

This presentation premiered at WaterSmart Innovations

watersmartinnovations.com





PLUMMER

IDENTIFYING WATER USE OUTLIERS THROUGH NAICS CODING, GEO CODING AND BENCHMARKING OF ICI CUSTOMERS

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AGENDA

INTRODUCTION

NAICS CODING

BENCHMARKING

- **CAR WASHES**
- **MULTIFAMILY**
- **RESTAURANTS**

WELCOME



MESSAGE FROM

MELISSA BREWER

WATER & ENERGY ANALYST, PLUMMER

Today We Are Going Through A New And Useful Classification System
That Will Allow For Better Understanding of a Utility's Customer Base
and Water Use



GAMETIME

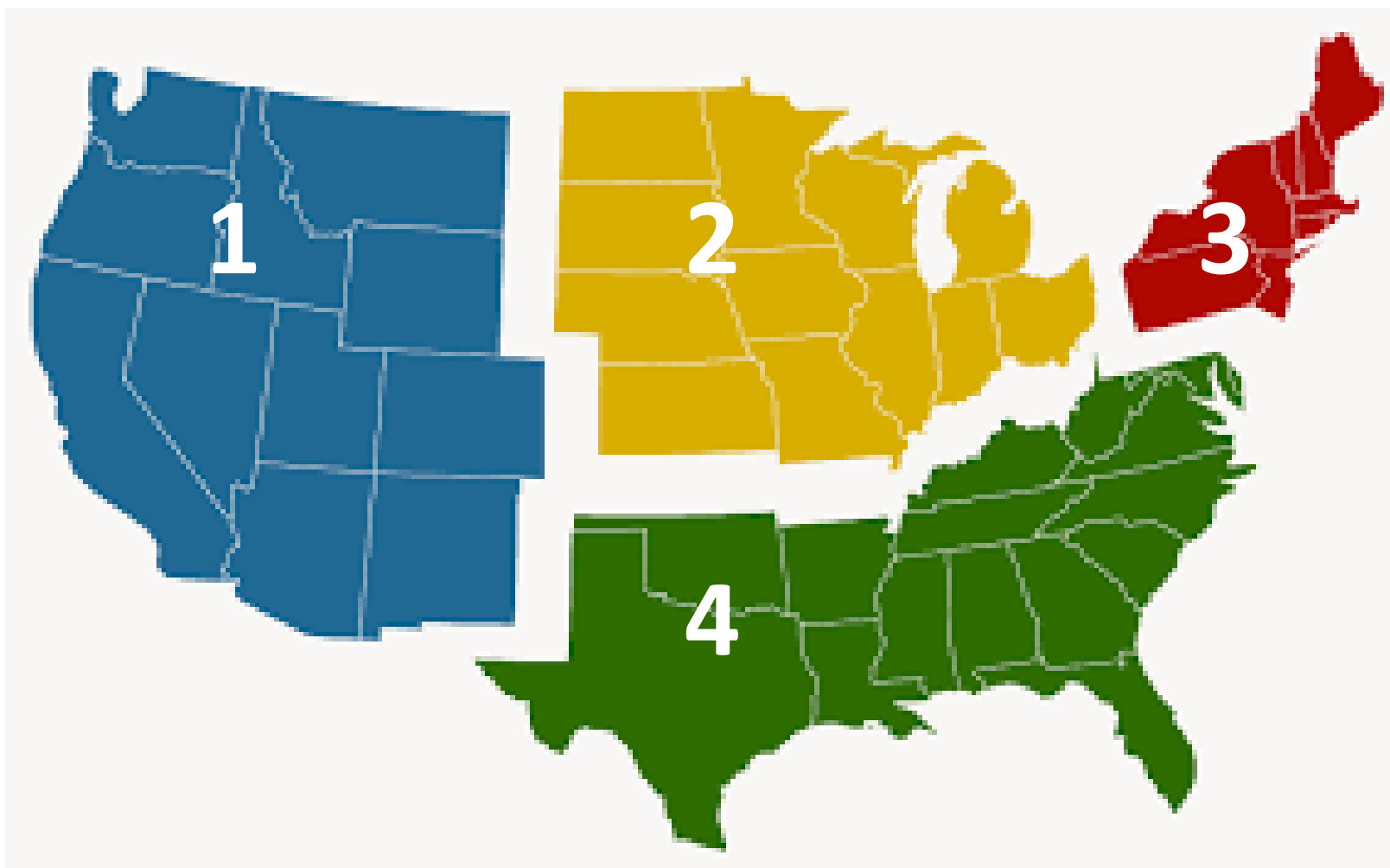
ICEBREAKER FOR WATER NERDS



LET'S ROLL THE DICE



REGION



PROFESSION



5



6



7



8

HIGHEST EDUCATION



1



BACHELOR'S DEGREE

2



3



DOCTORAL STUDIES

4

CONFERENCE



4



5



6



7

HOTEL



2



3



4



5

SIGHT SEEING



3



4



5



6

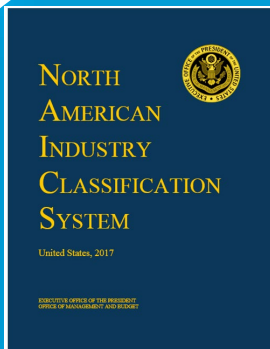


NAICS CODING

MAKING SENSE OF YOUR DATA



BACKGROUND



CLASSIFY

Business
Establishments

OMB

Standard Used By
Federal Statistical
Agencies

NAICS



COLLECTING



ANALYZING



PUBLISHING

<https://www.census.gov/eos/www/naics/>

WHY USE NAICS?



REASON

1

STANDARD

Creating A Good
Foundation Of
Data



REASON

2

ANALYSIS

More Informative
Analytical Power



REASON

3

REPORTING

Make The
Requirements
Easier



REASON

4

CONSERVE

Targeted Water
Conservation
Programs



DATA ENTRY



ABBREVIATION

MISSPELLINGS

NAMING
INCONSISTENCIES

MISSING
DATA

LITTLE TO
NO
BUSINESS
INFO

NAICS GUIDELINES



INDUSTRIAL

MANUFACTURING

Converting Materials Into
Forms of Greater Usability



COMMERCIAL

HOTELS, RESTAURANTS

Water Used By A Place of
Business



INSTITUTIONAL

SCHOOLS, HOSPITALS

Facilities Dedicated To Public
Service



MULTIFAMILY

APARTMENTS

Long-Term Living Facilities
Including Retirement Homes

NAICS GUIDELINES



Gather Data

Clean &
Troubleshoot

Standardize

Apply NAICS

Categorize

Analyze

Benchmark

Review
Findings

HOW DOES IT LOOK?



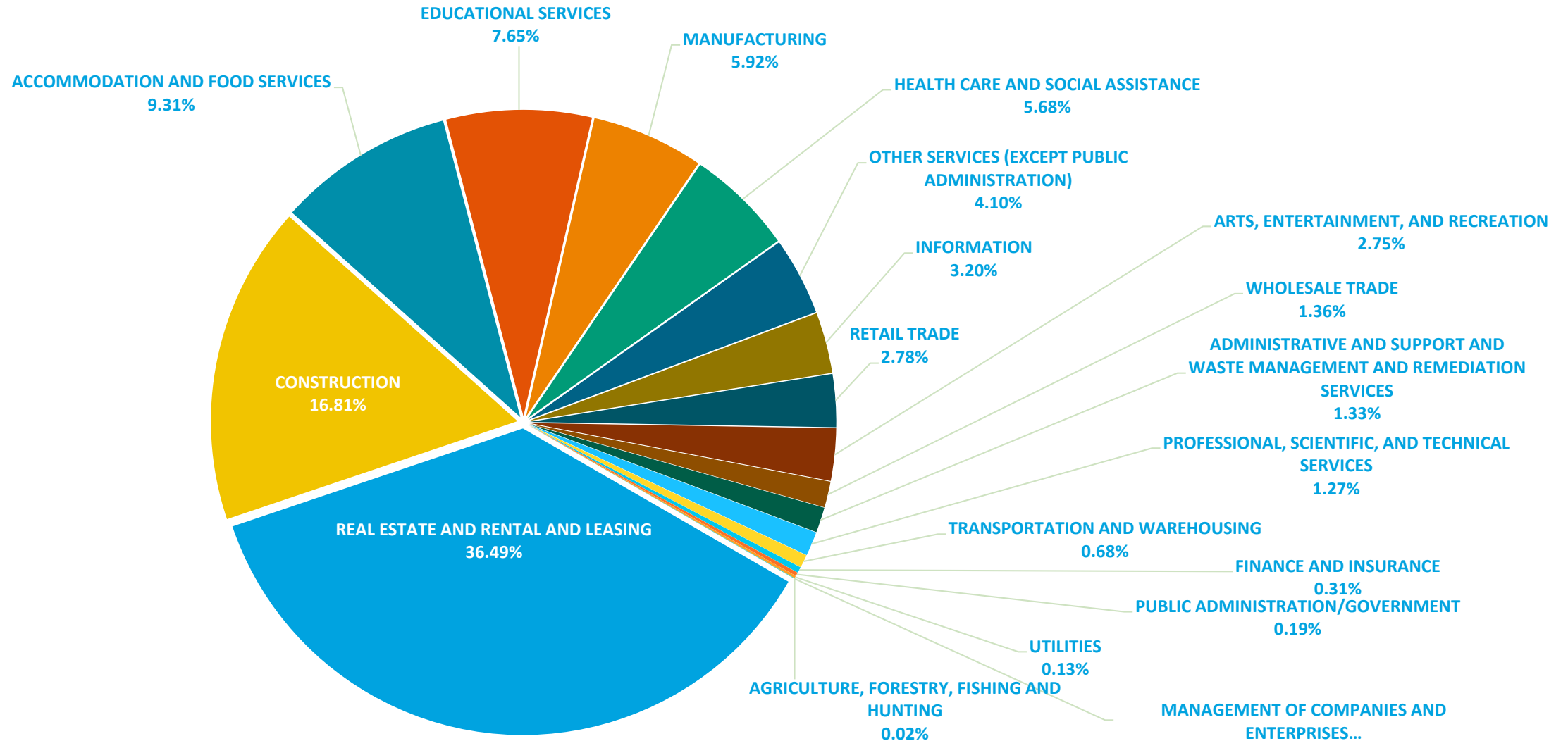
NAICS Code	TCEQ ICI Category*	Type of Business	Specialty (2017 NAICS US Title)
541330	COMMERCIAL	PROFESSIONAL, SCIENTIFIC, & TECHNICAL SERVICES	ENGINEERING SERVICES
561510	COMMERCIAL	ADMINISTRATIVE AND SUPPORT AND WASTE MANAGEMENT AND REMEDIATION SERVICES	TRAVEL AGENCIES
611110	INSTITUTIONAL	EDUCATIONAL SERVICES	ELEMENTARY AND SECONDARY SCHOOLS
622110	INSTITUTIONAL	HEALTH CARE AND SOCIAL ASSISTANCE	GENERAL MEDICAL AND SURGICAL HOSPITALS
335911	INDUSTRIAL	MANUFACTURING	STORAGE BATTERY MANUFACTURING
335912	INDUSTRIAL	MANUFACTURING	PRIMARY BATTERY MANUFACTURING
531110	MULTIFAMILY*	REAL ESTATE AND RENTAL AND LEASING	LESSORS OF RESIDENTIAL BUILDINGS & DWELLINGS

HOW DOES IT LOOK?

