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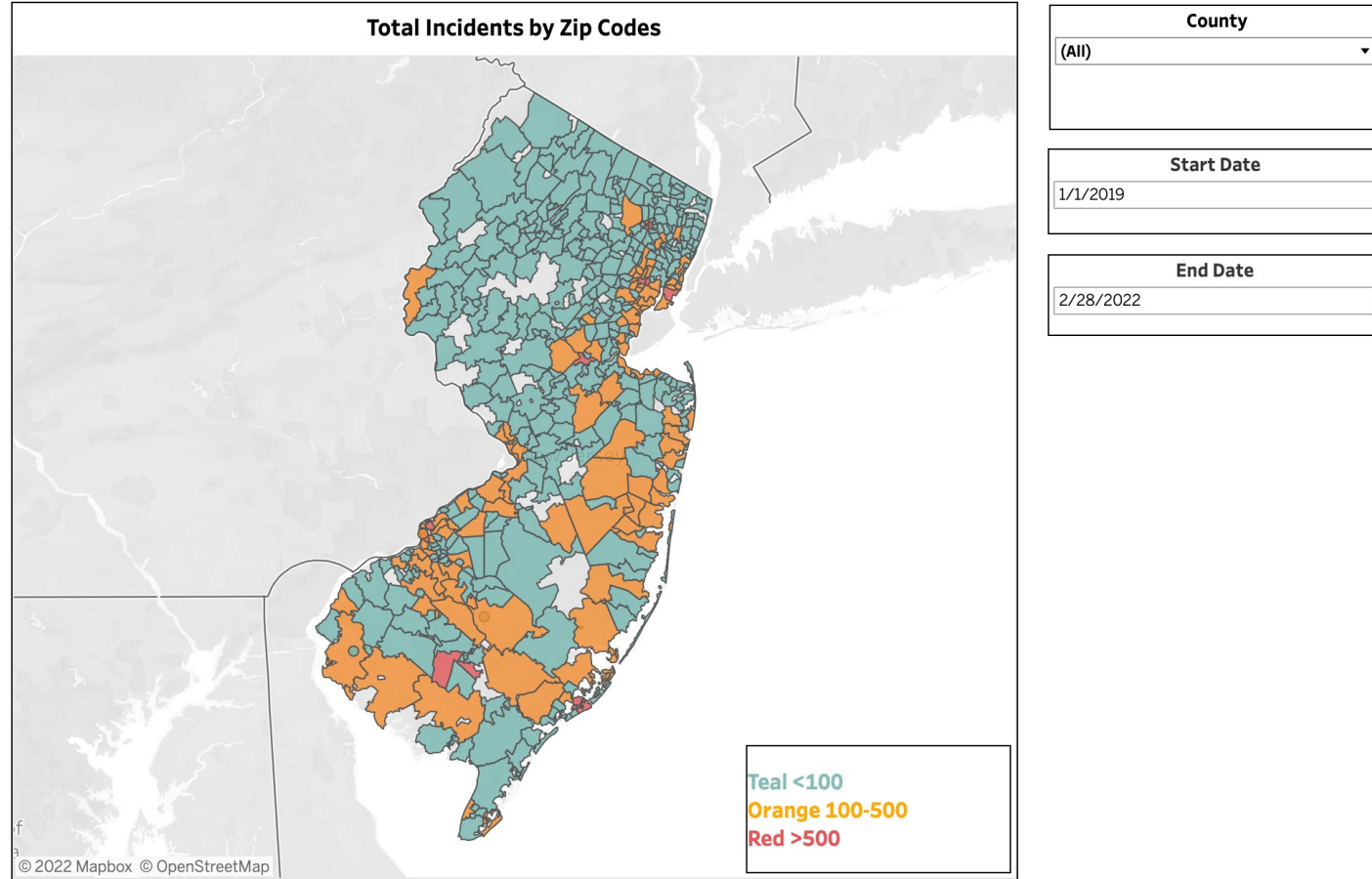
PREDICTING THE VULNERABILITY OF  
NEW JERSEY COMMUNITIES TO  
OPIATE OVERDOSES USING  
**PEOPLE, PLACES & THINGS:**  
A SPATIAL RISK MODELING APPROACH

