



# Site Planning and Feasibility

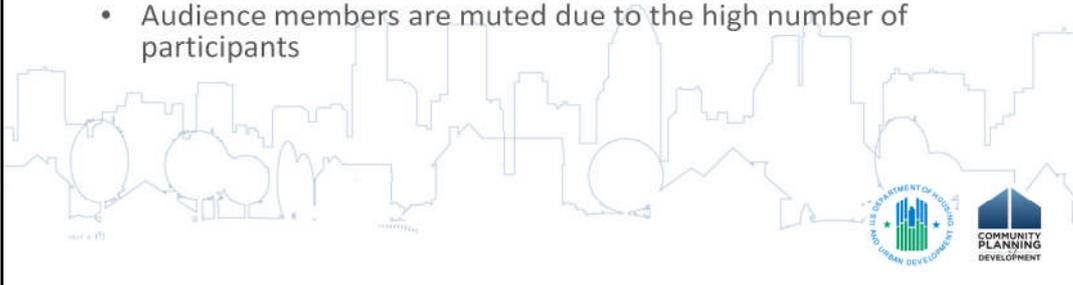
Considering Environmental Issues Early in the Process

Office of Environment and Energy  
James Potter and Lauren McNamara



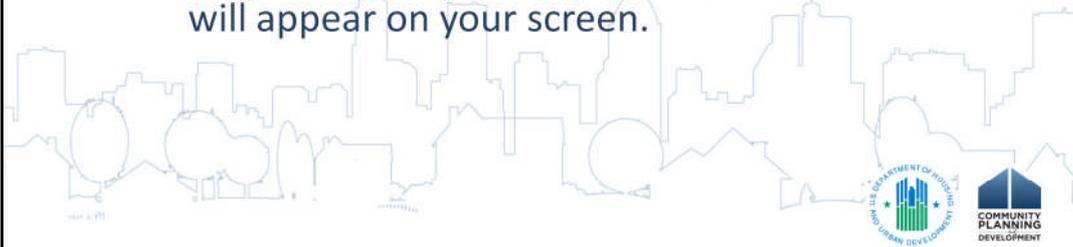
# Webinar Format

- Presentation will last approximately one hour and fifteen minutes followed by 15 minutes of Q&A
- Recording of webinar will be posted on the HUD's [Office of Environment and Energy Website](#)
- Materials will be posted within one week of today
- Audience members are muted due to the high number of participants



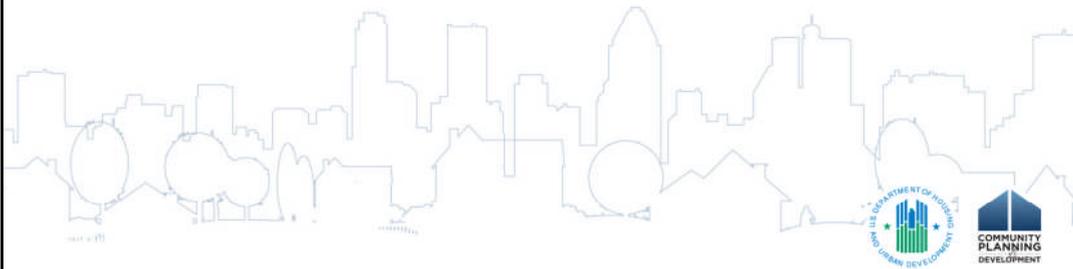
## Audio Issues During the Webinar

- For audio, please use the following phone number: 866-893-1635, or listen through your computer.
- If you have technical difficulty with the audio or video portions of this webcast, try:
  - Logging off, then logging in again
  - Requesting help through the Q &A box that will appear on your screen.



# How to Submit Questions

Type your questions in the Q & A box that will appear on your screen during the presentation. Technical questions will be addresses right away; content questions will be answered after the presentation.