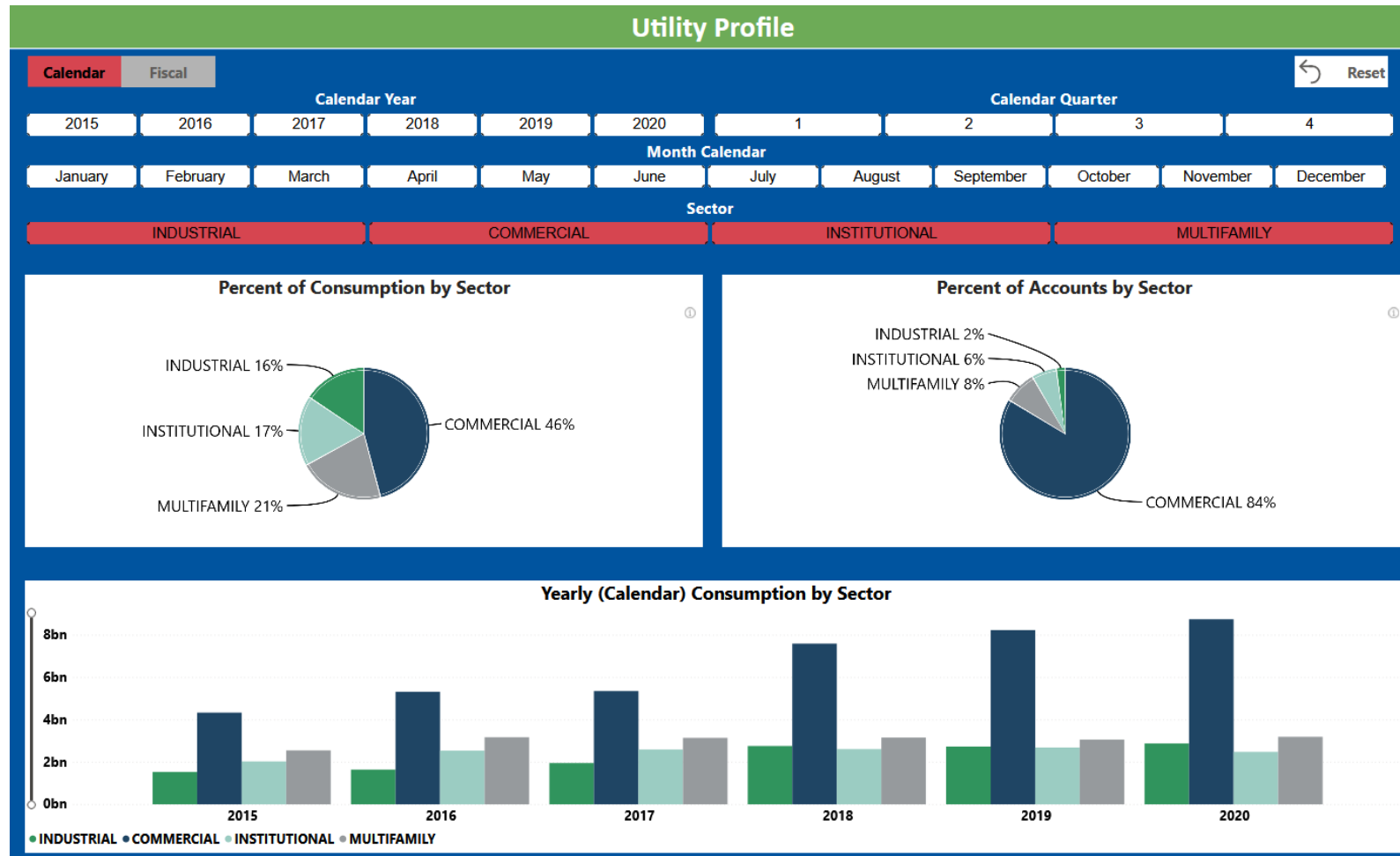


1	City Ro	NEW R	CUSTOMER	CUSTOMER NAME	CLEAN STREET ADDRESS	CLEAN	METER	ICI/M	TYPE OF BUSINESS	SPECIALTY	SIC CO	Combr	Oct	Nov	Dec
194	AL-193	193	140026	ALLEN ISD	1451 BLD N WATTERS RD	3	87846	INSTITUTIONAL	EDUCATIONAL SERVICES	ELEMENTARY AND SECONDARY SCHOOLS	8211	611110	122688.4	53863.2	117451.7
195	AL-194	194	153272	ALLEN ISD	2455 HILLIARD DR		91052	INSTITUTIONAL	EDUCATIONAL SERVICES	ELEMENTARY AND SECONDARY SCHOOLS	8211	611110 x	x	x	x
196	AL-195	195	155563	ALLEN ISD	300 RIVERCREST BLVD		83844	INSTITUTIONAL	EDUCATIONAL SERVICES	ELEMENTARY AND SECONDARY SCHOOLS	8211	611110 x	x	x	x
197	AL-196	196	155766	ALLEN ISD	410 N GREENVILLE AVE		30620	INSTITUTIONAL	EDUCATIONAL SERVICES	ELEMENTARY AND SECONDARY SCHOOLS	8211	611110 x	x	x	x
198	AL-197	197	155768	ALLEN ISD	410 N GREENVILLE AVE	110	30616	INSTITUTIONAL	EDUCATIONAL SERVICES	ELEMENTARY AND SECONDARY SCHOOLS	8211	611110 x	x	x	x
199	AL-198	198	157511	ALLEN ISD	368 N GREENVILLE AVE		91104	INSTITUTIONAL	EDUCATIONAL SERVICES	ELEMENTARY AND SECONDARY SCHOOLS	8211	611110 x	x	x	x
200	AL-199	199	155803	ALLEN MCDERMOTT	1328 W MCDERMOTT DR		28084	MULTIFAMILY	REAL ESTATE AND RENTAL AND LEASING	LESSORS OF RESIDENTIAL BUILDINGS AND DWELLINGS	6513	531110 x	x	x	x
201	AL-200	200	155802	ALLEN MCDERMOTT	1314 W MCDERMOTT DR		28086	COMMERCIAL	RETAIL TRADE	SUPERMARKETS AND OTHER GROCERY (EXCEPT CONVENI	5141	445110 x	x	x	x
202	AL-201	201	145929	ALLEN MEMORY CARE, LLC	965 JUNCTION DR		89528	MULTIFAMILY	HEALTH CARE AND SOCIAL ASSISTANCE	ASSISTED LIVING FACILITIES FOR THE ELDERLY	8361	623312 x	x	x	x
203	AL-202	202	9429	ALLEN MOBILE SERVICE	302 N ASH DR		31064	COMMERCIAL	OTHER SERVICES (EXCEPT PUBLIC ADMINISTRATION)	GENERAL AUTOMOTIVE REPAIR	7538	811111	25435.4	19450.6	17206.3
204	AL-203	203	107556	ALLEN MONTESSORI ACADEMY	612 PEBBLEBROOK DR		30610	COMMERCIAL	HEALTH CARE AND SOCIAL ASSISTANCE	CHILD DAY CARE SERVICES	8351	624410	107726.4	86031.5	75558.1
205	AL-204	204	154882	ALLEN PARTNERS, LLC	407 S CENTRAL EXPY		31994	COMMERCIAL	ACCOMMODATION AND FOOD SERVICES	HOTELS (EXCEPT CASINO HOTELS) AND MOTELS	7011	721110 x	x	x	x
206	AL-205	205	95963	ALLEN PEDIATRICS	1220 N ALMA DR		59400	COMMERCIAL	HEALTH CARE AND SOCIAL ASSISTANCE	OFFICES OF PHYSICIANS (EXCEPT MENTAL HEALTH SPECIA	8011	621111	792986	710695	714435.5
207	AL-206	206	141497	ALLEN PETRO LLC	1106 E BETHANY DR	D2	39534	COMMERCIAL	RETAIL TRADE	GASOLINE STATIONS WITH CONVENIENCE STORES	5411	447110	176551.6	131665.6	81542.9
208	AL-207	207	141497	ALLEN PETRO LLC	1106 E BETHANY DR	D1	39532	COMMERCIAL	RETAIL TRADE	GASOLINE STATIONS WITH CONVENIENCE STORES	5411	447110	14213.9	14962	12717.7
209	AL-208	208	146846	ALLEN PLACE OFFICE BLDG I, LLC	450 CENTURY PKWY		76450	COMMERCIAL	ADMINISTRATIVE AND SUPPORT AND WASTE MANAGEM	OFFICE ADMINISTRATIVE SERVICES	8741	561110 x	x	x	x
210	AL-209	209	146846	ALLEN PLACE OFFICE BLDG I, LLC	460 CENTURY PKWY		88610	COMMERCIAL	ADMINISTRATIVE AND SUPPORT AND WASTE MANAGEM	OFFICE ADMINISTRATIVE SERVICES	8741	561110 x	x	x	x
211	AL-210	210	146846	ALLEN PLACE OFFICE BLDG I, LLC	500 CENTURY PKWY		83050	COMMERCIAL	ADMINISTRATIVE AND SUPPORT AND WASTE MANAGEM	OFFICE ADMINISTRATIVE SERVICES	8741	561110 x	x	x	x
212	AL-211	211	151332	ALLEN PREMIUM OUTLETS	820 W STACY RD	PH 6 BLD	90720	COMMERCIAL	REAL ESTATE AND RENTAL AND LEASING	LESSORS OF NONRESIDENTIAL BUILDINGS (EXCEPT MINIV	6512	531120 x	x	x	x
213	AL-212	212	151331	ALLEN PREMIUM OUTLETS	820 W STACY RD	PH 5 BLD	90718	COMMERCIAL	REAL ESTATE AND RENTAL AND LEASING	LESSORS OF NONRESIDENTIAL BUILDINGS (EXCEPT MINIV	6512	531120 x	x	x	x
214	AL-213	213	10907	ALLEN PROFESSIONAL PARK	400 N ALLEN DR	105	31548	COMMERCIAL	REAL ESTATE AND RENTAL AND LEASING	LESSORS OF NONRESIDENTIAL BUILDINGS (EXCEPT MINIV	6512	531120	867047.9	629900.2	605212.9
215	AL-214	214	74989	ALLEN PROPERTIES ONLINE	305 E MCDERMOTT DR		53972	COMMERCIAL	REAL ESTATE AND RENTAL AND LEASING	LESSORS OF NONRESIDENTIAL BUILDINGS (EXCEPT MINIV	6512	531120	74061.9	55359.4	53115.1
216	AL-215	215	124045	ALLEN RAINSTAR LP	977 RAINTREE CIR		79998	COMMERCIAL	ADMINISTRATIVE AND SUPPORT AND WASTE MANAGEM	OFFICE ADMINISTRATIVE SERVICES	8741	561110	65084.7	50870.8	49374.6
217	AL-216	216	152255	ALLEN RETIREMENT RESIDENCE LLC	680 N WATTERS RD		88612	MULTIFAMILY	HEALTH CARE AND SOCIAL ASSISTANCE	ASSISTED LIVING FACILITIES FOR THE ELDERLY	8361	623312 x	x	x	x
218	AL-217	217	129577	ALLEN STATION APARTMENTS, LLC	505 E EXCHANGE PKWY	BLDG 01	71336	MULTIFAMILY	REAL ESTATE AND RENTAL AND LEASING	LESSORS OF RESIDENTIAL BUILDINGS AND DWELLINGS	6513	531110	891735.2	736878.5	707702.6
219	AL-218	218	129578	ALLEN STATION APARTMENTS, LLC	505 E EXCHANGE PKWY	BLDG 02	71338	MULTIFAMILY	REAL ESTATE AND RENTAL AND LEASING	LESSORS OF RESIDENTIAL BUILDINGS AND DWELLINGS	6513	531110	656083.7	546113	538632
220	AL-219	219	129579	ALLEN STATION APARTMENTS, LLC	505 E EXCHANGE PKWY	BLDG 03	71340	MULTIFAMILY	REAL ESTATE AND RENTAL AND LEASING	LESSORS OF RESIDENTIAL BUILDINGS AND DWELLINGS	6513	531110	796726.5	628404	587258.5
221	AL-220	220	129580	ALLEN STATION APARTMENTS, LLC	505 E EXCHANGE PKWY	BLDG 04	71342	MULTIFAMILY	REAL ESTATE AND RENTAL AND LEASING	LESSORS OF RESIDENTIAL BUILDINGS AND DWELLINGS	6513	531110	1106439.9	923903.5	886498.5
222	AL-221	221	129581	ALLEN STATION APARTMENTS, LLC	505 E EXCHANGE PKWY	BLDG 05	71344	MULTIFAMILY	REAL ESTATE AND RENTAL AND LEASING	LESSORS OF RESIDENTIAL BUILDINGS AND DWELLINGS	6513	531110	958316.1	712939.3	689748.2
223	AL-222	222	129582	ALLEN STATION APARTMENTS, LLC	505 E EXCHANGE PKWY	BLDG 06	71346	MULTIFAMILY	REAL ESTATE AND RENTAL AND LEASING	LESSORS OF RESIDENTIAL BUILDINGS AND DWELLINGS	6513	531110	958316.1	703214	697977.3
224	AL-223	223	129583	ALLEN STATION APARTMENTS, LLC	505 E EXCHANGE PKWY	BLDG 07	71348	MULTIFAMILY	REAL ESTATE AND RENTAL AND LEASING	LESSORS OF RESIDENTIAL BUILDINGS AND DWELLINGS	6513	531110	37405	22443	22443
225	AL-224	224	129584	ALLEN STATION APARTMENTS, LLC	505 E EXCHANGE PKWY	BLDG 08	71350	MULTIFAMILY	REAL ESTATE AND RENTAL AND LEASING	LESSORS OF RESIDENTIAL BUILDINGS AND DWELLINGS	6513	531110	164582	112426.5	86021.5

