

Understanding America's Industrial Past



Shaping America's Urban Future

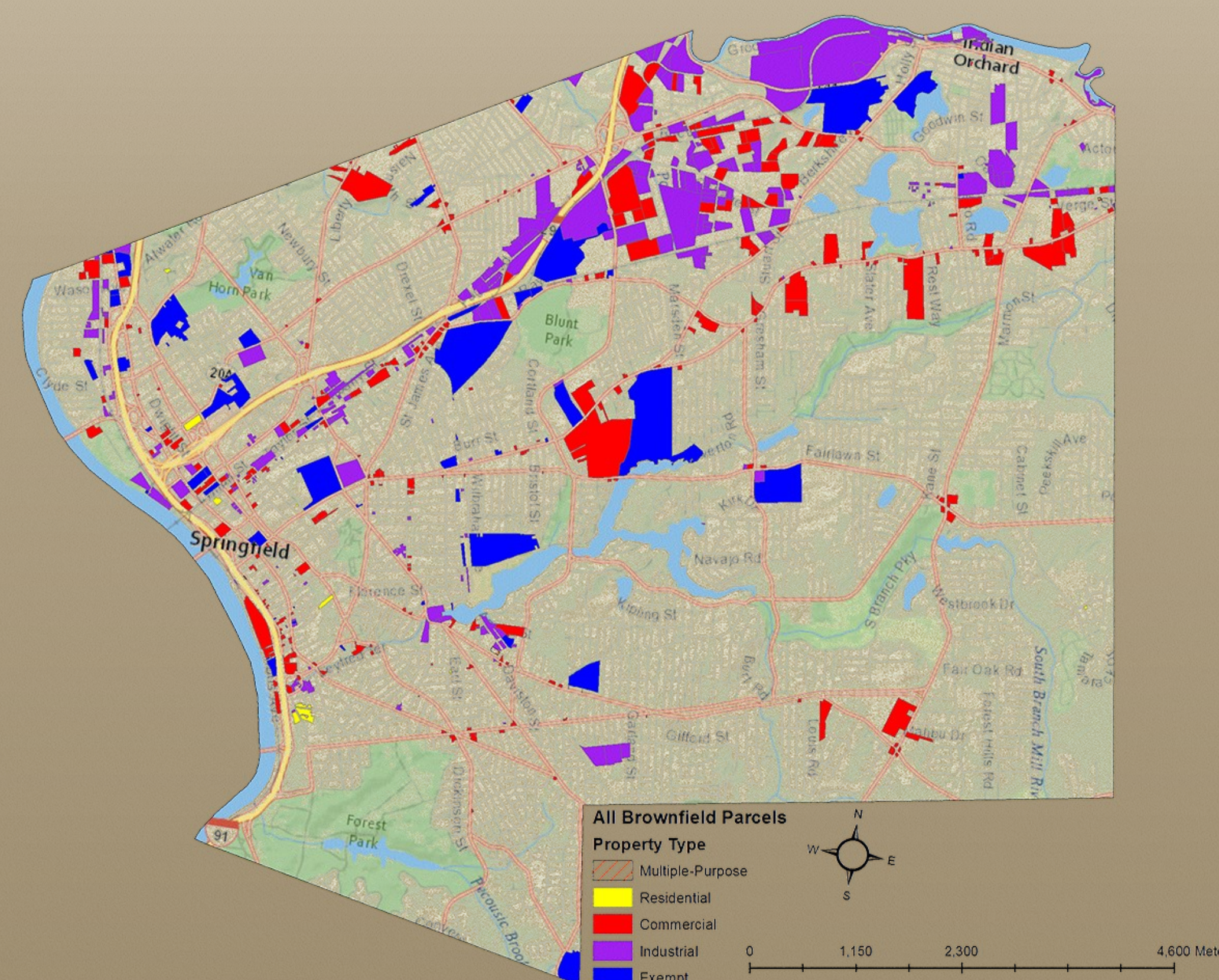