## Learning Objectives for Today

- To Demonstrate the Benefits of Considering Environmental Issues During Site Planning
- To Explore Site Planning for No Cost Mitigation
- To Show How Environmental Considerations Can Improve Projects



We're going to look at why earlier consideration is better.

Another way to think of this is exploiting the comparison of analysis and goals to find synergies, but nobody wants to think like that.

...But if you did, you might find that issues that move you from a more traditional design can make your projects more successful.

## Benefits of Considering the Environment During the Planning Process

- Documents Needs for Better Cost Estimates
  - Contingencies can be reduced when unknowns are defined
- Makes Opportunities of Constraints
- Controls Schedule Variances
  - Knowing the issues means knowing the timelines
- Makes Approval and Funding Processes More Predictable



There is an excellent case study at the end that speaks to timelines and approval schedules.

# Constraints as Opportunities

- Wetlands
  - Wetlands and floodplains can become nature walks
- Noise
  - Attenuating noise can bolster property values and appreciation rates
- Flammable Tanks and Airports
  - Protects against physical danger
- Historic Preservation
  - Retains architectural character and past
  - Encourages alternative transportation
  - Attracts visitors and investors
  - Informs future development



## Retrofitting Is Not An Option

- Planning is the Least Expensive Activity
- Analysis Saves Money
- Holistic Approaches are the Most Efficient
- Communication Breeds Support



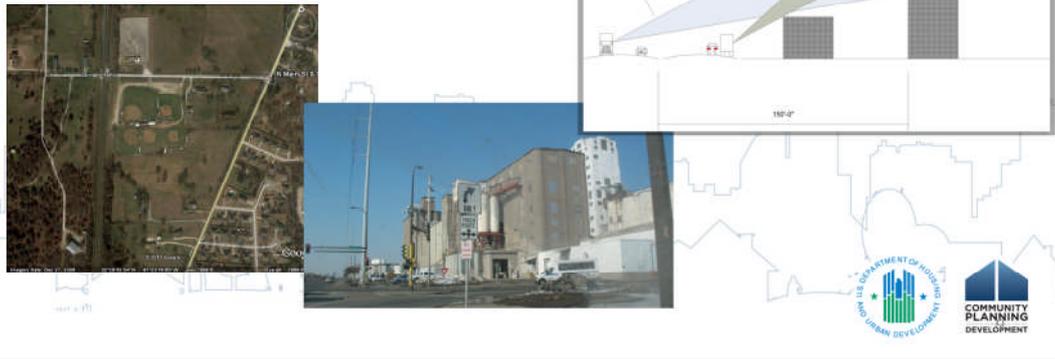
The third bullet on holistic approaches is important.

Environmental challenges touch many aspects of projects and their later use. Mitigation and solutions for addressing them should be equally broad and flexible.

Focused, targeted solutions may only fix a symptom. Ask yourself if you're eliminating the cause.

# How to Consider Environment Early

- Thorough Environmental Assessment
- Careful Site Planning
- Responsive Site Design

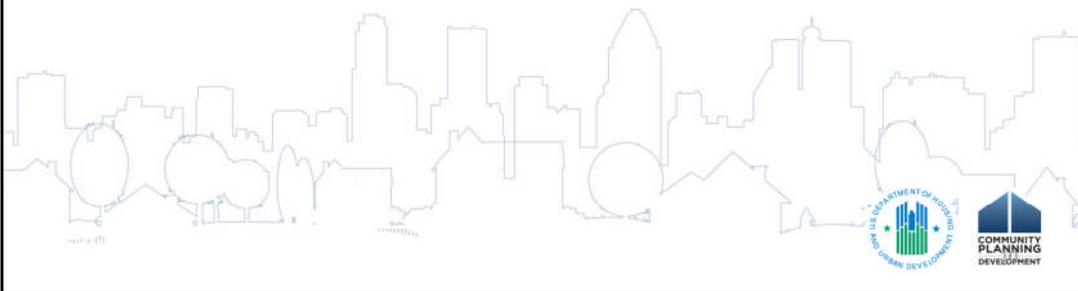


“Thorough” means look at everything. Understand the universe of concerns that you have to work with on the site. HUD’s Environmental Review Checklist, Form 4128, is a good guide.