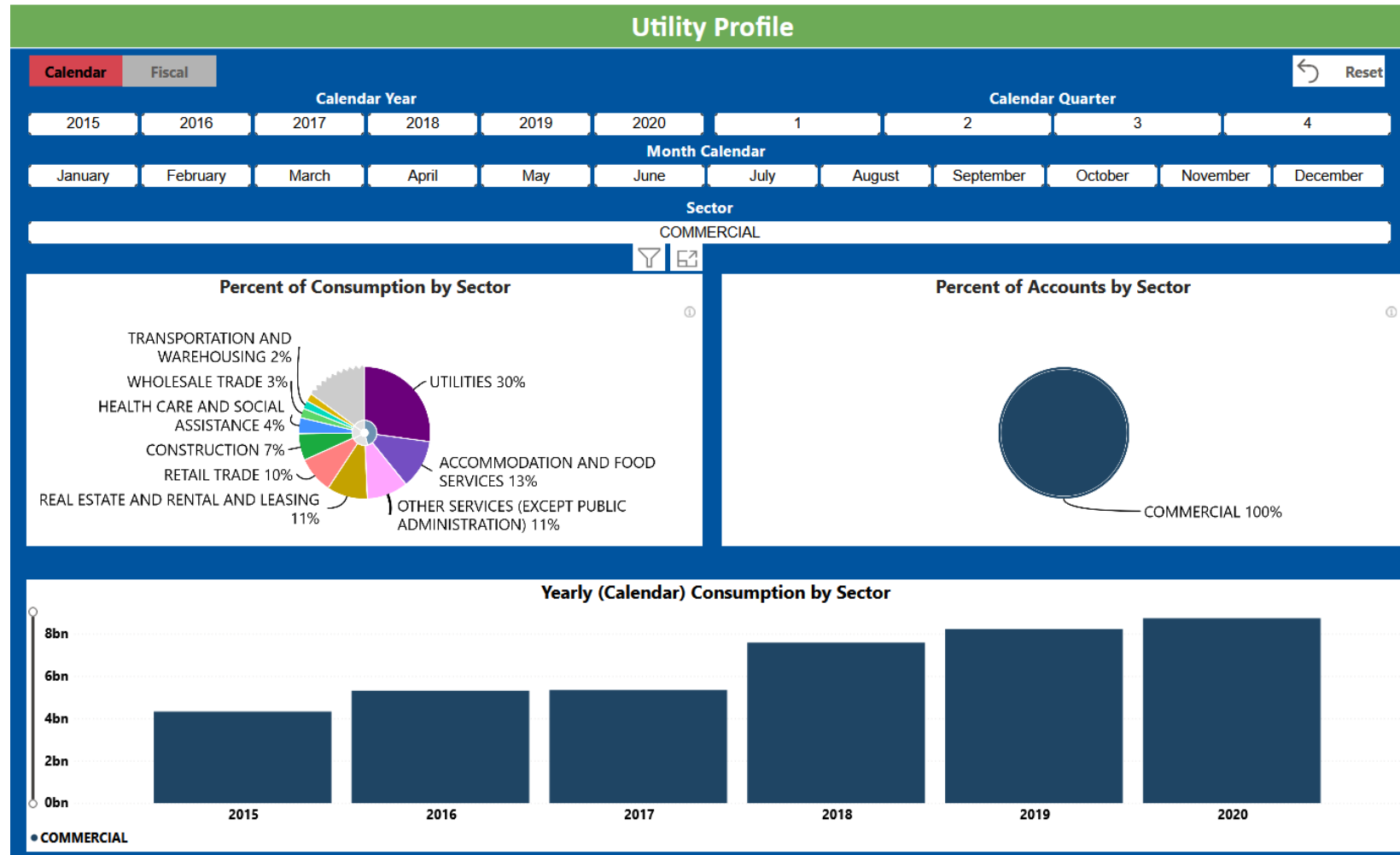
HOW DOES IT LOOK?



UTILITY PROFILE



UTILITY PROFILE



Map Plot

Calendar Year

2015

2016

2017

2018

2019

2020

Customer

All

Customer
Details

Reset

ICIM

INDUSTRIAL

COMMERCIAL

INSTITUTIONAL

MULTIFAMILY

Type of Business

ACCOMMODATION...

ADMINISTRATIVE ...

AGRICULTURE, FO...

ARTS, ENTERTAIN...

