

Construction Permit Data Analysis

POWER BI DASHBOARD

INTRODUCTION

- Problem: construction activities generate a large number of building permits, but raw data is complex and difficult to analyze.
- Objectives: To Identify top applicants and contributors
Compare permit counts & values by category Explore regional & yearly trends Provide actionable insights for urban planning.

DATASET OVERVIEW

- Fields Used: Application No, Applicant Name, Permit Type, Permit Status, Category, Region, Issue Date(2016-2021), Permit Value.
- Sample Size: 300 rows and 8 columns.
- Data Cleaning: Removed duplicates (based on Application Number),Handled missing values in Permit Value, Extracted Year, Quarter, Month from Issue Date, Created new DAX measures: Permit Count, Total Permit Value, Avg/Max/Min Permit Value.

DATASET

H1							
Permit Value (\$)							
	A	B	C	D	E	F	G
1	Application No	Applicant Name	Permit Type	Permit Status	Category	Region	Issue Date
2	AP100000	Patterson-Ohare Jodi	Construction	Application Accepted	Institutional	Queen Anne	01-01-2016
3	AP100001	Johnson Richard	Demolition	Application Rejected	Institutional	South Lake Union	08-01-2016
4	AP100002	Craft Kathy	Construction	Application Accepted	Single Family/Duplex	Queen Anne	15-01-2016
5	AP100003	Bartolomew Craig	Renovation	Application Rejected	Industrial	Downtown	22-01-2016
6	AP100004	Bartolomew Craig	Demolition	Application Pending	Single Family/Duplex	Downtown	29-01-2016
7	AP100005	Bengl Andy	Repair	Application Accepted	Institutional	Ballard	05-02-2016
8	AP100006	Patterson-Ohare Jodi	Demolition	Application Rejected	Single Family/Duplex	Fremont	12-02-2016
9	AP100007	Patterson-Ohare Jodi	Construction	Application Pending	Multifamily	Capitol Hill	19-02-2016
10	AP100008	Smith Laura	Renovation	Application Pending	Multifamily	Downtown	26-02-2016
11	AP100009	Johnson Richard	Renovation	Application Rejected	Institutional	Capitol Hill	04-03-2016
12	AP100010	Johnson Richard	Construction	Application Rejected	Institutional	Ballard	11-03-2016
13	AP100011	Patterson-Ohare Jodi	Renovation	Application Pending	Single Family/Duplex	Fremont	18-03-2016
14	AP100012	Bartolomew Craig	Demolition	Application Pending	Single Family/Duplex	South Lake Union	25-03-2016
15	AP100013	Bartolomew Craig	Demolition	Application Rejected	Multifamily	Fremont	01-04-2016
16	AP100014	Johnson Richard	Construction	Application Rejected	Industrial	Fremont	08-04-2016
17	AP100015	Bartolomew Craig	Renovation	Application Pending	Industrial	South Lake Union	15-04-2016
18	AP100016	Smith Laura	Repair	Application Pending	Institutional	Ballard	22-04-2016
19	AP100017	Bartolomew Craig	Demolition	Application Rejected	Single Family/Duplex	Queen Anne	29-04-2016
20	AP100018	Chen Wei	Demolition	Application Rejected	Industrial	Fremont	06-05-2016
21	AP100019	Craft Kathy	Demolition	Application Pending	Single Family/Duplex	Fremont	13-05-2016
22	AP100020	Johnson Richard	Demolition	Application Rejected	Commercial	Ballard	20-05-2016
23	AP100021	Bengl Andy	Repair	Application Rejected	Multifamily	Queen Anne	27-05-2016
24	AP100022	Smith Laura	Construction	Application Rejected	Single Family/Duplex	Fremont	03-06-2016
25	AP100023	Omark John	Demolition	Application Rejected	Single Family/Duplex	Fremont	10-06-2016
26	AP100024	Craft Kathy	Renovation	Application Accepted	Single Family/Duplex	Queen Anne	17-06-2016
27	AP100025	Bengl Andy	Repair	Application Accepted	Industrial	Downtown	24-06-2016
28	AP100026	Bartolomew Craig	Demolition	Application Pending	Single Family/Duplex	West Seattle	01-07-2016
29	AP100027	Omark John	Renovation	Application Accepted	Commercial	South Lake Union	08-07-2016
30	AP100028	Patterson-Ohare Jodi	Demolition	Application Rejected	Industrial	Downtown	15-07-2016
31	AP100029	Patterson-Ohare Jodi	Construction	Application Accepted	Institutional	West Seattle	22-07-2016
32	AP100030	Smith Laura	Repair	Application Pending	Institutional	South Lake Union	29-07-2016

