presence of limestone (or other soluble) bedrock in areas of moderate to high precipitation; large withdrawals of groundwater from aquifers; and excessive wetting of low density soils subject to hydro-compaction. The city or county engineer or a geologist should be contacted to determine if subsidence is a potential problem in the area.

Water Table

A high water table might produce damp or flooded basements or foundation damage. High water table conditions may also limit use of septic systems for on-site wastewater disposal. The soil survey should be checked to determine if the seasonal water table is higher than the lowest elevation of the structure. A soil boring test or soil percolation tests may be needed for more in-depth analysis.

Policy Base (Including Standards and Legal Requirements)

No Federal statute exists specifically concerned with physical site suitability, though NEPA implies that must be considered. Legal requirements are found primarily in State and local building codes, zoning requirements, and subdivision regulations.

Sources and References

1. Johnson, Sydney M. and Thomas C. Cavanagh, **The Design of Foundations for Buildings**, New York: McGraw-Hill, 1968 (a technical text).

2. Sowers, George B. and George F. Sowers, Introductory Soil Mechanics and Foundations, Third Edition, New York: MacMillian Co., 1970 (a general introductory text).

3. USGS. **Nature to Commanded**, Geological Survey Professional Paper 950. Washington, DC, 1978.

4. USGS. **Facing Geologic and Hydrologic Hazards: Earth Science Considerations**, Geological Survey Professional Paper 1240-B, Washington, DC, 1981.

Experts to Contact

- ❑ Architect/Engineer – local building department, HUD Field Office
- ❑ Soil Conservationist – Soil Conservation Service County Office
- ❑ Highway Department Soil Engineer
- ❑ Geologist-Soil Specialist

Mitigation Measures

Mitigation measures call for soil engineering and foundation engineering solutions. Solutions include the replacement of problem soil with more satisfactory, fill the treatment of problem soil to reduce or eliminate problems, as by injecting additives or improving drainage. Other solutions involve altering foundation design through measures such as embedding the foundation, using pilings or increasing the bearing areas of spread footings. Problems with subsidence or lack of suitable soil for on-site wastewater disposal may require considerations of alternative locations.

HAZARDS, NUISANCES, AND SITE SAFETY

Overview

This category is concerned with ensuring that a project is located and designed in a manner which reduces any potential risk to the public or project users from both natural and man-made risks to people or property damage. Accordingly, a number of possible hazards to health and safety have been identified below. Many of these hazards are already subject to municipal regulation. For example, standards for adequate light and air, building density, construction materials, structural integrity, maintenance and cleanliness are contained in local zoning, building and health codes. Their enforcement often independent of environmental assessment procedure. The environmental assessment should particularly include those areas, which are not covered by code requirements. Many can be corrected through proper siting, sound planning, and good project design.

Potential Sources of Public Health and Safety Problems

- ❑ Noise
- ❑ Vibration
- ❑ Odor
- ❑ Lack of Light
- ❑ Air Pollution
- ❑ Toxic Chemical Dumps
- ❑ Uranium Mill Tailings
- ❑ Reclaimed Phosphate Land (Radioactive)

Site Hazards: Shadows, inadequate street lighting, uncontrolled access to lakes and streams, improperly screened drains or cachment areas, steep stairs or walks, overgrown brush, lack of access for emergency vehicles, hazardous waste dumps, uranium mill tailings used as foundation or building material, radioactive reclaimed phosphate land, facilities handling chemicals and/or petrochemicals of an explosive or fire prone nature.

Traffic: Circulation conflicts, road safety, exposure to radiation, or toxic substances.

Natural Hazards. Climatic: wind, droughts, floods, lighting, hurricanes, tornadoes, hail, and snowstorms. Geological: erosion, landslides, volcanoes, earthquakes. Biological: infestations, allergies, bacterial, viral, and fungal diseases.

Assessment Questions

1. Does the project involve any of the potential hazards listed above? Any that are not listed including hazards created by project construction, operation and design as well as those existing on and near the site?

2. Are there project users or neighboring populations whose special health and safety needs are not anticipated in the project design? Have actions been taken to protect children from "attractive nuisances?" Have measures been taken to reduce the potential risk to the elderly from dust and temporary walkways and traffic around construction sites?

Analysis Techniques

Earthquake or Volcanic Activity

1. Using the Seismic Risk map of the United States given in HUD Minimum Property Standards, determines the risk zone of the project area.

2. If the project is in Zone 2, contact the State or Federal geological survey to determine if the site is within 0.5 miles of an active fault. If so, obtain the review and opinion of an engineer. Make sure the design requirements in HUD Minimum Property Standards are met. A seismologist can provide additional information as to the extent of risk.

Flash Floods, Tornadoes, Hurricanes

To determine if the project is in risk zones for these hazards, consult the following sources:

- ❑ Flash Flood Information from the appropriate district office of the Army Corps of Engineering or the Federal Emergency Management Agency (FEMA).

- ❑ Annual Climatological Data National Summary, which summarizes occurrences of tornadoes, hurricanes, and floods, published by the Environmental Data Service, National Oceanic and Atmospheric Administration, U.S. Department of Commerce. It is available for local areas from the National Weather Center in Asheville, North Carolina.

- ❑ Wind Speed Map – HUD Minimum Standards. If these hazards are present, consult a structural engineer to determine the type and extent of precautions or mitigative measures which are necessary.

Forest and Range Fires

Contact local fire departments to determine whether the project area is susceptible to forest and/or range fires. If so, consult with the fire department and local weather service authorities to determine which factors create a potential for fire hazards.

Mudslides, Sands, and Hazardous Terrain Features

Through field observation, area soil maps, and consultation with local flood insurance personnel, local weather bureau and the Soil Conservation Service, determine

(a) the site or adjacent area contains slopes with unconsolidated loose soils (i.e., a type of light windborne soil)

(b) the area is subject to extensive rainfall that could cause mudslides, or

(c) The site contains soil materials prone to exhibit liquefaction, such as quicksand.

Toxic and Radioactive Hazards

Using HUD Notice 79-33 and HUD guidebook, “Safety Considerations in Siting Housing Projects, “ Conduct field observations to identify potential hazards.

Contact local officials:

- ❑ State Fire Marshall
- ❑ Local Fire Department
- ❑ City or Area-wide Planning Agency
- ❑ Public Utility Commission
- ❑ Department of Public Health
- ❑ City or County Engineer
- ❑ United States Environmental Protection Agency Regional Office

Policy Base (Including Standards and Legal Requirements)

HUD Notice 79-33, subject: “Policy guidance to address the problems posed by toxic chemicals and radioactive material.”

HUD Minimum Property Standards along with local zoning, health and building codes apply to many of these categories.

Sources and References

1. **Landslide Analysis and Control**, Special Report 176. Transportation Research Board, NAS. Washington, DC, 1978.

2. **Guidelines and Criteria for Identification and Land Use Controls of Geologic Hazards and Mineral Resources Areas**, Colorado Geological Survey, Denver, Colorado, 1974 (p.3-49).

3. USGS. **Facing Geologic and Hydrologic Hazards: Earth Science Considerations**, Geological Survey Professional Paper 1240-B, Washington, DC, 1981.

4. The Environmental Protection Agency (EPA) maintains a list of EPA’s most hazardous (toxic) waste sites, the National Priorities List (NPL) (Office of the Superfund).

Mitigation Measures

There are a number of mitigation measures, which can be instituted to avoid or guard against the various problems cited above. Most involve appropriate project planning and design.

HAZARDS (THERMAL/EXPLOSIVE HAZARDS AND AIRPORT CLEAR ZONES)

Overview

This section of the hazards discussion is concerned with two specific kinds of hazards which can result in significant risk to HUD-assisted or insured projects and their occupants. The first involves sites located near operations handling conventional fuels or chemicals of an explosive or flammable nature and the other involves sites located in Runway Clear Zones at civil airports and Clear Zones and Accident Potential Zones at military airfields. For both types of hazards, HUD has established standards for reducing the risk to persons and property.

Siting of HUD-Assisted Projects Near Hazardous Operations Handling Petroleum Products or Chemicals of an Explosive or Flammable Nature

Both people and property are at significant risk to exposure from explosion and thermal radiation (fire) when projects are located too close to storage containers of hazardous gas and liquids or chemicals of a flammable or explosive nature.

Siting of HUD-Assisted Projects in Runway Clear Zones at Civil Airports and Clear Zones and Accident Potential Zones at Military Airfields

Potential aircraft accident problems that are inevitable side effects of aircraft operations make some types of development incompatible or unsuitable for locations in the immediate vicinity of airports and airfields.

Assessment Questions

Siting of HUD-Assisted Projects Near Hazardous Operations Handling Petroleum Products or Chemicals of an Explosive or Flammable Nature

1. Is the project site located near or in an area where conventional fuels (such as petroleum), hazardous gases (e.g., propane), or chemicals (e.g., benzene or hexane) of a flammable nature are stored?

2. Is there any evidence of industrial facility storage tanks, processing, or transport tanks in the project site vicinity?

Siting of HUD-Assisted Projects in Runway Clear Zones at Civil Airports and Clear Zones and Accident Potential Zones at Military Airfields

3. Is there a military airfield or commercial service airport near (in the vicinity of) the proposed project site?

If yes, is the project site located in the Runway Clear Zone (civil airports only) or in the case of military airfields, is it located in the Clear Zone or Accident Potential Zone?

Analysis Technique

Siting of HUD-Assisted Projects Near Hazardous Operations Handling Petroleum Products or Chemicals of an Explosive or Flammable Nature

If these hazards are present identify the contents of the container (or containers) and determine the distance between the container(s) and buildings and the container(s) and open space areas (play areas, parking lots, etc.) of the project site. Using the procedures contained in the regulation, calculate the acceptable separation distance (ASD) between the hazard and where the project building (and activities) should be located.

Siting of HUD-Assisted Projects in Runway Clear Zones at Civil Airports and Clear Zones and Accident Potential Zones at Military Airfields

The following information is necessary first to determine whether or not the project is located in an affected Runway Clear Zone or in a Clear Zone or Accident Potential Zone and second whether it is acceptable under regulation.

1. The listing of the affected civil airports

2. The dimensions of the zones

3. Land use compatibility guidelines for Accident Potential Zones from the Department of Defense.

The dimensions of the zones are available from the airport operators themselves.

Policy Base (Including Standards and Legal Requirements)

The standards for these hazards can be found in HUD regulations:

24 CFR Part 51, Subpart C, “Siting of HUD-Assisted Projects Near Hazardous Operations Handling Petroleum Products or Chemicals of an Explosive or Flammable Nature.”

24 CFR Part 51, Subpart D, “Siting of HUD-Assisted Projects In Runway Clear Zones at Civil Airports and in Clear Zones and Accident Potential Zones at Military Airfields.”

Handbook 1390.4: A Guide to HUD Environmental Criteria and Standards Contained in 24 CFR Part 51. U.S. Department of Housing and Urban Development, August 1984.

Sources and References

Urban Development Siting with Respect to Hazardous Commercial/Industrial Facilities. U.S. Department of Housing and Urban Development, HUD-777-CPD, April 1984.

Compatible Land Uses at Federal Airfields. (Federal Management Circular 75-2) General Services Administration, 1975.

Experts to Contact

- Engineers
- Airport Operators
- HUD Regional or Field Office Environmental Officers
- HUD Regional or Field Office Engineers

Mitigation Measures

For projects near hazardous operations handling chemicals, gases, or liquids of a flammable or explosive nature there are mitigation measures. The circumstances under which they can be applied are clearly stated in the regulation. Because of variables involved assistance should be obtained from an expert before proceeding with mitigation measures.

ENERGY CONSUMPTION

Overview

Energy is a scarce resource due to increasing worldwide shortages and the resulting price increases. It has therefore become increasingly important to both design and to locate new facilities in a way in which minimizes energy usage. Energy consumption should be viewed in a two-fold manner, first energy consumed directly by the facility for heating, cooling, and for hot water systems, and secondly heating consumed indirectly or induced by the facility, consumed chiefly in the transportation of people and goods to and from the facility.

Maximizing opportunities for energy efficiency can be incorporated in nearly all phases of project planning location selection, site plan, building design, and density. The location of new facilities in central areas with close proximity to mass transportation, shops, schools, and

services can reduce energy consumed for transportation, the largest non-industrial use of energy in the U.S. The reuse of existing building can often cost less and save more energy than new construction. Site planning should take into account the role which trees can play in sheltering a structure from climatic extremes (wind, heat and cold). Southward facing sites receive maximum solar input, an important consideration in northern climates during the colder months. The final consideration is the incorporation of energy saving measures in building design, such as the usage of extra insulation, use of efficient heating, cooling, and hot water systems, possibly solar, use of double-gazed windows, which open and close, use of fluorescent rather than incandescent lights. Other measures include the reduction in the number of parking spaces provided to encourage carpooling and/or transit usage.

Assessment Questions

1. Does the location of the site have any special energy related advantages or disadvantages? Can these be maximized or overcome?

2. Have the architectural plans taken full advantage of potential energy saving measures, such as insulation, window design and placement, lighting, heating, cooling and hot water systems? Are they in conformance with HUD Minimum Property Standards and other applicable energy saving codes?

3. Is the location of the project in close proximity to transit, shopping, services, and employment locations?

Analysis Techniques

Further analysis beyond the initial screening questions listed above consists of both a document review and field observation, both of which might require consultation with an expert. First, to determine if a site is adequately serviced with utilities (gas and electric), utility representatives should be consulted. Local street and transit maps can be used to determine if the site has good access to schools, shopping, transit lines, etc. Field observation can help in evaluating site design, exposure of the building to the sun, use of trees to reduce consumption, etc.

Building plans for the project also should be reviewed for compliance with energy saving standards.

Policy Base (Including Standards and Legal Requirements)

Projects which are required to conform to HUD Minimum Property Standards are now also required to include certain energy conservation measures. Recent Presidential Executive Orders have been issued which regulate thermostat settings in public buildings. The National Energy Policy and Conservation Act of 1975 (PL 94-163) outlines national policy and provides assistance to the States in developing State plans. Many States and localities have revised building codes, subdivision requirements, and zoning ordinances to require minimum energy efficiency standards.

Sources and References

Both HUD and the Department of Energy have prepared numerous manuals for including energy conservation in building design, as have many state energy offices.

National Recreation and Park Association. **Energy Conservation Program Planning Materials**. U.S. Department of Interior, Washington, DC, 1978 (Vol. IV Facilitation Manual).

U.S. Department of Energy. **Passive Solar Design Handbook** (2 Vols.) January 1980.

Landscape Planning for Energy Conservation. Environmental Design Press. 1977.

Experts to Contact

It may be necessary to consult with an engineer and/or architect to determine if the design fully exploits potential energy saving measures. Direct contact with utility companies is suggested. Local public works staff can sometimes assist in determining adequacy of utilities.

Mitigation Measures

The mitigation measures refer to all of the project design measures discussed earlier such as (a) adequate insulation; (b) proper siting (north/south); (c) double-gazed movable windows; (d) fluorescent versus incandescent lights; (e) efficient heating, cooling, and hot water systems; and (f) trees for shade and windbreak, etc.

NOISE CONTRIBUTION AND EFFECTS OF AMBIENT NOISE ON THE PROJECT

Overview

Noise is defined as any unwanted sound, which disturbs human activity. In the urban environment, noise is due primarily to vehicular traffic, air traffic, heavy machinery and heating, ventilation and air conditioning (HVAC) operations. Ambient noise levels in urban area are increasing due to the growing volume of noise-generating activities. As with other kinds of environmental impacts, the long-term effects of noise on people are difficult to determine with scientific precision. A casual relationship has been established between noise and various effects, such as heating loss and impairment, interference with speech communication, sleep disturbance, general anxiety, irritability, and annoyance. Other less well established effects include fatigue, unsociability, and inefficiency in performing complicated tasks.

Definition

Although the point at which sound becomes undesirable, and hence noise, varies with individual and sound itself, levels of noise can be defined. A noise level depends on the volume or intensity of the sound, its frequency or pitch, and the time of day and duration of its occurrence.

- **Intensity**- Noise is comprised of small, very rapid fluctuations in air pressure to which the ear is quite sensitive. These sound pressure levels are measured on a logarithmic scale in decibels (or dB), where 0 dB is approximately the threshold of hearing and 120 dB is approximately the threshold of pain. The logarithmic relationship between decibels means that it requires a tenfold increase in sound energy to produce an increase of 10 dB, and it requires a one hundredfold increase in sound energy to produce an increase of 20 dB. Such a 10 dB increase would be perceived by an average person as twice as loud as the original sound. An increase of 20 dB would be perceived as four times as loud as the original sound. A doubling of sound energy (as might occur when the number of noise sources is doubled) results in an increase of 3 dB.

- **Frequency**- Frequency, the number of sound waves per second produced by an emitting source, gives a sound its pitch. The human ear is less sensitive to some frequencies than others. Thus, not all sounds having the same decibel value are perceived to be equally loud. In general, high pitched sounds are judged to be "louder" (i.e., more annoying) than low pitched sounds even when both types of sound are being emitted at the same sound pressure level. Nonetheless, low frequencies heard continuously can cause stress and impair a person's ability to sleep.

- **Duration**- The third variable in describing noise is the time of day at which the noise occurs and its duration. For analytic purposes, night-time noise events (occurring between 10pm and 7am) are generally weighted as being ten times louder (10dB higher sound pressure) than identical daytime noises. This reflects the findings of many studies that indicate a much higher human disturbance level (e.g., sleep disruption) associated with noise at night than at any other time. Concerning noise duration, noises which are heard frequently at short intervals are perhaps the more irritating whereas continuous sounds tend to blend into the background, and hence become less irritating. Continuous noises at high decibel levels are, however, more likely to cause physical harm.

Assessment Questions

Refer to the HUD Noise Assessment Guidelines to respond to the following assessment questions.

1. Given the existing ambient noise and estimated future noise levels of the site, is the site appropriate for the proposed activities and facilities? Will the project be exposed to noise levels which exceed HUD's (or state or local) noise standards? If there is a potential noise problem, what kinds of mitigation measures are proposed for the project?

Analysis Techniques

The prime concern of a CDBG environmental impact assessment for noise should be the effect of existing and projected noise levels on the proposed activities and facilities. An assessment will be needed if housing and other noise sensitive uses are proposed and any of the following conditions are present:

- ❑ Existing or proposed commercial or military airports within 15 miles of the site
- ❑ Roadways within 1,000 feet of the site with such characteristics (e.g., high traffic levels, high speed, heavy truck/bus usage, slope gradients, etc.) that would indicate high ambient vehicular noise levels.
- ❑ At-grade or elevated transit lines or railroads within 3,000 feet of the site
- ❑ Other significant noise sources (e.g., industrial/manufacturing facilities, power generating stations, etc.) in proximity to the site.