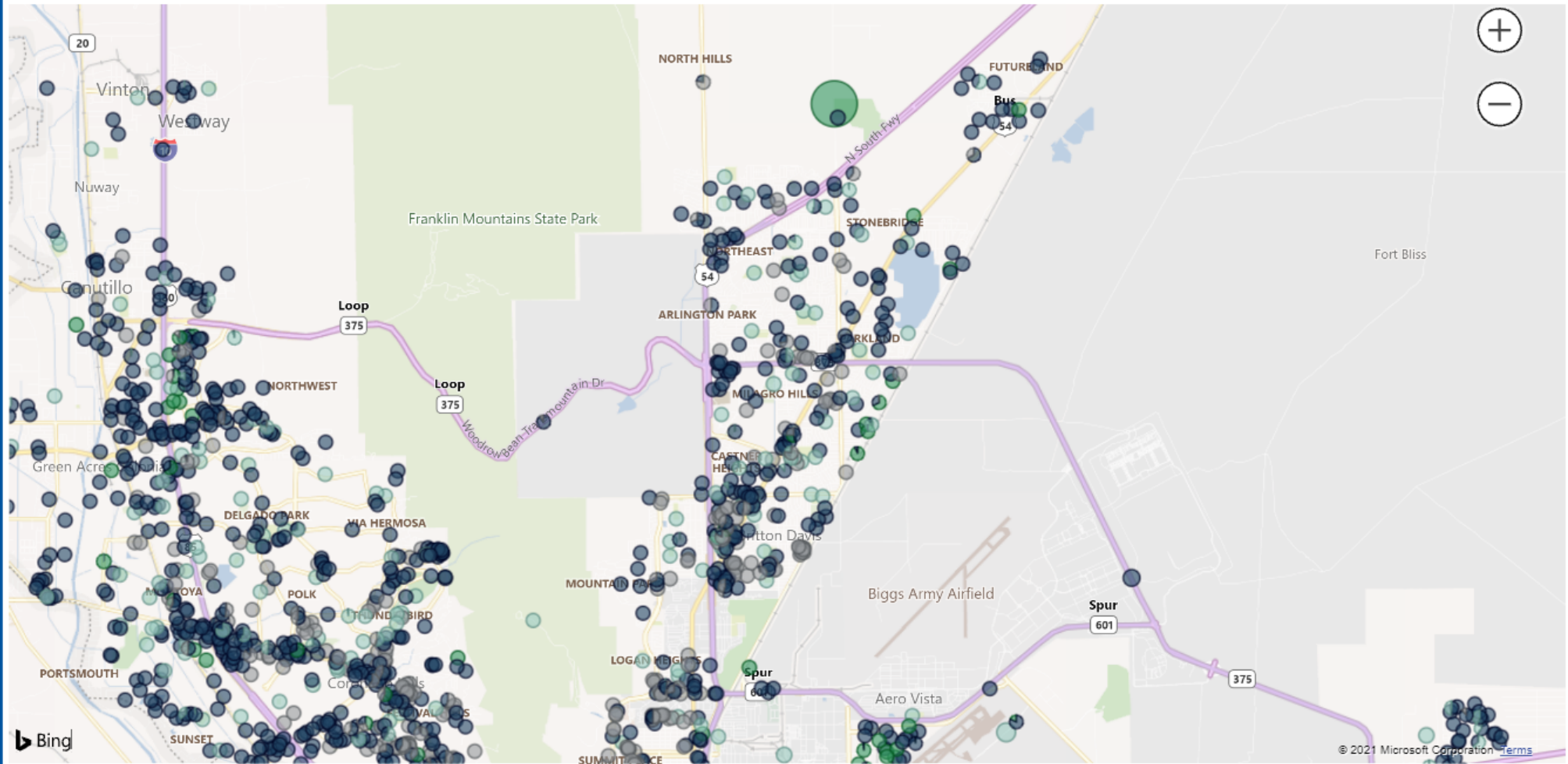
CONSTRUCTION

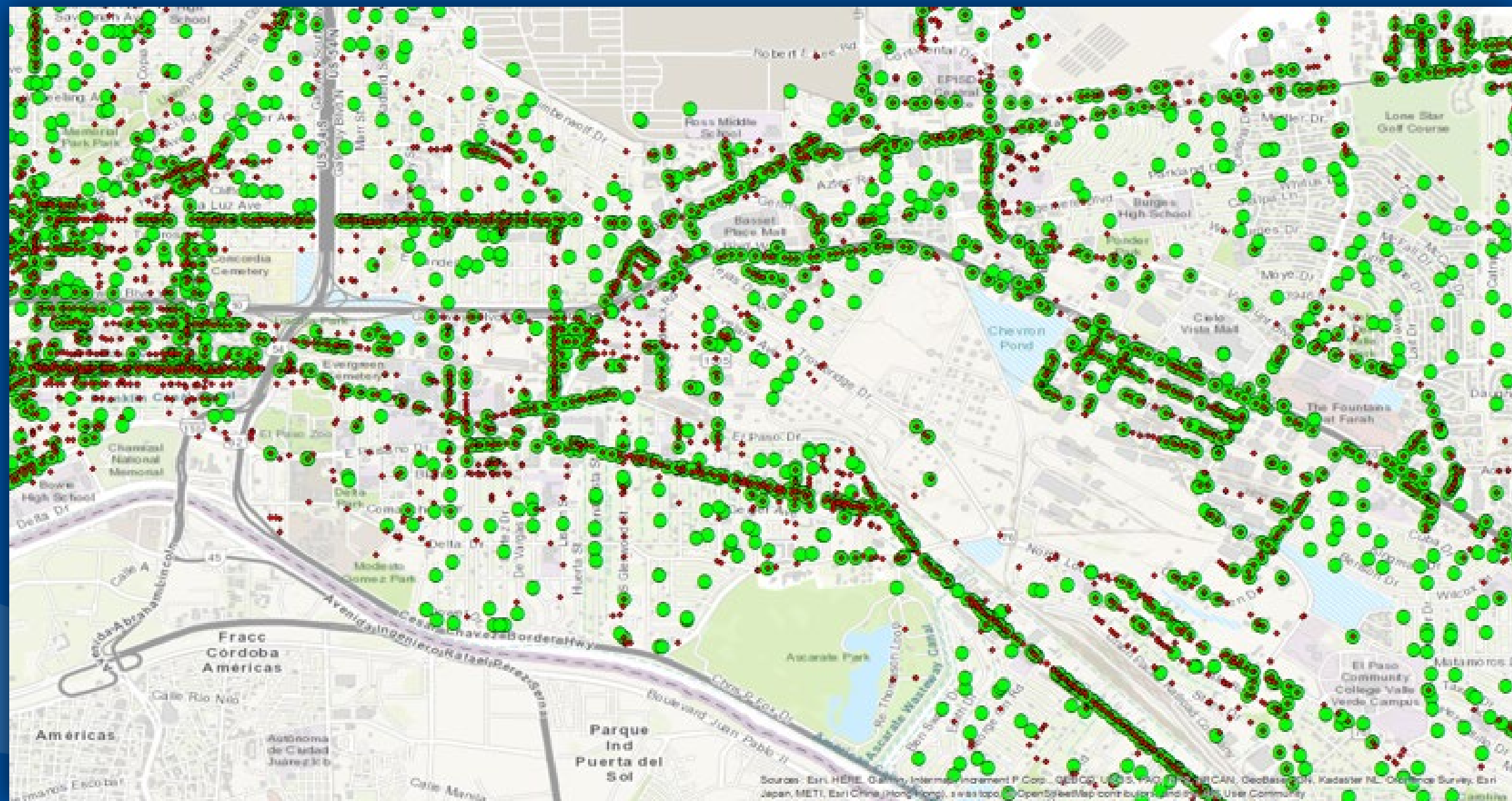
EDUCATIONAL SE...

FINANCE AND INS...

HEALTH CARE AN...

● INDUSTRIAL ● COMMERCIAL ● INSTITUTIONAL ● MULTIFAMILY







BENCHMARKING

DRILLING DOWN





Car Wash Benchmarking



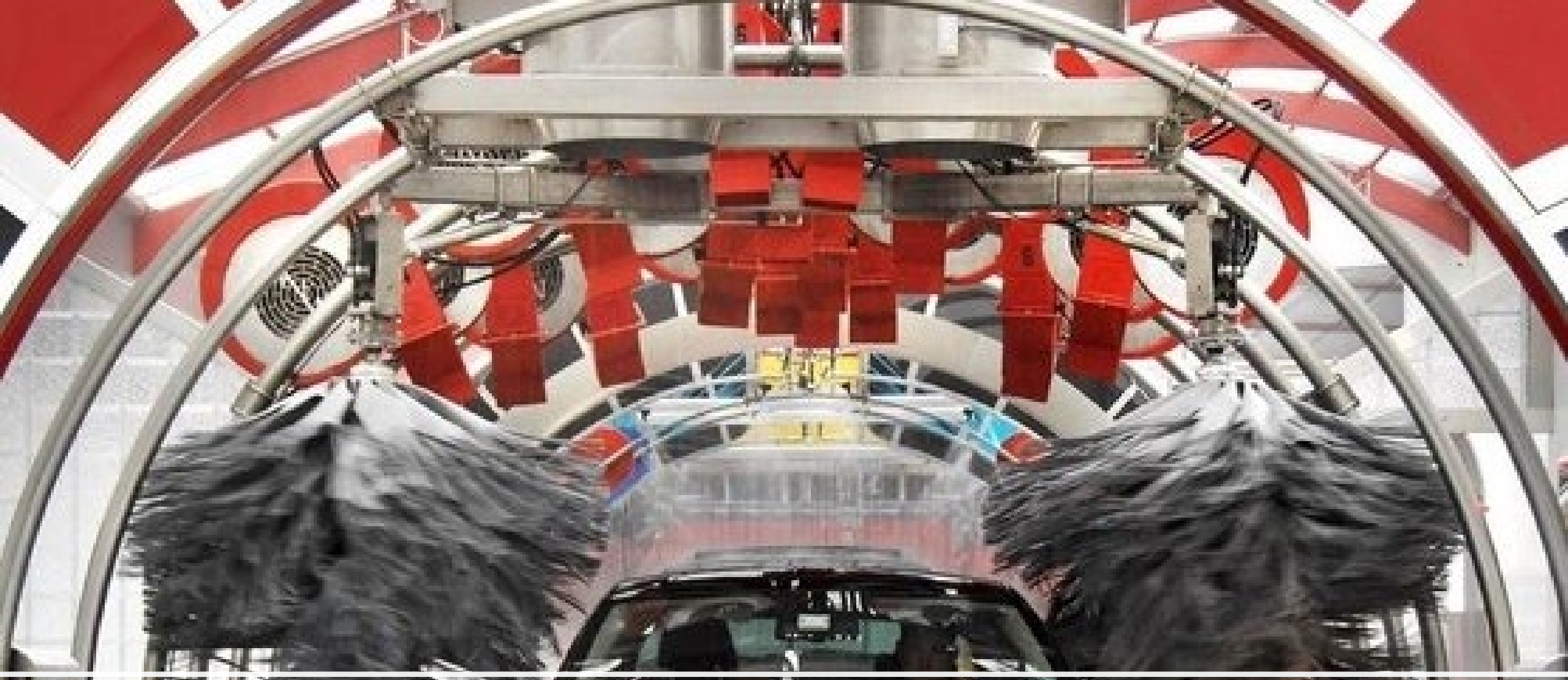
Self Serve Car Wash



Roll Over In-Bay Car Wash



Self Serve/Roll Over In-Bay Car Wash



Tunnel Car Wash



CAR WASH WATER USE BY TYPE



The following assumptions are in line with the International Carwash Association:

- Rollover In-Bay – 50 Gallons/Car and 60 Washes/Bay/Day
- Self-Serve – 15 Gallons/Car and 15 Cars/Bay/Day
- Self-Serve & Rollover In-Bay – 25 Gallons/Car and 15 Cars/Bay/Day
- Tunnel – 30 Gallons/Car and 125 Cars/Day

CAR WASH BENCHMARKING



Water consumption at car wash facilities can and will vary based on the type of car wash, number of cars washed per day and the efficiency of the onsite equipment. Benchmarking, in terms of cars washed per day or gallons per car, can help to provide a more accurate comparison of water use and provide a basis for more detailed analysis in the future.

