Case Study: Decoding Community Preservation in Massachusetts (CPA Projects)

1. The Story

Massachusetts cities and towns use the Community Preservation Act (CPA) to invest in **Open Space & Recreation, Historic Preservation, and Community Housing**. Over the years, thousands of projects have been proposed, funded, and completed, each with different attributes. This dataset lets us explore how communities choose projects, how funding patterns evolve, and what helps a project cross the finish line.

This is a chance to turn a record of local decisions into practical insight: Which projects get funded fastest? What signals completion? Where does investment cluster and why?

Think of yourselves as community investment detectives. You're not just counting projects on a sheet, you're uncovering the story behind how we prioritize parks, history, housing, and recreation.

- Which towns show resilient, steady investment across years?
- Which project types tend to reach completion on time?
- Where do community needs, budgets, and land characteristics intersect?

Essential Columns

- **Identifiers & Place**: town, town_id, county, community, state, latitude, longitude, has_geog
- **Project Type & Category**: project_typ (like open_space, recreation, housing, historic)
- **Timing**: appr_yr / appr_year (approval year), appr_month (if available)
- **Cost & Funding**: tot_cost, to_fund (funding approved / amount to fund), totbond (bonded amount), fund_source (if available)
- **Scale**: acres, plus category splits such as openacres, recacres, histacres, housacres, totacres
- **Outcomes / Labels**: status (e.g., *Proposed*, *Approved*, *In Progress*, *Project complete)*
- **Contextual Flags**: hpr_* (historic register references), seller, source.

> Tip: Avoid leakage. Models may be prone to data leakage if you don't evaluate feature importance and collinearity.

2. Your Mission

You are investigators on a **Community Preservation Task Force**. Your mission is to turn raw CPA project records into insights that help leaders and residents make smarter, more equitable investment decisions.

There is no single path. You decide which questions to follow, which clues to use, and how to present your discoveries.

Behind every project record is a community making choices about housing, history, and open space. Ask yourself whose priorities are visible in the data and whose might be missing. Reflect on how your findings could inform fairer, more inclusive community investment.

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3. Clues & Guiding Questions

Choose the prompts that spark your curiosity, focusing on depth over breadth.

Funding & Completion Risk

- **Which attributes are better at predicting funding and completion?**
- **Do certain years see more approvals/completions and what could be a factor?**

Balancing Constraints

- **Do larger-acreage projects have a different timeline or complete differently?**
- **Risk matrix idea, to better understand different flagging factors?**

Communities & Equity

- **Which towns accumulate the most CPA investment per capita?**
- **Which categories are underserved?**
- **Do towns with constrained budgets or higher needs see different completion rates?**

Looking for Patterns

- **Are some towns consistently outliers?**
- **Which features explain outcomes best?**
- **"What if" costs rise 10–20%?**

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4. Your Deliverables

At the end of the hackathon, share:

1) **A story from the data** → A chart, map, or infographic that reveals a finding (e.g., completion odds by type & cost; project density by town; time-to-completion trend).

2) **An insight** → A discovery about patterns, risks, or drivers (for example, projects under $1M complete 25% faster in mid-sized towns).

3) **Insights for Decision-Makers** → A short (1–2 paragraph) note answering:

    - **Who is most impacted?** (like towns with aging historic stock, or fast-growing housing needs)
    - **What should be done next?** (prioritize categories, adjust bonding, phase large projects, target technical assistance)

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5. Helpful Resources (for data, definitions, and context)

- **MassGIS – CPA Projects (official dataset landing page)**: https://www.mass.gov/info-details/massgis-data-community-preservation-act-cpa-projects
- **MassGIS – Municipalities (boundaries for joins/maps)**: https://www.mass.gov/info-details/massgis-data-municipalities
- **MassGIS Data Hub (search CPA/Towns layers)**: https://gis.data.mass.gov/search?tags=community+preservation+act
- **CPA Statute (M.G.L. c.44B, definitions & use categories)**: https://malegislature.gov/Laws/GeneralLaws/PartI/TitleVII/Chapter44b/Section2
- **Community Preservation Coalition – Overview & Databank**: https://www.communitypreservation.org/about https://www.communitypreservation.org/databank/home
- **Mass.gov – Community Preservation Act Reports (state matches & adoption)**: https://www.mass.gov/lists/community-preservation-act
- **Boston CPA page (example of municipal implementation)**: https://www.boston.gov/departments/city-council/community-preservation-act

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Final Note

There is no “correct” answer. The challenge is to think like detectives, ask bold questions, and back up your ideas with evidence. Surprise us—with an elegant model, a compelling map, or a story that makes the data come alive for residents and leaders alike.