PCEDC Parcel Data Visualization and Automation

Recommendations for Easy Data Management

Meet the Team

Samuel Glaser

Columbus, Ohio

MSIM
University of Washington

Dominique Rollins

Los Angeles, California

MSIM
University of Washington

AGENDA

PROJECT BACKGROUND

Pacific County requires advanced data regarding the parcels of land they prioritize for development.

Previous UW LCY projects have helped the county organize land parcels, visualize data, and more.

Our goal is to help the PCEDC come to a penultimate approach to automating and visualizing their parcel database.

VISIT TO PACIFIC COUNTY

- We had the privilege of visiting Pacific County in person to understand firsthand Pacific County's...
  - Parcel management process
  - Topography
  - Land evaluation process
- These experiences were critical to helping us understand this process

AGENDA

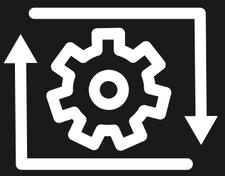
CURRENT STATE - SYSTEMS OVERVIEW

Data is added manually from Taxsifter, added to a shared Google Sheet.

DATA STORAGE

Current dashboard was built by UW Tacoma Analytics club, from a Tableau Public account.

VISUALIZATION



Assessment process and Department of Community Development aren't included in database.

PROCESS

CURRENT PROCESS FLOW

Data is found on Taxsifter by PCEDC Employee, data entered in database.

PARCEL IDENTIFICATION

Parcel is evaluated by PCEDC for additional information, such as zoning, broadband, extra notes, etc.

EVALUATION

Wetland boundaries and water reports from the assessor are overlayed for a specific parcel, to then be assessed for development.

DECISION MAKING

CURRENT STATE ANALYSIS - RISK ASSESSMENT

HUMAN ERROR

Data is currently being entered by hand without any kind of governance.

SEPARATED PROCESSES

Multiple sources of data known by some PCEDC employees is not represented in this data inventory or visualization.

UPDATE FREQUENCY

Data can become quickly outdated within the PCEDC inventory.

SECURITY/PRIVACY

Anyone with the PCEDC Inventory database can make changes or incorrect conclusions based on notes.

COMPATIBILITY

Data isn’t organized with visualization in mind, or compatibility with other data sources.

AGENDA

IDEAL FUTURE STATE - SYSTEMS OVERVIEW

Automate data integration using ArcGIS and Washington GODP for real-time access to State datasets.

DATA INTERGRATION

Increased data visualization, automated updates, and streamlined operations.

EFFECIENCY

User-friendly interface with technical support. Dynamic testing for continuous system and operations improvement.

DECISION-MAKING

IDEAL FUTURE PROCESS FLOW

Automate the retrieval of parcel data, enhancing the accuracy and efficiency of data entry results.

DATA AUTOMATION

Implement automated processes for evaluation, ensuring consistency and thorough analysis of each parcel.

ENHANCED EVALUATION

Increased visual representation of data will enhance decision-making, promoting a more informed and efficient process for the PCEDC.

ENHANCED DECISION-MAKING

IDEAL FUTURE STATE ANALYSIS
RISK ASSESSMENT

TECH DEPENDENCY

Potential system downtimes, tech glitches, or changes in the API structure may disrupt data access and processing, impacting the continuity of operations

DATA PRECISION

Due to bi-weekly updates, there is a risk of inaccurate & outdated information leading to potential discrepancies in the evaluation and decision-making process

COST OVERRUNS

Unforeseen costs associated with licensing, maintenance, or additional support may lead to budget overruns

SECURITY/PRIVACY

Unauthorized access or inadvertent sharing of sensitive information within the group could pose privacy risks

DOCUMENTATION

Adequate documentation and knowledge transfer mechanisms must be put in place to mitigate the risk of knowledge loss