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# Mapping The Opiate Crisis in New Jersey

Naloxone (Narcan®) Incidents (2019 - 2022)



**Note: Zip codes with less than 5 incidents were suppressed**  
Zip codes in grey either have no data or have incidents less than 5

Figure adapted from [https://www.state.nj.us/health/populationhealth/opioid/opioid\\_naloxone.shtml](https://www.state.nj.us/health/populationhealth/opioid/opioid_naloxone.shtml)

# Better Policies Create Better Data

## The OLD paper-based process

(redacted public record, released under OPRA)

NJ Attorney General's Heroin & Opiates Task Force Naloxone Administration Reporting Form Ocean County	
Police Department: Manchester Twp. PD	Case #: M18-17862
Date of Overdose: 08 / 01 / 2018	Time of Overdose: 12 :36 AM <input checked="" type="checkbox"/> AM <input type="checkbox"/> PM
Location where overdose occurred: (Street address, city, zip)	Victim address: (Street address, city, county, state, zip)
Victim Full Name: [REDACTED]	Victim DOB: [REDACTED] Victim Cell: [REDACTED]
Victim previously administered naloxone: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown If yes, how many times?: 1	
Victim Gender: <input checked="" type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Unknown	Victim Age: 33
Victim Race: <input type="checkbox"/> White <input type="checkbox"/> Black <input checked="" type="checkbox"/> Hispanic <input type="checkbox"/> Asian/Indian <input type="checkbox"/> American Indian <input type="checkbox"/> Pacific Islander	
<b>Details of Naloxone Administration</b>	
Administered by: <input checked="" type="checkbox"/> LE / Doses: 1 <input type="checkbox"/> EMS / Doses: 1 <input type="checkbox"/> Fire Dept. / Doses: <input type="checkbox"/> Other / Doses: <input type="checkbox"/>	
Did Naloxone work: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unk Did the person live: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unk Taken to Hospital: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
If yes, how long did it take to work: <input type="checkbox"/> <1 min <input type="checkbox"/> 1-3 min <input type="checkbox"/> 3-5 min <input checked="" type="checkbox"/> >5 min <input type="checkbox"/> Don't Know	
<b>Suspected Drugs Involved (check all that apply)</b>	
<input checked="" type="checkbox"/> Heroin <input type="checkbox"/> Any other opioid <input type="checkbox"/> Cocaine / Crack <input type="checkbox"/> Suboxone <input type="checkbox"/> Other (specify): <input type="checkbox"/> Alcohol <input type="checkbox"/> Benzos / Barbituates <input type="checkbox"/> Methadone <input type="checkbox"/> Don't Know	
<b>Evidence Information</b>	
Drug 1:	
Drug Form: <input type="checkbox"/> Powder <input type="checkbox"/> Pill <input type="checkbox"/> Liquid <input type="checkbox"/> Other: N/A Packaging Type: <input type="checkbox"/> Glassine <input type="checkbox"/> Other:	
Packaging Color: <input type="checkbox"/> White <input type="checkbox"/> Blue <input type="checkbox"/> Red <input type="checkbox"/> Pink <input type="checkbox"/> Yellow <input type="checkbox"/> Green <input type="checkbox"/> Black <input type="checkbox"/> Other:	
Stamp (Text/Color): N/A Describe Image: N/A	
Drug 2:	
Drug Form: <input type="checkbox"/> Powder <input type="checkbox"/> Pill <input type="checkbox"/> Liquid <input type="checkbox"/> Other: Packaging Type: <input type="checkbox"/> Glassine <input type="checkbox"/> Other:	
Packaging Color: <input type="checkbox"/> White <input type="checkbox"/> Blue <input type="checkbox"/> Red <input type="checkbox"/> Pink <input type="checkbox"/> Yellow <input type="checkbox"/> Green <input type="checkbox"/> Black <input type="checkbox"/> Other:	
Stamp (Text/Color): N/A Describe Image: N/A	
Pill Brand: N/A / Doctor's Name: N/A	
<input type="checkbox"/> Evidence Secured: <input type="checkbox"/> Drugs <input type="checkbox"/> Paraphernalia Treatment Resources Information Provided: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Notes / Comments: No CDS or paraphernalia recovered.	
Ptl. T. Chant #411	#411
Officer's Name	Badge
	Date of Report

Please email form to [DMI@gw.njsp.org](mailto:DMI@gw.njsp.org) AND [RBorrelli@co.ocean.nj.us](mailto:RBorrelli@co.ocean.nj.us)  
OR fax to NJROIC (609) 530-3650 AND (732) 506-5088.