Use the analysis to suggest where the buildings and parking areas should go. These are no cost changes before the concrete is poured.

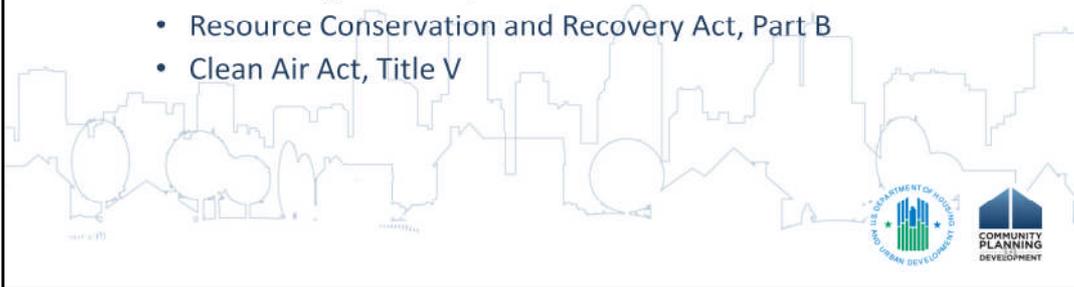
Using the information to inform designs reduces costs.  
Using the information to fix designs raises costs

# Environmental Assessment



# Thorough Environmental Assessment

- Complete Form 4128 or Equivalent
  - [http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/comm\\_planning/environment/review/guidance](http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/environment/review/guidance)
- Environmental Site Assessment (ASTM Phase I)
- Other Studies as Necessary
  - ASTM Phase II
  - Archaeological Survey
  - Resource Conservation and Recovery Act, Part B
  - Clean Air Act, Title V



The link to the 4128 is under the first bullet.

Your site, its history and use, will tell you what studies are needed.

For example, an ASTM ESA Phase I is required for Office of Housing projects using the Multifamily Accelerated Process Guide procedures, but the Phase I says if you need a Phase II which may suggest a Phase III.

The Environmental Assessment Factors can help guide the analysis.

# Environmental Assessment Factors

- Many Factors Intertwine in a Successful Project
  - Land Development
  - Community Facilities and Services
  - Natural Features
  - Socioeconomic



# Land Development

- Conformance with Plans
  - Ensures that project fits community's goals
- Compatible with Land Use and Zoning
  - Ensures that surrounding uses won't negatively affect the project
- Scale and Urban Design
  - Ensures physical consistency



Conformance with Plans ensures that the project fits the community's goals and policies as articulated in its comprehensive plans. Most cities and communities, and even some neighborhoods, have medium (5-year) to long-range (25-year) plans that express the community's vision for development.

Compatible Land Use and Zoning ensures that surrounding uses won't negatively affect the project. The man-made environment consists of differing types of land use: commercial, industrial, residential (single-family 1-4 units and multifamily), recreation, and open space. Certain types of land uses may be incompatible with one another.

Scale & Urban Design ensures physical consistency and visual quality. Visual quality derives from the way elements of the natural and built environment relate to each other to create a sense of harmony. Visual impact should be examined in terms of the surrounding area of the project.

# Land Development

- Physical Design Challenges
  - Soil Suitability
  - Slope
  - Erosion
  - Drainage
  - Storm Water Runoff
  - Hazards and Nuisances



Soil suitability is the physical capacity of a soil to support a particular land use. With a building for example, the soil must be capable of adequately supporting its foundation without settling or cracking.

Slope refers to changes in the physical features of the land: elevation, orientation, and topography. Such alteration is associated with construction on hillsides where changes in the visual character of the site may occur and where slope instability, erosion, and/or drainage problems may result.