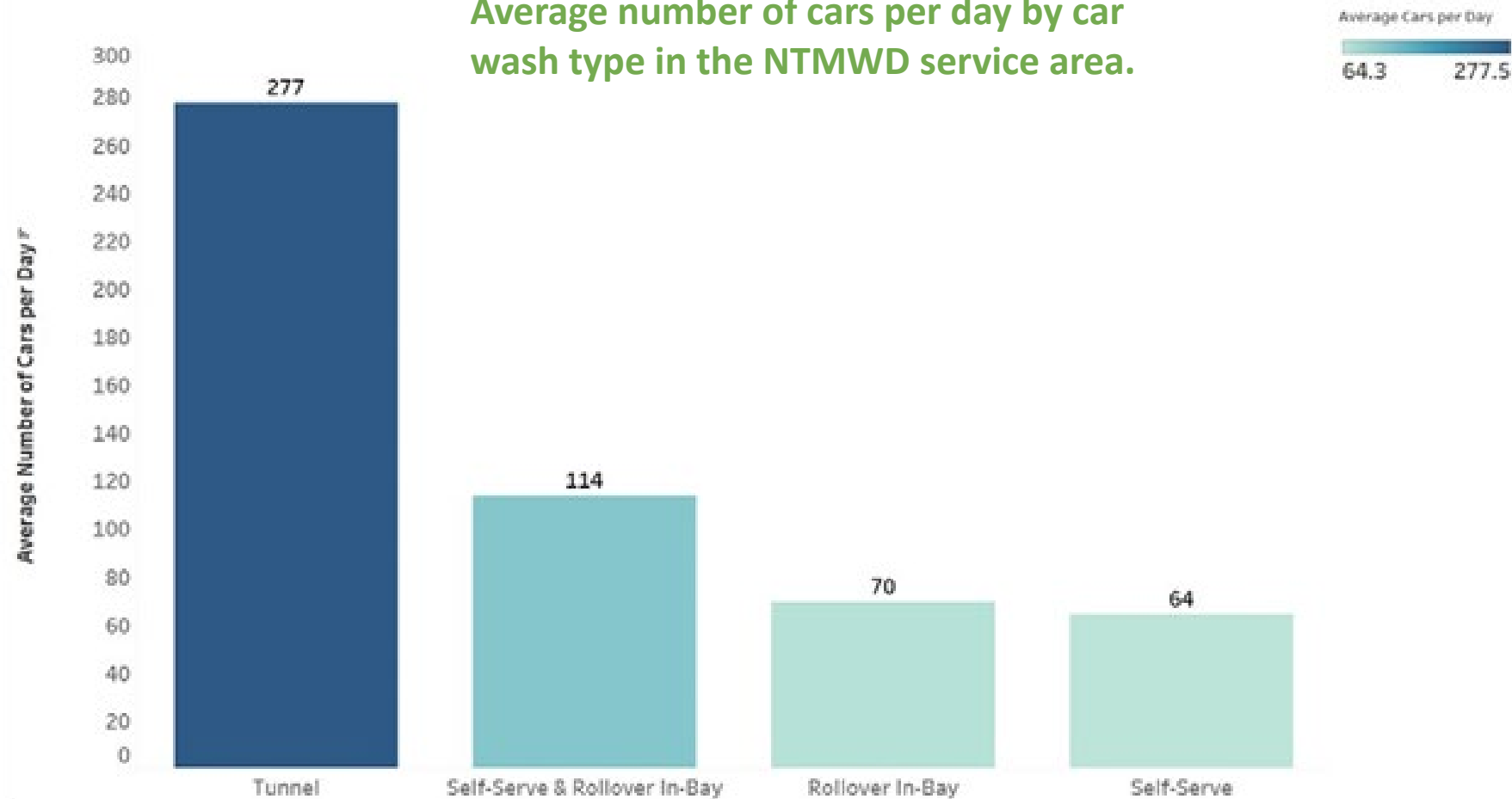


BENCHMARKING

CAR WASH BENCHMARKING – AVG. CARS/DAY



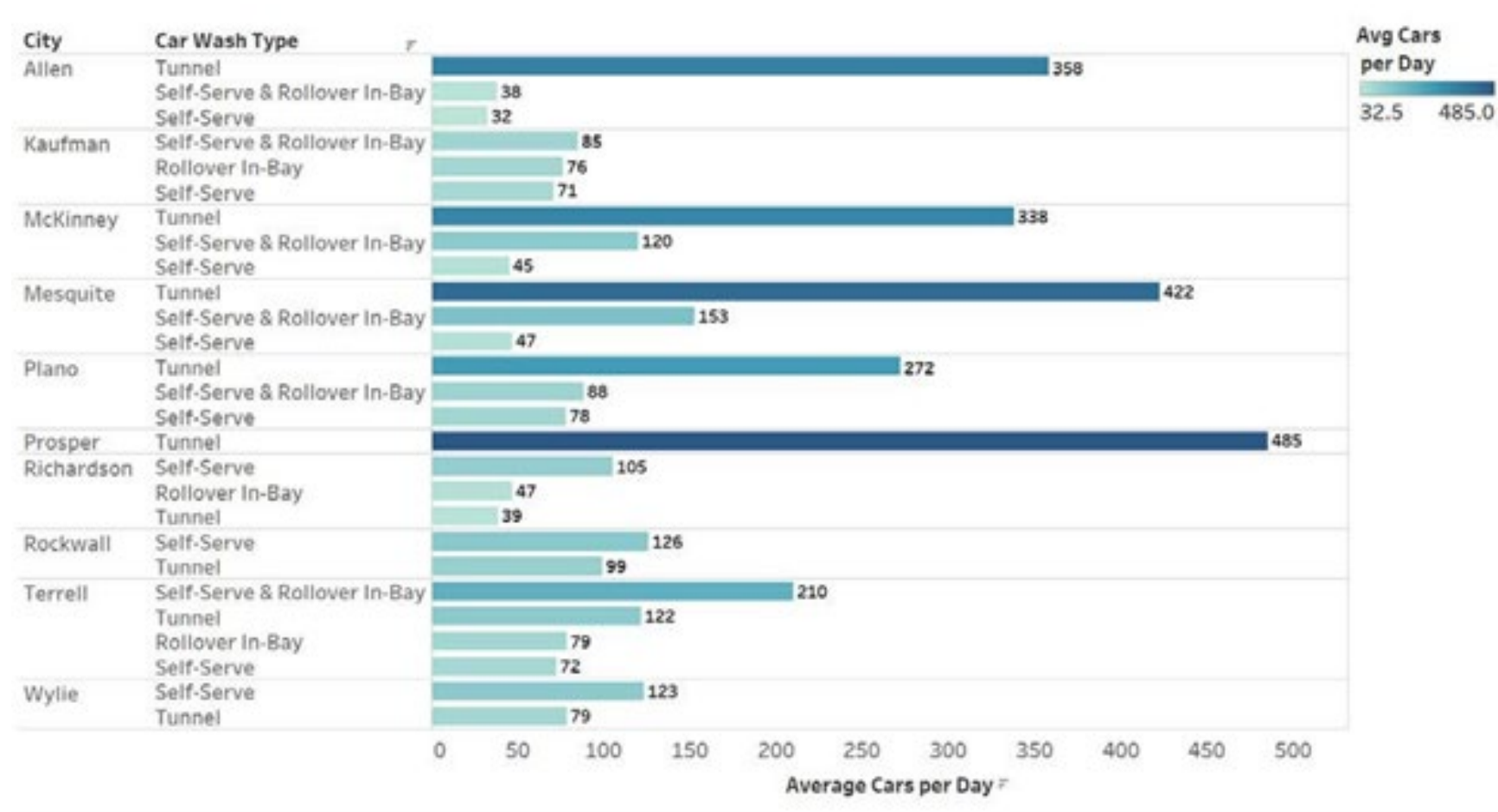
Average number of cars per day by car wash type in the NTMWD service area.



CAR WASH BENCHMARKING – AVG. CARS/DAY



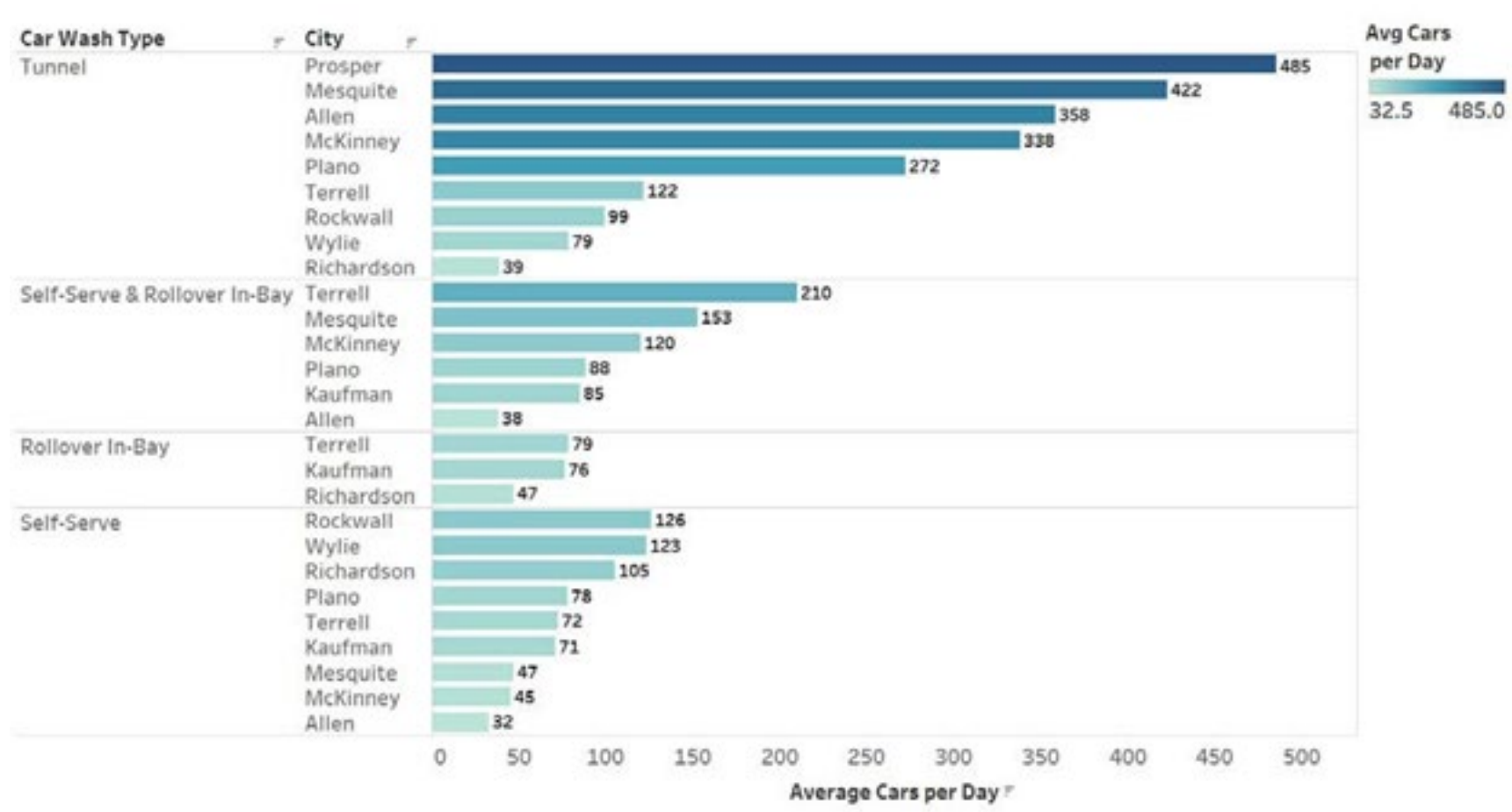
Average number of cars per day by car wash type within each participating city.



CAR WASH BENCHMARKING – AVG. CARS/DAY



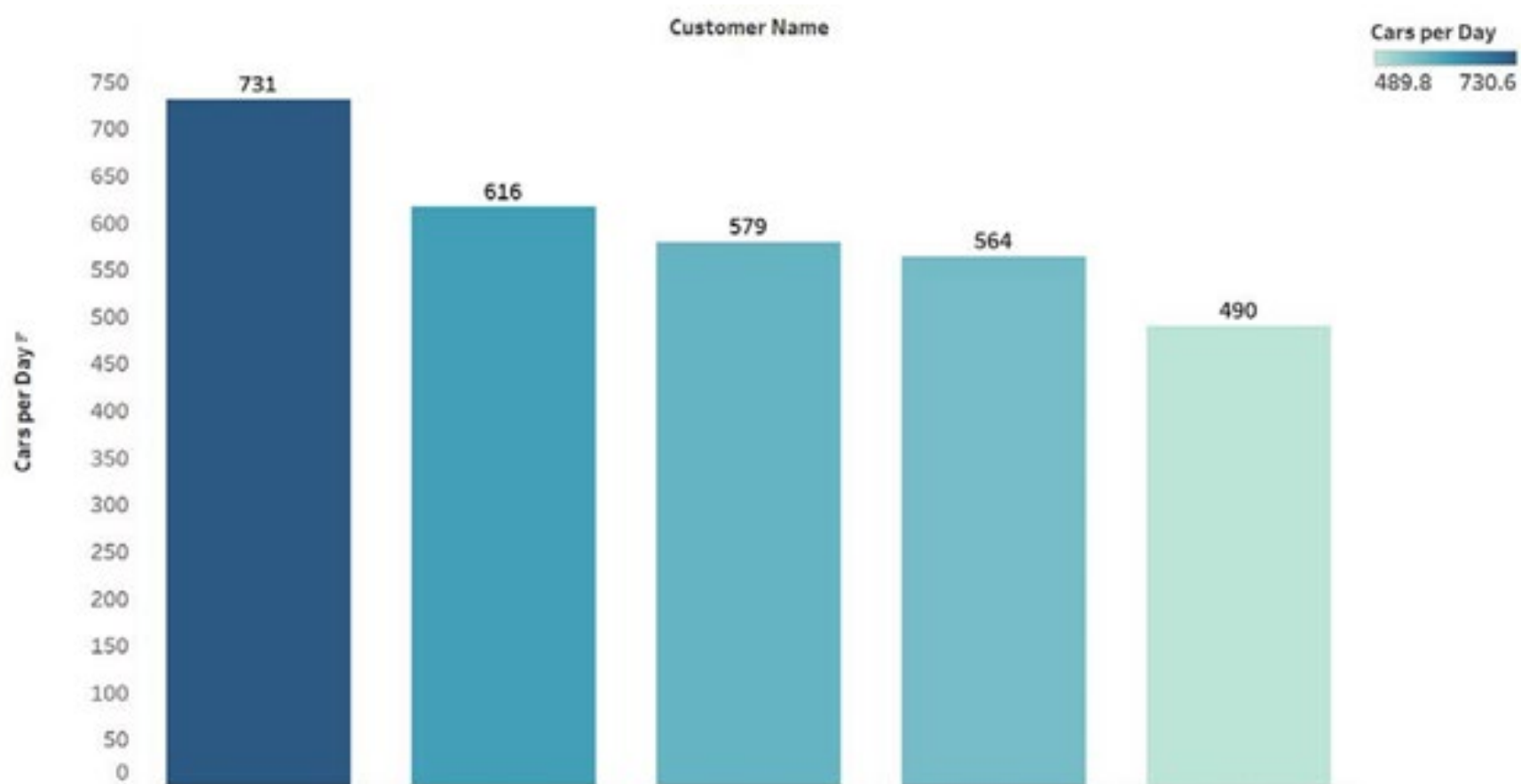
Average number of cars per day within each participating city for each car wash type.