AGENDA

01 PROJECT BACKGROUND

02 CURRENT STATE

03 IDEAL FUTURE STATE

04 CORE RECOMMENDATION

05 FEASIBILITY ANALYSIS

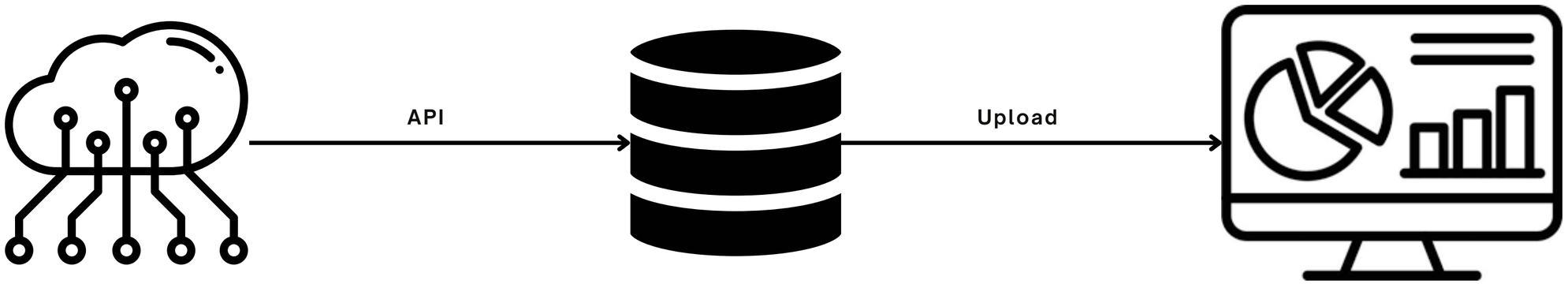
RECOMMENDED DATA RESOURCES

Name	Description	Cost	API?	Automatable ?	Notes
Taxsifter	The current searchable tool that visualizes the Pacific County Assessor's Office tax data regarding parcels.	Free*	No	No	Taxsifter does not have a consumable API automatically.
Oxylabs Redfin Scraper API	Paid product enabling scraping of Redfin real estate data with customizable parameters.	$10-99 per month	Yes	Yes	While this can pull data from the open web, quality is a concern, and legality is a potential concern.
Washington Geospatial Open Data Portal	Washington State's Geospatial data hub, refreshed monthly.	Free	Yes	Yes	Has a customizable API tool, data is refreshed commonly, high overlap of values with current Parcel db.
Department of Ecology Data	Has layers of water based data that can add value in deciding how to visualize applicable data.	Free	N/A	Yes	This information could be applied annually (if info is updated) for ecology layers of data.

RECOMMENDED DATA VISUALIZATIONS

Name	Description	Cost	Supported ?	Filters?	Notes
 QGIS	The largest free and open source Geographic Information System tool	Free	Yes	Yes	Can be added to a website via webclient, can take layers of data, filtering, and more customizable options.
 ArcGIS	The industry standard for online mapping software, used by other property management groups.	$550/ year, $100 for student	Yes	Yes	The best option for creating a visualzation that is easily customizable, filtering, layers, and more.
Tableau	Free to use visualization platform, the current platform created by UW Tacoma Analytics club.	Free	Yes	No	Is the current solution, but is limited by not enabling filtering capabilities, takes effort to further customize, is not a platform directly suited for this use case.