The measure used in analyzing the overall level of noise in an area is the day-night average sound level system which is denoted as L_{dn} or DNL. The day-night average sound level is derived by taking the average noise level of a 24-hour period and weighting it by the addition of 10 dB for noises occurring between 10pm and 7am.

U.S. Department of HUD Noise Assessment Guidelines

The Noise Assessment Guidelines were designed to be used as a screening tool to indicate whether sites may be exposed to excessive noise levels. The Guidelines are written specifically so that a person without training in acoustical engineering can estimate present and future noise levels at a proposed site to determine whether the decibel levels comply with the HUD standards.

The Noise Assessment Guidelines provide a series of work sheets for the estimation of individual DNL resulting from aircraft, highway, and railroad sources as well as an overall site noise level base on these three sources. If the major noise sources includes a non-transportation activity, measurements may be necessary to determine the noise levels.

Once DNL is determined, it should be compare to the HUD Standards (see Standards and Legal Requirements below). Generally if the site exposure is 65 L_{dn} and 75 L_{dn}, alternative locations or mitigation measures should be considered. If noise mitigation is impractical or impossible, the project will generally be considered unacceptable.

Airport authorities, state transportation agencies, the Environmental Protection Agency, and other Federal, State, and local agencies conduct noise surveys or require noise data to be prepared for their operations or projects. Whenever possible, use this data. Make sure that it is up to date and calculated in DNL. This data could possibly be used to map areas of the city of high noise levels. Typical areas of high noise levels are heavily traveled streets and highways, airport approach routes and rail lines.

Policy Base (Including Standards and Legal Requirements)

Under HUD's noise policy (24 CFR Part 51D) CDBG grant recipients must take into consideration the noise criteria and standards in the environmental review process and consider ameliorative action when noise sensitive land development is proposed in high noise exposure areas. The grantee should pay particular attention to noise levels when HUD assistance is contemplated later for housing or other noise sensitive activities related to CDBG actions (see 24 CFR 51.101(2)). The grantee risks denial of HUD assistance for noise sensitive activities if noise standards are violated.

In order to determine whether sound levels at a given project site are acceptable, HUD has adopted the use of the day-night average sound level (DNL) formula, previously described, and has adopted the following noise standards.

Sources and References

Aircraft Noise Impact: Planning Guidelines for Local Agencies. U.S. Department of Housing and Urban Development, 1972.

The Audible Landscape – A Manual for Highway Noise and Land Use. U.S. Department of Transportation, Federal Highway Administration, 1974. Provides a good overview of noise mitigation measures.

"Environmental Criteria and Standards, Noise Abatement and Control, 24 CFR Part 51, Subpart B," U.S. Department of Housing and Urban Development, July 12, 1979. This is the HUD noise regulation with quantitative noise standards and implementation procedures.

Noise Assessment Guidelines. U.S. Department of Housing and Urban Development, 1983. These are guidelines for use in implementing the HUD noise regulation. They provide a desk top tool for persons without acoustical training to calculate the noise exposure at a site in relation to the HUD standards.

Noise Assessment Guidelines Technical Background. U.S. Department of Housing and Urban Development, 1980. This report discusses the need for noise abatement, the various techniques for measuring and describing noise and human responses to it. It gives technical background information for the development of site noise assessment techniques.

Noise Barrier Design Handbook. U.S. Department of Transportation, Federal Highway Administration, 1976.

Guidelines for Considering Noise in Land Use Planning and Control. Federal Interagency Committee on Urban Noise, June 1980. Consolidates federal guidance on noise considerations in local planning.

Experts to Contact

In most areas, there are variety of experts who can provide useful data on noise sources and noise sensitive receptors. State transportation agencies, airport authorities and aviation planning departments, railroads, transit authorities, bridge and turnpike authorities, and local highway departments can provide data on traffic movements (and in some cases, noise emissions). Representatives of utilities and industries can be contacted, as appropriate, to provide any available data on facilities in close proximity to proposed CDBG project sites.

State or local health department may be able to provide available data on ambient noise conditions or records, or local noise-related complaints. Service providers- especially hospitals and nursing homes, libraries, schools-may be able to assist in noise evaluation for proposed project sites near existing service facilities. Also the Federal Aviation Administration, FAA, can be consulted concerning airport noise.

Mitigation Measures

Four types of measures can be taken to reduce noise or its effects: (listed in order of preference)

1. Reduce noise at its source

2. Locate noise-sensitive uses so that they will not be exposed to unacceptable noise levels

3. Modify the path along which noise emissions travel so as to reduce noise levels at the receptor site

4. Design or modify structures to minimize interior noise levels.

Noise source reduction is beyond the scope of what can realistically be accomplished as part of most CDBG projects. Considerable long term intergovernmental efforts are needed to modify aircraft approach patterns, reschedule freight rail movements, or implement truck tire and exhaust noise reductions. Less ambitious, but potentially useful options are available to most CDBG grant recipients. Modifying roadway movement patterns, reducing traffic levels, and limiting vehicular access (according to vehicle type or time of day) can significantly reduce noise levels on residential streets. In addition, CDBG project construction related noise should be minimized, especially in residential areas and near noise sensitive facilities such as schools, libraries, and hospitals. Construction contracts can specify use of muffled equipment, temporary noise barriers, truck access routes which avoid noise-sensitive areas, and construction scheduling to avoid early morning and late evening hours.

Noise can be lessened by taking the common sense approach of grouping noise sensitive activities close together and locating them as far as possible from the noise source. Specifically, this requires siting practices which (a) provide as much distance as possible between the noise source and the noise sensitive activity, (b) interpose noise compatible activities such as parking lots, open space, and commercial facilities between the noise source and the noise sensitive activities, (c) use buildings containing non-sensitive activities as noise

barriers, and (d) orient sensitive receptors away from the noise source. Within a particular building this means grouping the noise sensitive rooms together, away from the noise source and putting the noise compatible rooms, such as the kitchen, closer to the noise source.

Placing a barrier between the source and receptor is a technique that can be used to reduce exterior noise impacts to sensitive receptors. Noise reduction will usually be achievable at ground level and perhaps up to one or two stories in height. To be most effective, the barrier must be close to the source, The greater the height and length of the barrier, the more effective it is in reducing noise, Examples of barriers include earth berms and masonry walls. Dense vegetation plantings, while they do not attenuate noise emissions, provide perceived relief from noise impacts. Refer to the HUD Assessment Guidelines for calculation of noise barrier adjustment factors.

Sensitive receptor facilities can be designed or modified to reduce the effect of ambient noise on interior noise levels. Eliminating or reducing the size of windows is one possibility for lowering interior noise levels. Weather-stripping windows and doors, providing air conditioning and constructing ceilings and floors of dense materials will also help reduce interior noise levels. Interior noise reduction is necessary in heavily urbanized areas near transportation facilities or industrial facilities where alternative sites are not available and where, due to land constraints, barriers are feasible. This is the least desirable approach to noise mitigation because most CDBG projects have outdoor activities associated with them- such as recreation activities, which would continue to be exposed to noise emissions.

If noise impact mitigation for a proposed facility at a particular site is not feasible, alternative sites should be considered.

CONTRIBUTION TO AIR QUALITY AND EFFECTS OF AMBIENT AIR QUALITY ON THE PROJECT

Overview

Air quality refers to the presence or absence of pollutants in the atmosphere. It is the combined result of natural background and emissions from many individual pollution sources. The intensity of contamination varies with:

- Size of the source (emission)
- Distance from the source
- Height of emission above the ground
- Meteorological conditions, including wind direction and speed, air temperature and humidity , and sunlight

- ❑ Height and location of human receptors in the project

Air pollutants vary in their characteristics. Primary pollutants such as carbon monoxide (CO) are most dangerous in peak concentrations near their source. Others undergo chemical reactions to form harmful substances, known as secondary pollutants once in the atmosphere. An example of this is creation of photochemical oxidants, known commonly as "smog." Because of the time required for mixing and reacting to take place, the effect of secondary pollutants is more closely relate to representative concentrations than to local peak concentrations. In addition, EPA has classified some industrial pollutants as "toxic." These are controlled primarily at the source.

Sources of air quality problems can be categorized at three scales of the urban environment:

1. Cumulative urban area effects resulting from both primary and secondary pollutants that can create large scale problems for a region. The area wide impact of the project is considered in this group.

2. A major source such as power station or industry including the sources of "toxic" pollutants that may be subject to specific emission controls.

3. A local source, such as an industrial operation, highway, busy street, etc., inside or outside of the project directly impacting project livability

Definition of Environmental Effects

The effect of air pollution on human health can vary from a source of irritation to the eyes and throat to a contributing factor in three often fatal diseases-heart disease, lung disease, and cancer. Air pollution can also damage plant growth, soil material, reduce visibility, and alter climatological conditions.

Some population groups-the sick, the elderly, pregnant women and children-are most seriously affected by air pollution than are others. The groups are sensitive receptors, suffering adverse effects at lower pollution levels than the general public. This fact should be incorporated in any consideration of the location and/or design of schools and parks, hospital, and housing.

Air Quality Standards

There are two general approaches to air pollution control: (1) setting standards for pollution levels in the ambient air; and (2) controlling emissions at the source. Ambient Air Quality Standards establish acceptable concentration levels for major classes of pollutants in the ambient air (defined as that portion of the atmosphere which is external to buildings and accessible to the general public). Under the Federal Clean Air Act of 1970, states are required to achieve the primary air quality standards set by EPA within specified time limits. Primary standards are set to protect public health. The states must institute air pollution regulation, which at least satisfy minimum Federal standards, such as prohibiting development which will

cause air quality to deteriorate below the standards, and mandating clean-up measures where violations are registered. Some states, such as Minnesota and California, have adopted air pollution regulations which are more stringent than Federal requirements.

Emission Control Regulations: Direct Source; Indirect Source

Emission control regulations are designed to restrict pollution at the source. They are directed toward stationary and mobile sources. The stationary sources include plant sources such as those created by large scale heating and cool systems, incinerators and power plants. Such facilities usually require installation and operation permits which demonstrate their ability to meet both Federal and applicable State or local standards.

An indirect source is a facility which generates vehicular activity resulting in the emission of significant levels of pollutants. These include any large traffic generator such as a parking facility, retail complex, apartment building, or a highway. In some states, indirect source permits may be required depending on the size and location of the proposed development.

Administering Agencies

Most larger metropolitan areas (above 200,000 pop.) are categorized as “Non-Attainment” areas by EPA which means that ambient air quality falls short of Federal standards. Each such area is required to prepare and submit to EPA for approval a Non-attainment Strategy Plan and a Transportation Control Plan. These plans are intended to specify the actions which will be taken to achieve compliance with national standards by a specified date. These plans are considered as subcomponents of the State Implementation Plan (SIP). By indicating how to attain and maintain ambient air quality standards the SIP’s exist in all states and are administered either by a state or a regional air quality control agency.

Air Quality Monitoring Stations

In most metropolitan areas, the air quality control agency maintains monitoring stations which measure pollution levels. This information is normally used to measure air quality in a particular locality and to identify violations of air quality. These readings may assist in formulating approximate measures of air quality at a nearby location for distant industrial sources (Sulfur Dioxide, SO2, Total Suspended Particulates, TSP, etc.), they are inadequate for estimation of traffic impacts, CO, etc. Use of a mobile lab can be expensive, may record only the existing situation, and requires extensive statistical analysis to provide useful results.

Assessment Questions

Consideration of air quality impacts is often a difficult and highly technical undertaking, involving a host of different standards for different types of emissions and types of development. For purposes of Environmental Assessment, the task can begin with a set of simple questions. These questions will not necessarily lead to a conclusion about a project’s acceptability but rather will help to indicate of there is a potential problem and if expert advice should be sought.

In many metropolitan areas this advice can be provided by the appropriate air quality control agency.

1. Does the project require an installation permit, operating permit or indirect source permit under local pollution control agency rules? If so, have permit requirements been satisfied?

2. Is the project located in the vicinity of a monitoring station where air quality violations have been registered? If so, will the project exacerbate air quality problems in the area?

3. If the project or its potential would be particularly sensitive to existing air pollution levels, or those expected 10 and 20 years hence, has the project been designed to mitigate possible adverse effects?

4. Will the proposal establish a trend which, if continued, may lead to violation of air quality standards in the future?

5. Will the proposed project have parking facilities for 1,000 cars (include an SMSA) or 2,000 cars (outside an SMSA) or generate traffic of a corresponding magnitude?

Analysis Techniques

Typical CDBG Project Air Quality Issues

Consideration of air quality involves both analyzing the impact of the proposed project on air quality in the community and the impact of the existing environment on the proposed project forecasting. It depends on project size, type, and its location (i.e., the suitability of the particular location for the type of project planned). Such consideration might, for example, argue against siting elderly housing adjacent to an expressway. Such consideration might also involve stipulating that a new in-town commercial complex be designed with a limited supply of parking in order to encourage transit usage and thereby reduce potential vehicular generated air pollutants. It should be noted that if the proposed project will utilize CDBG funds and be a housing development of more than four units, the project should also be reviewed for conformance with HUD Noise Policy.

Nearly all new development will have some effect upon air quality, however minor. The dilemma faced by many cities is how best to consider proposed new development in locations which are non-attainment areas for specific air pollutants. Under the 1977 Amendments to the Clean Air Act, a new approach was instituted to permit development when it can be established that the “source will not cause or exacerbate a violation of a national standard or any applicable PSD (prevention of significant deterioration) increment” (42 U.S.C. Section 7401-7642). An approved estimation technique should be used to assess the impacts. The statute also established a “trade-off) condition under which emissions from a new development may be traded for a reduction in emissions elsewhere.

Policy Base (Including Standards and Legal Requirements)

Air quality is an impact category for which specific Federal and non-Federal government standards exist.

Clean Air Act, as amended, 1970 and 1977; Executive Order 11738; and Implementing Regulations, especially

- ❑ National primary and secondary Ambient Air Quality Standards, EPA, 40 CFR 50, 1971 as amended.
- ❑ State Implementation Plans, EPA 40 CFR 51, 52.
- ❑ HUD Environmental Regulations 24 CFR Part 58.
- ❑ All other HUD regulations with Air Quality requirements, Section 701, Section 8, CDBG, etc.
- ❑ Applicable state legislation and regulations.

Sources and References

Basic Manuals

1. "HUD Interim Guide for Environmental Assessment," Interim Guide, 1975; Part IV-6, Climate and Air, Generation and Dispersion of Contaminants. **Environmental Manual**, #H-2080R.
2. "Air Quality Considerations in Residential Planning," SRI HUD 1980. Volume 1, **A Guide for Rapid Assessment of Air Quality at Housing Sites**, HUD-PDR-524-1. Volume 2, **Manual for Air Quality Considerations in Residential Location, Design, and Construction**, HUD-PDR-524-2.
3. "A Guide for Reducing Air Pollution through Urban Planning," Interim Guide, 1973; EPA/HUD. APDT-0937. **Planning Manual**.

Secondary Sources

1. State Implementation Plans (SIPs) required to meet the Federal Ambient Air Quality Standards.
2. Metropolitan-wide Air Quality Maintenance Area (AQMA) Plans

Experts to Contact

- ❑ Local and/or Air Pollution Agency
- ❑ Traffic Department or Engineer

- ❑ Weather Service Station
- ❑ Air Pollution Consultant, Meteorologist, or Engineer
- ❑ State Environmental Quality Agency
- ❑ Environmental Protection Agency Regional Office Staff

Mitigation Measures

In developing the design for a project there are recommended design practices that can be followed to reduce air quality impacts at the urban area, site and building scales.

Recommended Design Practices to Minimize Air Quality Problems

Urban Design Criteria

1. Separate as far as possible human activity from automobile and other pollution sources. Avoid residential uses close to highway air rights, elevated highways, tunnel exits, lower floors along a busy street, etc.

2. Assure easy flow of air around the buildings.

3. Arrangement of structures

    a. Avoid blocking valleys and other natural air flow ways with high rise structures.

Site Plan Design

1. Setbacks: Setback of structures or of heavily frequented areas of the site from major roadways can greatly reduce human exposure to pollution.

    a. Avoid long linear blocks of structures, avoid closed courts, deep angles which trap and stagnate air masses.

    b. Vary setbacks, vary building size and heights, plant irregular landscaping to increase turbulence and dispersion.

2. Landscaping: Landscaping improves dispersion of pollutants, reduces the temperature of pollutants, and reduces infiltration of pollutants into the building.

3. Parking Lots: Avoid large masses of parking spaces in favor of smaller parking areas more broadly distributed.

4. Grading: Avoid site grading that creates low pit areas since these spaces tend to trap pollution.

Building Design and Construction

1. Avoid balconies and cavities in the building shell and on the building side which is subject to heavy pollution impact.

2. Reduce infiltration of pollution.

    a. Install vapor barrier material with an effective permeability rating of approximately 2 perms per 100 square inches in exterior wall (see ASTM Standard C-355), use weather sealed windows and doors.

    b. Reduce outside polluted air input into the ventilation and air conditioning systems, use oxidizing agents wash in air conditioning, program air intake schedules, avoid or vent indoor pollution sources, etc.

3. Use construction technology and building equipment necessary to reduce indoor air pollution levels. Unless indoor pollution sources are reduced, a "tight" building may have worse air quality than one which has high permeability.

ENVIRONMENTAL DESIGN AND HISTORIC VALUES

- ❑ Visual Quality – Coherence, Diversity, Compatible Use; and Scale
- ❑ Historic, Cultural, and Archaeological Resources

VISUAL QUALITY – COHERENCE, DIVERSITY, COMPATIBLE USE; AND SCALE

Overview

Visual quality can be defined as the impacts of the project on the visual character of its surroundings and ultimately, on the residents, users and/or visitors of the project. Visual quality derives from the way elements of the natural and built environment relate to each other to create a sense of harmony. Ideally, the overall effect of these elements is to give the viewer a sense of orientation and comprehension, and to enable the viewer to orient himself in the area. Visual impact should be examined in terms of the surrounding area of the project. Examine the project in view of how it fits in with its man made and natural surrounding areas. Will the project add to the attractiveness of the area or detract from it? Where changes are required, beneficial effects should be designed into the project (e.g., landscaping).

Elements that comprise the natural environment include the natural contours of the land, bodies of water, vistas of the sky, and trees and plants. These provide contrast to the built environment and create visual interest.