Revised: 2/20/2017

## NEW structured data

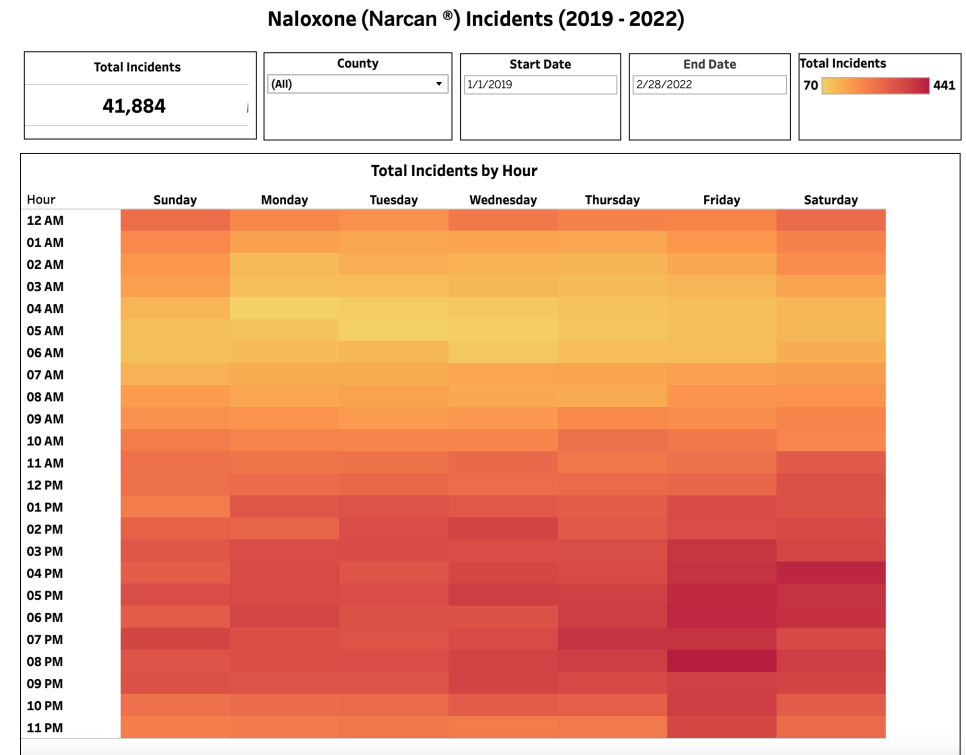
