Interstate 75 Focus Area Study Health Impact Assessment

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city of CINCINNATI HEALTH DEPARTMENT

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I-75 Focus Area Plan

- The HIA committee assessed the I-75 Focus Area Plan also known as “Revive Cincinnati: Neighborhoods of the Mill Creek Valley.”
- National Association of County and City Health Officials (NACCHO) mentorship program.
- The HIA committee reviewed the urban renewal plan in neighborhoods located adjacent to I-75 in 3 impoverished neighborhoods.

HIA Focus

- The I-75 Focus Area urban renewal plan addressed:
  - Economic development and redevelopment
  - Neighborhood investment
  - Developing, maintaining and linking green space (ex. parks, boulevards, parkways, cemeteries)
  - Transportation infrastructure and transportation modes
  - Urban design
- The HIA narrowed scope focused on:
  - Developing, maintaining and linking green space
  - Transportation infrastructure and transportation modes

Health Impacts Studied

- Air Quality – the demolition and construction activities will result in disturbance of the air quality in the construction area and may impact air quality for the adjacent neighborhoods.

- Traffic/Crashes/Air Quality – traffic patterns, vehicle crashes, walkability, and air quality related to stopping and starting will change during and after construction.

- Displacement – some residents and businesses will be displaced as a result of the Interstate Highway improvements.

HIA Recommendations

- Air Quality Recommendations:
  - Monitor Air Quality (Collaborate with the University of Cincinnati)
  - Landscaping and Greenspace
  - Maximize Green Space
- Traffic/Crashes/ Air Quality Recommendations
  - Create Safe Walkable Streets
  - Create Connectivity across I-75 and Mill Creek
  - Connect Residents to Neighborhood Services
- Displacement Recommendations
  - Create LEED Certified Housing Options and Home Ownership Opportunity
  - Maintain Connectivity
  - Minimize Business, Revenue, and Job Loss
  - Maintain Access to Food, Public Transportation, and Health Care Services

Air Quality Studies

- Collaboration with the University of Cincinnati Center for Health Related Aerosol Studies to study the air quality in the pre-construction, during construction, and post-construction phases.

Air Quality Studies

- **Locations Selected for Air Quality:**

  Site 1: At 124 meters away from I-75

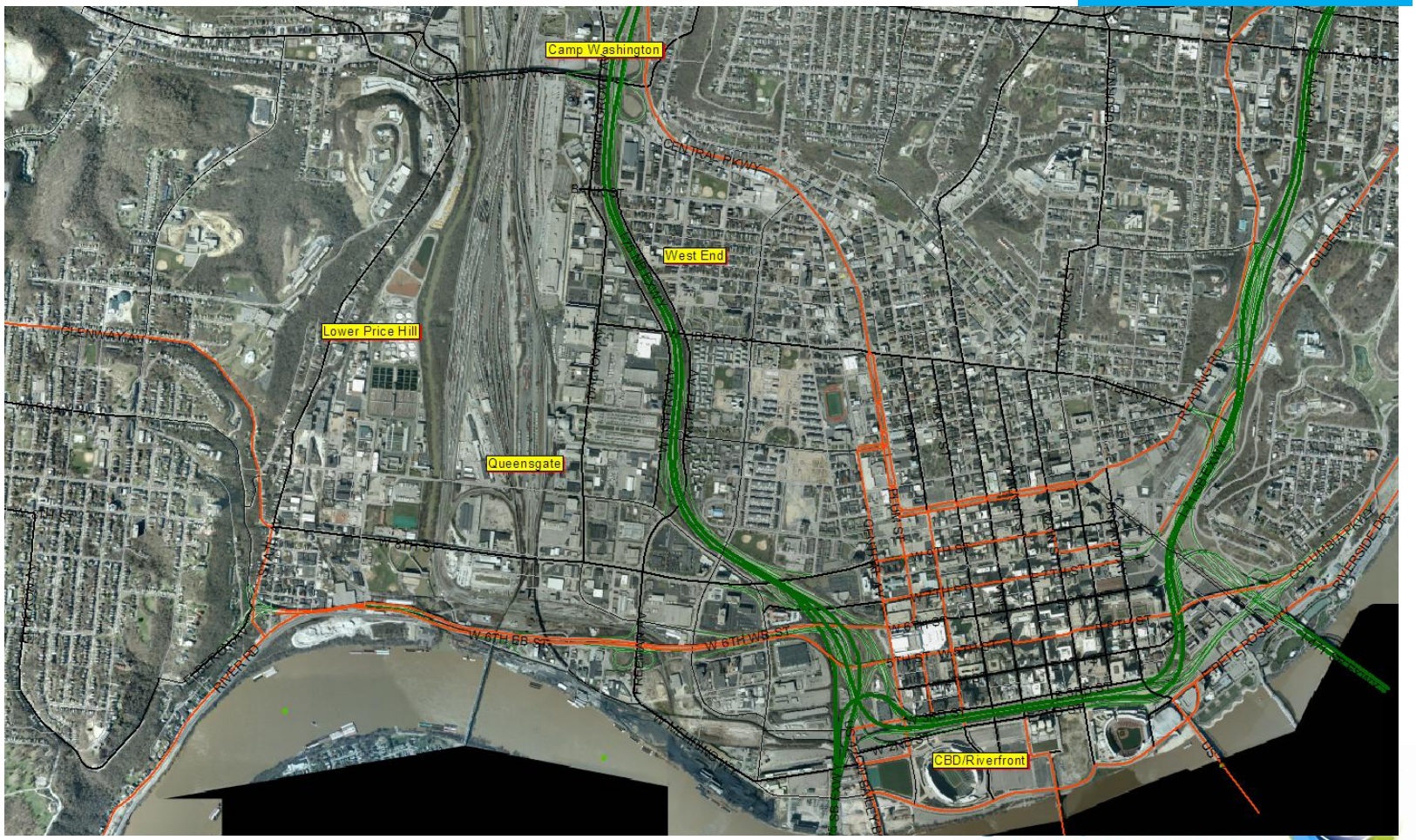
  Site 2: At 227 meters away from I-75

  Site 3: At or more than 2,000 meters away from I-75

  Wind Data:

  Wind direction and speed obtained from National Weather Service (8 miles away)

Study Site Locations



Air Quality Studies (contd)…

Sample Collection:

- Samples collected for 24 hours over 12 days
- All samples collected during summer and fall of 2010 and winter 2011
- Air Particles of 0.02-1 micrometer (fine particles) collected on P-Trak sampler
- 0.07-20 micrometer particles (mostly coarse size) collected on ARTI sampler

Air Quality Studies (cont.)…

- Organic carbon (OC), elemental carbon (EC) and the ratio EC/OC provides a standard estimate for air pollution by traffic sources.

Air Quality : Results

- Elemental Carbon (EC) concentrations decreased with increasing distance from the nearest interstate and the differences were significant between sites ($p<0.001$).
- EC concentrations were lowest in winters and highest in fall ($p=0.004$)
- Concentration of EC, Organic Carbon (OC) and EC/OC ratio were significantly greater at locations near highway, suggesting that traffic is a major contributor to these aerosols.

Air Quality: Results

- Site 1 (124 meters) had the highest EC concentration and Site 3 (more than 2,000 meters) had the lowest EC concentration for all seasons
- PM2.5 level was lowest in the fall season
- Aerosol concentration in size range from 0.02-1 micrometer was greater near the highway

Air Quality Studies

- **Summary**

EC, OC and fine particles concentration was found more closer to the highway and decreased with distance

Results suggest that residents and workers in areas near highways, especially those with respiratory complications, may be exposed to elevated levels of airborne fine particles

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