RECOMMENDED DATA PROCESS



Data Source
Washington Geospatial Open Data Portal

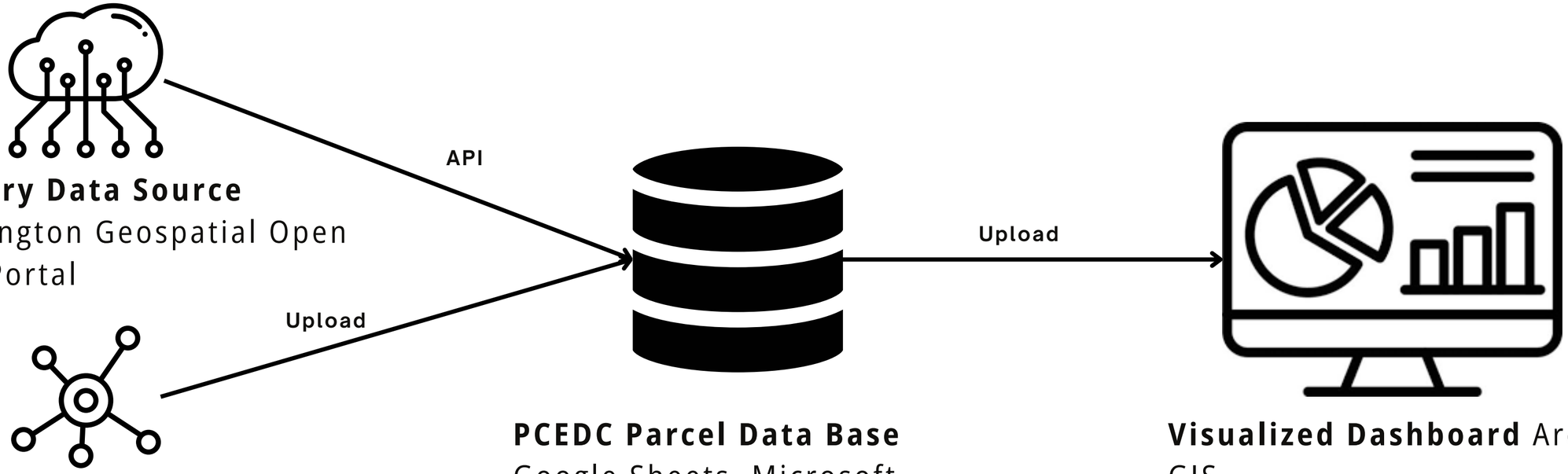
PCEDC Parcel Data Base
Google Sheets, Microsoft Excel

Visualized Dashboard
Arc GIS

This Recommended Solution
While this solution enables free data to replace many of the fields found manually in Taxsifter, it enables an API to update new and existing listings without intervention, with a powerful visualization tool that enables the PCEDC to customize their solution.

Total Estimated Cost
Software - $100/year
LCY Project - $0

ADDITIONAL SOURCES OF DATA



Primary Data Source
Washington Geospatial Open Data Portal

Secondary Data Source(s)
Wetland Data (NOAA, Dept. of Ecology)

PCEDC Parcel Data Base
Google Sheets, Microsoft Excel

Visualized Dashboard Arc GIS

This Recommended Solution
By adding wetland data from outside sources like NOAA or the Washington Dept. of Ecology, you can add layers of information centralizing analysis in one dashboard, with a manual addition once a year, or everytime the data is updated.

Total Estimated Cost
Software - $100/year
LCY Project - $0

RECOMMENDED PROCESS IMPROVEMENTS

Data Automatically enters Parcel Database	Assessor determines usability of land	Assessor/ Community Development adds context	Parcel is marked done by PCEDC employee and prioritized
Data will be added to the database via an automatically running API to insert information.	Assessors will go out to properties, and determine land developability, placement of water/sewage, and wetland encroachment.	Either the assessor or the Department of Community Development will add information into the PCEDC database, accessing via cloud, link, etc.	PCEDC employee will then evaluate the assessment and promote the parcel accordingly.

In general, the PCEDC needs to find a way to help coordinate efforts to get subjective information into the Parcel Inventory quickly, efficiently, and easily.

DATA SOURCE FIELD COVERAGE WITH NEW DATA RESOURCE

General Parcel Info (Automatic from Washington Geospatial)
Land Use, Pacel, Address, Land Value, Building Value, Acreage, Zoning, Housing Type

Qualitative Parcel Info (Manual from Taxsifter, Assessor, other Departments)
Property type, Owner type, Price, Notes, Utilities, Sewer, Water, lot width, lot depth, land influence

Other helpful data (Manual from NOAA, Washington Ecology)
Flood history, wetland boundary, shoreline info

PCEDC Parcel Data Base

RECOMMENDED DATABASE IMPROVEMENTS

Add a column that automatically assigns a score to a property based on logic.