Erosion is the processes by which the land surface is worn away (by the action of wind and water), moved, and deposited in another location. Erosion in the urban context resulting from land clearance and construction, and can cause structural damage in buildings by undermining foundation support.

Drainage and stormwater management are an essential in the construction of a project. Stormwater 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, a permeable recharge area, or temporary storage areas.

Hazards and Nuisances are 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. Many hazards may be subject to municipal regulation.

# Community Facilities and Services

- Functional Aspects that Homeowners and Tenants Need to Succeed
  - Educational and Cultural Facilities
  - Commercial Facilities
  - Healthcare and Social Services
  - Public Safety (Police, Fire, and Emergency Medical)
  - Parks, Open Space, and Recreational Facilities



Educational and Cultural Facilities are important to any community. Cultural resources include art galleries, libraries, dance facilities, museums, theatres, community centers and other facilities for artistic and cultural purposes. These usually receive both public and private support. In regards to educational facilities take into consideration the activity's relationship to and/or impact on schools: adequate capacity for children in the school(s) and safe access.

Commercial Facilities are important to any community. There are some questions to take into consideration when looking into this. Are there adequate 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 range of available goods and services?

Health Care is a relevant issue to be considered regarding a proposed project's impact on current health care services and the health care services provided to the project.

Social services can be defined as those services provided by governmental social service agencies or public or private groups, including but not limited to pro-grams for drug addiction, alcoholism, and mental disorders; Social services by definition must cater to, and be easily accessible to, those who need them. Therefore, access and adequacy are important considerations.

Fire, police, and ambulance services are concerns that should be considered in terms of the adequacy of existing services for the project site. 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 pro-posed project.

# Community Facilities and Services

- Infrastructure Capacity to Support Investments
  - Solid Waste Disposal and Recycling
  - Wastewater and Sanitary Sewers
  - Water Supply
  - Transportation and Accessibility



Solid waste disposal is regarded as an essential service in urban areas. Solid waste materials are generally transported by trucks to a common, usually remote site for either recycling, or disposal in a sanitary landfill. For proposed demolition projects, the ability of the solid waste centers to contain the demolition material should be considered.

Wastewater treatment is essential service for all new development. Wastewater 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.

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

Transportation impacts involves looking at: access to transportation, modes of transportation that are available (car, biking, walking, public transportation), level of service (travel delays and frequency of public transportation), and safety elements (such as traffic signals, sidewalks, and turning lanes).

# Natural Features

- Natural Systems Support the Built Environment
  - Unique Natural Features
  - Water Resources
  - Vegetation
  - Wildlife
  - Sun Angles and Prevailing Winds



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.

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

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.

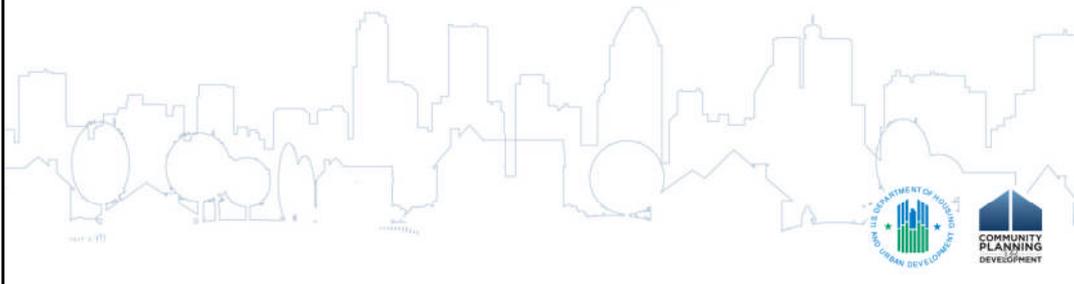
Surface water plays an important role in nearly every community, as a source of drinking water, as a means of transportation, as a recreational resource, and as a source of water for irrigation.