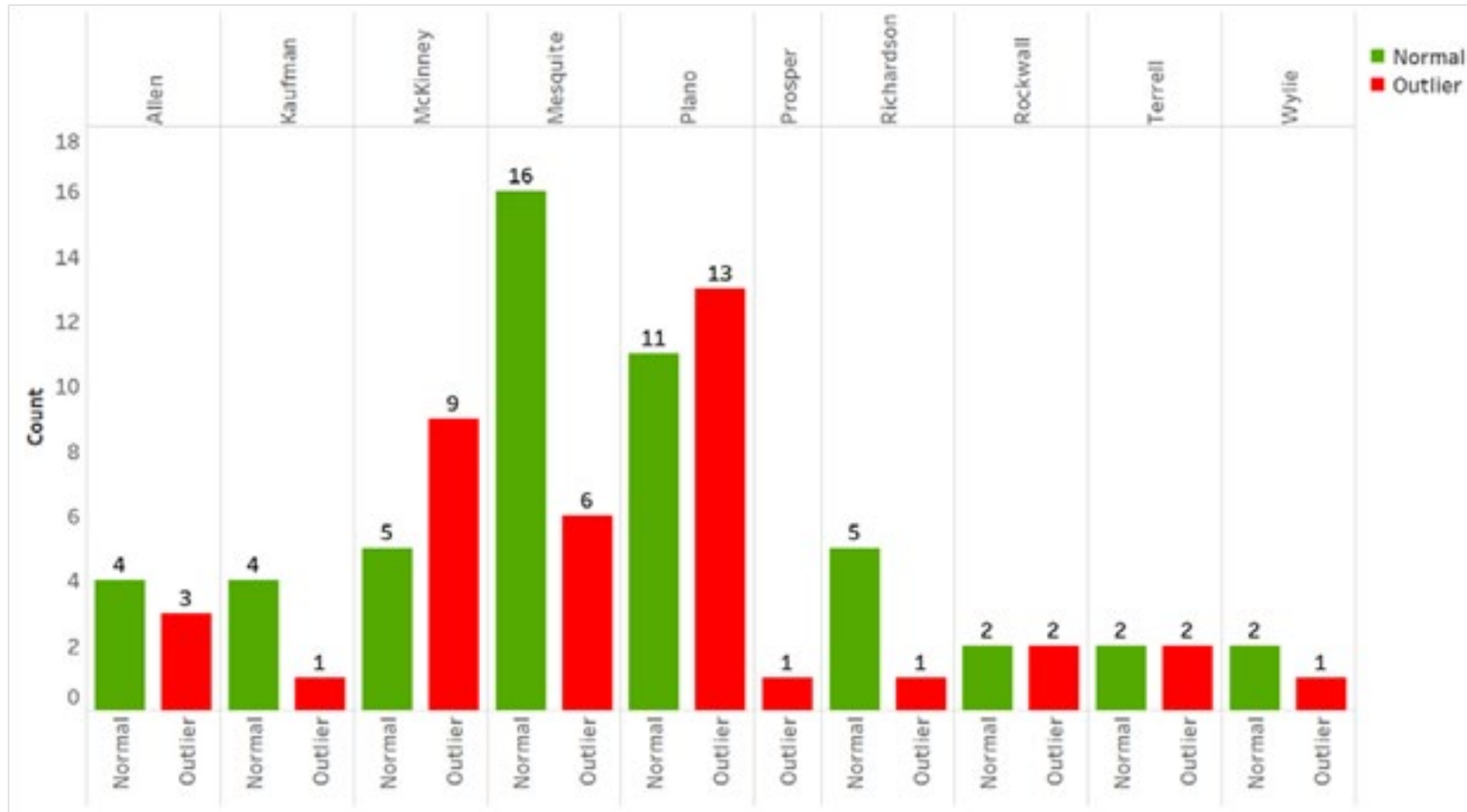
CAR WASH BENCHMARKING – AVG. CARS/DAY



The top 5 benchmarked car washes in the NTMWD service area in Cars per Day.



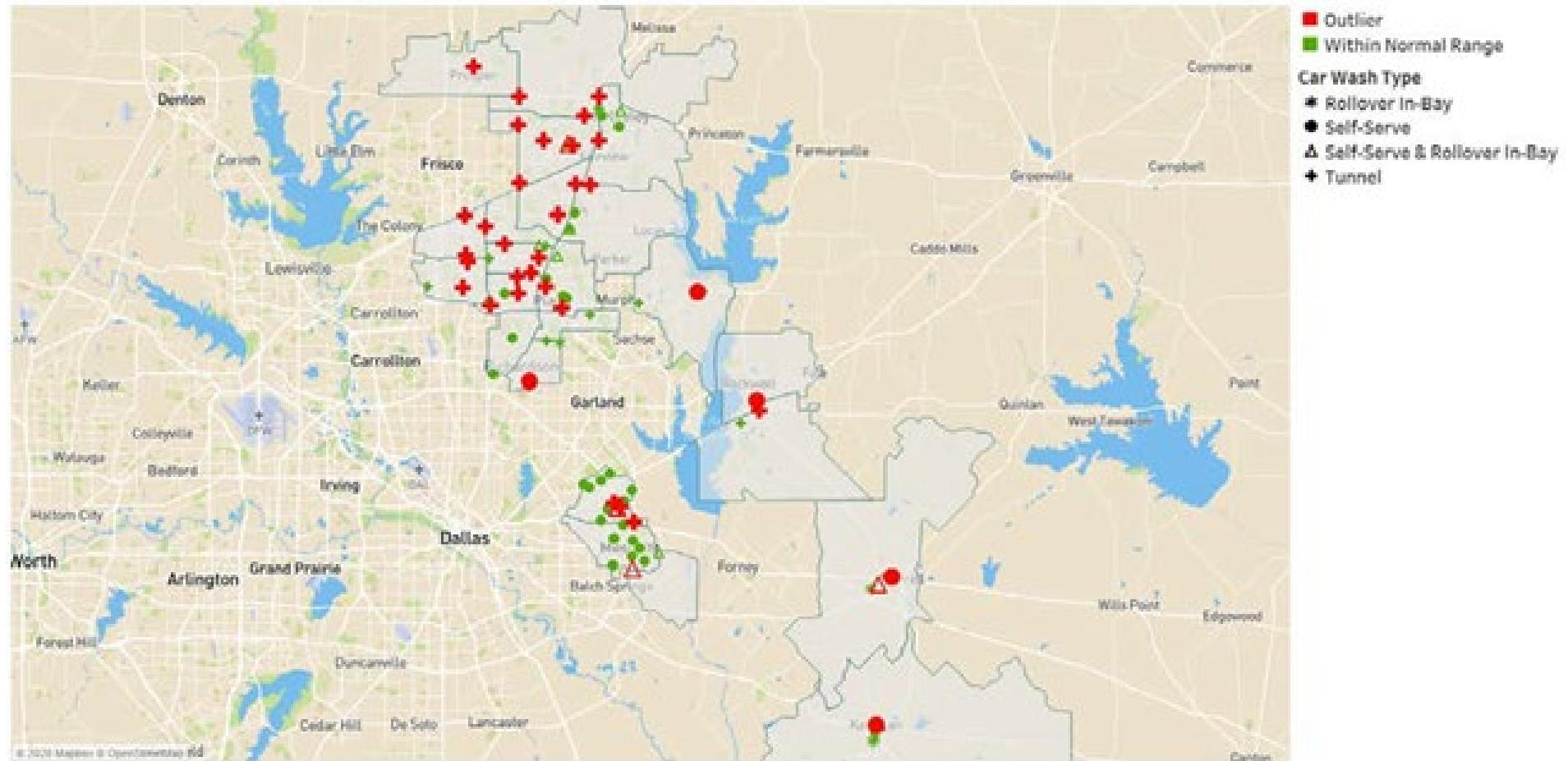
CAR WASH BENCHMARKING – OUTLIERS



CAR WASH BENCHMARKING – OUTLIERS



NTMWD - Car Wash





Multifamily Benchmarking

Multifamily Residential



- Apartments
- Nursing Care Facilities
- Homeless Shelters
- Senior Living Establishment
- Assisted Living
- Mental Health Facilities
- Substance Abuse Treatment