Any kind of physical construction related to the project will affect the natural elements. Construction which is not adapted to the contours of the land is out of character with the site. Buildings that block views or cast shadows, cut and fill operations that ignore natural contours, the filling of wetlands, removal of trees and vegetation are other examples of site use insensitivity.

Elements of the built environment include the surrounding buildings and streets. The different styles and types of buildings and their materials, colors, shapes, sizes, facades, details, and density all add to the character of the area. Their placement in relation to the street and to each other can help provide a sense of harmony or create interesting skylines and views.

Streets and streetscapes are another major component of the built environment. Variables here are the size, width, paving and curb materials, lighting fixtures, signs and street furniture such as benches. The vitality of activity strongly affects the character of an area. Projects that are closed, windowless, or undifferentiated at the sidewalk level may seriously mar the public perception of safety and livability of the surrounding area.

A number of factors should be examined in determining the compatibility of a new building with the existing area. Buildings which open up views or block or degrade them or which become themselves focal points will affect the visual quality. Other factors include the size, design, material, and siting of the building or buildings. However, buildings which do not copy their neighbors in materials or design are not necessarily incompatible.

Assessment Questions

1. Physical Alteration: Will there be demonstrable destruction or physical alteration of the natural or man-made environment? (For example, will there be clearance of trees or buildings, substantial regarding or alteration of the vegetative character or geomorphic form of the land? While alteration of the existing landscape is often negative, it can also provide opportunities to improve areas already disrupted by man – e.g., land may be regarded to prevent contaminated surface waters from flowing into a stream or pond, at the same time as creating more varied landscape).

2. Nonconformity with Existing Environment: Will there be intrusion of elements out of character or scale with existing physical environment? Dies the proposed building represent a significant change in size, scale (i.e., unrelated size or spacing of windows, floor levels, entrance patterns), placement or height in relation to neighboring structures in an inappropriate manner? Does it differ in materials, color, or style from its neighbors in an inappropriate manner?

   Are proposed signs and street furniture in character with existing architectural styles, particularly in historic areas? Are levels of activity reduced or detrimentally increased?

3. Will the proposed structure block views or degrade them, change skyline or create a new focal point? Is objectionable visual pollution introduced directly or indirectly due to loading docks, trash collectors, parking? Is this mitigated visually?

4. Disruption of the Ambient Environment: Will there be interference with or impairment of ambient (or existing background) conditions necessary for the enjoyment of the physical environment? (For example, increased ambient levels of air and noise pollution, vibration, dust, odor, heat and glare can seriously interfere with human health and the experience of natural conditions. These increases may also promote the deterioration of vegetation, wildlife habitats, and historic buildings.)

Analysis Techniques

Numerous techniques are available to better understand the visual effects of development. Some techniques are used by designers and planners to identify, measure, and evaluate visual effects; and other techniques are available for involving the community in the study of visual issues. Developers, officials, designers, and residents can have very different perceptions of the same environment, and very different evaluations of aesthetic benefits and costs.

For analyzing visual issues, techniques are available from the fields of landscape architecture, urban design, and social impact assessment. The analysis of views, light and shadow, and visual compatibility is typical of landscape architecture site analysis of both urban and rural contexts. Urban designers apply other techniques, focusing on the influence of the scale and design of structures. Tools that can be used in these analyses include overlay maps, perspective drawings, scale models, still and motion film, and computer mapping. The field of social impact assessment offers tools for studying residents' perception of the existing visual environment and their evaluation of future development. These tools include surveys to collect facts and to assess attitudes; focused group interviews and other community meetings; community demographics and social profiles; and quality of life indicators.

To achieve public acceptance of a project it is important to involve local citizens in identifying and evaluating visual effects. Community residents can help identify both physical and sociological effects and lend their judgment to the evaluation of these impacts. Since aesthetic judgments are based on past experiences, education, and personal taste, it is important to offer residents repeated opportunities to understand the aesthetic issues and to allow them to express their judgments.

Most importantly, methods selected for displaying aesthetic issues and collecting comments from citizens should be those proven effective in conveying aesthetic issues to laymen, and not techniques understood only be those in the field of development. Methods of collecting views should be designed to sort out the responses of various groups to aesthetic issues by such factors as potential project users, age groups, or economic classes.

Sources and References

Urban Design as Public Policy. Jonathan Barnett. New York: Architectural Record Books. 1974.

City Signs and Lights. Stephen Carr. MIT Press, Cambridge, Massachusetts. 1973.

Managing the Sense of a Region. Kevin Lynch. MIT Press, Cambridge, Massachusetts. 1976.

Guidelines for incorporating Design, Art, and Architecture into Transportation Facilities. Laos Heder. U.S. Government Printing Office, Washington, D.C. 1980. Report No. DOT OST p. 20-30.

Lessons from Local Experience, CDBG/Urban Environmental Design. U.S. Department of Housing & Urban Development. (#HA 5046) Superintendent of Documents, USGPO, Washington D.C. 1983.

Experts to Contact

- ❑ City Architect, Urban Design Staff.
- ❑ Local American Institute of Architects, American Society of Landscape Architects or American Planning Association
- ❑ Local Conservation and Historic Commissions

Mitigation Measures

To help resolve differences of opinion or visual impacts, a design review committee can be established to monitor development of detailed designs for the project. The committee reviews local sign and zoning codes to insure that the project complies with existing standards for height bulk, and signage materials.

HISTORICAL, CULTURAL, AND ARCHITECTURAL RESOURCES

Overview

The identity of a community or neighborhood can be intimately tied to those structures or areas which have historic, cultural, or architectural interest and significance. Such places help to define a community's past and provide a sense of place and character its current image.

The National Register of Historic Places is a Federal listing of properties and places which are of special historic, cultural, or architectural value. The request for inclusion of a property on the National Register is usually made by the local community jointly with the State Historic Preservation Office (SHPO) and forwarded to the Keeper of the National Register of Historic Places which reviews the application and decides on eligibility. Inclusion on the Federal Register helps protect the property from alteration or adverse impact by a Federally funded activity. It may also make the property eligible for Federal matching funds for certain renovation activities. In addition to individual buildings and sites, entire districts can be placed on the Nation Register, such as Boston's Beacon Hill or the Georgetown area in Washington D.C.

In addition to the National Register, some states have adopted their own inventories of histories places and many have established histories districts enabling legislation, such as Massachusetts, which enables localities to establish historic districts as types of overlay zoning. Further many counties, municipalities and metropolitan areas have their own inventories and districts.

The Department of Interior has issued specific criteria to help determine eligibility of properties for listing in the National Register. In summary, historic and cultural resources are those districts, sites, buildings, structures, and objects having significant associations with historic, architectural, archaeological, or cultural events, persons, groups, and social or artistic movements. In general, these resources include all districts, sites, buildings, structures, and objects which:

- Are associated with events that have made a significant contribution to the broad patterns of our history.
- Are associated with the lives of persons significant in our past
- Embody the distinctive characteristics of a type, period, or method of construction; represent a significant and distinguishable entity whose components may lack individual distinction
- Have yielded, or may be likely to yield, information important in prehistory or history.

Assessment Questions

1. Does the project area and environs contain any properties listed on the National Register of Historic Places? Does the locality have an inventory of historic places?

2. Is there a local historic commission that can provide historic information? What information on the project area does the State Historic Preservation Office (SHPO) have and has a survey of local historic properties been conducted?

3. Are there other properties within the boundaries or in the vicinity of the project t hat appear to be historic and thus require consultation with the SHPO as to eligibility for the National Register?

4. If so, can the applicant prepare documentation that reflects consultations with the SHPO as to what appears to eligible for the National Register, whether effected by the project or not?

5. Has the Department of the Interior been requested to make a determination of eligibility on properties the community or SHPO deems eligible and affected by the project?

6. Has the Advisory Council on Historic Preservation been given an opportunity to comment on the properties that are listed on or have been found eligible for the National Register and which would be affected by the project?

7. Does the Advisory Council response indicate that a Memorandum of Agreement is needed to avoid or reduce affects?

8. If so, has the Advisory Council's "106 Process" been completed, or does the applicant contemplate completing the process after applying for HUD funds but prior to requesting the release of funds?

Analysis Techniques

In order to determine if the proposed project will, in fact impact historic, cultural, or archaeologically significant properties, it is first useful to consult secondary source material. As part of the preparation of a data file, it is recommended that all of the properties having possible historic value be mapped or documented and discussed with the SHPO. Those that then appear to be eligible should be mapped as the example from Cambridge, MA. illustrates.

If such maps are not available, first examine the National Register along with state and local inventories of historical places to see if any are at, or close to the site of the proposed project.

If the community has not inventories its resources, it should conduct a site inspection to review the project area against criteria of eligibility for the National Register, described above in the Overview. Where the scale of anticipated projects is extensive, the community may elect to undertake an inventory of community resources, the cost of which is "eligible activity." Depending on the history of the project area, a systematic survey may be a prudent expenditure, using the best expertise available or the local historic commission. Such work is not a program requirement.

The community with the advice of the State Historic Preservation Officer must determine whether the project area contains and will affect property on or eligible for the National Register. The Department of the Interior makes final determinations of eligibility (36 CFR 1204). When Register or Register-eligible property will be affected consultation with the Advisory Council on Historic Preservation is required. (36 CFR 800 for CDBG; 36 CFR 801 for UDAG).

An adverse effect is defined by the following criteria:

- Destruction or alteration of all or part of the property
- Isolation from or alteration of its surrounding environment
- Introduction of visual, audible, or atmospheric elements that are out of character with the property or alter its setting
- Neglect of a property resulting in its deterioration or destruction (vandalism)
- Transfer or sale of a federally owned property without adequate restrictions regarding preservation maintenance or use.

Policy Base (Including Standards and Legal Requirements)

Historic preservation and the preservation of cultural and archaeological resources are protected under a number of legal authorities including the following:

National Historic Preservation Act of 1966 (P.L. 89-665) especially Sec. 106, an amended by P.L. 96-399. This is the basic legislation for historic preservation requirements.

Properties included or eligible for inclusion in the National Register are afforded protection under this Act.

HUD requires CDBG communities to take into account the effect of the undertaking on any district site, building or object that is included or eligible for inclusion in the National Register. The Advisory Council on Historic Preservation must be afforded a reasonable opportunity to comment with regard to such undertaking.

Executive Order (EO) 11593, Protection and Enhancement of the Cultural Environment, 1971 as amended. The Act as amended extends the protection of the National Historic Preservation Act to its districts, sites, and buildings that are eligible for listing in the National Register.

Advisory Council on Historic Preservation, Protection of Properties and National Register: Procedures for Compliance (36 CFR Part 800). These are the procedural requirements implementing Section 106 and EO 11593 which must be followed. HUD UDAG program is subject to 36 CFR 801.

Preservation of Historic and Archaeological Data Act of 1974 (P.L. 93-291). This Act deals with the preservation of scientific, historical, pre-historical, and archaeological data as a result of any Federally assisted construction project.

Whenever a Federal agency, including a CDBG grant recipient or State, in the case of the Small Cities Program, is notified by an appropriate historical or archaeological authority that its project

may cause irreparable loss or destruction of significant scientific, pre-historical, historical, or archaeological data, it shall notify the Department of the Interior and provide them with information concerning the project. Although some reasonable costs for data identification and recovery may come from project expense, other assistance for recovery or preservation may be provided by the U.S. Department of the Interior.

Sources and References

Advisory Council on Historic Preservation, **Procedures for the Protection of Historic and Cultural Properties**, 36 CFR Part 800. Also 36 CFR Part 801 applicable to HUD Urban Development Action Grants. Also various other guidelines, including:

Society for American Archaeology. **Archaeology and Archaeological Resources, A Guide for Those Planning To Use, Affect or Alter the Land's Surface.** Washington, D.C. Undated.

U.S. Department of the Interior. **Preparation of Environmental Statements: Guidelines for Discussion of Cultural (Historic, Archaeological, Architectural) Resources.** Washington, D.C. 1974.

U.S. Department of the Interior. **Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings.** HCRS 1980 623-077113W.

Experts to Contact

- ❑ State Historic Preservation Officer (State Historical Commission) (required)
- ❑ Local Historical or Archaeological Societies or Commissions
- ❑ State, regional, or local planning agencies known to have prepared historic plans or surveys
- ❑ Keeper of the National Register, DOI's Washington D.C. and Regional Offices, DOI's Heritage Conservation and Recreation Services

Mitigation Measures

If it is determined that the project will result in an adverse effect on historic resources, it will be necessary to examine ways to modify the project by a variety of actions which might include:

- ❑ Relocating the project away from historic or cultural resources
- ❑ Modifying the project to avoid the adverse impact through actions such as the renovation of the historic property for use by the developer rather than the proposed demolition and construction of a new structure
- ❑ Establish design review criteria or procedures to be followed during project implementation

- ❑ Relocating the register eligible property

Local and state preservationists along with architects should be involved in the formulation of appropriate mitigation measures. The successful mitigation of a potentially adverse impact requires the preparation of a memorandum of agreement to be signed by the community, the State Historic Preservation Officer, and the Advisory Council on Historic Preservation.

SOCIOECONOMIC

- ❑ Demographic/Community Character Changes
- ❑ Displacement
- ❑ Employment and Income Patterns

DEMOGRAPHIC/COMMUNITY CHARACTER CHANGES

Overview

Community is a term which commonly refers to people living within a defined geographic area such as a neighborhood or a small town. Communities can be highly diverse or highly homogeneous places, they can be strictly residential or can be characterized by mixed land uses. The CDBGF program is primarily intended to benefit low and moderate income households and has the objective of increasing housing opportunities, particularly outside areas of concentration, for all lower income households including minority households.

Central to the definition of community is both the presence of a residential population and a sense of common bond and collective identity which defines the community as distinct from other neighborhoods or communities. Community is often a difficult term to define because it carries a physical, social, and psychological dimension. The physical dimensions are the quality and type of housing units, commercial, public and social services. The social dimensions include demographic characteristics such as the population size, density, age, ethnic and minority composition, household size and composition as well as income and employment characteristics. Much of this data is found in the U.S. Census and in the applicant's Housing Assistance Plan.

The final dimension of community is psychologically derived, referring to the residents' sense of community, their perceived relationship with their surroundings. It can be measured from resident attitudes, and the strength of organizational ties both formal and informal. It should be observed, however, that change per se is not a negative or positive thing. In doing this assessment, it is important to be aware of a neighborhood. In many cities neighborhoods exist where residents have strong ties to the area, each other and local stores and institutions. Often these are ethnic areas where residents share a common cultural and religious heritage. It is

important that CDBG activities not destroy the social networks and institutional ties in these areas.

Assessment Questions

1. What are the identifiable communities within the sphere of likely impact of the proposed project? What are the factors which contribute to the character of the communities?

2. Will the proposed project significantly alter the demographic characteristics of the community?

3. Will the proposed project result in physical barriers or difficult access which will isolate a particular neighborhood or population group, making access to local services, facilities, and institutions, or other parts of the city more difficult?

4. Will the proposed project severely alter residential, commercial, or industrial uses?

5. Will the proposed project destroy or harm any community institution, such as a neighborhood church?

Analysis Techniques

Secondary Data

It is first necessary to define the boundaries of the neighborhoods to be impacted by the proposed project. These may be congruent with existing or newly defined planning districts.

The Bureau of the Census has recently begun a program, the 1980 Neighborhood Statistics Program, which can provide data for recognized neighborhoods that is identical to that produced for census tracts. Each community must define its own concept of neighborhood and precise boundaries in order to participate in the program. The Guidebook listed below provides assistance in participating. Census data should then be analyzed to establish the characteristics of the community. It is often helpful to map this information as part of the preparation of the data file.

Another potential source of updated demographic data is the local R.L. Polk directory which can be used to modify 1970 census data until 1980 data is available, although the modification must be done carefully.

Another secondary measure which can be consulted is the results of neighborhood attitudinal surveys which are conducted in many cities to assist in the identification of needed public services.

Primary Data

Field observation can be a useful method of assessing the character of a community. Measures to look for include: the quality and condition of the housing stock, any evidence of abandoned or vacant structures, both residential and commercial. Interviews with a cross section of area residents and business persons can be helpful, as can the opinions expressed at community meetings in defining local problems.

In some cases, it may be considered desirable to conduct an attitudinal survey in an affected neighborhood to document community needs and preferences.

Policy Base (Including Standards and Legal Requirements)

No Federal statutory requirement or standard exists for measuring this category of impact. While a number of data sources exist to assist in assessing impacts on community character, ultimately the determination of impact relies heavily on community comments and the professional judgment of the reviewer.

Sources and References

Christensen, K. **Social Impacts of Land Development: An Initial Approach for Estimating Impacts on Neighborhoods Usages and Perceptions.** Washington, D.C.: The Urban Institute, 1975.

Fitzsimmons, S. et al. **A Guide to the Preparation of the Social Well-Being Account: Social Assessment Manual.** Prepared for the U.S. Department of the Interior. Cambridge, Massachusetts: Abt Associates, Inc. 1975.

McEvoy, J. and T. Dietz**. Handbook for Environmental Planning: The Social Consequences of Environmental Change.** New York: John Wiley & Sons, 1977.

St. Paul City Planning Department. **Environmental Resource Data and Assessment Guide.** St. Paul, Minnesota, January 1977.

Neighborhood Identification: A Guidebook for Participation in the U.S. Census Neighborhood Statistics Program. Prepared for U.S. Department of Housing and Urban Development, Office of Policy Development and Research, Office of Neighborhoods, Voluntary Association and Consumer Protection. Prepared by Institute foe Urban Studies, University of Notre Dame, April 1980 (Purchase Order No. HUD 5239-79).

Experts to Contact

- ❑ Neighborhood Planner at a local planning department
- ❑ Director of local neighborhood organizations

- ❑ Housing Code Compliance Office/local health or building department
- ❑ Local Community Action Agencies
- ❑ Local Advocacy Groups and/or Organizations

Mitigation Measures

1. Redesign or relocate project
2. Preserve or relocate community institutions
3. Establish a community advisory group to monitor project implementation

DISPLACEMENT

Overview

Displacement refers to the dislocation of people, businesses, institutions, or community facilities as a result of a project. There are several types of displacement: direct displacement and indirect displacement. Direct displacement is involuntary displacement of a person who occupies property that is acquired, rehabilitated or demolished for CDBG activity, or vacated to comply with CDBG-assisted code enforcement or specifically identified in a CDBG/UDAG application as the site of a leveraged activity (i.e., completion is contingent upon approval of the CDBG/UDAG). Only displacement as a result acquisition by a public agency is covered by the Uniform Relocation Act.