KPI CARDS & VISUALS

KPI CARDS

- ❖ Max Permit Value
- ❖ Permit Count
- ❖ Average Permit Value
- ❖ Total Permit Value

VISUALS

- ❖ Slicers – Permit Status, Category, Permit Type & Issue Date.
- ❖ Line Chart
- ❖ Shape map
- ❖ Pie Chart – Count of Permit Value by Application Name.
- ❖ Clustered Bar Chart – Total Permit Value by Application Name.
- ❖ Clustered Column Chart – Permit Count and Total Permit Value by Category.
- ❖ Table

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Construction Permit Data Analysis

Issue Date

01-01-2016

24-09-2021

Permit Status

☐ Application Acc...

☐ Application Pen...

☐ Application Rej...

Category

☐ Commercial

☐ Industrial

☐ Institutional

Permit Type

☐ Construction

☐ Demolition

☐ Renovation

Permit Count Over Time and Permit Value by Region by Month and Year

● Permit Count Over Time ● Permit Value by Region

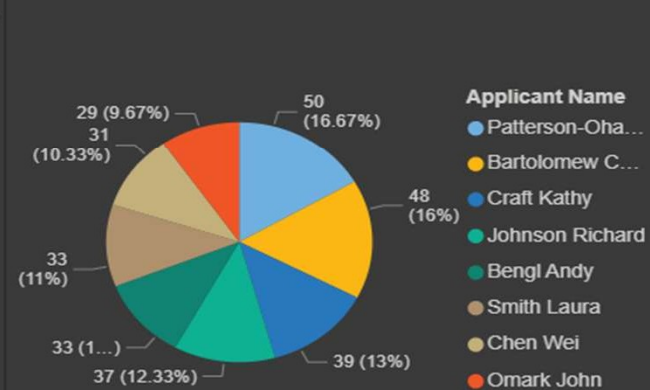


Category and Region

Region ● Ballard ● Capitol Hill ● Downtown ● Fremont ● Queen Anne



Count of Permit Value (\$) by Applicant Name



Max Permit Value

10M

Permit Count

300

Average Permit Value

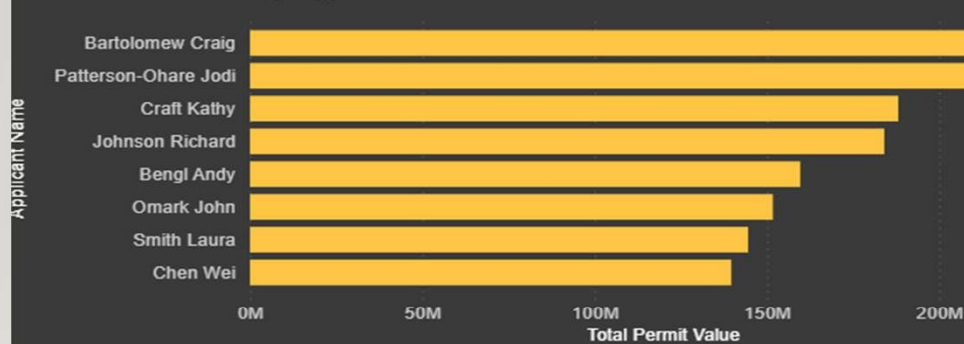
4.6...

