

People and Pipelines: Land Use Management and Collaborative Planning Practices in NC



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Presentation overview

- Context
- Research objectives
- Research projects
 - Land use planning tools for pipeline hazards
 - Building collaboration to mitigate pipeline hazards
- Conclusions and wider application
- Discussion and questions

Planning and Research Context

- Broader research on land-use planning in hazardous areas
 - Technological hazards
 - Natural hazards
 - Transportation corridors
 - Infrastructure corridors
- Growth management and the environment
- Sustainable, livable, disaster resilient communities

Research Objectives: Land use tools

- ❑ Identification of the most frequently used land use planning tools to address pipeline hazards
- ❑ Examination of the factors contributing to land use planning tool adoption
- ❑ Evaluation of factors influential to adoption of different types of policies

Research Objectives: Collaboration

- Description of how collaboration between emergency managers and planners fosters capacity to address transmission pipeline hazards
- Assessment of the types of collaborations most effective for building capacity and the challenges to implementing these collaborations

Results: Overall tool usage

- ❑ Mean tool usage: 4.5 tools (out of 19 possible tools)
- ❑ 10 communities (12%) use no tools
- ❑ Information tools most common (3-4 tools, out of 6)
- ❑ Limited use of regulatory tools (1-2 tools, of 10)
- ❑ Incentive tools rarely used

Findings: Types of tools

- Planners rely on tools that require little effort
 - Hazard identification via subdivision plat easement, signs
- Many communities not addressing pipeline hazards
 - Transmission pipelines are low-interest hazard

Findings: Improving tool use

- Stakeholder participation by environmental & pipeline operator groups
- Generate climate for mitigation
- Knowledge about pipelines– location, general info
- Land use plan
- Concerns about equity issues near pipeline hazards

Findings: Regulatory tools

- Stakeholder participation
 - Environmental, pipeline industry, individuals
- Improving access to information about pipelines
 - Federal, state, industry, educational partners
- More than commitment to mitigation to enact regulatory tools?

Findings: Information tools

- Pipeline industry stakeholder participation
 - Environmental groups, individuals not statistically significant
- Commitment to mitigation influential
 - Policy implementation differences for information v. regulation
- Building resilience through capacity
- Community context: % lower income

Methods: Collaboration by emergency managers & planners

□ Data

- Semi-structured interviews in Greensboro-Winston-Salem metro area
- 23 Planners
- 22 Emergency managers

□ Grounded theory analysis approach

Findings: Collaboration

- 3 types of collaborations
 - Loose alliances
 - Full partnerships
 - Hierarchically-cooperative groups
- Collaborations can build capacity
 - Skill sharing
 - Information generation
 - Leadership

Findings: Collaboration

- Regional networks/collaborative spillovers
 - Role of hazard mitigation plan in creation of networks
 - Resilience
- Hazards low on agenda
 - Limits collaboration w/o leadership
 - No-effort viewpoint

Research implications

- Land use planning failing to reduce development encroachment on pipelines
 - Development management, equity
- Adoption of regulatory, information tools associated with different factors
 - Stakeholder group interest
 - Commitment
 - Knowledge gap

Research implications

- Collaboration spillovers can improve mitigation for low-interest hazards
 - Not all partnerships equal
 - Informal vs. formal networks
 - Leadership

Planning practice

- ❑ Target interest of specific community/industry groups
- ❑ Commitment to addressing mitigation
 - Information policies/tools are addressing pipeline hazards?
 - Beyond commitment--Regulation? Incentives?
- ❑ Address inequity– How?
- ❑ Picking tools to adopt?
 - Small area
 - Community-wide
 - Specific environmental/population concerns

Caveats

- Security and data restrictions
 - Limited study area
 - Imprecise hazard area (plume, distance, etc.)
 - Variable measurement (e.g., stakeholders, land use plan)
- One tool more important?
 - Study measures tool *use* not tool *quality/ effectiveness/ implementation feasibility*
- Association vs. causality
- Mostly mid-size or small cities
- No large petro-chemical industry in NC

Future research

- ❑ Nationwide comparisons, larger cities
- ❑ Communication of information about pipeline hazards
- ❑ Case studies for less frequent hazards
- ❑ Quality of mitigation tools

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