Indirect Displacement is involuntary displacement caused by an activity or event that is not CDBG-assisted but which is supported by concentrated CDBG activities. For example, this would include displacement caused by rapidly increasing rents made possible by revitalization of an area in which CDBG funded rehabilitation or street improvement are taking place.

Assessment Questions

1. Will the project directly displace individuals or families? How many persons? Is the displacement covered by the Uniform Relocation Act and are funds available for payment?
2. Will the project destroy or relocate existing jobs, community facilities, or any business establishments? Is the displacement covered by the Uniform Relocation Act and are funds available for payments?
3. Are relocation funds available for families or individuals who may be directly displaced?
4. Will identifiable groups be affected – older persons, females, single-parent families, racial/ethnic or income groups, or minority group members?

5. Are replacement facilities or housing units available within the community or in nearby neighborhoods? What will be the effect of relocation on these neighborhoods?

6. Will the project result in probable indirect displacement? If so, have measures been planned to alleviate the hardship on those affected whose displacement is not covered under the Act?

Analysis Techniques

The location of the project should first be plotted on a land ownership map in order to determine if any property will have to be purchased and whether there are residents, businesses, or institutional uses presently occupying the site. If it is determined that relocation is required, then an inventory of potential displacees should be prepared employing a city directory, city census, or other listing of current building occupants. In larger cities, a relocation specialist is usually responsible for this activity.

The Area Office Relocation Specialist can provide data on relocation requirements.

It is more difficult to assess and forecast any resulting indirect displacement. An analysis of trends in the local real estate market, vacancy rates, recent sales and rental prices along with income statistics of the area can help indicate an area which might likely experience indirect displacement.

Policy Base (Including Standards and Legal Requirements)

Under the Uniform Relocation Act individuals or businesses forced to relocate due to real estate acquisition by a public agency for CDBG Activity are entitled to certain payments and other assistance. Specific information concerning these requirements can be found in the following sources:

Uniform relocation Assistance and Real property Acquisition, 44 CFR 30 946; Effective Sept. 26, 1979, 24 CFR Part 42.

HUD Handbook 1376.1, “Relocation and Real Property Acquisition,” September 1979, and any revisions.

Experts to Contact

- Relocation Specialist at local community development agencies
- Relocation Specialist at HUD Field Office

Mitigation Measures

As mentioned, those directly displaced by a public acquisition are entitled to the assistance stipulated in HUD Handbook 1376.1, "Relocation and Real Property Acquisition, " September 1979, and any revisions.

Persons displaced due to other forms of direct acquisition or the indirect impacts of a project are not covered by the Act. However, actions can be taken by public agencies to mitigate potential adverse effects including making housing assistance available through Section 8 and other programs, constructing new housing for the group to be displaced, targeting job programs to the neighborhood, establishing home purchase subsidy programs in the neighborhood for low and moderate income families, and tax abatement for elderly and/or low income persons.

EMPLOYMENT AND INCOME PATTERNS

Overview

Employment related impacts of a project can be grouped in three broad categories: temporary jobs created in construction and allied fields as a result of constructing the project; permanent jobs created both directly and indirectly as a result of the project; and in the case of housing developments; the job requirements of new residents.

Employment and income patterns can be measured in two ways – by identifying the occupations and income levels characteristic of an area's resident population or by identifying major employers within the area. Some of the measures commonly used include: (1) resident income; (2) resident occupational distribution; (3) unemployment levels; (4) job types of major employers.

There are several ways in which a project can impact on employment and income patterns. Most CDBG and UDAG projects involve temporary construction jobs and permanent jobs required for the operation of a new facility. The purpose of the assessment is first to identify anticipated changes in employment and income patterns and then to evaluate the results. How many of what type of job will be created? While increased job opportunities are generally considered beneficial, it is important to determine both who will likely be employed (e.g., city residents or suburbanites, low income low skilled persons or upper income higher skilled individuals) and what the skills and income profile of new employment is likely to be. Some new developments serve to displace existing employment. For example, a UDAG assisted new commercial development may serve to displacement employment in existing small businesses which service a neighborhood, and thus displace jobs and incomes from these businesses.

Assessment Questions

1. Will the project either significantly increase or decrease employment opportunities? Will it create conditions favorable or unfavorable to commercial, industrial, or institutional operation or development?

2. How many temporary and how many permanent jobs will be created by the project?

3. What is the profile of new jobs created by the project? What is the distribution across the skills and income scale? How do these relate to the skills and income profile of project area residents?

4. Will the new jobs likely go to area residents, to lower income, unemployed and minority group members? Will construction jobs likely go to union or non-union works?

5. Where are the new employees likely to come from (i.e., inner city, suburb, outside SMSA)?

Analysis Techniques

It is first necessary to identify the existing employment and income characteristics of the project area. Income data can be obtained from the Census with current estimates often prepared by city, state, and area wide planning agencies.

As part of the preparation of the base data file it is suggested that employment and income data be mapped for the community. The City of St. Paul prepared three such maps, the first presented income status and trends by census tract. This map not only displayed low income areas but indicated which neighborhoods were finding their incomes increasing or decreasing significantly relative to the national average. Similarly an unemployment map both indicated the locations of chronic unemployment and presented recent trends of increase or decrease. The final base data map presented net change in number of businesses in each census tract. When viewed together these maps present a benchmark against which the impact of proposed changes created by the project can be measured.

It is next important to assess the likely employment generating effects of the project. Estimated construction and permanent employment may be known by project proponents. If not, estimates can be used which convert the size and value of the construction into numbers of workers and likely annual income. Based upon this, multipliers can then be used to calculate likely secondary employment effects. For example, 50% of the value of a project might be labor at an average cost of $16,000 per person per year. Retail employment might average one employee per 1,000 square foot, etc. While national formulas can be employed it is preferable to use likely employment multipliers which are tailored to the general geographic area.

Once the likely employment and income generating impacts of a project are known, it is next necessary to forecast the likely beneficiaries. What percentage of the new jobs will likely go to a project area residents, to lower income, unemployed and minority group members?

Will the project cause area residents to leave existing jobs for new jobs which may only be temporary or will the new employment and income opportunities "pull" or attract others from outside the immediate jurisdiction and possibly increase the demands for related services?

Will the project result in displacement of existing jobs or businesses?

Sources and References

Lansing, J.B., Mueller, E., and Barth, M., **Residential Location and Urban Mobility**, Ann Arbor, University of Michigan, Institute for Social Research,1964; and analysis of the interrelationships between location of residential housing and urban employment.

EPA and HUD. **Population and Economic Activity in the United States and Standard Metropolitan Areas – Historical and Projected, 1950-2020.** Springfield, Virginia, NTIS, 1972 (NTIS No. PB-216 607); provides description and projections of per capita income in SMSA; based on employment predictions through the year 2020.

Experts to Contact

- ❑ Local Industrial Development Authority
- ❑ Economist at State Employment Services
- ❑ Planner/Administrator at local planning or employment agency
- ❑ Chamber of Commerce

Mitigation Measures

In several large cities, Boston and Dayton among them, UDAG assisted commercial developments which required employers to hire a target percentage of CETA-trained referrals (The CETA program has since been discontinued). Boston has instituted a percentage residency requirement for the new Copley Place commercial development, of 20% minority and 50% city residents for both construction and permanent employment created by the project.

Often transportation is the critical link which is needed in assisting the unemployed to secure a job. In some situations, the development of public transportation, such as an express bus, from residential to job locations can serve to mitigate the problem of siting a new development project in a location which is removed from existing transportation lines.

COMMUNITY FACILITIES AND SERVICES

- ❑ Educational Facilities
- ❑ Commercial Facilities

- ❑ Health Care
- ❑ Social Services
- ❑ Solid Waste
- ❑ Waste Water
- ❑ Storm Water
- ❑ Water Supply
- ❑ Public Safety – Police, Fire, and Emergency Health
- ❑ Open Space, Recreation, and Cultural Facilities
- ❑ Transportation

EDUCATIONAL FACILITIES

Overview

There are two fundamental considerations regarding a CDBG activity's relationship to and/or impact on elementary, junior and senior high schools:

- ❑ Adequate capacity for children in the schools
- ❑ Safe access

In order to accurately establish the extent to which these two criteria should apply, an initial calculation must be made detailing the projected increase in student population to be created by the proposed development. This calculation must be accomplished by:

- ❑ Contacting the developer or sponsor for mix of unit types (i.e., 1-bedroom, 2-bedroom dwellings);
- ❑ Contacting the school administrator or superintendent for an estimated average number of school-age children per unit type.

If neither source has the appropriate information, other sources are:

- ❑ **The Fiscal Impact Handbook**, pgs. 276-299 (see references). This section deals with population projections.

- A chart entitled “pupil Generation Rates by Type of Dwelling” found in the Center for Urban Policy Research, **Housing Development and Municipal Costs**, Rutgers University, 1973.

This chart provides “pupil multipliers” for “grade level” and “bedrooms” for different types of dwellings. This will give a pupil estimate when no other sources are available.

If the proposed project will overcrowd the schools consider such alterative options as:

- Building additions to existing schools
- Locating classroom space in nearby buildings (i.e., community centers or other commercial facilities, possibly owner by the developer)
- Providing transportation to other schools

Safe access takes into account the possible need for transportation to school and attention to potential traffic hazards. Specific issues include:

- Existence of all-weather walking paths and their or existing paths’ proximity to bus stops as well as to the school itself and crosswalks
- Crossing guards (especially for elementary school children)
- Clearly marked intersections near school or bus stops

Assessment Questions

1. Will the additional school age children in the proposed development exceed the capacity of existing or planned school facilities?
2. Does the potentially affected schools have adequate and safe access facilities (i.e., walking paths, bus routes, crosswalks, and guards) given any calculations done for projected population increase? Are these adequate both in terms of safety and access?
3. Will additional or alternative facilities have to be provided to ensure safety and suitable access?
4. What measures will be taken by the superintendent or the school’s governing body to resolve potential problems/conflicts?

Analysis Techniques

If walking routes are prohibitively unsafe or if such routes exceed 1/3 mile (elementary); ½ mile (junior high), and 1 mile (senior high) in length (see table), then bus transportation should be instituted, provided the trip does not exceed ½ riding time for elementary children and ¾ hour

for junior and senior high school children. Early morning and late afternoon bus circuits should be arranged to accommodate those students wishing to arrive at school early or stay after normal school hours to participate in extracurricular activities.

	Walking	Bus Ride
Elementary	1/3 mile	1/2 hour
Junior High	1/2 mile	3/4 hour
Senior High	1 mile	3/4 hour

If school children will be required to walk or to ride the bus longer than the distances suggested above, or more than prevailing local standards, consult the superintendent about how to alleviate the problem.

If it is determined that there exist inadequate facilities to accommodate school children or that safety to school children will be jeopardized and corrective action is not proposed, then the project will have an adverse effect.

Sources and References

School maps are helpful for identifying distances and safety issues.

A school district plan is helpful for analyzing capacity issues and determining the impact of potentially increased enrollment.

The following source is useful in identifying the number of children produced by different types of units.

Burchell, Robert W. and David Listokin, **The Fiscal Impact Handbook.** New Brunswick, New Jersey: The Center for Urban Policy Research, 1978, pgs 276-288.

Experts to Contact

- ❑ School Superintendent
- ❑ Developer or sponsor of proposed CDBG project
- ❑ Traffic Department

Mitigation Measures

Identify alternative schools or buildings to temporarily house students if problems are anticipated due to overcrowding. Expand an/or improve existing school access to alleviate

safety problems. Work with school officials and city traffic engineer to identify options and costs.

COMMERCIAL FACILITIES

Overview

There are two considerations in assessing commercial facilities. The first is an evaluation of the adequacy of existing commercial facilities to service the development. Are these facilities located conveniently to the proposed development? Are the available retail goods within the income capacity of the proposed project users or residents? Are there serious gaps in the range of available goods and services?

The second analysis involved the impact which a proposed development will likely have on surrounding commercial establishments. For example, a new UDAG sponsored commercial development might displace existing small scale retail establishments which become uncompetitive when compared to new enterprises. Similarly, a new office building or hotel may draw business away from existing hotels and office buildings.

There are generally three types of retail areas which are recognized by type and function; any of these might be affected by the proposed project.

Neighborhood – consists of small businesses usually within 5-10 minutes travel time which include food, drug, cleaning, and convenience stores. The neighborhood shopping site is usually organized around a supermarket.

Community – or central business district contains multi-functional economic and service enterprises including banks, specialty stores with access provided either by auto or public transit. In larger metropolitan areas, a food store is often not included.

Regional – may be either the central business district of a metropolitan area or may be a regional shopping center, usually with two or more department stores and various specialty stores.

Assessment Questions

1. Is there adequate and convenient access to retail services? In the case of the elderly, this means that shopping for such essential items as food and medicine is within three blocks and services such as banks and other convenience shopping are within walking distance.

2. Do local retail services meet the needs of project occupants/users? Are they affordable and is the range of services adequate?

3. Will existing retail and commercial services be adversely impacted by the proposed project? Will existing businesses be placed at a competitive disadvantage or be displaced?

Analysis Techniques

The first task in the analysis of commercial facilities is to determine the nature of the facility (housing, hotel, etc.), its size, location, and socioeconomic characteristics of probable users or occupants. Next, using map, evaluate the relationship between the project and existing commercial facilities. In the case of a housing development, for example, locate the neighborhood, community and regional shopping areas from land use maps. Then determine their access to proposed occupants by probable mode (pedestrian, transit or private automobile). Determine likely transportation routes and travel time. Determine any transportation limitations such as infrequent or irregular bus service.

Make judgments concerning the quality of commercial services available, i.e., the range of goods and services and their relative price. Will these services meet the needs of project users and/or residents? Will access be adequate? If the project will cater to a population largely dependent on public transportation, special consideration must be given to shopping areas which can be reached either by transit or walking. If the project users and/or residents are elderly or handicapped, special consideration must be given to the availability or special transportation services and shopping areas which are accessible to the handicapped. In addition to income, demographic factors influence shopping needs and preferences. Young working adults have different shopping patterns than families with small children or elderly persons.

In order to access the impact of a new commercial development (hotel, shopping complex, etc.) on existing commercial enterprises it may first be necessary to identify existing potentially competitive establishments and to gather data concerning their sales, markets, and characteristics of patrons. Some new commercial enterprises help to strengthen a commercial area by generating new demand, which in turn benefits existing establishments. Other new establishments might serve to displace existing enterprises. For example, a new supermarket might draw business away from a “mom and pop” local food store. However, they usually serve a different clientele and there may be a need for both. The determination of likely impacts must be made on a case specific basis involving a careful analysis of both primary and secondary data. Consultation with real estate marketing experts and/or local commercial realtors may be helpful in gathering data and making judgments.

A determination of negative impact might result if it is found that existing commercial facilities are inadequate to meet the needs of the project users and/or residents. Most often, poor access is the problem; however, in some locations the existing commercial establishments are judged as having too limited a variety of goods available, or unusually high prices.

A determination of negative impact might also result from finding that existing businesses might be displaced by a new commercial development, such as a UDAG sponsored shopping mall or other commercial venture.

Sources and References

Schaenman, Philip. **Using an Impact Measurement System to Evaluate Land Development.** Washington, D.C., Urban Land Institute, 1976.

U.S. Department of Commerce, Bureau of Census. **Census of Retail Trade**.

Brourne, Larry S. **Internal Structure of the City.** Toronto University Press, Toronto, Ontario, 1971.

Muller, T. **Economic Impacts of Land Development**, Washington, D.C., Urban Land Institute, 1976.

Experts to Contact

- ❑ Local Chamber of Commerce
- ❑ Commercial Realtor
- ❑ Commercial Development Specialist
- ❑ Local Planning Agency

Mitigation Measures

When a housing development is poorly situated in relation to shopping, mitigation might include arranging additional or new transportation services, either through the local transportation authority or through a social service agency, especially in the case of elderly or handicapped housing. In some cases it may be appropriate for the developer or sponsor to purchase a minibus to transport residents, if other services are not available or are inadequate. The local planning agency might be asked to encourage new retailing in the area, perhaps through a package of incentive programs (i.e., low interest commercial development loans from Economic Development Administration (EDA) or Small Business Administration (SBA)). In Boston, a "food-mobile," a mobile food market, tours the city's elderly projects.

In case of existing retail or other commercial facilities facing the adverse effects of new commercial enterprises, various business improvement loan programs might be employed to assist local businesses in making needed improvement to become more competitive, such as SBA or EDA funded loan programs.

HEALTH CARE

Overview

Relevant issues to be considered regarding a proposed project's impact on health care services are:

- Adequate access to hospitals, emergency facilities, clinics, and physician services
- Potential effect of the proposed development on existing health care services' capacity and ability to accommodate an increase in use
- Are there adequate health services to accommodate the special needs of a potentially diverse population, i.e., families, elderly, handicapped.

Health care services can be defined as those regular and emergency dental and medical care services provided for by private doctors, dentists, and other trained medical staff at a hospital, outpatient clinic, public, private, or community health facility, home-care medical programs, or en emergency treatment facility (trauma unit, special cardiac pulmonary resuscitation (CPR) unit).

Assessment Questions

1. Are non-emergency health care services located within a reasonable proximity to the proposed project, i.e., less than a half-hour's drive or commute away? (In dense urban areas an even shorter time period may set standards.)

2. Are emergency health services within approximately three to five minutes? Such service can often be provided by police and fire personnel as well as by ambulance staff.

3. Can ambulance trips to a hospital or other health care centers be made within 10 to 15 minutes?

4. Is the number of doctors, dentists, nurses, and other trained medical staff in realistic proportion to any increase in residents/users? If not, can provision be made for additional skilled staff?

5. Will project residents/users require special medical services or skills such as geriatric clinics?

6. Will the local comprehensive health planning agency be contacted in the event that an increase in population from a proposed development causes a situation of increased or over capacity for area health care services? Consult the local area health systems agency to determine an estimate of number of hospital beds and other facilities needed. If over

capacity is anticipated, the local comprehensive health planning agency should be approached for possible alternative plans.

Analysis Techniques

By examining relevant data regarding the demographic characteristics of the new residents/users (i.e., age, sex), determine the specific types of medical services that will be required. Through discussion with the local comprehensive health planning agency determine if existing services will be adequate to meet the new and increased demand.

Determine the location of exiting health care services and their distances to the proposed project site. Find out whether public transportation from the project site to the services is available and how long the commute is.

If it is determined that the facilities are not within a half-hour commute for the new residents/users or that the additional residents/users will overburden existing facilities, then the proposed project will have an adverse effect.