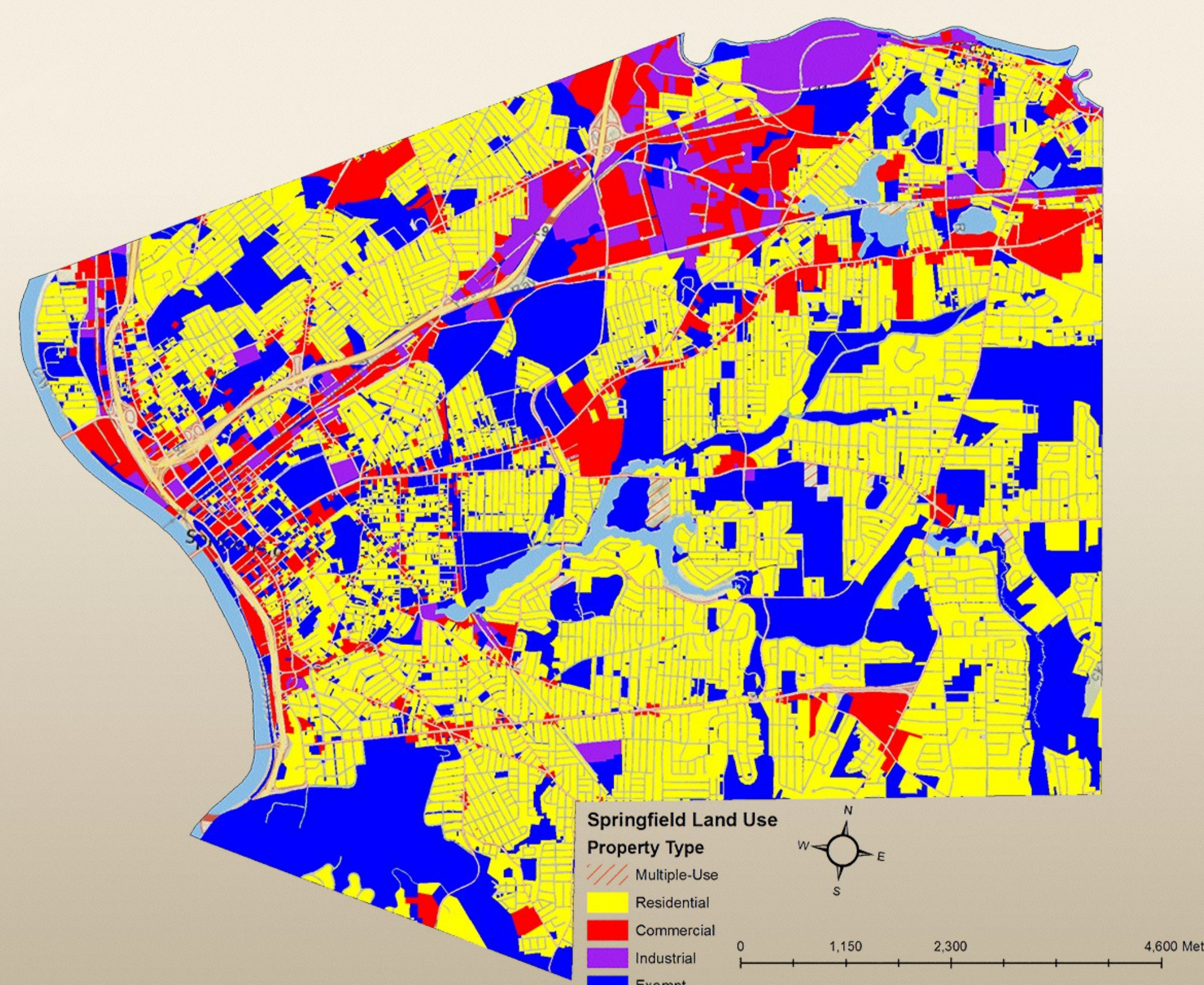
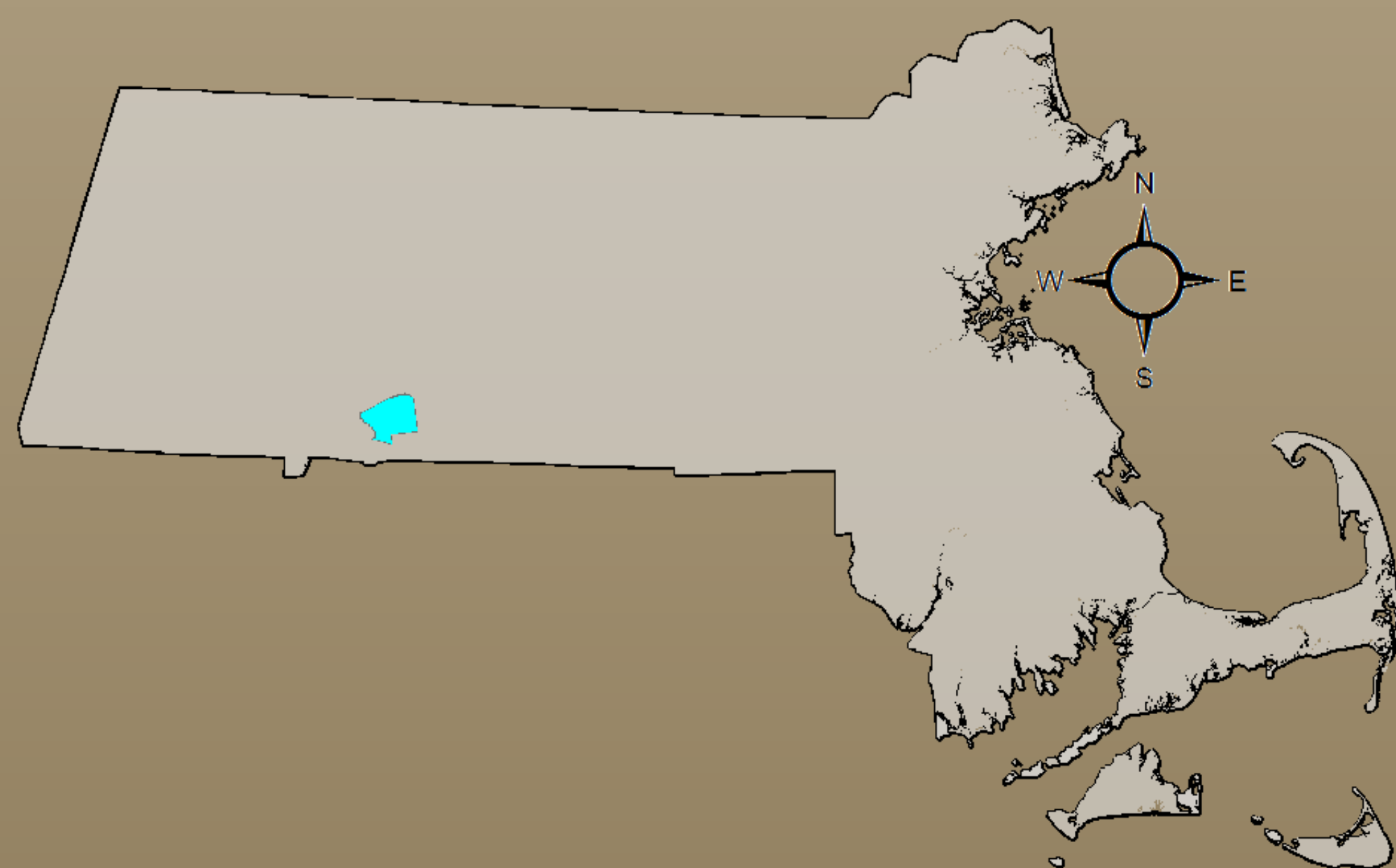
Urban America's Industrial Legacy: The Problem of Brownfields