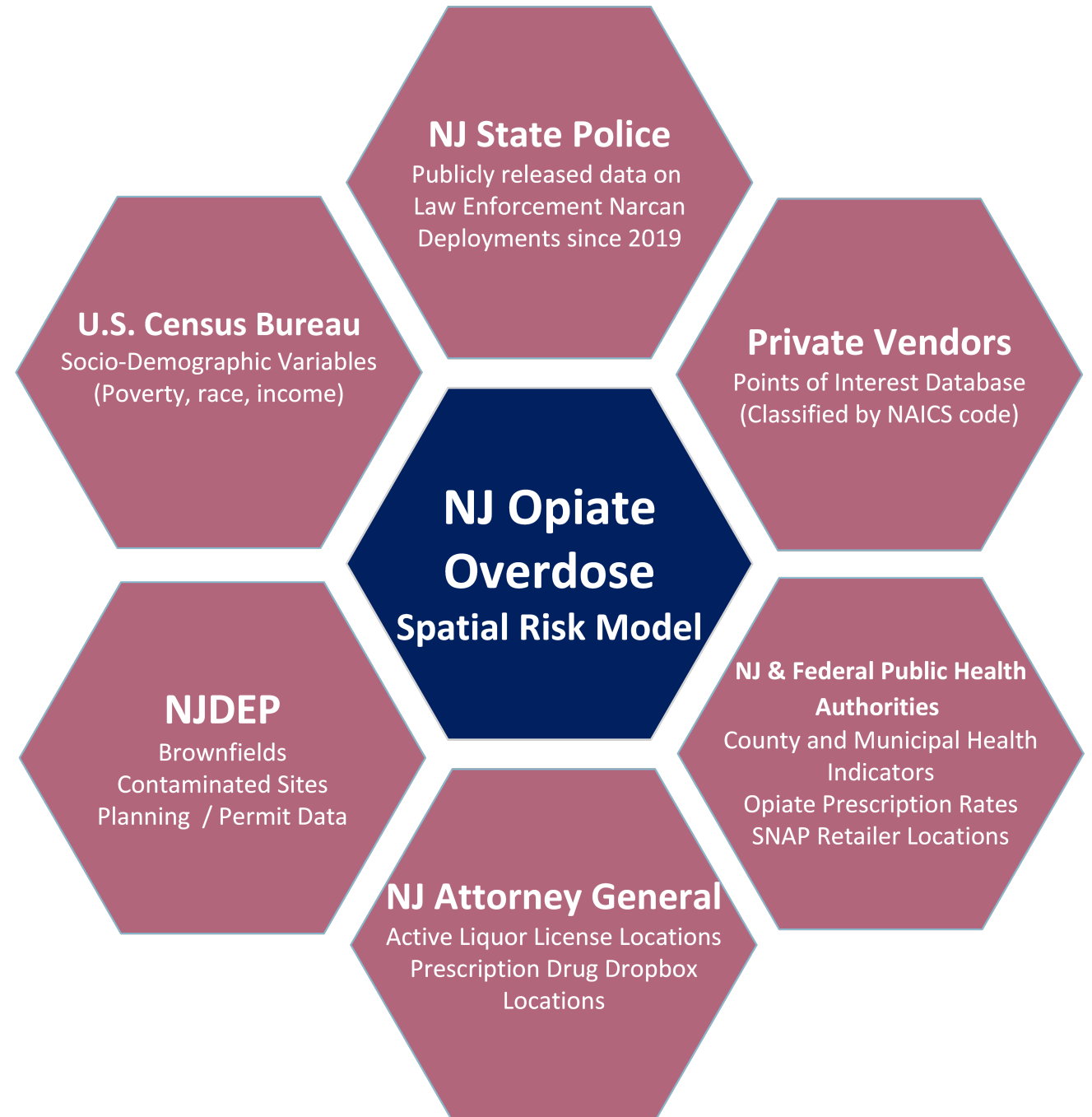
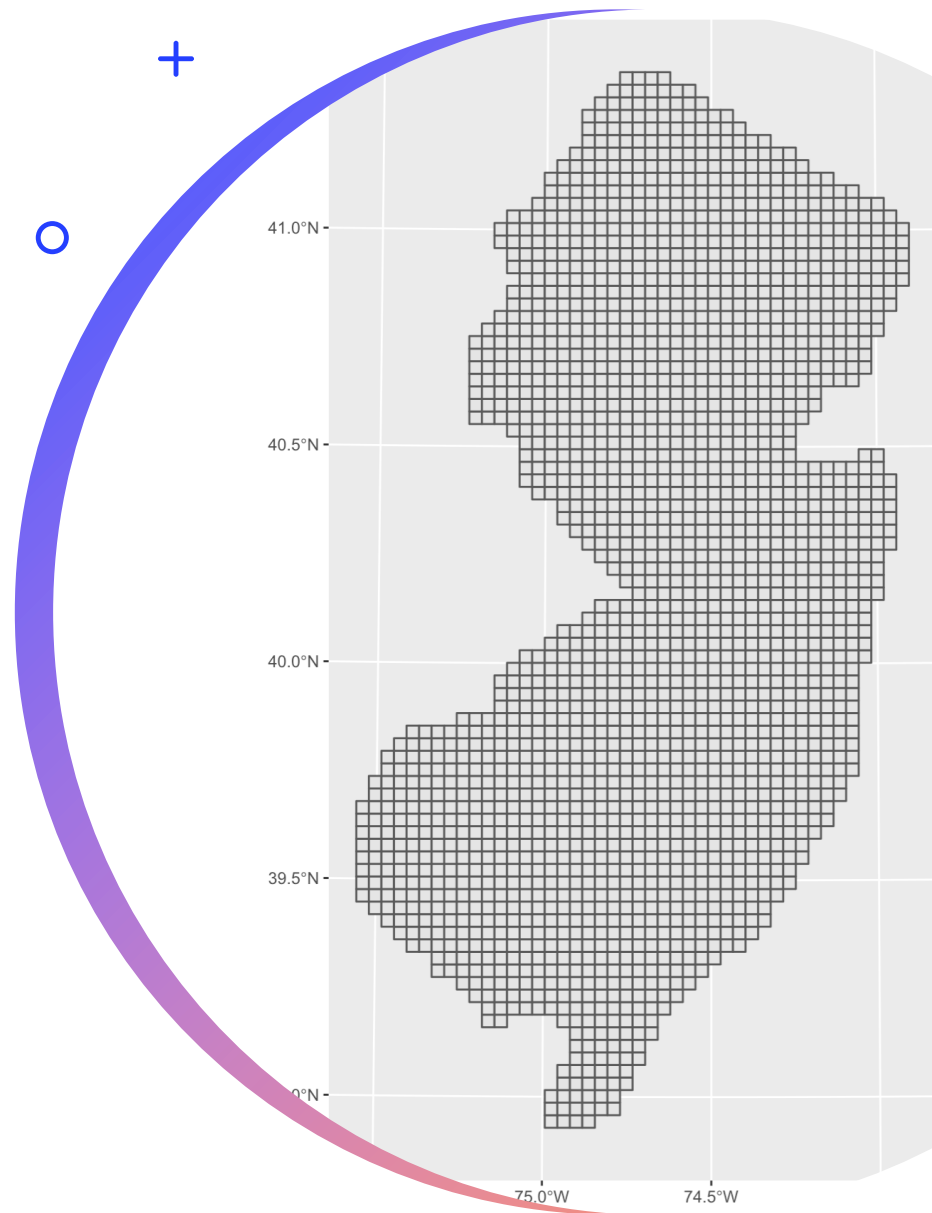