Policy Base (Including Standards and Legal Requirements)

There is no legislation that mandates the level of health care services. Comprehensive plans and analyses of the local area health systems agency may include desired levels of services.

Sources and References

Economic/Demographic Assessment Manual – Current Practices, Procedural Recommendations, and a Test Case. J.A. Chalmers and E.J. Anderson. Mountain West Research, Inc., Tempe, Arizona, 1977, 300 pp.

How Effective Are Your Community Services? Procedures for Monitoring the Effectiveness of Municipal Services. Harry P. Hatry, Louis H. Blair, Donald M. Fisk, John M. Greiner, John R. Hall, Jr., and Philip S. Schaenmen. The Urban Institute and the International City Management Association, Washington, D.C., 1977, 320 pp.

Experts to Contact

- Area Health Systems Agency – can provide the Area wide Health System Plan which is an inventory of institutional health services and projected demand within the area.
- Local Public Health Department – can provide information on local demand for, and quality of health care.
- Council on Aging – can provide information on the size and location of the local elderly population.

- Local Red Cross – can be valuable resources for medical needs of the area.

Mitigation Measures

Mitigation measures to be considered, depending on specific problems and local resources, include:

- Special shuttle and emergency transportation to medical services
- Incorporation of a small clinic or emergency medical service area into a housing development, keyed to the special needs of the resident population
- Cooperation between the CDBG agency and medical service providers in improving the quality and/or availability of health services in the area.

SOCIAL SERVICES

Overview

Social services can be defined as those services provided by governmental social service agencies or public or private groups, including but not limited to: programs for drug addiction, alcoholism, and mental disorders; halfway houses and drop-in centers, family counseling centers, day care centers; services for senior citizens and the handicapped; nutrition centers, meals on wheels; income maintenance and man power programs, etc.

Social service by definition must cater tom and be easily accessible to those who need them. Therefore, access and adequacy are important considerations. Factors to consider regarding a proposed project's impact on an area's social services include:

- Availability and accessibility of day care, elderly centers and neighborhood centers to accommodate existing and future residents.
- If appropriate social service centers are not located within a reasonable proximity to the proposed development, alternate space and services may need to be developed to accommodate new residents/users.

Assessment Questions

1. Are social services currently located in close proximity to the prospective users/residents? Are they within walking distance or convenient to public transportation and less than one-half hour's commute?

2. Is the number of trained staff including social workers, counselors, psychologists, psychiatrists, and related administrative and managerial personnel in realistic proportion to

the anticipated increase in residents/users? If not, could provision readily be made for additional skilled staff?

3. Will the demand for the social services increase and overburden existing facilities, can provision be made to obtain alternative and/or additional space?

Analysis Techniques

By examining relevant data regarding the social services needs of the new residents/users (i.e., income level, age, number of children and teens per family) determine the specific types of services that will be required. Through discussions with the local Human and Social Services office, public welfare office, local youth services office, etc., determine if existing services will be adequate to meet the new and increased demand.

Determine the location of existing social services and their distances to the proposed development. Find out whether public transportation is available between the needed services and the project site and how long the commute is.

Determine whether new residents or users will overburden existing services and facilities. What provisions could be made to expand them?

Policy Base (Including Standards and Legal Requirements)

There is no legislation that mandates the level of social services. Local comprehensive plans may include desired levels of services. Local voluntary and public social service agencies and planning groups may have analysis of desired level of services.

Sources and References

Local Social Security Administration Office – can provide data concerning the size of retired population and the income level of the community.

Local Public Welfare Office – can provide data concerning the low-income population in the community.

Local Social or Human Services Department (City or County) – can provide information on local demand for social/human services and their availability/adequacy.

Youth Services Department – can provide data on the size and age of the local youth population.

Council on Aging – can provide information on the size, location, and special social and human service needs of the elderly population.

Local Child Care or Daycare Center – may have information on the size and characteristics of the pre-school population.

Local Health and Welfare Council or the United Fund – may have data on social and human service needs.

Economic/Demographic Assessment Manual – Current Practices, Procedural Recommendations, and a Test Case. J.A. Chalmers and E.J. Anderson. Mountain West Research, Inc., Tempe, Arizona, 1977, 300 pp.

How Effective Are Your Community Services? Procedures for Monitoring the Effectiveness of Municipal Services. Harry P. Hatry, Louis H. Blair, Donald M. Fisk, John M. Greiner, John R. Hall, Jr., and Philip S. Schaenmen. The Urban Institute and the International City Management Association, Washington, D.C., 1977, 320 pp.

Municipal Costs and Revenues Resulting from Community Growth. Walter Isard and Robert Coughlin. Federal Reserve Bank of Boston and the American Institute of Planners. 1957, 111 pp.

Experts to Contact

- ❑ Planner – Local Planning Department
- ❑ Administrator/Planner – Social Services Department
- ❑ Administrator/Planner – Public Welfare Office
- ❑ Administrator/Planner – Council on Aging
- ❑ Administrator/Planner – Social Security Office
- ❑ Administrator/Planner – Half-way House(s) in area
- ❑ Administrator/Planner – Drop-in Center(s) in area
- ❑ Administrator/Planner – Child Care or Daycare Center
- ❑ Administrator/Planner – Local Council on Voluntary Human Service Agencies

Mitigation Measures

Mitigation measures to be considered include:

- ❑ Special transportation – especially for elderly and children

- ❑ Potential CDBG cooperative funding for added social services
- ❑ Provisions of space for social service offices as part of a CDBG facility – elderly drop-in center, nutrition center, youth center, and so forth.

SOLID WASTE

Overview

Solid waste disposal is regarded as an essential service in urban areas. Its availability for supporting a newly proposed development can be an essential determinant of whether a project can be constructed. Solid waste materials are generally transported by trucks to a common, usually remote site for either recycling (rarely), incineration (where allowed), or burial/disposal in a sanitary landfill. In assessing this service two factors must be considered: first, the proximity of the service to the site and second, the capacity of the service to accommodate the project.

Assessment Questions

1. Will the existing or planned solid waste disposal system adequately service the proposed development?
2. As a result of the project, will the design capacity of these facilities be exceeded?
3. Will the proposed project be adversely affected by the proximity to these facilities?
4. Does the community have an adequate number of vehicles to provide the project with collection services?
5. Will the residents/users of the proposed project have to pay annual/monthly costs for these services? Will these costs create severe financial hardships for project residents? (This can be a real consideration if low income or the elderly are primary users.)

Analysis Techniques

An inventory of landfill locations and capacities with estimated life expectancies can aid in determining adequate disposal capabilities.

Determination of Potential Adverse Effects

- ❑ Estimated solid waste generation will significantly reduce life span of landfill.
- ❑ Estimated solid waste generation will significantly overtax existing collection system.
- ❑ Projected future costs of continued service will far exceed the financial capacity of users.

Policy Base (Including Standards and Legal Requirements)

Resource Conservation and Recovery Act (42 U.S.C. S3251 et seq.).

The project should first be analyzed to determine the location of the site in relation to services and infrastructure including: the location and design of solid waste storage facilities, if any, to determine the ease of removal; the location of sanitary land fill sites or solid waste recycling facilities in relation to the development to determine transportation needs.

Solid Waste Disposal Act (42 USC 6901-6987 et seq.) as amended by the Resource Conservation and Recovery Act of 1976.

Sources and Reference

Minimum Property Standards, U.S. HUD Field Office. "EPA Guidelines for Local Government on Solid Waste Management," **Public Works Magazine**, March 1972, p. 79-80.

Clark and Toftner, "Land Use Planning and Solid Waste Management," **Public Works Magazine**, March 1972, p. 79-80.

Experts to Contact

- ❑ Engineer – Local Solid Waste Disposal Agency, or City or County Engineering Department
- ❑ Engineer/Planner – HUD Field Office or Local Planning Department
- ❑ Engineer, Planner/Environmental Specialist – Regional EPA Office

Mitigation Measures

If there is a problem with the capacity of an existing or planned system, alternatives to explore include expansion of the existing landfill site adding one or more additional sites, better compaction methods to reduce the volume of waste, incineration, and recycling. If transportation to the site is a problem due to insufficient collection vehicles, likely solutions include either contracting with a private collection service or purchase by the community of new collection trucks.

WASTE WATER

Overview

Waste water treatment and disposal is an essential service for all new development. The availability of adequate waste water disposal service can be a determinant of whether or not a project is constructed. Waste water is usually collected in urban areas through a system of

sanitary sewers which convey the waste to a treatment facility located “downstream” from the city. After treatment the effluent is either recycled (rarely) or us discharged into surface water or a permeable recharge area for an underground aquifer. In less developed areas, on-site septic systems or package treatment plants are used. Generally, 80 gallons of sewage is generated per capita per day. In analyzing impacts to waste water treatment/disposal facilities, it is necessary to consider two factors: 1) proximity of the service to the site; and 2) the capacity of the service to accommodate the project.

Assessment Questions

1. Will existing or planned waste water systems adequately service the proposed development?

2. As a result of the project, will the design capacity of these facilities be exceeded?

3. Will the proposed project be adversely affected by proximity to these facilities?

4. In less developed areas, are soils suitable for on-site waster water disposal such as septic systems?

5. Where on-site disposal is necessary, will the state or local health agency issue a permit?

Analysis Techniques

The project should first be analyzed to determine the location of the site in relation to municipal services and infrastructure, including the location and design of waste water removal facilities, if any. If on-site disposal is planned, determine the potential for groundwater or surface water contamination. It is also necessary to determine the type and density of development in order to estimate likely water use and the likely volume of waste to be generated.

Likely adverse effects can be determined if:

- ❑ Estimated sewage generation will exceed capacity of sewers or treatment facilities.

- ❑ Project will utilize on-site liquid waste disposal system in an area not suited for its use.

- ❑ Waste water will be directed toward environmentally sensitive areas.

Policy Base (Including Standards and Legal Requirements)

Clean Water Act, as amended (33 U.S.C. S. 1251 et seq.)

Various states have laws which may be more stringent than Federal requirements.

Sources and Reference

Local Infrastructure Maps give the location and capacity of sewer and storm water drains. These are available from either the local planning or engineering departments.

The Soil Conservation Service Soils Maps indicate areas of impermeable soils and areas of highly permeable soils. The S.C.S. can also provide data on the depth of the water table which is useful in planning on-site waste water treatment facilities.

Area wide Wastewater Management Plans. Area wide 208 Agency.

Local Building and Health Codes, State and/or Local Building Department or Health Department.

Minimum Property Standards, U.S. HUD Field Office.

Soils Survey Ratings for On-Site Waste Disposal, U.S. Soil Conservation Service.

Experts to Contact

- Engineer – Local Sanitary District/Agency, City or County Engineering Department, 208 Planning Agency
- Engineer/Planner – Local Planning Department
- Soils Scientist – U.S. Soil Conservation Service
- Engineer – State Health and/or Environmental Quality Agency

Mitigation Measures

Potential problems can be mitigated through the construction of expanded capacity, such as sewer lines and treatment facilities. Contact the local 208 Agency for relevant plans and permit requirements.

STORM WATER

Overview

Storm water disposal is an essential service in most urban areas. Its availability to support a proposed new development can be an essential determinant of whether a project is to be constructed. Storm water is usually removed from an impermeable surface (e.g., pavement and buildings) by natural flow, storm, sewers, or combined (storm and sanitary) sewers. It is discharged into a surface water body or onto permeable recharge area or temporary storage

areas. In assessing impacts to storm water service facilities, two factors must be considered: 1) the proximity of the system to the site; and 2) the capacity of the system to accommodate the project.

Assessment Questions

1. Will existing or planned storm water disposal and treatment systems adequately service the proposed development?

2. Will the project overload the design capacity of these facilities?

3. Will the proposed project be adversely affected by proximity to these facilities?

Analysis Techniques

The project should first be analyzed to determine the location of the site in relation to services and infrastructure including: the location and design of storm water facilities to determine both the ease of removal and the planned course of water runoff. It is also necessary to determine the type and density of development to determine the volume of storm water likely to be generated.

Determination of Potential Adverse Effects

Likely adverse effects can be determined if:

- ❑ Estimated storm water generation will exceed capacity of storm sewers.

- ❑ Storm water will be directed toward environmentally sensitive areas.

Sources and References

Local Infrastructure Maps give the location and capacity of storm water drains. These are available from wither the local planning or engineering departments.

Minimum Property Standards, U.S. HUD Field Office.

Experts to Contact

- ❑ Engineer – City or County Engineering Department, Local or District Storm water Treatment/Disposal Agency

- ❑ Engineer/Planner – HUD Field Office or Local Planning Department

Mitigation Measures

Various measures can be taken to attenuate peak runoff including the use of controlled retention ponds on individual sites or along major drainage systems. Where storm sewers are not available, site grading patterns that increase flow distances over unpaved areas should be utilized. Detention/storage areas and the elimination of piped drains which discharge directly to surfaces will help minimize peak flow effects to existing storm drainage facilities. An expanded storm drainage system could be included in project plans if a potential deficiency is identified early in the project development process.

WATER SUPPLY

Overview

Adequate water supply refers to the delivery to a project site of sufficient quantities of potable water under adequate pressure at affordable cost. Approximately 100 galloons per day is the average urban domestic per capita water consumption rate.

Assessment Questions

1. Will either the municipal water utility or on-site water supply system be adequate to serve the proposed project?

2. Is the water supply quality safe from a chemical and bacteriological standpoint?

3. Will the project affect a sole source or other aquifer?

Analysis Techniques

Review the project plans to determine either the number and/or type of residential units proposed, or the type and size of proposed commercial, institutional or industrial uses. Estimate future water use by the project, and note any plans for conservation techniques. Then contact the local water authority or public works department to determine whether existing and future public water supply is adequate to meet the needs of the project. Check that the water supplies are of potable quality according to state and local public health standards.

If the existing public water supply system is inadequate to meet the needs of the project, discussions should be held with the water authority to learn if the system can be expanded by drilling new wells, making interconnections with other systems which have ample supplies or by other means. The willingness of the authority to do this and the economics are equally important.

Policy Base (Including Standards and Legal Requirements)

The quality and quantity of either surface or groundwater sources should meet HUD's Minimum Design Standards for Community Water Supply System. This would also be true if the alternative selected is purchase of water from a neighboring community. If a public system is not available to serve residential areas, then individual wells must meet HUD's Minimum Property Standards for One and Two Family Dwellings. Also applicable is the Safe Drinking Water Act (42 U.S.C.S. 300 et seq.) (This Act also protects sole source aquifers. Under the Safe Drinking Water Act Federal assistance cannot be approved for any project that could contaminate an aquifer that has been designated by EPA.

Sources and References

Dunne, Thomas and Luna Leopold, **Water in Environmental Planning**, W.H. Freeman, San Francisco, 1978.

Sargent Frederic and Blaine Sargent, **Rural Water Planning**, F.O. Sargent (330 Spear St., South Burlington, VT 05401), 1979.

Experts to Contact

- Municipal or private utility water supply planners and engineers
- Local public health agency staff

Mitigation Measures

In the event that no additional water supply can be furnished from the public system, an investigation could be undertaken to discover whether wells drilled on site could furnish adequate supplies and at affordable costs.

If on site wells will not produce adequate water at reasonable cost the project must be abandoned or postponed until a supply is secured.

PUBLIC SAFETY – POLICE, FIRE, AND EMERGENCY MEDICAL

Overview

Fire, police, and ambulance services are concerns that should be considered in terms of the adequacy of existing services for the project site. Although many communities have sophisticated protective services the consistency of adequate service is different from place to place. Within communities, one site may be better served than another.

Factors in the variability of protective services include the availability of funds for additional coverage and the degree to which building and growth are coordinated with provision of new municipal services. Key variables within each city are emergency equipment, emergency service personnel, response time, and access. These factors influence the availability and adequacy of emergency services that may be required at a proposed project.

Assessment Questions

1. Does the project location provide adequate access to police, fire, and emergency medical services? Does the project design provide easy access for emergency vehicles and individuals? Are there obstacles to access, such as one-way roads, narrow bridges, waterways, expressways, and railroads, which prohibit access in an emergency situation? Will the project create such obstacles?

2. Is the quality of the police and fire protection services available to the project adequate to meet project needs?

3. Does the area have a particularly high crime rate? Are there special plans for a security system which have been approved by the police department? Is the design and/or architectural configuration of the development such that it is easily patrolled by police from the street?

4. Will the project create a burden on existing facilities in terms of manpower and/or equipment? Can services either be expanded to be provided by the project, such as an in-house security force?

Analysis Techniques

Review the project plans in order to determine:

Location of the project in relation to each type of protective service

Size of the building and the number and type of users/residents, in order to estimate the demand for protective services;

Type of building materials as an indication of their resistance to fire and compliance with local codes

Access routes for accessibility for emergency vehicles and compliance with local regulations

Fire hydrant locations and availability of fire fighting equipment.

Next, secondary data should be consulted, including:

Fire-Service Maps: Obtained from the local fire department, these show the distance to the nearest fire station (and usually police station) which can be used to estimate response time.

Local Fire or Police Department: If provided with the location and size of the project, the police and fire departments can determine whether they will be able to service the project adequately without increasing their staffs. They can also help to estimate response time to the site.

Emergency Medical Service Plans: These may be obtained from local hospitals or health, fire and police departments.

Field observation may be useful to determine the age and condition of surrounding buildings, location of fire hydrants, emergency call boxes, and nearby police and stations, and evidence of high crime rate in the area. Consult with police and fire departments for additional information on local conditions. Consult with the fire department to determine if water pressure is adequate as well as road service, e.g., width of roads, space to turn around, etc., for fire equipment. The issue of access is critical for emergency fire service.

A determination of an adverse impact may result if protective services are presently strained and there are no plans to increase services; if the distance to the closest fire station is more than 1.5 miles (high density) or 2 miles (low density); if the nearest hydrant is more than 600 feet away; if police response time is greater than 3 minutes; or if access by ambulances is difficult and/or if response time by someone trained in emergency medical techniques is more than 3 to 5 minutes. The response time standards are drawn from nationally recognized standards. You may want to establish standards better suited to your community. In some communities, firemen and policemen are trained in such techniques as well as ambulance personnel.

Determine if the police and fire personnel are trained in basic paramedical skills and if they are available for such health emergencies as heart attacks.

Sources and References

The National Board of Fire Underwriters monitors the fire insurance risks and fire fighting capabilities of most cities in the U.S. and rates sections of cities for the purpose of establishing insurance rates and premiums. If these are unsatisfactory the Board will advise what improvements are needed to gain a better rating.

