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Internship for Science-Practice Integration

Decision Center for a Desert City

Arizona State University

Goals

What effect does age of housing have on residential landscapes front and back yards?

In Arcadia Neighborhood, development patterns show that in the decades prior to 1980, and following 1989, there was an increase in the construction of single-family residences, a factor that was almost absent during the 1980's. *By comparing the landscapes of newer to older homes, one is able to observe variations in landscape preferences of homes built within these two major active construction periods in Arcadia.* The purpose of this project is to aid the City of Phoenix in its efforts to determine water use patterns within the city, specifically in Arcadia where new development has taken place.

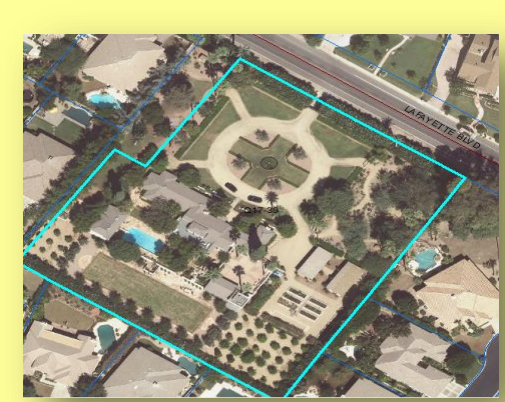
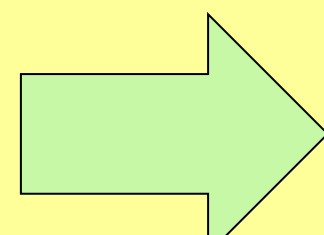
Methods

After selecting the study area, 992 parcels were identified. Using 2014 satellite images along with the City of Phoenix Landscape Coding Handbook, the landscape in front and back yards of parcels were categorized (see top center). In the end, 719 **older** homes and 273 **newer** homes were coded.