Add a column that indicates the most relevant missing information (assessor, price, etc.)

Add a column to look at candidates for re-zoning, or different zoning (single family - multi-family, or commercial to residential)

AGENDA

ECONOMIC ANALYSIS

Time will be given back to PCEDC Employees.

Centralized information means efficent data monitoring and higher quality.

For less than $200 in software (annually), the PCEDC could have a sophisticated experience rivalling larger counties.

COSTS ASSESSMENT

Tangible	Intangible
Low costs for higher quality parcel management process.	Process change comes with emotional labor
Time spent on refining parcel data means higher accuracy and less time spent on inaccurate data.	Data APIs could require additional monitoring and support.

BENEFITS ASSESSMENT

Tangible	Intangible
Time added back to PCEDC employees days.	Sense of security that parcels being added doesn't need to rely on a PCEDC employee.
High quality raw data that may not have been utilized before.	More transparent land value can be derived from better data.
Better visualizations to show to partners and stakeholders.	Less manual decision making will need to be made, and more decision making will be handled by data.

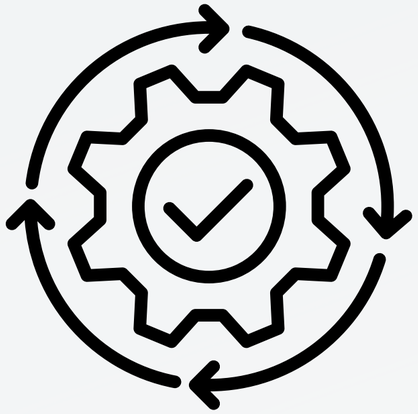
TECHNICAL ANALYSIS

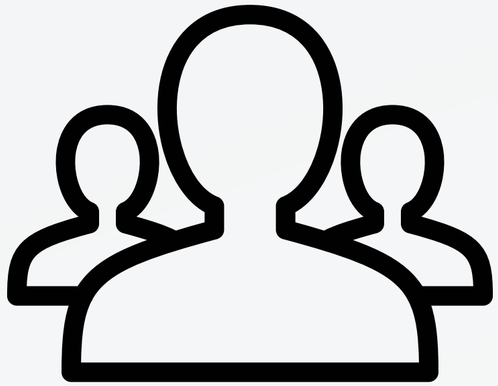
Scalability:
Adjustments and enhancements can be made Ensure that recommended solution can efficiently scale with the evolving needs of the PCEDC

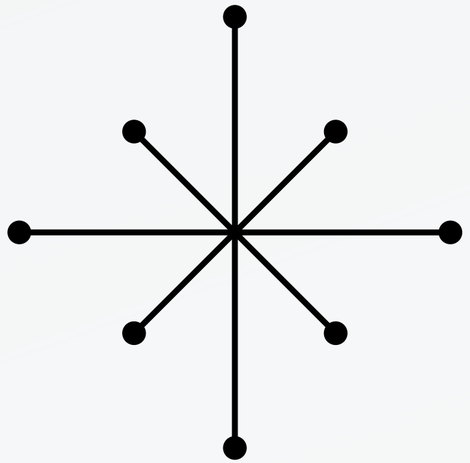
Compatibility:
Existing documentation and data-feed transfer ensure that the new system is accurately documented, and that knowledge is effectively transferred to mitigate the risk of information loss

User Experience (UX):
Enhanced overall usability for PCEDC personnel and those who need access to the information

OPERATIONAL ANALYSIS







Day-to-day Workflow Efficiency

Automating data entry and leveraging visualization tools streamline daily processes creating work efficiency

User-Friendly Interface

Ease of use so all stakeholders with access can utilize tool to its fullest capabilities

Scalability For Future Growth

Capacity to handle an increasing volume of data as as well as adaptability for the evolving requirements

LEGAL ANALYSIS

Pacific County's economic future is dependent on the debates that are happening at the state level regarding the usage and allotments of land for development.