U.S. Fire Administration's Home and Public Building Safety Division. National Fire Data Center, P.O. Box 19518, Washington, D.C. 20036. Telephone: 202/634-7195. They have several publications: **(1) A Basic Guide for Fire Prevention and Control Master Planning; (2) An Urban Guide for Fire Prevention and Control Master Planning.**

There is no national agency which monitors crime and police efficiency on a nationwide basis. The International Association of Police Chiefs can offer guidance on how a particular police department can be studied and analyzed. Many police departments have established a Crime

Prevention Unit internally. They are eager and able to review site, development, and architectural plans of proposed projects and will point out potential crime inducing situations and suggest how these can be avoided.

Oscar Newman. **Design Guidelines for Creating Defensible Space.** National Institute of Law Enforcement and Criminal Justice. 1976.

Richard Gardiner. **Design for Safe Neighborhoods.** Law Enforcement Assistance Administration (LEAA), HUD, USGPO No. 027-000-00751-1. 1978.

Experts to Contact

- ❑ Chief of local fire department
- ❑ Local chapter or national Office of the National Fire Protection Association (NFPA)
- ❑ Chief of local emergency medical agency
- ❑ Administrator of local emergency medical agency such as the ambulance corp in the Department of Health or the local Rescue Squad
- ❑ Local medical society

Mitigation Measures

Specific measures include: a) expanding local police, fire, and emergency medical services in the community to adequately service the project; b) include safety features in the project such as fences, lighting, alarm systems, and private guards to increase public safety; c) redesigning project site plan to improve police surveillance, neighborhood resident surveillance, and roadway design for emergency access; d) if it is major development project, investigate how developers might contribute to additional service costs, or provide its own supplemental protective service by hiring a private security service; and e) add an alarm system if one has not been included in project plans.

OPEN SPACE, RECREATION, AND CULTURAL FACILITIES

Overview

The development of community services such as open space, recreation and cultural resources has become a necessary component of community development. These facilities can be operated by the government, such as public parks and libraries, or they can be operated by private entities such as YMCAs and privately owned museums. They have much to do with the “quality of life” and “quality environment” concepts of a community and are essential to maintenance and continuity of a viable neighborhood.

Recreation and open space resources include active recreation, such as ball fields and passive recreation such as nature trails, and gardens.

Cultural resources include art galleries, libraries, dance facilities, museums, theatres, other facilities for artistic and cultural purposes. These usually receive both public and private support.

Demand and supply for both specific recreation and cultural facilities is a function of factors which include the size of the community, density of development, income and demography. Wealthier communities have these services and facilities more often than poorer communities. Communities with a large percentage of children have greater needs for active recreational facilities than communities with a large number of elderly or handicapped persons who prefer passive recreation. High density communities with little private open space have a greater need for access to public parks and recreation areas than small towns with ample open spaces or suburban areas where the homes have large yards.

Assessment Questions

1. Are open space, recreational and cultural facilities within reasonable proximity (i.e., walking distance) to the project area? Is adequate public transportation available from the project to these facilities? (Note: Small children and elderly persons need such facilities to be in very close proximity to their residences.)

2. Is there an adequate supply of these resources for the users or resident population of the development?

3. Will the CDBG project cause any overloading of existing facilities?

4. Are the special needs of certain population groups able to be satisfied, such as small children or the elderly and handicapped? For example, are there tot lots for very small children, playgrounds for elementary school children, drop-in centers for senior citizens and ball fields for teenagers.

5. If the development is housing, has space for informal play for children of all ages been included on-site? Have areas for recreation for adults and the elderly been provided including places for passive recreation?

Analysis Techniques

Review plans to determine if such facilities have been included onsite. Locate the proposed site on a local land use map and determine the distance to the available open space, recreation and cultural facilities. Determine how many of these are within walking distance and are geared to project residents/users considering such factors as design and user fees. Determine if public transportation is available. Obtain data on the age and income of proposed project residents or users to determine the needs.

Review plans for the project to determine whether the proposed project will have any adverse effect on these facilities, such as making user access more difficult or impeding views to these facilities. Consult with facility operators or administrators to determine if the project will cause any of these facilities to become overloaded.

If there are inadequate facilities within a reasonable distance of the proposed project, or the project will overload existing facilities, explore appropriate mitigation measures.

Sources and References

Census data can help provide information on the size and location of population groups in the community who might need specialized recreation facilities.

The local cultural or arts commission can provide data on libraries and cultural resources including capacity, locations, and usage level.

The Statewide Comprehensive Outdoor Recreation Plan (SCORP) identifies resources and often provides usage data.

The local parks and recreation department can provide data on the size, location, and usage at various parks and open space areas. Utilize their standards or others listed below to determine whether facilities will be overlooked.

- ❑ Urban Park and Recreation Recovery Program, Heritage Conservation and Recreation Service, Regional Offices.
- ❑ Land & Water Conservation Fund, Heritage Conservation and Recreation Service, Regional Office

If no local standards exist contact the National Recreation and Park Association, 1601 N. Kent Street, Arlington, VA 22209 for relevant examples of standards.

Experts to Contact

- ❑ Planner at local parks and recreation department
- ❑ Administrator of Social Services Agency
- ❑ Administrator of Local Cultural Commission
- ❑ Local American Society of Landscape Architecture
- ❑ State Arts Office or Association

- ❑ Administrators of Private Non-Private Agencies such as YMCAs, YWCAs, Museums, Private Libraries, etc.
- ❑ State Liaison Officer
- ❑ State Historic Officer
- ❑ Heritage Conservation & Recreation Service
- ❑ Department of Interior
- ❑ National Park Service
- ❑ Bureau of Land Management

Mitigation Measures

Expand existing facilities. Develop more on-site facilities.

Review design to mitigate project impacts on open space and cultural resources in the vicinity.

Develop recreational resources for specific population groups, such as tot lots, playground, and passive park areas. Work with local school administrators to arrange after school use of school recreational facilities.

TRANSPORTATION

Overview

Definition

Assessing transportation impacts involves analyzing four sub-elements of transportation. These are:

Access

To have access which is the primary function of a transportation system, the user must be able to reach a destination within reasonable limits of time, cost, and convenience.

Balance

A balanced transportation system is one which provides reasonable options for travel by private automobile or public transit, or combinations of both as well as (car and bus) intermodal.

Safety

System design plays a strong role in safety, particularly elements such as traffic signals, turning lanes, and railroad grade crossings.

Level of Service

This term measures a number of operational factors including speed, travel delay, freedom o maneuver, safety, and frequency/hours of operation.

Assessment Questions

The assessment questions are organized by the four sub-elements described above:

Access

1. Will transportation facilities and services be adequate to meet the needs of the project's users? Is off-street parking available and adequate? Is adequate public transportation available?

2. Are there special transportation issues (programs for the elderly and handicapped, bridge clearances for trucks, emergency vehicle access) which have not been adequately provided for?

3. Will the project serve to reduce the mobility of any group?

Balance

4. Will the project encourage additional private vehicle trips and increase energy consumption?

5. Will the users of the project be encouraged to use both auto and public transit?

Safety

6. Will the project create any safety hazards? For example, have curbs been designed with wheelchair ramps, have pedestrian activated signal lights or pedestrian overpasses been included in plans where needed? Is traffic light timing adequate for elderly pedestrians?

Level of Service

7. Will the project be provided with an adequate level of transportation service? Will it overload existing or proposed transportation services or conversely, create a situation whereby facilities are seriously underused?

Elderly and Handicapped

8. Have special parking spaces been designated for exclusive use by the handicapped?

Analysis Techniques

Project plans should be reviewed to determine the location of the site with respect to transit services. Project data, such as the number of housing units or the square footage of office space, should be consulted to determine the type of transportation services that will be required. If the project will service an elderly population, their unique transportation needs will require special consideration.

Next, determine the location and adequacy of existing and planned services by reviewing:

- **Transit Maps, Schedules, and Time Tables**, available from the local Transit Authority
- **Transportation Improvement Plans**, available from local transportation planning agency (usually the Metropolitan Planning Organization)
- **Street Maps and Highway Improvement Plans**, available from the state or local highway department or transportation planning agency
- **Inventory of Public and Private Parking Spaces** within the project area.

Based upon the above data a determination of impact can be made: If a project is within one quarter mile of a bus route and if headways are fifteen minutes or less, transit access is adequate, The elderly and handicapped will most probably require special transportation services, such as Dial-a-Ride van service provided by a social service agency. New U.S. Department of Transportation Section 504 Regulations require handicapped accessibility for public transit systems. Poor public transit access should be noted. Similarly, projects which relocate a facility from a location of relatively good transit access, such as a central business district, to one of poor access must be regarded as having a negative impact. Other adverse effects include locating a project on a site which is poorly served by local streets and will generate traffic and congestion on local streets. Safety and adequate parking supply should also be evaluated.

Policy Base (Including Standards and Legal Requirements)

The Federal Highway Administration and many state transportation agencies have specific capacity and level of service standards for primary and secondary roadways that must be met in order to qualify for Federal funds. If it appears that the project will increase local traffic, the standards should be consulted.

Sources and References

Booz-Allen and Hamilton, Inc. **Transportation Facility Proximity Impact Assessment.** Prepared for California Department of Transportation. Philadelphia, PA. 1976. NTIS #PB-264 160.

The Urban Planning Guide, William Clair (ed.), American Society of Civil Engineers, NY, NY 1969.

Skidmore, Ownings, & Merrill, **Airport Planning and Environmental Assessment Notebooks.** Prepared for U.S. Department of Transportation, Washington, D.C., 1978. DOT P5600.5.

Skidmore, Ownings, & Merrill, **Environmental Assessment Notebook Series: Highways.** Prepared for U.S. Department of Transportation, Washington, D.C., 1975. DOT P5600.4.

Experts to Contact

- ❑ Planner at the Regional Transportation Planning Agency
- ❑ Planner at the Regional Transportation Authority
- ❑ Planner at the State Highway Department
- ❑ Local Transit Authority
- ❑ Local Traffic Department
- ❑ Local Parking Authority
- ❑ Federal Highway Administration Division Office in each State
- ❑ Urban Mass Transportation Administration Regional Office

Mitigation Measures

1. Work with local transit authority to add and/or reroute buses to serve the new project.
2. Work with public transportation providers or social service agencies to add services for the handicapped.
3. Redesign project entry and exit to reduce or relocate traffic impacts on adjacent streets/
4. If traffic impacts are significant, consider changing the mix of project uses and thus alternating traffic generation patterns.

5. Adjust the number of parking spaces, provide more parking to reduce parking on adjacent streets.

6. Reserve parking spaces which are close to the facility for the exclusive use of the handicapped.

7. Include wheelchair ramps in curb and sidewalk designs.

8. Include pedestrian activated traffic lights with timing intervals suitable for the elderly.

NATURAL FEATURES

- ❑ Water Resources
- ❑ Floodplain Management
- ❑ Wetlands Protection
- ❑ Coastal Zone Areas
- ❑ Unique Natural Features
- ❑ Vegetation and Animal Life
- ❑ Agricultural Land

WATER RESOURCES

Overview

Water resources can be divided into two subcategories: groundwater and surface water.

Groundwater

Groundwater refers to all of the water found below the ground's surface. While most groundwater comes directly from rainwater, some results from seepage from the sides and bottoms of lakes and streams. The water usually passes down through a layer of partially saturated material to a zone of saturation in which all of the pore spaces between the soil and rock particles are filled with water. The water table is the upper level at which this saturation occurs. The area in which the groundwater is stored is called an aquifer. Aquifers vary widely in size and depth, some cover hundreds of miles are used extensively for drinking water and irrigation, such as the Ogallala Aquifer in the Great Plains.

The supply of groundwater depends upon a balance between the amount of water entering the ground and the amount being withdraw. Urban land development reduces recharge to aquifers

by precipitation. Excessive pumping can cause wells to run dry; increase the concentration of dissolved minerals; cause salt water intrusion if near the ocean, and cause land subsidence. The depth of the water table can vary tremendously from year to year and seasonally depending on the amount of rainfall. High water tables can result in basement flooding and surface puddles. Discharge from poorly designed, installed or maintained septic systems to drinking water wells can cause health hazards.

Some areas have experienced ground subsidence due to the pumping of ground water and the dewatering of the underground strata including aquifers. In Gulf Coast communities, such as New Orleans, excessive pumping has lowered the ground level and has made the area more prone to coastal flooding.

In many types of surficial geological formations, groundwater quantity and quality is related to the quality and presence of surface waters. Excessive well pumping can induce infiltration from streams and ponds, causing surface water levels to drop. If these surface waters are polluted, groundwater quality will be degraded. Often, groundwater flows discharge to streams. Polluted groundwater can thus degrade the quality of otherwise unaffected surface waters.

Surface water

Surface water plays an important role in nearly every community, as a source of drinking water, as a means of transportation, as a recreational resource, as a source of water for irrigation, and as a fishery.

Surface waters can range from very large rivers and lakes to small ponds and streams. Urban development can, however, have a serious negative impact on water quality. Surface waters, chiefly rivers and large lakes, frequently suffer from the effects of pollution generated by factories, urban sewage systems, power plants, and agricultural runoff. Degraded surface water quality can have short-term and long-term human health implications, can affect aquatic habitats and species and can have aesthetic and olfactory consequences.

While most water quality problems are due to effluents from sewage treatment plants, sewer system overflows and industrial waste outfalls, new commercial and residential developments can have an adverse effect on surface water quality. The chief source of such pollution is from urban runoff, chiefly from impervious surfaces such as streets, parking lots, and sidewalks which oil and gasoline is carried by rain into surface water. Landscaped areas treated with insecticides and fertilizer can also introduce polluted runoff into surface water. Also, failing septic systems and other sources of polluted groundwater (landfills and waste disposal areas) can seep untreated sewage and other wastes to surface waters.

Assessment Questions

Groundwater

1. Is the site subject to rapid water withdrawal problems, which change the depth or character of the water table , affect water supply, and/or vegetation?

2. Will the project use groundwater for its water supply?

3. Are there a large number of wells, or wells that pump large quantities of water from the water table near the proposed project site?

4. Will a lowered water table require deep pumping for water?

5. Are septic systems being used?

6. Is there a large variance in the water table elevation? A high seasonal water table can prevent proper functioning of septic tank drain fields.

7. Have septic disposal systems been properly designed, installed, and maintained to prevent effluent from contaminating groundwater supplies?

8. Is there impact on a sole source aquifer?

Surface Water

9. Are there visual or other indication of water quality problems on or near the site?

10. Will the project involve discharge of sewage effluent into surface water bodies? If so, will it meet state, Federal, and other applicable standards?

11. Will the project involve a substantial increase in impervious surface area, and if so, have runoff control measures been included in the design?

12. Will the project affect surface water flows or water levels in ponds as a result of excessive groundwater well pumping?

Analysis Techniques

Groundwater

In order to provide answers to many of the above questions and to determine possible negative impact, it is first necessary to review the project plans to determine such things as water supply source location and type (municipal or on-site system; groundwater or surface water source), septic or municipal sewerage for waste water, the depth of foundations and the amount of

paved area proposed. While it is unlikely that a CDBG project would fail to meet the requirements of the Safe Drinking Water Act (42 U.S.C. 5.300 et. seq.), the regional office of the Environmental Protection Agency will be able to provide information on compliance procedures, as appropriate. Once this is established, the following can be useful in providing data on groundwater conditions in the area:

Secondary Sources

USGS or State Geological Survey Hydrologic Maps/Reports

USGS Topographic Maps

USDA Soil Conservation Service Soil Surveys

Field Observation

Field observation can sometimes indicate potential groundwater problems including the presence of springs, seeps, and perennial streams which are fed by groundwater. In addition, strips of distinctive vegetation, particularly deep rooted plants, may indicate the presence of subsurface water in semi-arid areas.

The impact evaluation consists of estimating the extent to which existing groundwater conditions are a hazard to the project, its users and others, and the extent to which the proposed project will alter groundwater resources at the site and in surrounding areas.

Surface Water

It is useful to review the project plans to determine if paved areas might likely generate polluted runoff into surface water. A review pf proposed landscaping, drainage, and grading plans can indicate potential problems along with a review of any wastewater treatment and water source facilities if they are not a part of a municipal system.

Other secondary sources which could be useful are:

USGS Topographic Quadrangle Maps which provide data on the location of surface water bodies.

208 Area wide Wastewater Management Plans, prepared by local agencies under this EPA program have information on local water quality conditions and plans for remedy.

Field observation can help indicate existing water quality problems on or near the site, such as the presence of odor, foam, or debris on surface water. Also, water discoloration and the existence of heavy industry nearby can by indicative of problems.

Policy Base (Including Standards and Legal Requirements)

The Federal Water Pollution Control Act as amended (33 U.S.C. S 1251 et. seq.) in 1972 and 1977 defines water quality criteria, permit requirements, and compliance dates, and establishes a program of water quality planning and monitoring. State and local standards exist in most communities particularly with respect to on-site sewerage disposal (e.g., septic systems). (See the Waste Water impact category for a further discussion of water pollution abatement requirements and techniques) Under the Safe Drinking Water Act of 1974 (42 U.S.C. 201, 300 et. seq., and 21 U.S.C. 349), sole source aquifers are protected. Under this Act, Federal assistance to projects cannot be approved for any project which might contaminate an aquifer that has been designated by EPA as the sole source of drinking water for that area. Local public health agencies and sewerage treatment facility operators should be contacted for data on existing conditions and plans. Also applicable in some localities is the Scenic and Recreational Rivers Act.

Experts to Contact

It is suggested that experts be consuilted to assit in determining the degree of impact and possible mitigation. Possible experts include:

- Planner and/or engineer – 208 area wide planning agency
- Hydrologist – USGS Geological Survey or State Geological Survey
- Soil Scientist – U.S. Soil Conservation Service
- Engineer – city and/or county engineering department

Sources and References

American Public Health Association, American Water Works Association, and Water Pollution Control Federation. **Standard Methods for the Examination of Water and Wastewater,** 13th ed., New York, APHA, 1971.

U.S. Federal Water Quality Administration (FWPCA) **Water Quality Criteria: Report of the National Technical Advisory Committee to the Secretary of the Interior.** Washington, D.C., GPO, 1968.

Dunne, Thomas and Luna Leopold. **Water in Environmental Planning.** W.H. Freeman, San Francisco, California, 1978.

Keys, D.L. **Land Development and the Natural Environment.** The Urban Institute, Washington, D.C., 1976.