Landscape Coding Handbook

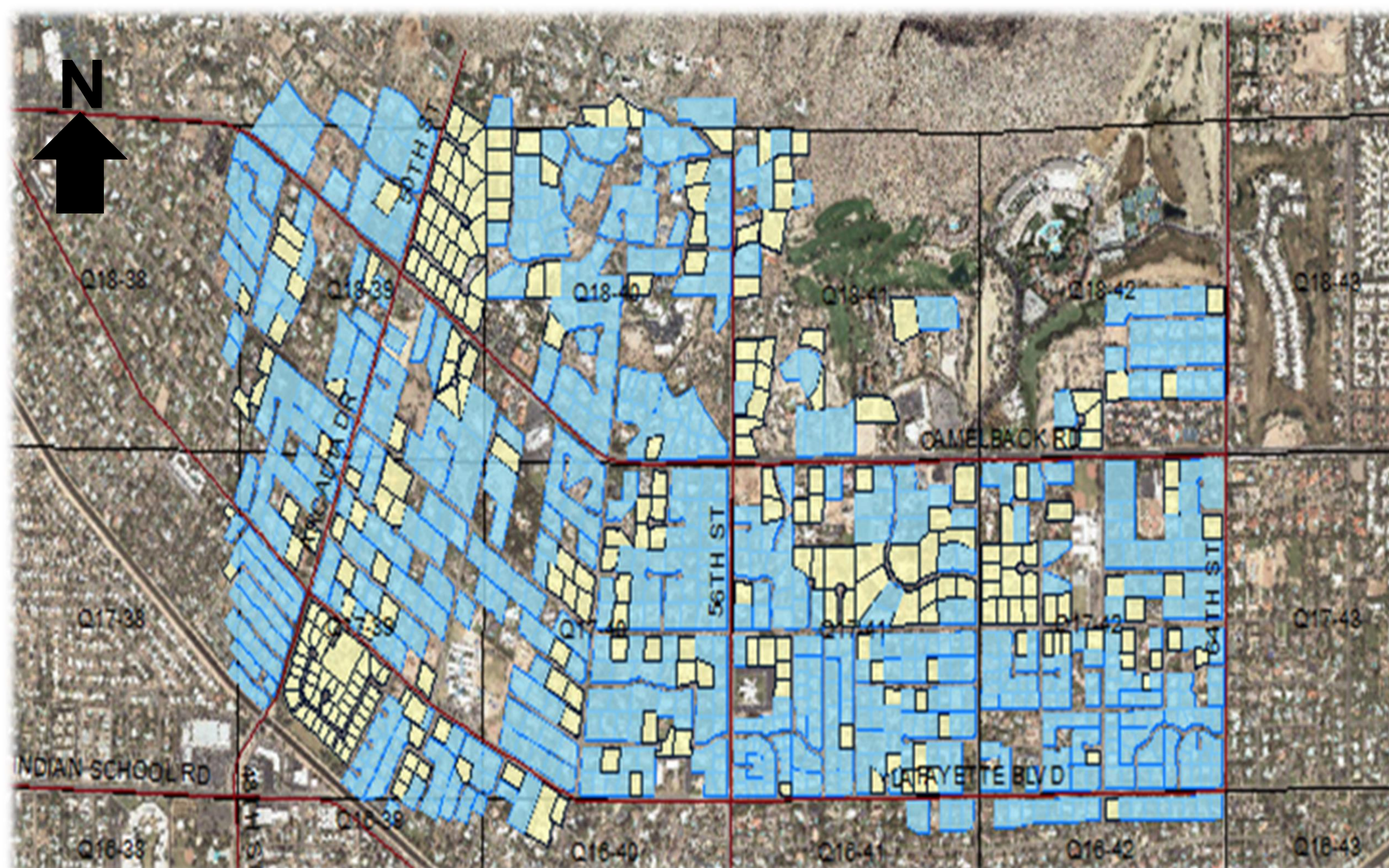
2014 Satellite Images

Quarter Sections



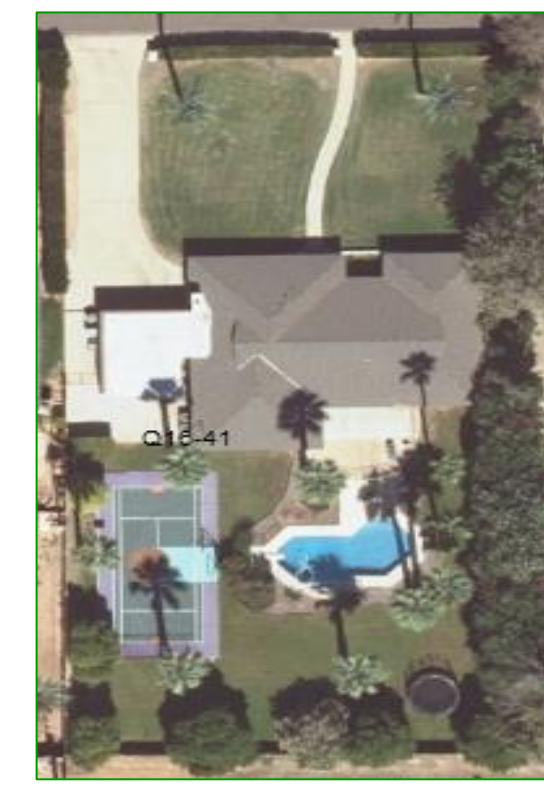
Q17-39, Q17-40, Q17-41, Q17-42, Q18-39, Q18-40, Q18-41, Q18-42

Arcadia Neighborhood Satellite Image

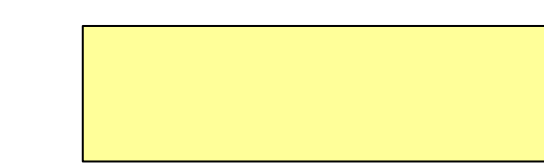


■ Built year 1915-1979

■ Built year 1980-2014



*Transition Yards are desert or 'wild' landscapes that are not watered or maintained.