Vegetation or plant life in urban areas is normally significantly altered, however there can be sensitive ecosystems in developed areas. A project that changes a sensitive ecosystem may adversely affect the diversity of species present, the productivity of the system, or the rate of nutrient recycling.

Wildlife is 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. 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.

# Socioeconomic

- “People Factors” Fuel Success too
  - Employment and Income Patterns
  - Demographic Character Changes
  - Displacement

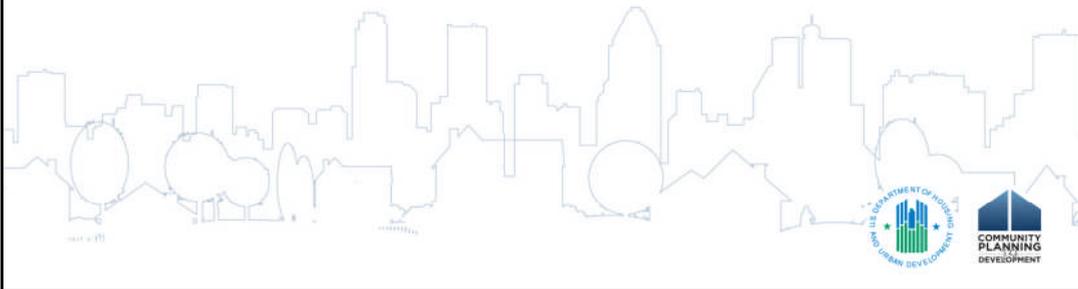


Employment and Income Patterns of the community can be affected by a new project. They can be measured by identifying the occupations and income levels characteristic of an area's resident population or by identifying major employers within the area.

Demographic characteristics of a community include the population size, density, age, ethnic and minority composition, household size and composition, and income and employment.

Displacement refers to the dislocation of people, businesses, institutions, or community facilities as a result of a project.

# Careful Site Planning



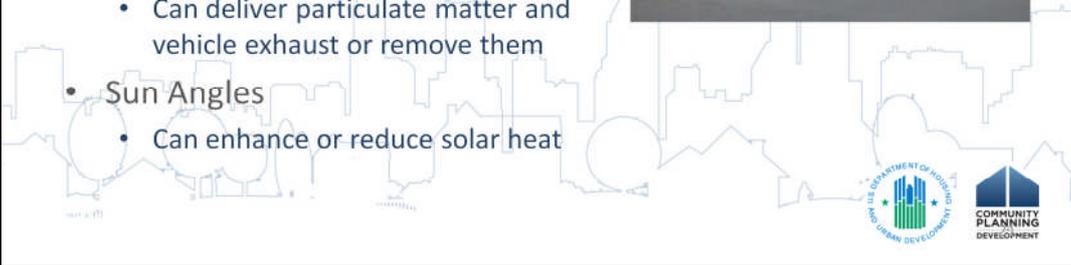
# Careful Site Planning

- Are There Negative Environmental Impacts?
  - Eliminate
  - Minimize
  - Mitigate
- Consider Constraints as Site Amenities/Design Elements
  - Wetlands → nature walk
  - Floodplain → open space
  - Trolley → stormwater management



## Careful Site Planning (cont'd)

- Coordinate Off-Site Improvements
  - Traffic calming
  - Bus stop
  - Noise barriers
- Prevailing Winds
  - Can improve natural ventilation and reduce cooling demand
  - Can deliver particulate matter and vehicle exhaust or remove them
- Sun Angles
  - Can enhance or reduce solar heat