Mitigation Measures

Mitigation measures vary with the specific problem and site features. In aquifer recharge areas, the amount of paved surfaces should be limited or porous surfaces should be used on roads and parking lots. However, porous road surfaces are practical only where traffic is light. In areas where pumping poses a problem, he amount of pumping should be limited to safe annual yields.

In locations with high water problems, underground spaces need to be designed to withstand pressure of groundwater and to pump out seepage. Also, special design may be required of waste water disposal systems to function properly in high water table conditions.

The objective of impact mitigation is twofold: to reduce the hazards to the project posed by polluted water and to reduce contamination of local surface waters by the project. In many cases the overloading of public wastewater treatment facilities can only be remedied by expanding those facilities. Old or poorly built sewers which permit seepage may need reconstruction. Proper construction of on-site facilities helps mitigate potential adverse effects. Runoff control measures, such as on-site storage or routing to settling basins prior to discharge into surface waters, can be included in site design.

FLOODPLAIN MANAGEMENT

Overview

Selection of sites outside the base (i.e., 100-year) floodplain is essential to projects for which Federal support may be requested , because Executive Order 11988 discourages Federal agencies from initiating or participating in new construction within area having special flood hazards.

The evaluation should consider both flood hazards to potential CDBG projects, and possible increased flood hazards and environmental impacts resulting from Title I project construction. Federal policy defines high flood risk areas (floodplains) as those subject to a one percent or greater statistical chance of flooding in any given year. Areas identified by the Federal Emergency Management Agency (FEMA) as having special flood hazards are set forth in a Flood Hazard Boundary Map or a Flood Insurance Rate Map and are shown as Flood Zone A and V (also referred to as the “100-year floodplain”). Such areas are expected to flood at least once every one hundred years and are normally dry areas subject to partial or complete inundation due to overflow of inland and/or coastal waters, or accumulation of other surface waters. Typical floodplain areas include low land along rivers or the ocean, flat areas in which storm water accumulates due to clay soils, and riverine areas subject to flash floods. Impacts of locating a CDBG construction project in a floodplain may range from property to loss of life when a flood occurs. Even if a potential CDBG project construction may increase flood hazards elsewhere. For example, extensive paving may result in faster runoff and substantially increased water volumes being emptied into local rivers or lakes. Encroachment of

development onto a floodplain or wetland often results from actions taken outside the floodplain or wetland. For example, construction of major roads and utilities adjacent to these areas will often encourage additional development within them. Construction of a housing development could well have the same effect.

Assessment Questions

The most important questions to ask when conducting the initial flood hazard screening are:

- ❑ Will the project be located in the 100-year floodplain?
- ❑ Will the project change the 100-year floodplain, or affect the floodway? (The floodway is the portion of the floodplain that must reserved in order to discharge the 100-year flood without cumulatively increasing the water surface elevation more than one foot at any point.)
- ❑ Are there available alternatives to locating the proposed project or activity in the floodplain?
- ❑ Is the proposed project in compliance with Executive Order 11988?
- ❑ Is the proposed project or activity subject to compliance with the Federally-approved State Coastal Zone Management Plans?
- ❑ Is the proposed project or activity in compliance with conditions set forth by the U.S. Army Corps of Engineers concerning permits for dredge and fill activity?

Analysis Techniques

The basic analysis technique is set forth in “Floodplain Management Guidelines,” of the U.S. Water Resources Council issued in accord with Section 2(a) of E.O. 11988. Among other considerations, the analysis must identify and evaluate practicable alternatives to locating in a floodplain including alternative sites outside of the floodplain; alternative actions which serve essentially the same purpose as the proposed project or activity, but which have less potential to affect the floodplain adversely; and the alternative of taking “no action,” e.g. not carrying out the project or activity.

For approximately 16,000 communities participating in the National Flood Insurance Program, determination of whether or not the project would be located in the floodplain can be made by consulting the Flood Hazard Boundary and/or Flood Insurance Rate Map. Determining floodway or floodplain effects of large projects may require computer modeling, or engineering assistance.

If the National Flood Insurance Program Maps are not available, the determination as to whether the proposed project or activity is located in a floodplain may be made by consulting other sources, such as:

- ❑ U.S. Army Corps of Engineers Floodplain Information Reports
- ❑ USGS Flood-Prone Area Map
- ❑ USGS Topographic Quadrangle Map
- ❑ State and local maps and records

An example of a local floodplain map is shown on the preceding page (Figure 7-2).

If the proposed project is to be located in, or might affect the floodplain, the impact evaluation must be performed in accord with requirements of E.O. 11988.

Experts and other references are listed in the next section to assist in this task. The impact analysis should include consideration of flood control, water quality, groundwater recharge, and protection of natural and man-made resources, and any alternatives to the project including the "no action" one.

Policy Base (Including Standards and Legal Requirements)

Use of Federal funds, including CDBG funs, for activities in floodplains is governed by:

- ❑ Executive Order 11988, Floodplain Management (42 FR 26951)
- ❑ HUD General Statement of Policy (44 FR 47623)
- ❑ Flood Disaster Protection Act of 1973 (PL 93-234), as amended by the Housing Authorization Act of 1976 (PL 94-375)
- ❑ National Flood Insurance Program (44 CFR Parts 59-75)
- ❑ Floodplain Management Guidelines (43 PR 6030)
- ❑ Community Development Block Grant Regulations (44 FR 30273)

Federal policy recognizes that floodplains have unique and significant public values and calls for protection of floodplains, and reduction of loss of life and property by not supporting projects located in floodplains, wherever there is a practical alternative. Policy directives set forth in E.O. 11988 are: (a) avoid long and short-term adverse impacts associated with the occupancy and modification of floodplains; (b) avoid direct and indirect support of floodplain development; (c) reduce the risk of flood loss; (d) promote the use of nonstructural flood protection methods to reduce the risk of flood loss; (e) minimize the impact of floods on human health, safety, and welfare; (f) restore and preserve the natural and beneficial values served by floodplains; and (g) involve the public throughout the floodplain management decision making process. Subsidized flood insurance is available to property owners in communities participating in the National Flood Insurance Program.

(See the Wetlands Protection, Water Quality Management, Fish and Wildlife Regulation, and Coastal Zone Management Sections of Appendix B for discussions of related statutes and regulations.)

Sources and References

Water Resources Council, **Floodplain Management Handbook**, Prepared by Flood Loss Reduction Associates, September 1981, U.S. Government Printing Office; **State and Local Acquisition of Floodplains and Wetlands**; "A Handbook on the Us of Acquisition in Floodplain Management," Prepared by Ralph M. Field Associates, Inc., September 1981, U.S. Government Printing Office.

"General Statement of Policy: Implementation of Executive Orders 11988 and 11990," published by HUD in August 14, 1979 Federal Register (44FR 47623).

Free floodplain maps and studies on flood elevations for many localities may be obtained by calling the toll-free number 800-638-6620. They are provided by the Federal Emergency Management Agency whose contractor will service such requests. The maps are indexed by locality and panel. Localities with large floodplain areas may require several panels. The index will be sent on request.

Water Resources Council, **Floodplain Management Guidelines**, (43 FR 6030), 1978; and **The Unified National Program for Floodplain Management,** 1979.

National Flood Insurance Program, **How to Read Flood Hazard Boundary Maps**, 1977; and **Community Assistance Series**, 1979, Federal Insurance Administration, Federal Emergency Management Agency, Washington, D.C.

Department of the Interior, Office of Water Research and Technology, **A Process for Community Floodplain Management,** 1979, Washington, D.C. The manual is available through the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22161, Order No. PB 80-135296.

Tourbier, Joachim and Richard Westmacott, **Water Resources Protection Measures in Land Development – A Handbook, Final Report**, 1974. Prepared for U.S. Department of Interior, Office of Water Resources Research. Newark, Delaware: Water Resources Center, University of Delaware. (This work is especially useful as a guide for the development of mitigation measures and nonstructural flood protection methods.)

Amy, Gar, et. al., **Water Quality Management Planning for Urban Runoff**, 1974. Washington, D.C.: U.S. Environmental Protection Agency, (EPA Publication No. EPA 440/9-75-004).

Carstea, D., et al., **Guidelines for the Analysis of Cumulative Environmental Effects of Small Projects in Navigable Waters.** 1975. McLean, Virginia: Mitre Corporation, Mitre Technical Report NTR-6939.

Office of Water Planning and Standards, Methods to Control Fine-Grained Sediments Resulting from Construction Activity, 1976. Washington, D.C.: U.S. Environmental Protection Agency.

National Flood Insurance Program, **Elevated Residential Structures: Reducing Flood Damage Through Building Design: A Guide Manual**, February 1977; and **Economic Feasibility of Flood Proofing: Analysis of a Small Commercial Building**, June 1979; and **Design and Construction Manual for Residential Buildings in Coastal High Hazard Areas**, January 1981, Washington, D.C., Federal Insurance Administration, Federal Emergency Management Agency.

Urban Land Institute, American Society of Civil Engineers, and National Association of Home Builders, **Residential Erosion and Sediment Control: Objectives, Principles, and Design Considerations**, 1978. Washington, D.C.: Urban Land Institute.

Experts to Contact

1. Regional Director, Federal Emergency Management Agency (FEMA), Flood Insurance and Hazard Mitigation Division (for information on floodplain maps and the National Flood Insurance Program). If the field office address is not known, contact the Washington, D.C. offices.

2. HUD Field Office, Environmental Clearance Officer.

3. The staff of the State Coordinating Agency for flood insurance; and the staff of the Servicing Agent issuing flood insurance policies.

4. U.S. Army Corps of Engineers District Office Director (for information on general floodplain management issues, mapping assistance and wetland protection). If field office address is not known, contact: Chief, Floodplain Management Services, U.S. Army, Independence Avenue, SW, Washington, D.C. 20314.

5. U.S. Soil Conservation Service – Field Office Staff. If the state or field office address is not known, contact: Chief, Floodplain Management and Special Projects Branch, River Basins Division, soil Conservation Service, P.O. Box 2890, Washington, D.C. 20013.

6. U.S. Geological Survey – Field Office, Hydrologist (for information on natural resources values and flood hazard evaluation)

7. State and local government agency engineers and planners working with flood control and mapping.

Mitigation Measures

Where floodplains cannot be avoided, the project or activity must be designed or modified so as to minimize the potential adverse impacts affecting floodplains, restore and preserve the natural and beneficial values served by floodplains, and to use measures which mitigate or reduce the risk of flood loss. Mitigation must achieve protection of life, of property, and of the natural and beneficial values of the floodplain. While specific mitigation measures depend on local circumstances, some major measures include:

Mitigation of Effect of Floodplain on Proposed CDBG Project

- ❑ Evaluate existing flood-free sited wherever available within a community; however for a community that is totally flood-prone, evaluate sites having the least risk on environmental impact
- ❑ Ensure that building foundations are above 100-year flood elevation and/or can resist inundation
- ❑ Consider grading or floodwalls to protect proposed projects from flooding, and to ensure that subsequent effects elsewhere will not be undesirable
- ❑ Provide for maintenance of at least one dry access and egress route
- ❑ Provide for protection of vital utilities (for example; power lines) in order to ensure the operability of utilities during the occurrence of flooding

Mitigation of Effect of Project on Floodplain

- ❑ Hold increased storm runoff on site through use of storage basins, vegetation, porous paving materials, and grading
- ❑ Retard runoff through grading and other methods of water diversion
- ❑ Design storm drainage to limit peak flow conditions
- ❑ Where appropriate, comply with floodplain zoning and watershed management regulations
- ❑ Restore and preserve the natural and beneficial values served by floodplains

WETLANDS PROTECTION

Overview

Selection of sites outside of wetlands is essential for projects for which Federal support may be requested, because Executive Order 11990 discourages Federal agencies from initiating or

participating in new construction within areas affecting wetlands. See also Coastal Zone Management requirements, if applicable. As defined in Executive Order 11990, the term "wetland" refers to those areas that are inundated by surface or groundwater with a frequency sufficient to support a prevalence of vegetative or aquatic life that requires saturated or seasonally saturated soil conditions for growth and reproduction. Wetlands generally include swamps, marshes, bogs, and similar areas such as sloughs, potholes, wet meadows, river overflows, mud flats, and natural ponds. Wetlands can assist man through groundwater filtering, storage, and recharge, flood control, nurturing wildlife including food sources such as water fowl and fish, water purification, oxygen production, recreational locations, and aesthetics. Urbanization has heavily impacted wetlands in the U.S. Scientists have estimated that from over a third to a half of the wetlands in the U.S. have been destroyed. In addition to filling, creation of pollution threatens additional wetlands.

Assessment Questions

1. Does the proposed CDBG project have the potential to affect or be affected by a wetland?

2. Is the project in compliance with Executive Order 11990?

3. Are there available alternatives to locating the project or activity in the wetland?

4. Is the proposed project or activity subject to compliance with Federally-approved State Coastal Zone Management Plans?

5. Is the proposed project or activity in compliance with conditions set forth by the U.S. Army Corps of Engineers concerning permits for dredge and fill activity?

Analysis Techniques

The Executive Order 11990 procedure requires that among other considerations, the analysis must identify and evaluate practicable alternatives to locating in a wetland (including alternative sites outside the wetland, alternative actions which serve essentially the same purpose as the proposed project or activity, but which have less potential to affect the wetland adversely, and the alternative of taking "no action," e.g. not carrying out the project or activity.

The Executive Order 11990 also requires that the following factors relevant to a proposed project's or activity's effects on the survival and quality of wetlands be analyzed: public health, safety, and welfare (including water supply, quality, recharge and discharge, pollution, flood and storm hazards, and sediment and erosion); maintenance of natural systems (including conservation and long term productivity of existing flora and fauna, species and habitat diversity and stability, hydrologic utility, fish, wildlife, timber, and food and fiber resources), and other uses of wetlands in the public interest (including recreational, scientific, and cultural uses).

The U.S. Fish and Wildlife Service, Department of the Interior, is developing a National Wetlands Inventory, including detailed maps showing wetlands. Where these maps have been

completed, they should be the initial reference. Many states and localities have passed local wetland legislation, and will be able to provide maps and assistance.

Policy Base (Standards and Legal Requirements)

Wetland development is controlled by the following Federal legislation and regulations:

- Executive Order 11990, Protection of Wetlands
- Federal water Pollution Control Act, requiring anyone discharging dredge or fill material into a wetland to obtain a permit from the U.S. Army Corps of Engineers (42 FR 37136), 1977.
- EPA has an extensive program of grants to assist state and local governments in developing plans for comprehensive protection of water resources, including wetlands, under Section 208 of the Federal Water Pollution Control Act.
- EPA controls discharges of pollutants in all waters of the United States, including wetlands (40 FR 41296), 1975.
- HUD General Statement of Policy (40 FR 26853) Calls for the same sequence of review steps outlined for CDBG projects in the Floodplain Management of this handbook.
- Community Development Block Grant Programs (44 FR 30273)

Federal policy recognizes that wetlands have unique and significant public value and calls for the protection of wetlands. Policy directives set forth in Executive Order 11990 are: (a) avoid long- and short-term adverse impacts associated with the destruction or modification of wetlands; (b) avoid direct or indirect support of new construction in wetlands; (c) minimize the destruction, loss, or degradation of wetlands; (d) preserve and enhance the natural and beneficial values served by wetlands; and (e) involve the public throughout the wetlands protection decision making process.

See the Water Quality Management, Coastal Zone Management, Fish and Wildlife Regulation and Floodplain Management Sections of Appendix B for discussions of related statutes and regulations.

Sources and References

Department of Transportation, Federal Highway Administration, **A Method of Wetland Functional Assessment** (Volumes I & II), Final Report (Manual), March 1983, National Technical Information Services, Springfield, Virginia 22161; and

Environmental Law Institute, **Our National Wetland Heritage: A Protection Guidebook**, Dr. Jon A. Kusler, 1346 Connecticut Avenue NW, Washington, D.C. 20036.

The U.S. Fish and Wildlife Service, Department of the Interior, publication, **Existing State and Local Wetland Surveys**, 1976; and **Classification of Wetlands and Deepwater Habitats of the United States**, December 1979. U.S. Government Printing Office, Washington, D.C. 20240 (Stock Number 024-010-00524-6).

Horwitz, Elinor Lander. **Our Nation's Wetlands: An Interagency Task Force Report**, Coordinated by the Council on Environmental Quality, 1978. U.S. Government Printing Office, Washington, D.C. 20402 (Stock Number 041-011-00045-9).

"Proceedings of the American Shore and Beach Preservation Association," Library of Congress Catalogue No. 77-89048.

Galloway, G.E., **Assessing Man's Impact on Wetlands**, December 1978. This publication was cosponsored by the University of North Carolina and the Office of Sea Grant, NOAA, U.S. Department of Commerce, under Grant No. 04-8-MO1-66.

U.S. Army Corps of Engineers, Institute of Water Resources**, Wetlands Values: Concepts and Methods for Wetlands Evaluation**, February 1979. Fort Belvoir, Virginia 22060.

U.S. Department of Transportation, Federal Highway Administration, **Highways and Wetlands** (Volumes 1,2, & 3), July 1980. Washington, D.C.

Experts to Contact

For identification and classification of wetlands consult the Regional Wetland Coordinator or the National Wetlands Project Leader, U.S. Fish and Wildlife (FWS) Department of the Interior, who is able to provide information on local material completed as part of the National Wetlands Inventory.

In addition, FWS has fundamental responsibilities for protecting the natural values of floodplains, and should be contacted early to assist in developing mitigation measures. Consultation on mitigation is especially important if Federal permits will be needed in the future, since the FWS will review and provide recommendations on permit issuance under the Fish and Wildlife Coordination Act and related laws. Field Office Biologist should be consulted relating to mitigation and Federal permit matters.

EPA Section 208 Coordinator, Regional Office, Environmental Protection Agency.

State Coastal Zone Management Officer.

State and/or Local Wetland Officer.

Mitigation Measures

Where use of the wetlands cannot be avoided the project or activity must be designed or modified so as to minimize potential harm to wetlands which may result from such use, preserve and enhance the natural and beneficial values served by wetlands, and mitigate risk to public safety and health. The examples of mitigation measures outlined in the Coastal Zone Management section are also appropriate for wetlands. For construction activities, the type of impacts for which mitigation measures are needed are discussed in detail by Rezneat, M. Darnell, et al., in **Impacts of Construction Activities in Wetlands of the United States**, 1976. (EPA-600/3-76-045, Washington, D.C.:U.S. EPA, Office of Research and Development).