Turf

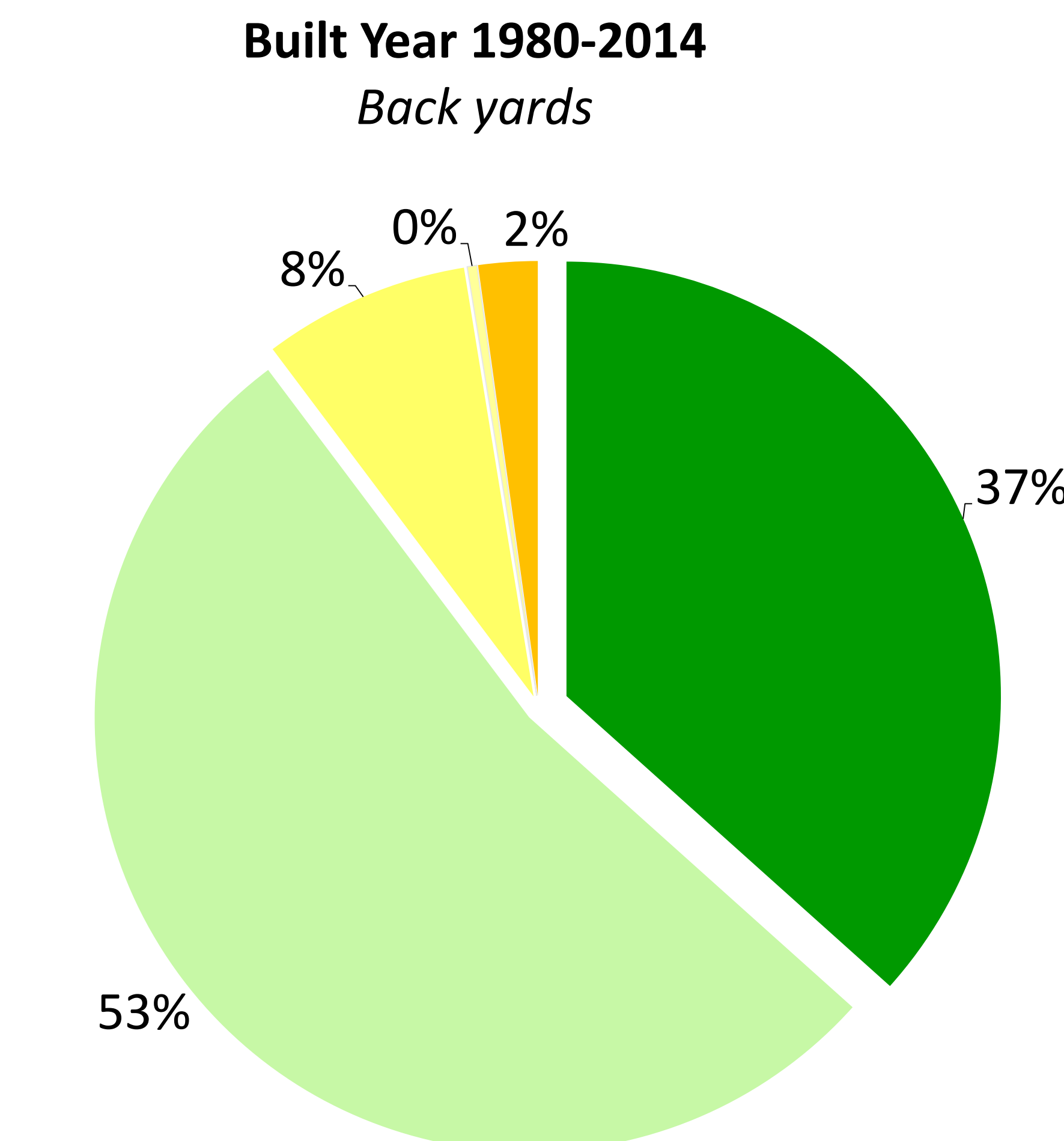
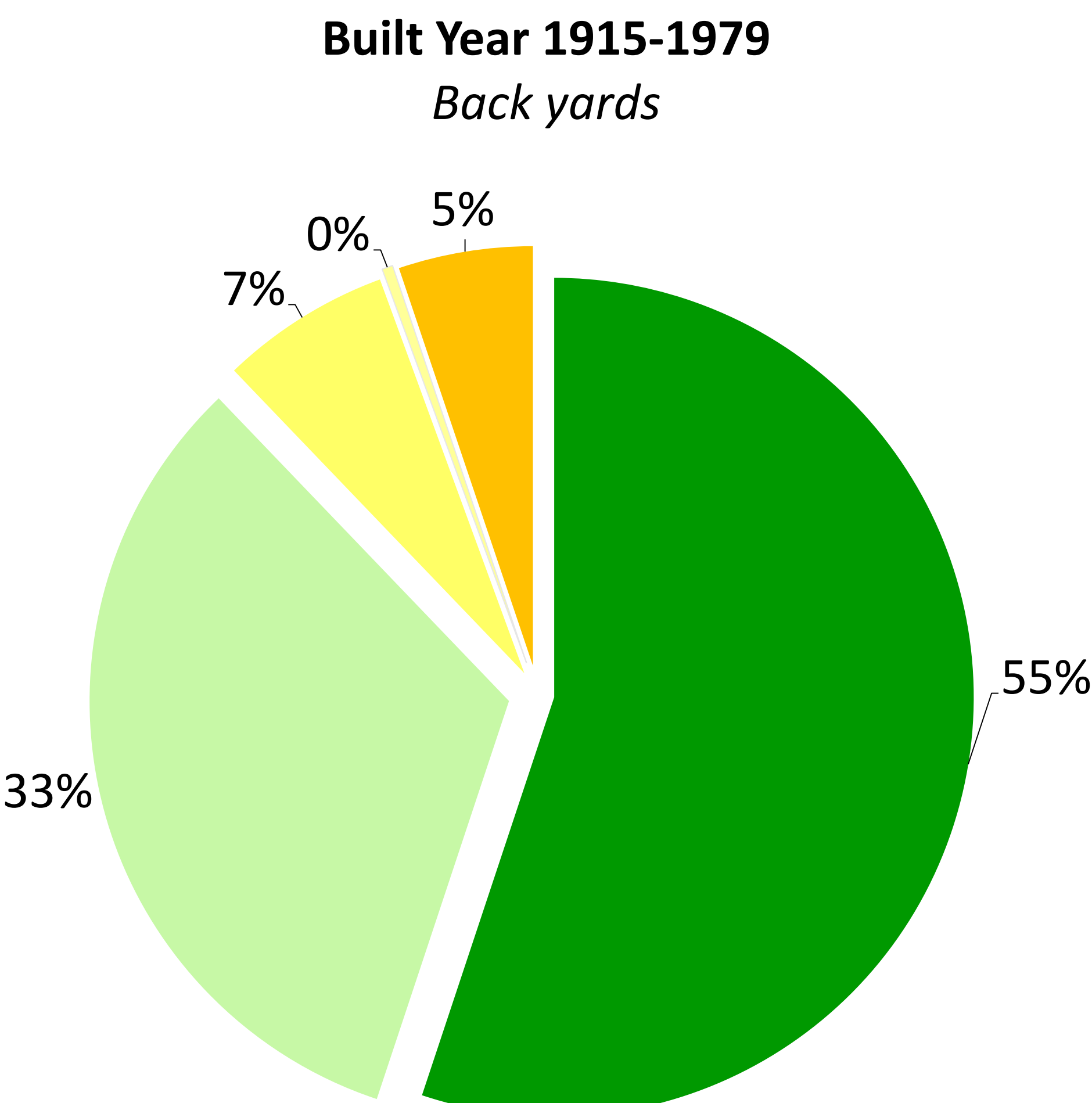
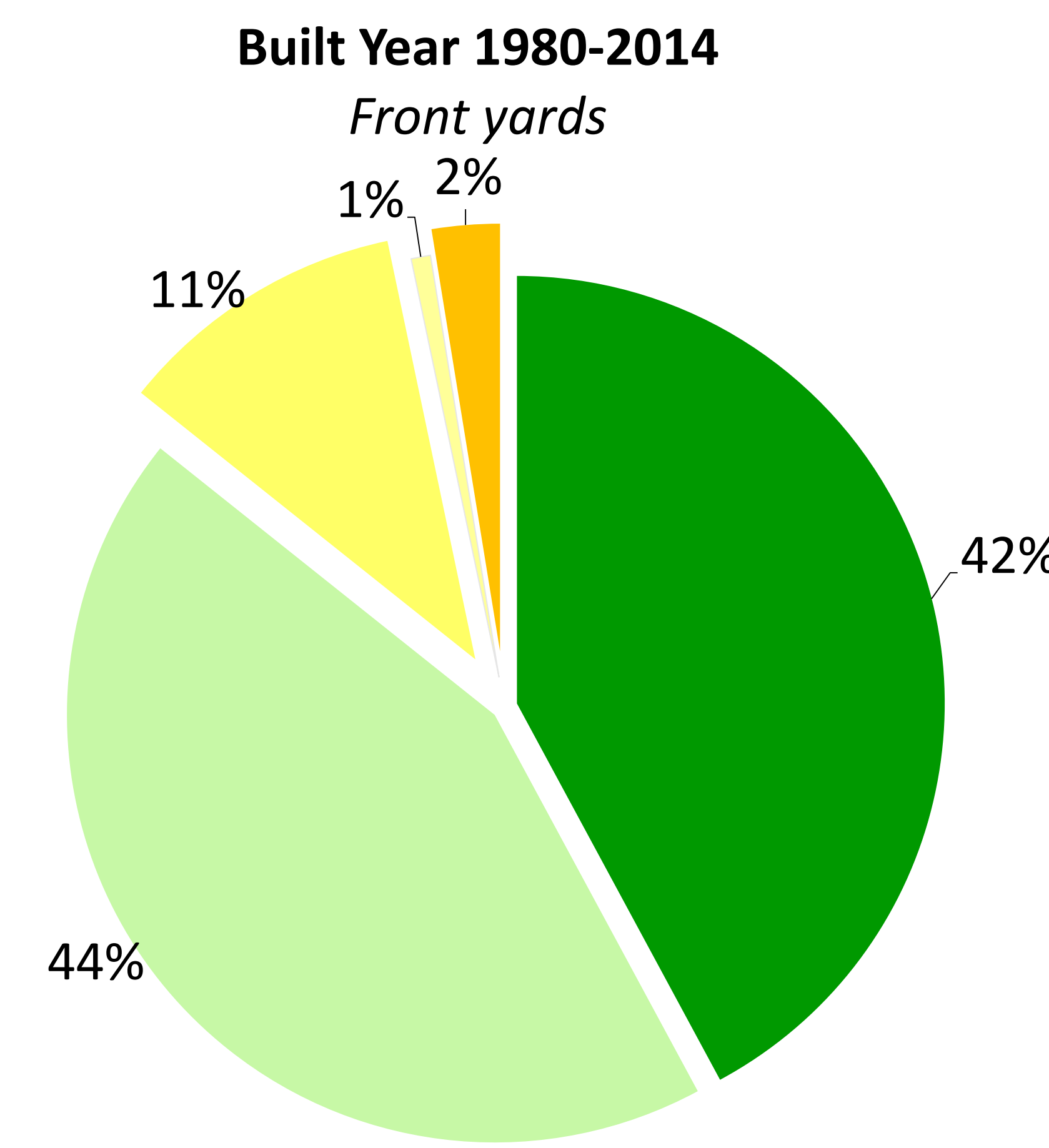
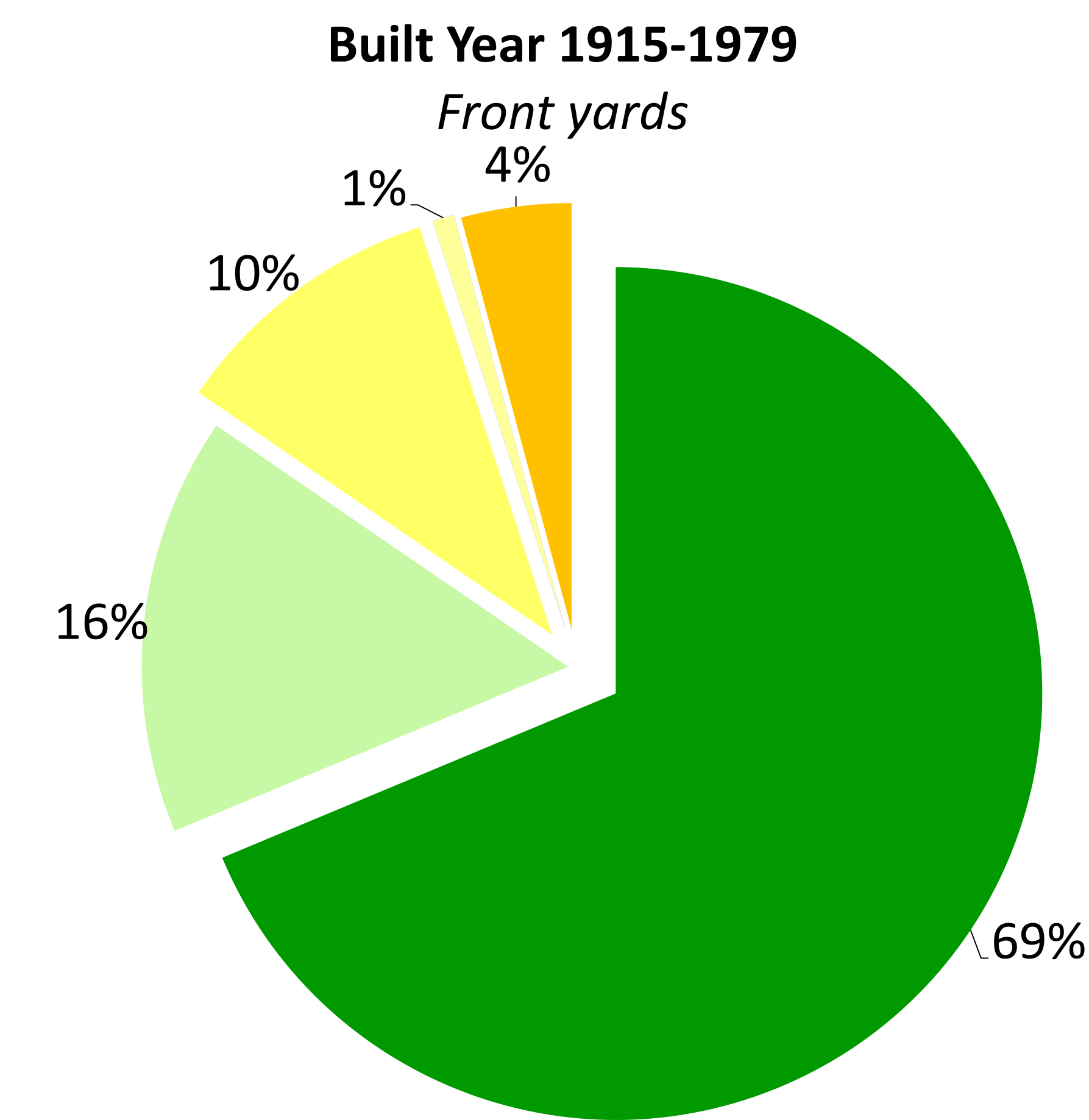
Moderate

Sparse

Arid

Transition

Landscape Percentage Comparison



Findings

- The most common landscapes in the study area were:
Older Homes = Turf
Newer Homes = Moderate
- Older single-family residential developments predominantly have **turf** landscapes in the **front** and **back** yards.
- Newer single-family homes have about the **same** amount of **turf** and **moderate** landscapes in the **front** yards. In the **back** yards, **moderate** landscapes were present in more than half of the sample.
- Sparse** landscapes were proportionally found in the front and back yards regardless of the year of construction.
- Greater** variation of landscapes found in **older** homes.

Conclusions

- Older** homes have **higher** levels of **water-intensive** landscapes than newer homes.
- Newer** homes have **higher** levels of **moderate** or mixed-landscapes.
- Overall** figures show that turf-percentage in **older** homes is less than *half* of **newer** homes.

Future Research

- Water delivery data can be merged with this sample parcels to further explore the water consumption patterns of Arcadia Neighborhood.
- Landscape variation should be further explored by dividing the sample of parcels into more refined categories of the built year or decade of homes.
- The cultural shift from **Turf** to **Moderate** landscapes should be explored by surveying home owners and developers in the area.

Acknowledgment

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