Total Permit Value

1bn

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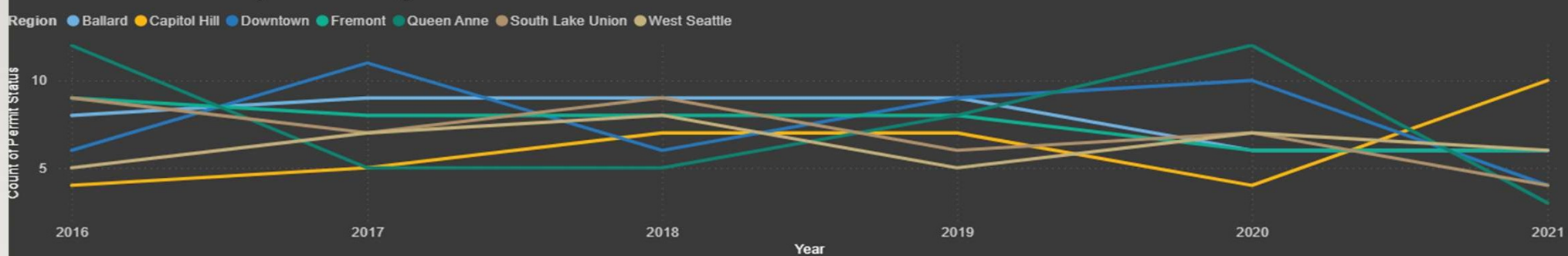
Total Permit Value by Applicant Name



Permit Count and Total Permit Value by Category



Count of Permit Status by Year and Region



Applicant Name	Application No	Permit Type	Permit Status	Category	Region	Year	Quarter	Month	Day	Sum of Permit Value
Bartolomew Craig	AP100003	Renovation	Application Rejected	Industrial	Downtown	2016	Qtr 1	January	22	22,84,
Bartolomew Craig	AP100004	Demolition	Application Pending	Single Family/Duplex	Downtown	2016	Qtr 1	January	29	95,74,
Bartolomew Craig	AP100012	Demolition	Application Pending	Single Family/Duplex	South Lake Union	2016	Qtr 1	March	25	45,71,
Bartolomew Craig	AP100013	Demolition	Application Rejected	Multifamily	Fremont	2016	Qtr 2	April	1	60,69,
Bartolomew Craig	AP100015	Renovation	Application Pending	Industrial	South Lake Union	2016	Qtr 2	April	15	92,30,
Bartolomew Craig	AP100017	Demolition	Application Rejected	Single Family/Duplex	Queen Anne	2016	Qtr 2	April	29	13,12,
Bartolomew Craig	AP100026	Demolition	Application Pending	Single Family/Duplex	West Seattle	2016	Qtr 3	July	1	33,25,
Total										1,40,28,53,



KEY INSIGHTS & INTERPRETATION

- ❑ Permit Trends Over Time - The number of permits steadily increased after 2015, showing construction growth in Seattle.
- ❑ Seasonal fluctuations: Permit applications tend to peak in mid-year (Q2–Q3).
- ❑ Top Applicants - A few applicants contributed to the majority of total permit value.
- ❑ Permit Categories - Commercial & Multifamily permits had the highest permit values, reflecting large-scale construction. Residential permits were more frequent but had smaller average values.
- ❑ Regional Trends - Downtown Seattle and Capitol Hill recorded the most permits and highest total values. Suburban regions (like Ballard & West Seattle) showed moderate but steady growth.
- ❑ Permit Values - High variance observed some projects valued at millions, while many smaller permits existed under residential. Average permit value increased year-on-year, suggesting costlier projects.

CONCLUSION

The Construction Permit Data Analysis transformed a large, complex dataset (300 columns) into meaningful insights using data cleaning, DAX measures, and Power BI dashboards. The study revealed top applicants, key categories, regional trends, and yearly patterns, supporting urban planning and policy decisions. The interactive dashboards make the analysis user-friendly, and future work can apply predictive analytics to forecast permit demand.

THANK YOU

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