Department of Interior recently published, "Mitigation Policy of the Fish and Wildlife Service, " (46 FR 7644) on January 23, 1981, (and as corrected in the FR February 4, 1981). This document establishes policy for Fish and Wildlife Service recommendations on mitigating the impact of land and water developments on fish, wildlife, their habitats, and use thereof. It will help localities to assure consistent and effective recommendations by outlining policy on the levels of mitigation to be achieved and the various methods for accomplishing mitigation. It will help anticipate Fish and Wildlife Service recommendations and plan early for mitigation measures, thus avoiding delays and assuring adequate consideration of fish and wildlife along with other project features and purposes.

COASTAL ZONE MANAGEMENT

Overview

The coastal zone includes the coastal salt waters and adjacent shorelands, including intertidal areas, barriers and other islands, estuaries, and land whose use would have significant impact on coastal waters. The Great Lakes and their connecting waters, harbors, and estuary areas are included in the coastal zone; and in some cases – such as Hawaii and Florida – the entire land area of the island or state is in the coastal zone.

The Coastal Zone Management Acts of 1972, 1976, and 1980 require that all Federal grant activities which "directly affect" the zone be consistent with approved State Coastal Zone Management Plans. Coastal zone impact assessment is important so that CDBG activities do not cause, and are not affected by, problems associated with inappropriate coastal development. Such problems include development of areas subject to storm damage and associated destruction of property; costly disaster assistance efforts, and loss of life. Other problems include pollution of shellfish beds and fishing areas; beach and recreational access; activities which may affect water quality and local ecosystems; intrusions upon the zone; and any deviation from an approved State CZM Plan.

Assessment Questions

1. Does the State have an approved Coastal Zone Management Plan?

2. If so, does the proposed project directly affect the coastal zone? If so, is it consistent with the approved State CZM Plan?

Analysis Techniques

The approved state coastal zone management plan must be consulted when assessing coastal zone impacts. Each plan includes an inventory and designation of areas of particular concern which can assist in initial screening of potential impacts which may be caused by the CDBG project location. State coastal zone management agency and other staff indicated in the following section may provide additional assistance, if necessary. Since most State Plans are not very detailed, grant recipients should consult the appropriate State coastal zone management agency for advice if they believe that a project may in any way directly affect land or water of the coastal zone. Please note that a project does not necessarily have to be physically located in the land or waters of the coastal zone to affect the coastal zone.

Policy Base (Including Standards and Legal Requirements)

The Coastal Zone Management Act of 1972, (PL 92-583) as amended in 1976, (PL 94-370) and 1980 (PL 96-464) pursuant to Section 307 requires that Federal agency actions in States with approved Coastal Zone Management Plans, shall be consistent with the Plan. Program development and approval requirements are contained in 15 CFR Part 930.

The Coastal Barrier Resource Act of 1982 (PL 97-583) prohibits Federal Flood Insurance for any new construction or substantial improvements of a structure located on an undeveloped coastal barrier identified in Section 4 of the Act.

(See Act for exceptions) This Act prohibits Federal expenditures and financial assistance which may encourage development of Coastal barriers.

Sources and References

Coastal Zone and Management Act of 1972 (PL 92-583) and the amendatories of 1976 and 1980. Program development and approval requirements are contained in 15 CFR Part 930, June 25, 1979.

Coastal Energy Impact Program Project Assessments and Environmental Impact Statements: Environmental Guidelines for Preparation (42 FR 44400). (The Energy Impact Program is not the same as the consistency requirement; however, these guidelines may be helpful.)

Marine Protection, Research and Sanctuaries Act of 1972 (PL 92-532).

Richard S Weinstein, editor, **Shorefront Access and Island Preservation Study**, 1978; and Gilbert F. White and others, **Natural Hazard Management in Coastal Areas**, 1976, Office of

Coastal Zone Management, National Oceanic and Atmospheric Administration, Department of Commerce, Washington, D.C. (OCZM has available bibliographic and other sources.)

Coastal Environmental Management Guidelines for Conservation of Resources and Protection Against Storm Hazards, Federal Emergency Management Agency, Washington, D.C. 1980.

Experts to Contact

Your State Coastal Zone Management Agency. This is the best and most accurate source of information.

Director, Office of State Programs, OCZM, National Oceanic and Atmospheric Administration, Department of Commerce, 3300 Whitehaven Street, SW, Washington, D.C. 20235

(Information on individual State Coastal Management Plans can best be obtained from the State agency.)

Local office of the Army Corps of Engineers.

HUD Field Office, Coastal Zone Management Coordinator (usually either the Environmental Officer or EO 12372 Clearinghouse Coordinator)

U.S. Fish and Wildlife Services, Department of Interior.

Mitigation Measures

Except for compatible activities such as certain recreational projects, CDBG projects should not be located in sensitive coastal zone areas. CDBG projects located outside such areas may also generate adverse impacts for which mitigation measures are important. Such impacts may include increased runoff, siltation, and pollution. Examples of mitigation measures include:

Design and control of construction methods to minimize erosion and sedimentation

Use of appropriate vegetation and porous paving materials to minimize excess storm runoff

Design of the project to ensure no potentially toxic material (e.g., sewage, industrial waste or seepage) reaches sensitive coastal areas.

Other important impacts may include blockage of scenic views; improper use of area in conflict with land use requirements; drainage which impairs a wetland or estuarine situation and causes disturbances of marine ecosystems and/or spawning grounds; dumping, fill, and dredging operations in the construction process, or as a continuing operation; blockage of or improper beach access; impairing the quality of dunes and beach areas; overuse of coastal zone areas,

or improper use (usually with reference to recreational uses); other uses in violation of an approved plan; construction in a tsunami or floodtide area.

UNIQUE NATURAL FEATURES

Overview

Unique natural features are primarily geological features which are unique in the sense that their occurrence is infrequent or they are of special social/cultural, economic, educational, aesthetic or scientific value. Development on or near them may render them inaccessible to investigators or visitors or otherwise limit potential future use and appreciation of these resources.

Examples of unique natural features include sand dunes, waterfalls, unique rock outcroppings, caves especially with limestone or gypsum deposits, canyons, petrified forests. Also included are unique strands of trees, such as Redwoods, or unique colonies of animals, such as Prairie Dog Town.

The key criterion in defining a unique natural feature is the rareness of the feature, a characteristic often recognized by local landmarks. Another characteristic is information content. Some unique natural features contain a great deal of information concerning natural history, such as geologic evolution.

Assessment Questions

1. Will the proposed project location, construction, or activities of project users adversely impact unique natural features on or near the site?

2. Will the project either destroy or isolate from public or scientific access the unique natural feature?

3. Will the unique feature pose safety hazards for a proposed development?

Analysis Techniques

Review the project plans to determine its proximity to any unique natural features. Will the proposed project alter any views between public area and the unique natural feature? Will it alter access? Will runoff from the project erode the unique feature?

Policy Base (Including Standards and Legal Requirements)

There is no Federal legislation which protects unique natural features per se other than features which might qualify for historic or archaeological preservation or endangered species protection. Some unique features are protected by state and local legislation from development pressures.

Also many localities have elected to protect such lands through tax abatements and special zoning provisions.

Sources and References

Secondary sources which could be consulted include:

U.S. Geological Survey Topographic Quadrangle Maps and Surface and Bedrock Geology Maps. The "Quadrangle" maps indicate topographic features land use and often identify unique features. The Geologic Maps provide information concerning contours and mineral outcroppings in the area.

Aerial Photos are also helpful in identifying existing land uses, and unique features of the terrain.

Geological Reports and Maps prepared by State Universities and state agencies.

Experts to Contact

- ❑ State and Federal Park Service, Naturalists and/or Geologists
- ❑ Local University Natural Scientists, Geologists
- ❑ Sierra Club or Audubon Society Representatives
- ❑ State Resource Conservationist, Soil Conservation Service (SCS) – USDA
- ❑ District Conservationist, SCS
- ❑ County Planner, County Planning Department

Mitigation Measures

Natural Features:

Set feature aside as part of natural area for long term preservation; adopt legal protections

Provide visual or physical access to the feature

If feature must be destroyed, allow scientific research (such as excavation of fossil bed) before destruction is permitted.

VEGETATION AND ANIMAL LIFE

Overview

The abundance and survival of both plant and animal species is dependent upon the existence of a favorable environment and by their ability to adjust to conditions created by man. Urbanization has seriously altered natural ecosystems. In and near heavily urbanized areas, much of the native plant and animal species have been destroyed and have been replaced by species which are more successful in the urban environment, to the extent that it is often inappropriate to talk of native species in the urban environment. Some species flourish in cities (pigeon, starling, English sparrow). Others (bluejay, robin, gray squirrel, skunk, and raccoon) have learned to adapt and exist with man. Still other species have shunned urban areas altogether.

The impact of man on the environment through urbanization often results in water, air, and land pollution, while endangering many natural plant and animal species.

It is important to note that no organism lives alone but rather each lives as part of a population of its own species; a part of a community of several species; and as part of an ecosystem which includes the larger physical environment, including natural elements such as sunlight and water. These requirements or conditions for survival comprise the organism's habitat. Each ecosystem is in fact a complex chain of links, each dependent upon one another in a process known as a food web. Development which changes a sensitive ecosystem may adversely affect the diversity of species present, the productivity of the system or the rate of nutrient recycling.

Policy Base (Including Standards and Legal Requirements)

As a result of concern over the disappearance of many species Congress passed the Endangered Species Preservation Act in 1966, the Endangered Species Conservation Act in 1969, and in 1973, the Endangered Species Act. This 1973 Act was again amended in 1978 and in 1979. The 1978 and 1979 amendments provide a mechanism for getting an exemption and require that an economic analysis must be made when a Critical Habitat is designated. Many states have also passed legislation protecting endangered species and have developed their own endangered species list. Some state legislation protects specific species but not their habitat unless it is in designated wildlife sanctuaries. The existence of an endangered species or a Critical Habitat does not preclude development. The key factor is the effect that the proposed development will have on species. Development can occur if proper safeguards are taken to ensure that the action does not jeopardize the continued existence of the species or destroy or adversely modify their Critical Habitat.

Vegetation Definitions

Vegetation can receive two types of damage due to the development of a CDBG project. The first of these is disruption which refers to the killing or removal of plant communities as a direct

result of construction activity. The second category of damage is alteration of habitat which refers to changes in environmental conditions which, in turn, affect the existing vegetation such as contamination of the soil or air; grading or compaction in the root zone; dramatic changes in temperature or water level; and extension of imperious cover.

Succession refers to the natural replacement of one plant species by another as the plant community matures or changes. One succession problem common to urban areas is the creation of an environment which is favorable to weeds or other nuisance species, as in vacant lots and on polluted waterways.

Vegetation Assessment Questions

The first two questions deal with disruption; the last two deal with alteration of habitat.

1. Will the project damage or destroy existing remnant plant communities, especially rare or endangered species?

2. Will it damage or destroy trees without replacement and landscaping?

3. Will the project create environmental conditions which might threaten the survival of existing vegetation, particularly changes in the native plant community habitat?

4. Will it create conditions favorable to nuisance species?

Vegetation Analysis Techniques

When considering ecosystems it is first helpful to review existing documentation to determine the ecological features of the area. It is suggested that, as part of preparing a data file, maps be prepared which delineate the locations of endangered or rare species, remnant native plant communities and existing open space. Other maps which could be reviewed are vegetation maps, U.S. Soil Conservation Survey's Soils Survey which include data on woodland productivity, and aerial photography, particularly color infra-red photos which can present existing vegetation.

Field observation can be useful in determining the nature, viability, and degree of vulnerability of plant species on the site. Natural sites, sites on slopes and water tend to be more sensitive to development than sites which have been previously developed and have no surface water on or nearby.

A key factor in measuring the level of ecologic disturbance is the percentage of the site which will be developed or altered. No set formula fits all cases since the level of damage is a function of the sensitivity of the site and the amount of the site to be developed. For example, a condition of high ecological disturbance may result from a project of 30% site coverage on a highly sensitive site to 70% project coverage on a site of low sensitivity. This sort of evaluation requires the skills and experience of a vegetation and wildlife specialist.

Vegetation Experts to Contact

It is often best to consult an expert such as a biologist/ecologist from wither a university or a state natural resource agency. In more rural area representatives of the state forestry department or USDA Soil Conservation Service may also provide useful expert judgment.

Vegetation Mitigation Measures

Most of the mitigation measures involve modification of the project plans rather than alteration of the ecosystem itself such as clustering development and limiting tree cutting to those areas to be occupied by buildings. Other measures include avoiding construction in wetland areas, terracing downhill slopes, and plating native vegetation in open space areas.

Animal Life Definitions

An animal's habitat is the environment in which it normally lives and the one which meets its basic need for food, water, cover, breeding space and group territory. Urbanization has generally been at odds with the maintenance of natural habitats. Urban habitats are often found in neglected and unused areas such as along riverbanks and railroad alignments, in parks, institutional grounds and in vacant tracts of land. The protection of wildlife habitats can be at odds with urban development. However, certain actions can be taken to avoid undue disruption and to protect rare and endangered species.

Animal Life Assessment Questions

The assessment questions on animal life encompass the following five topics: disruption, habitat alteration or removal, endangered species, pest species and game species.

1. Will the project create special hazards for animal life? What types of animals will be affected and how?

2. Will the project damage or destroy existing wildlife habitats?

3. Will the project threaten any animal species listed by either state or Federal agencies as rare or endangered?

4. Will the project damage game fish habitats or spawning grounds?

5. Will the project create conditions favorable to the proliferation of pest species?

6. Will excessive grading alter the groundwater level and thus cause the slow death of trees and ground cover which in turn destroys animal habitat?

Animal Life Analysis Techniques

Secondary Sources

As with assessing impact on vegetation, it is first most useful to review lists of endangered species and to identify the location of the project in relationship to existing ecologically sensitive area, such as open space, wetlands, and undeveloped areas which can be prepared as part of the data file. Other documents to be reviewed include biotic surveys and threatened species lists prepared by state agencies and the USDA Endangered Species Technical Bulletin. Also relevant are the vegetation maps discussed previously.

Animal Life Experts to Contact

Technical studies can be supplemented with field observation of the site for signs of the likely presence of particular species. Consultation with biologists/ecologists with either state or Federal agencies may be helpful. The Fish and Wildlife Service of the Department of the Interior can also be contacted for information.

A determination of adverse impacts consists of a finding that a rare or endangered species or their habitat will be reduced in population or eliminated. Some CDBG projects may have a beneficial impact on species if park or conservation land is the proposed use.

Animal Life Mitigation Measures

Mitigation measures are threefold:

1. Alter project to avoid impact on critical habitat area.

2. Plant native vegetation to help feed and shelter protected species.

3. Establish a critical habitat area as a park or reserve.

Pests

The correction of conditions harboring pest species is a requirement of health and housing codes in most cities. Mice, rats, and insects are frequently a recurrent problem in cities. The problem is often most serious in alleys, abandoned structures, and in poorly maintained construction areas. The problem is best corrected by requiring that contractors be responsible for pest control as a condition of the contract.

AGRICULTURAL LANDS

Overview

Agricultural Lands are those lands currently used to produce agricultural commodities or lands that have the potential for such production. Agricultural commodities include food, seed, fiber, forage, oilseed, ornamental plant material and wood for all purposes. Development on or near them may destroy a valuable natural and economic asset. Infrastructure development in undeveloped agricultural areas may stimulate new commercial and residential development which would, in turn, threaten and destroy potential or future agricultural uses.

As urban expansion moves outward from cities into surrounding agricultural regions, highly productive lands are often converted to or adversely affected by urban development.

Farmlands are limited. Due to the importance of agriculture to the national economy and the importance to agricultural of maintaining the very best farmlands in production, many local and State governments are adopting policies and regulations to preserve farmlands or agricultural lands for this assessment factor refers to three specific categories: prime farmland, unique farmland, and farmland of statewide or local importance.

In some States agricultural lands are protected from development by agricultural districting and by other overlay zoning provisions which may result in lower property tax assessments for maintenance of agricultural uses.

Assessment Questions

1. Will the proposed project be located on or directly adjacent to land that is categorized as prime, unique, or of State or local importance?

2. Will drainage from the project adversely affect farmland?

3. Will the project location, construction, or activities of project users adversely affect important and productive farmlands on or near the site by conversion?

4. Will the project create problems by introducing nuisance species of vegetation which may spread to adjacent farmland?

Analysis Techniques

Review the project plans to determine its proximity to agricultural lands and the impact that is likely to occur using the Site Assessment Criteria in the regulations (7 CFR Part 658) or HUD guidance on Agricultural lands. Some major concerns include whether or not the proposed project will be a catalyst for substantial future development which will encourage more farmland conversion.

Policy Base (Including Standards and Legal Requirements)

The Farmland Protection Policy Act of 1981 (U.S.C. 4201 et. seq., Implementing Regulations 7 CFR Part 658) (Subtitle I of the Agriculture and Food Act of 1981) requires Federal agencies to minimize the extent to which their programs contribute to the unnecessary and irreversible commitment of farmland to nonagricultural uses. It further requires that where practical, Federal programs will be administered in such a manner that they will be compatible with State, local, and private programs and policies to protect farmland in the following categories:

- "prime" farmland – the highest quality land for food and fiber production having the best chemical and physical characteristics for producing;
- unique farmland – land capable of yielding high value crops such as citrus fruits, olives, etc., and;
- farmlands designated as important by State and local governments, with the approval of the Secretary of Agricultural.

Some States and localities protect agricultural lands from development activity either through State legislation, local codes and zoning provisions, or taxing policies.

Sources and References

U.S. Department of Agriculture, Soil Conservation Service (SCS), Mapping of Important Farmlands. Maps are prepared on a county by county basis for much of the United States. Maps provide information on the three categories of Farmlands.

SCS, Land Evaluation and Site Assessment System for counties is available from SCS District Conservationist or County Planners.

Aerial Photos are also helpful in identifying existing land uses, and unique features of the terrain.

Geological Reports and Maps prepared by State Universities and State agencies.

Experts to Contact

- State Resource Conservationist, Soil Conservation Service, USDA
- District Conservationist, SCS, USDA
- County Planner, County Planning Department
- State Department of Agricultural and/or Natural Resources

- ❑ HUD Regional or Field Office Environmental Clearance Officers

Mitigation Measures

1. Protect such lands through agricultural districting provisions, special zoning provision or tax abatements.

2. If project is adjacent to agricultural lands:

   - ❑ Minimize impervious surfaces and design the drainage system so that site runoff will be led to storm sewers or existing drainage ways

   - ❑ Limit human and pet access from project to adjacent agricultural lands with fencing, road patterns, and general site design.

   - ❑ Avoid the use of species in landscaping that are invasive and likely to establish themselves in adjacent croplands.