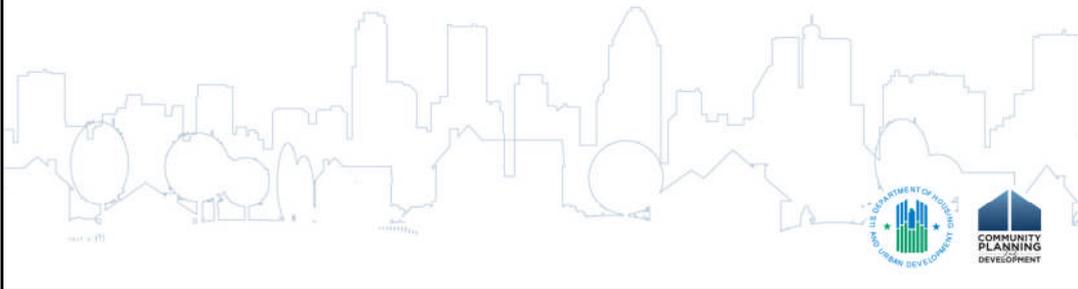


## Careful Site Planning (cont'd)

- Building Orientation
  - Can facilitate photovoltaic panel use or make installation impractical
- Building Location
  - Can support or discourage geothermal heating
- Tree Canopy
  - Can moderate microclimates
  - Can control dust



# Responsive Site Design





# No/Low Cost Mitigation

## Use Project Elements Strategically

- Buildings can be
  - Noise barriers
  - Open space
  - Electricity generators
- Parking lots can be
  - Buffers from unhealthy or unpleasant conditions
  - Soil caps

## Think Creatively

- Parking requirements may be reduced with transit links
- Interior noise mitigation begins with weatherization



## Sounds Good, but...

- “We have to take advantage of this opportunity NOW!”
- “Environmental regulations exist to stop progress.”
- “The Mayor [County Executive, Governor] wants this project built.”
- “Land owners have a right to develop their property.”
- “The community’s property values will plummet if the contamination is documented or publicized.”



## Case Studies

- Miraflores Housing Development
  - Richmond, California
- Rosewood
  - Dallas, Texas
- Lathrop Post-acute Recovery Center
  - Redwood City, California
- Casa Farnese Apartments
  - Philadelphia, Pennsylvania



# Miraflores—Richmond, CA

## Project Description:

- Rental and single-family housing

## Environmental Issues:

- Decision to purchase made prior to NEPA review (choice-limiting action)
- Soil contamination (Pesticides)
- Unacceptable air quality
  - California Air Resources Board recommends 500' buffer from I-80
  - Project 125' from freeway
- Adverse Effect in Historic Properties

## Suggested Solution:

- Redesign using 500' buffer from freeway (6 acres lost)
- Remediate soil contamination



# Rosewood Phase 9—Dallas, TX

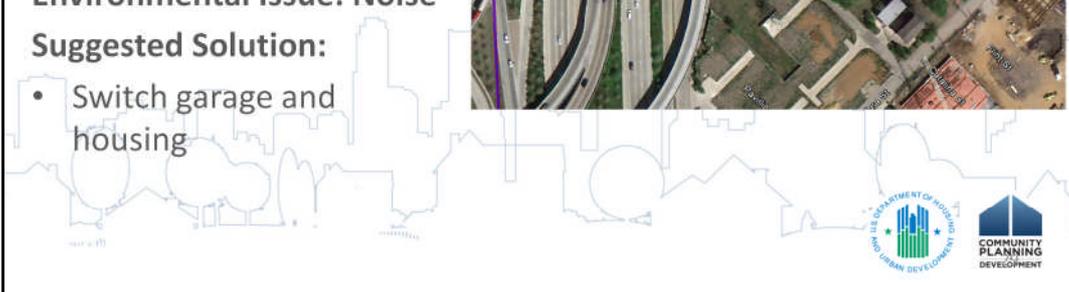
## Project Description:

- Mixed-use
  - Retail on local street
  - Parking garage behind retail
  - Low-income housing against highway

## Environmental Issue: Noise

## Suggested Solution:

- Switch garage and housing



# Lathrop Post-acute Recovery Center —Redwood City, CA

## Project Description:

- 69,255 square foot, 114-bed Medical Rehabilitation Center
- Close proximity to Stanford and San Mateo Medical Centers and Sequoia Hospital

