**A spatio-temporal view of historical growth in downtown Phoenix, Arizona, 1915-1963**

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**OBJECTIVES**
- To propose a novel approach to empirically describe historic urban landscape changes
- To use historic parcel-level land use data from Phoenix to examine changes in urban morphology during the city’s rapid period of expansion
- Linking land change process to observed land use pattern

**RESEARCH QUESTIONS**
1. What landscape results from the changing composition of the downtown that accompanied postwar suburban dominance?
2. To what extent is there homogenization or incompatibility of land use?
3. How do nuisances and hazards become distributed as a city changes?

**FOUR METHODOLOGICAL APPROACHES:**
1. Quantity Disagreement: Parcel counts and transition matrices
2. Allocation disagreement: Pontius transition scores
3. Spatial Relationships: Join-Count Statistics
4. Spatial Relationships: Spatial Markov Chain

**KEY FINDINGS:**
1. By 1963, the morphology of downtown is characterized by commercial areas interspersed with vacancy.
   - Current legacies are a remnant of postwar-era changes
   - The “tale” of downtown decline is more complex than a retail exodus: vacated former residential parcels appear to be significant

2. Strong evidence of homogenization – a parcel’s neighbors are increasingly likely to be of the same land use type

3. Though the city was seen as “emptying out,” it still shows evidence of order, as the amount of residential and commercial parcels near nuisance/hazard actually declines significantly

This empirical, spatio-temporal approach provides a new way to describe the street-level changes taking place in a rapidly growing, postwar, sunbelt metropolis.

**Data Sources**
ProQuest Digital Sanborn Maps Database, ASU Map Collection, ASU GIS Data Repository, ASU Government Library, City of Phoenix Planning and Development Department

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**Keywords**
- Land use change
- Historical urban growth
- Space-time analysis
- Urban morphology