Figure adapted from [https://www.state.nj.us/health/populationhealth/opioid/opioid\\_naloxone.shtml](https://www.state.nj.us/health/populationhealth/opioid/opioid_naloxone.shtml)

# The Planned Data Infrastructure

- Blends together state agency, federal and private-sector data
- Data is spatially joined to each cell in the fishnet and counted.
- Additional feature engineering / cleaning is then performed
- The count of each class of POI / feature in the cell is used to model areas vulnerable to opiate overdoses by predicting the count of law enforcement Naloxone deployments in an area.





# People, Places & Things

- Spatial risk modeling examines the relationship between built environment, Census socio-demographics to model an outcome of interest
- Commonly seen in so-called “predictive policing algorithms
- Limitations include quality / bias of data collection process
- Only accounts for confirmed law enforcement deployments, doesn’t differentiate between fatal / nonfatal overdoses or anything not covered by the AG data reporting directive.





# What's Next

- Full integration of data for 2019 – 2021
- Development of final model, feature engineering and parameters
- Release of data with results on an interactive dashboard
- Release of reports detailing findings

# Acknowledgements



**We would like to thank the New Jersey State Policy Lab for funding this work. The New Jersey State Policy Lab is an independent research center operated by the Bloustein School of Planning and Public Policy and the School of Public Affairs and Administration at Rutgers University.**

**The Lab thanks the New Jersey Office of the Secretary of Higher Education for its support and funding. The contents of this report do not necessarily represent the policy of the Office of the Secretary of Higher Education and you should not assume endorsement by elected leadership or other employees of the State of New Jersey. Any omissions or errors are the sole responsibility of the author(s).**