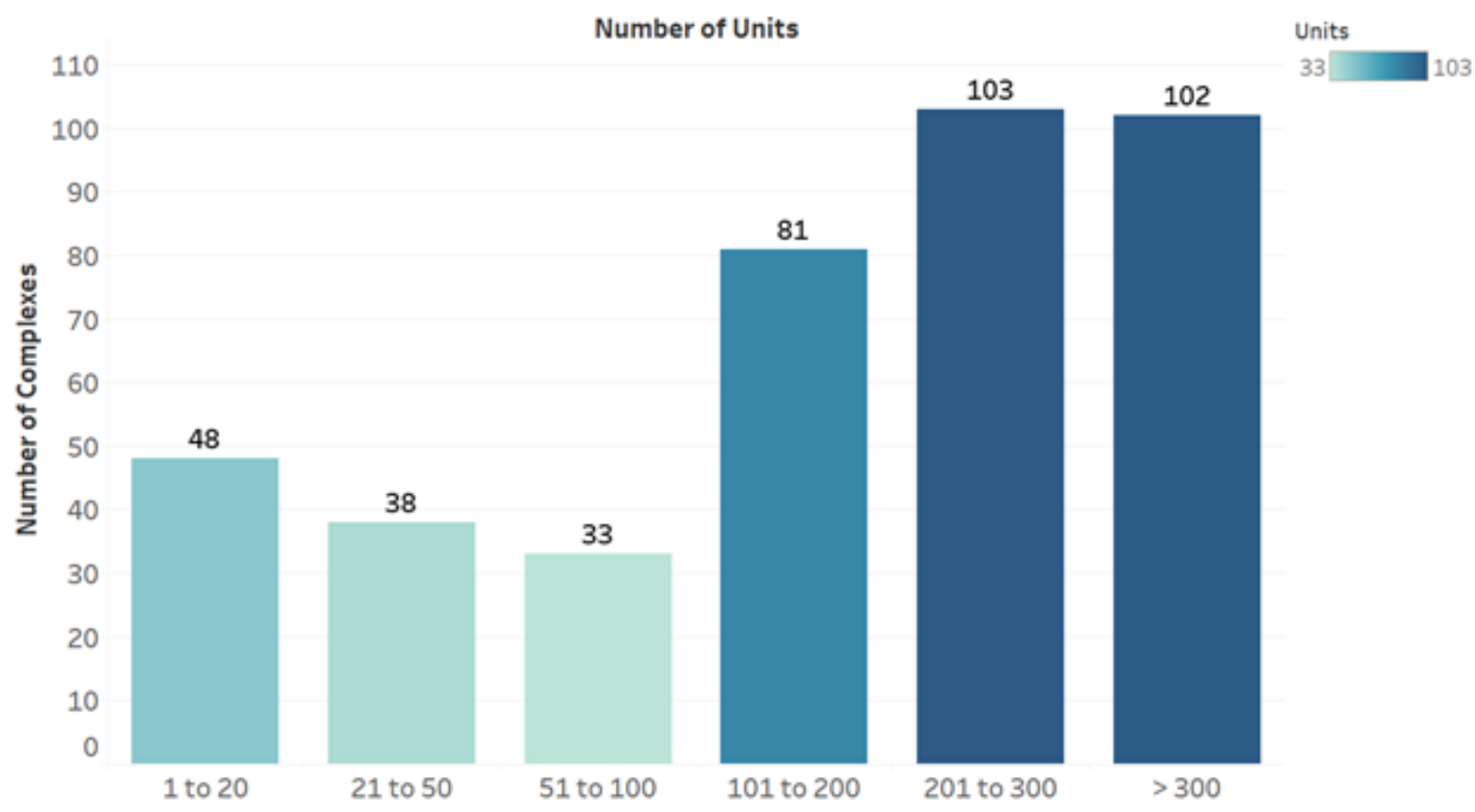
Multifamily Residential Statistics



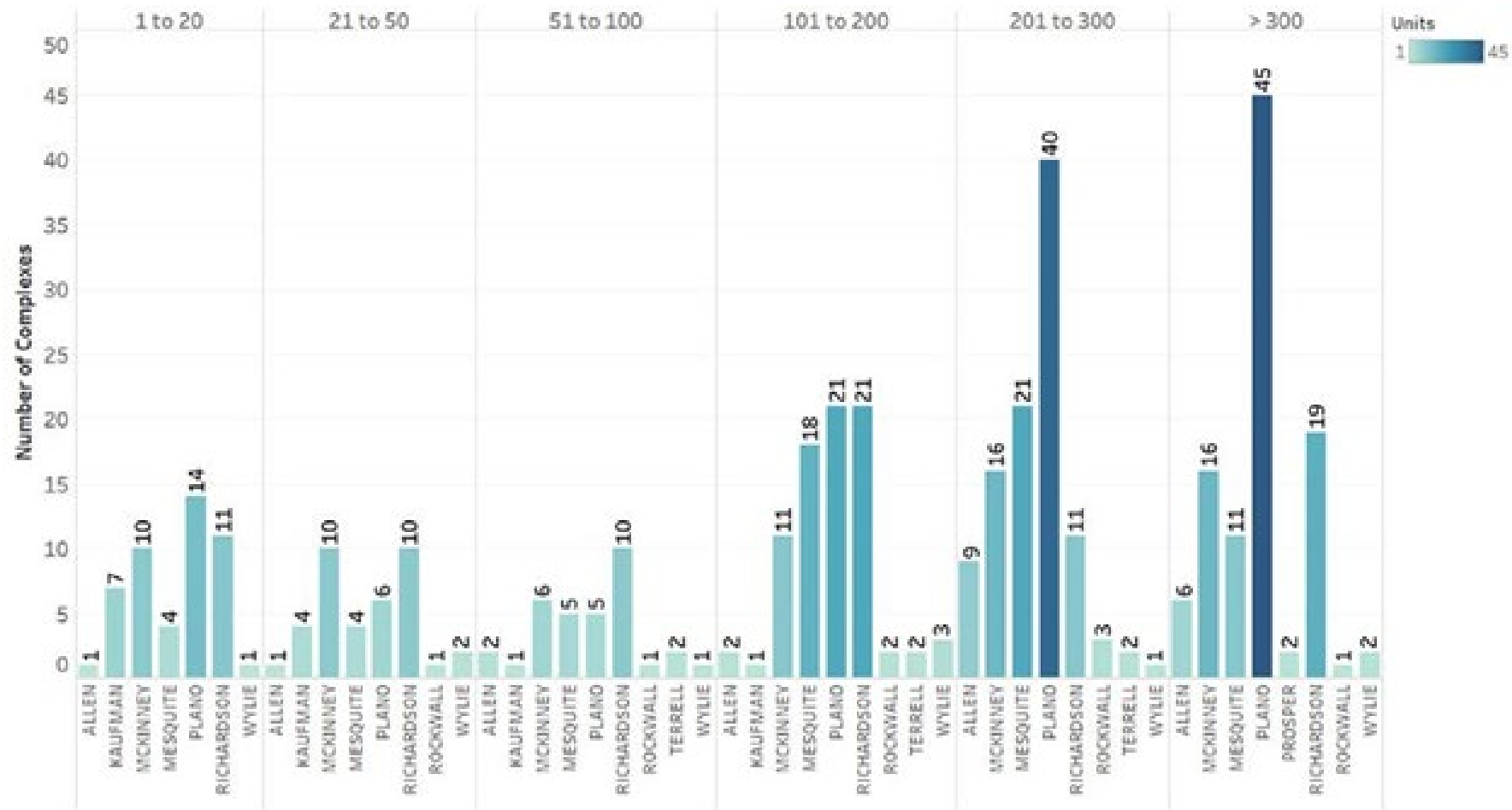
- 405 Complexes
- 86,599 Residential Units
- 209 Complexes Built from 1976 to 2000
- 112 Complexes Built from 2000 to 2019
- 84 Units Built prior to 1976
- Water Use Ranges from 5.8 to 140.4 GPCD
- 20.5% Outliers



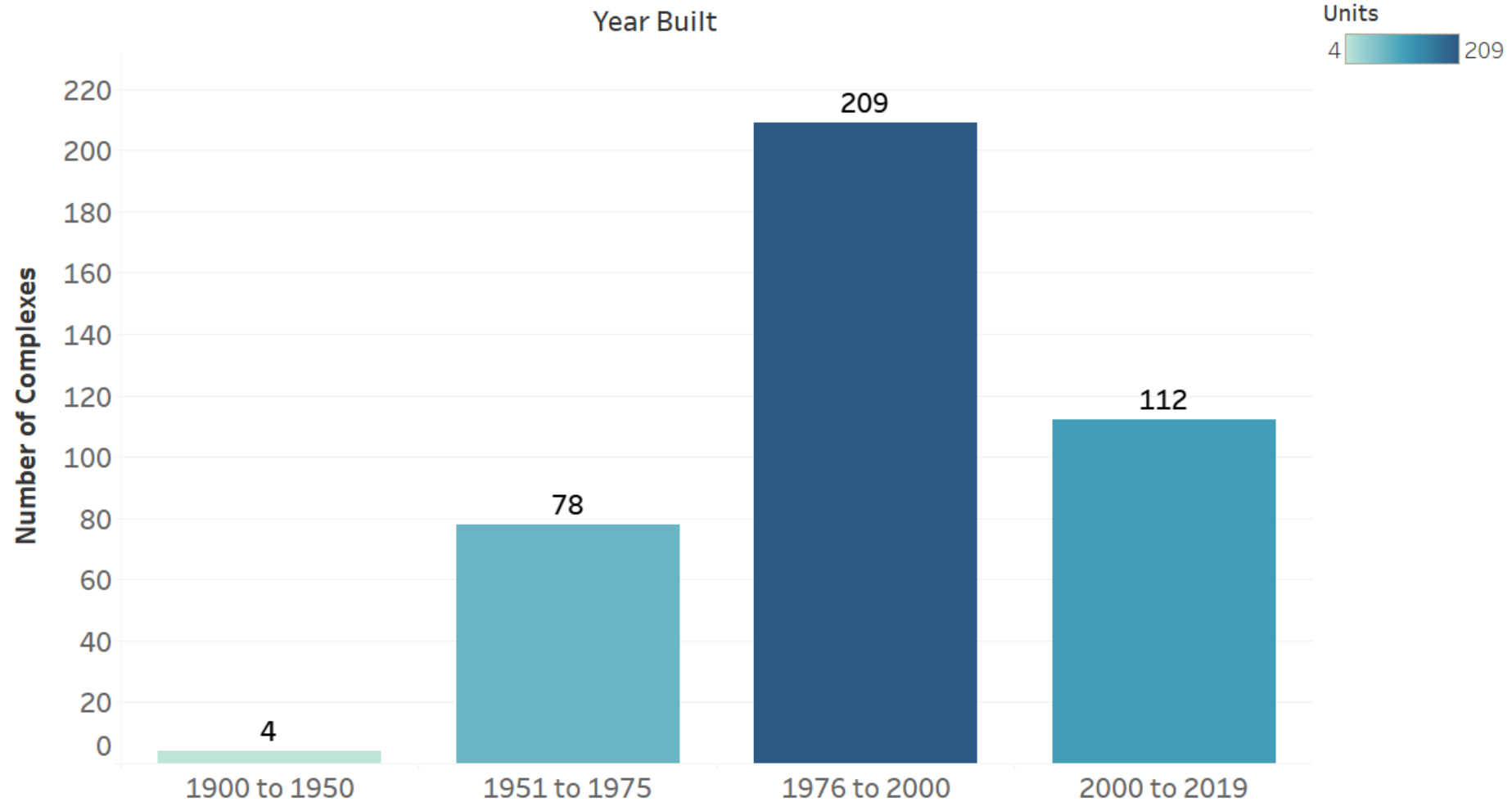
Multifamily Residential Complexes by Size