Laws restrict the county’s ability to develop, the knowledge of what laws will change the future of the PCEDC’s ability to develop available parcels around Pacific County is crucial.

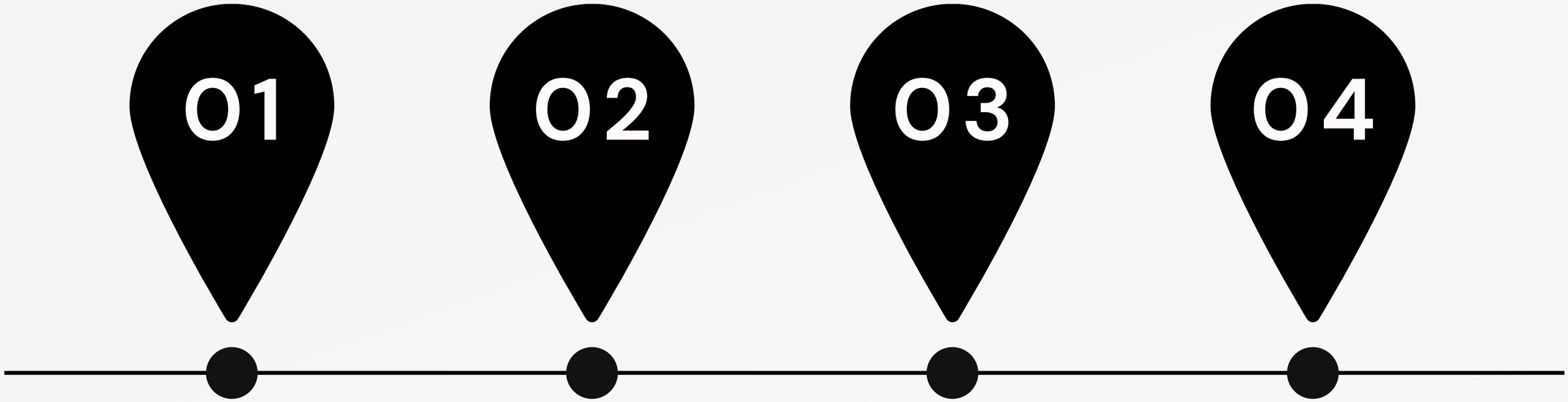
POLITICAL ANALYSIS

The State of Washington is recommending the increase of developable land in surplus to account for population growth.

Numerous initiatives from groups at the state level make it challenging to prioritize growth while maintaining environmental and social initiatives.

AGENDA

PRIORITIZING THE FUTURE



AUTOMATION

Get LCY project to automatically add Geospatial information into repository via API, and add other pieces of information required by PCEDC.

VISUALIZATION

Get LCY project to take PCEDC database and add it into QGIS or ArcGIS to visualize with layers for wetland and shoreline data.

PROCESS

Discuss with partners surrounding PCEDC how to get assessed information into one location, any qualitative info into parcel inventory.

ENHANCE

Add columns to optimize efficiency in filtering through parcel information.

PACIFIC COUNTY

CONCLUSION

- *Automated Transformation*
- *Operational Efficiency*
- *Strategic Processes Improvement*
- *Cost-Effective Solution*
- *Visualization*
- *Scalability*
- *Regulatory Knowledge/Consideration*

We will send the following documents...

1. This slide deck (2/29)
2. Research document (3/3)
3. Developer document (3/10)

AGENDA

HELPFUL LINKS

Washington Geospatial Data Portal - https://geo.wa.gov/

QGIS - https://qgis.org/en/site/about/index.html

ArcGIS - https://www.arcgis.com/index.html

OxyLabs - https://oxylabs.io/products/scraper-api/real-estate/redfin

Department of Ecology - https://ecology.wa.gov/Research-Data/Data-resources/Geographic-Information-Systems-GIS/Data