The latter half of the twentieth century witnessed a dramatic spatial reorganization of America's manufacturing sector and other industrial activities. The rise of the Sun Belt in the American South and the explosion of sprawling suburban development drove a concomitant vacation of jobs and people from America's traditional urban industrial hubs in the Northeast and Midwest. In recent years, urbanists and others inspired by planning philosophies such as "smart growth" and "new urbanism" have sought to turn developers' attention away from the suburban periphery back to the long neglected urban cores of America's metropolitan regions.



The process of deindustrialization experienced by many American cities subsequently produced a surfeit of abandoned and underutilized industrial and commercial properties, commonly termed "brownfields." Although definitional debates persist, the term brownfields generally connotes not just previous development, but present and persistent environmental contamination. While liability concerns are frequently cited as impediments to brownfield rehabilitation, more recent research suggests that widespread information gaps and uncertainty about the scope and scale of individual cities' brownfield problems act as perhaps even more significant barriers. Therefore, in order to effectively plan and promote redevelopment, cities must first develop a clear eyed and comprehensive capacity to understand and analyze their past and present land use.

Using Springfield, MA as a prototypical case study, my project focuses on how cities can extract relevant data from already extant local, state, and federal sources to build a "brownfields database," using geographic information systems software.



Methodology

In order to build a database of present and potential brownfield sites within the City of Springfield, I collated information freely available from state and federal environmental regulatory agencies, namely the Massachusetts Department of Environmental Protection and the United States Environmental Protection Agency (USEPA).

MassDEP Data

- Underground Storage Tanks (UST)
 - Accidental releases from UST containing petroleum or other hazardous substances -whether from spills, overfills, or corrosion- are a common contributor to site contamination.
- Oil and/or Hazardous Material Sites with Activity and Use Limitations (AUL)
 - A subset of the total reported release locations of oil or hazardous materials collected by MassDEP, the AUL dataset indicates sites where contamination remains even after a cleanup has been conducted.

USEPA Data

- Toxics Release Inventory (TRI) Program
 - Facilities required to report under TRI are those which release or recycle toxic chemicals that pose a threat to human health and the environment.
- Resource Conservation and Recovery Act (RCRA) Information
 - The RCRA regulates facilities designated as generators, transporters, treaters, storers, and disposers of hazardous waste.

| Data Source | Total Parcels | Unique Parcels |
|---------------------|---------------|----------------|
| Assessors' Database | 353 | 275 |
| UST (MassDEP) | 93 | 47 |
| AUL (MassDEP) | 47 | 23 |
| TRI (USEPA) | 33 | 3 |
| RCRA (USEPA) | 345 | 222 |

After importing the information obtained from MassDEP and USEPA into ArcGIS as point data, I then matched the points to individual polygons representing discrete parcels included in the Level 3 Assessors' Parcel Mapping dataset available through MassGIS. My final brownfields count included all parcels in the Assessors' database zoned for industrial use, plus those identified through the matching process described above.

Findings

| Property Type | Number of Parcels | Total Area (Sq. M.) | Total Value (\$) |
|------------------|-------------------|---------------------|------------------|
| Multiple-Purpose | 3 | 5,984 | 956,000 |
| Residential | 10 | 62,007 | 17,302,200 |
| Commercial | 284 | 2,897,918 | 369,097,500 |
| Industrial | 353 | 3,857,557 | 162,715,400 |
| Exempt | 53 | 2,774,717 | 335,082,200 |
| TOTAL | 703 | 9,598,183 | 885,153,300 |