## Environmental Issues:

- Noise
- Floodplain
- Vibration

## Suggested Solution:

- All concerns addressed



# Casa Farnese Apartments – Philadelphia, PA

## Project Description:

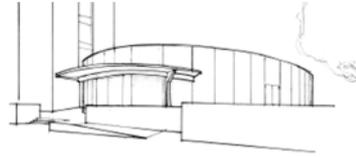
- Refinance project that involved the demolition of a concrete breezeway
- The apartment building is considered eligible for the national register under Criterion C

## Environmental Issues:

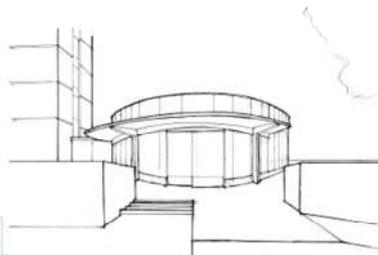
- Historic Preservation

## Suggested Solution:

- A new vestibule contained within the existing breezeway



VIEW FROM LOMBARD ST. - 1

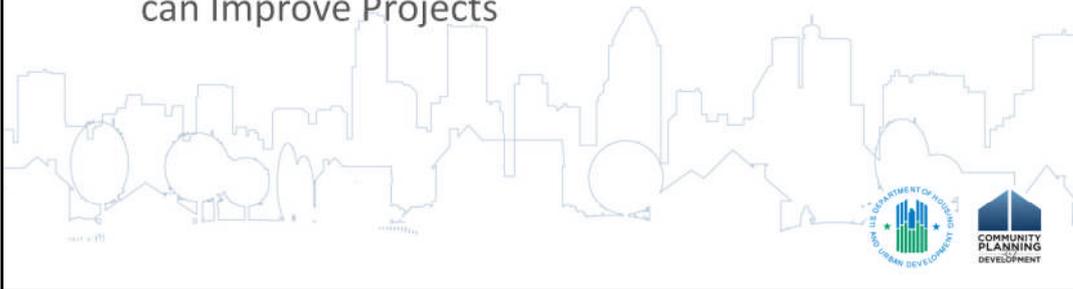


VIEW AT COURTYARD ENTRY - 2



## Learning Objectives for Today

- To Demonstrate the Benefits of Considering Environmental Issues During Site Planning
- To Explore Site Planning for No Cost Mitigation
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# Lessons Learned Today

## **Early, Thorough Environmental Reviews**

- Define and Clarify Challenges
- Remove Risk
- Expedite Approval and Funding Processes
- Assure High Quality Living Environments

## **Environmental Avoidance**

- Adds Cost
- Adds Time
- Jeopardizes Completion



# Resources

- Local HUD Environmental Staff  
[http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/comm\\_planning/environment/contact/localcontacts](http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/environment/contact/localcontacts)
- Environmental Review Guide for CDBG Programs (Greenbook)  
[http://portal.hud.gov/hudportal/documents/huddoc?id=env\\_review\\_guide.pdf](http://portal.hud.gov/hudportal/documents/huddoc?id=env_review_guide.pdf)
- Choosing an Environmentally Safe Site  
<http://portal.hud.gov/hudportal/documents/huddoc?id=DOC12823.pdf>



# Resources

- Acceptable Separation Distance Guidebook  
[http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/comm\\_planning/environment/training/guidebooks/hazfacilities](http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/environment/training/guidebooks/hazfacilities)
- Noise Guidebook  
[http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/comm\\_planning/environment/training/guidebooks/noise](http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/environment/training/guidebooks/noise)
- Historic Preservation  
[http://portal.hud.gov/hudportal/HUD?src=/program\\_offices/comm\\_planning/environment/review/historic](http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/environment/review/historic)



# Questions, Comments, Concerns

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## Thank You for Participating