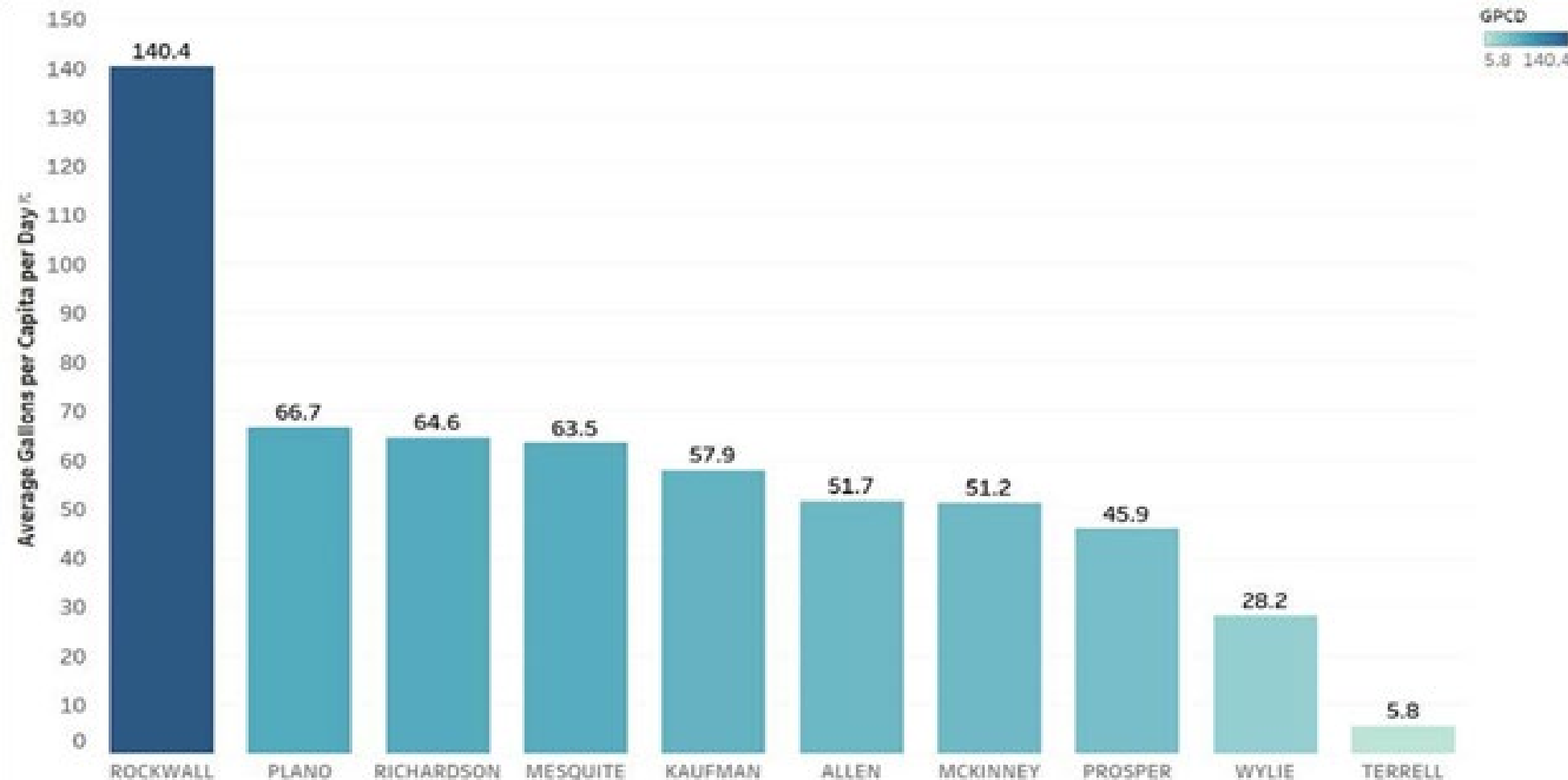
Multifamily Residential Complexes by Size & City



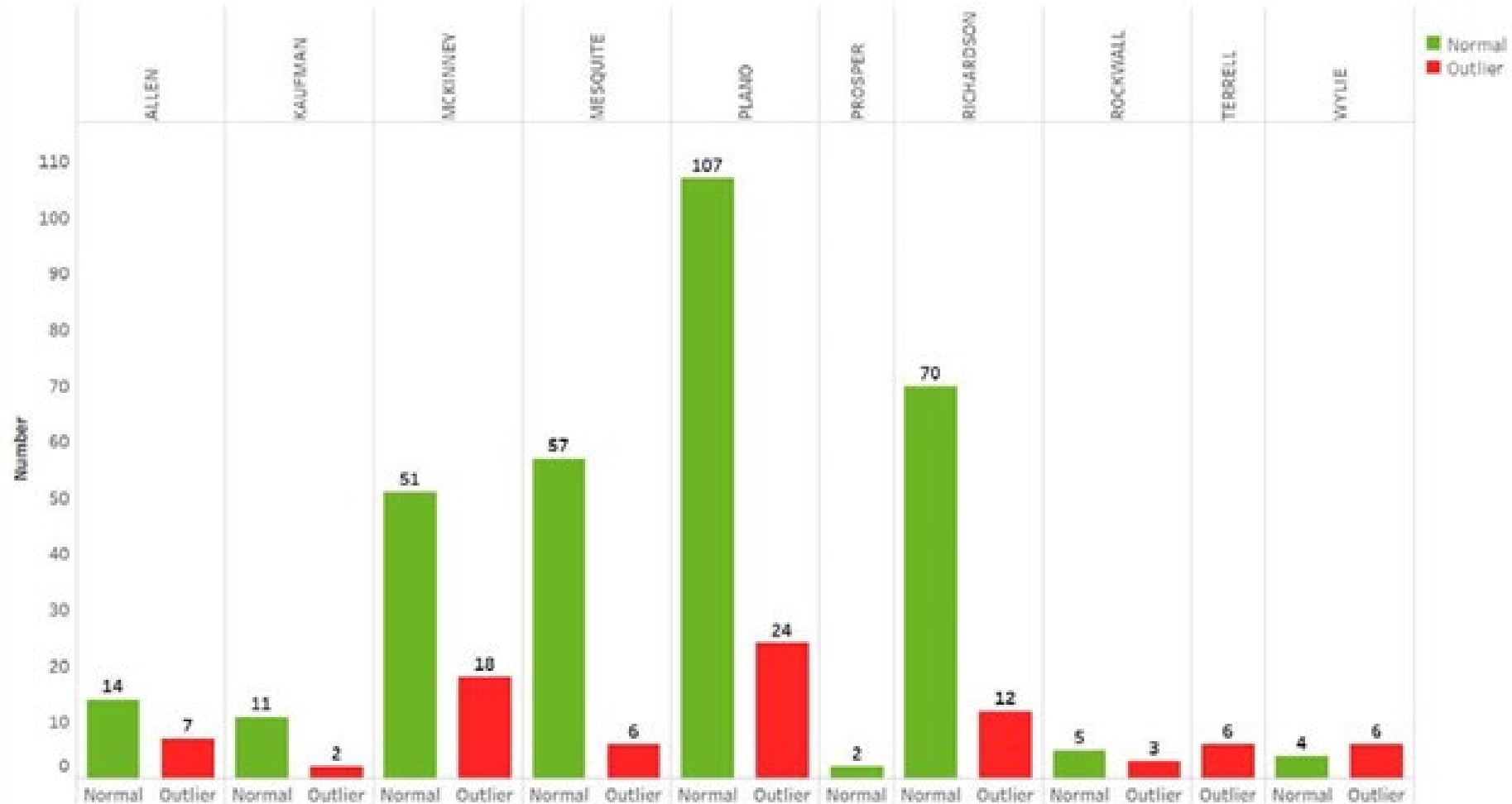
Multifamily Residential Complexes Year Built



Multifamily Residential GPCD by City



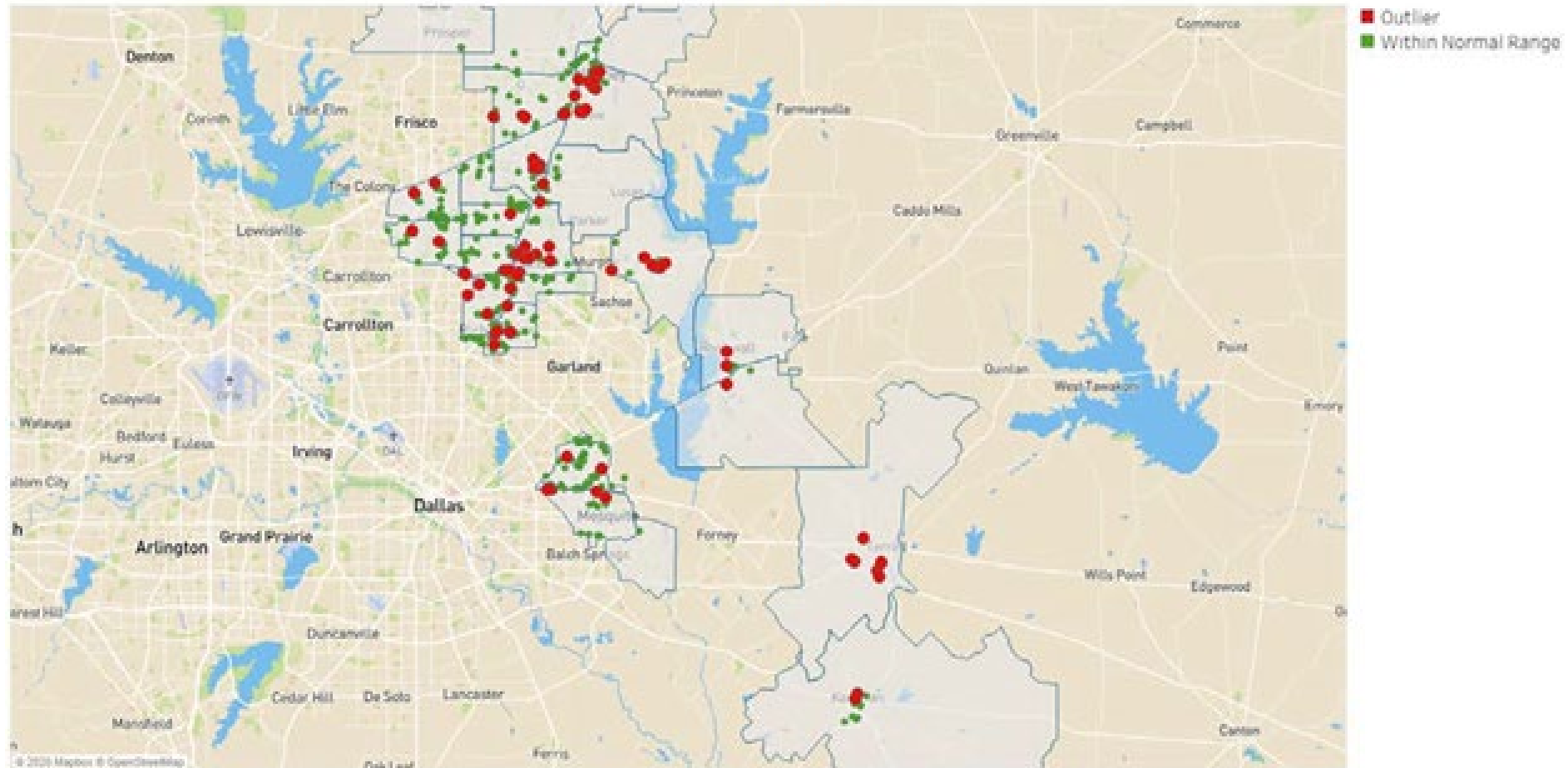
Multifamily Residential Outliers by City



Multifamily Residential Outliers by City



NTMWD - Apartments



Multifamily Residential Outliers by City



COMPLEX NAME	CITY	UNITS	BENCHMARK - GPCD
A	ROCKWALL	36	853.5
B	MESQUITE	15	321.7
C	ALLEN	32	216.2
D	RICHARDSON	34	164.0
E	RICHARDSON	60	155.3
F	MCKINNEY	220	154.5
G	MESQUITE	146	146.8
H	ALLEN	126	143.1
I	PLANO	266	142.2
J	PLANO	474	141.9



Restaurant Benchmarking

Data Included



Restaurant Name

Address

Phone Number

Restaurant Category

Average Cost per Meal

Average Annual Meals Sold

Average Meals Sold per Day

Average Gallons per Meal - Benchmark

Average Annual Consumption

Fast Casual vs Fast Food



FAST CASUAL

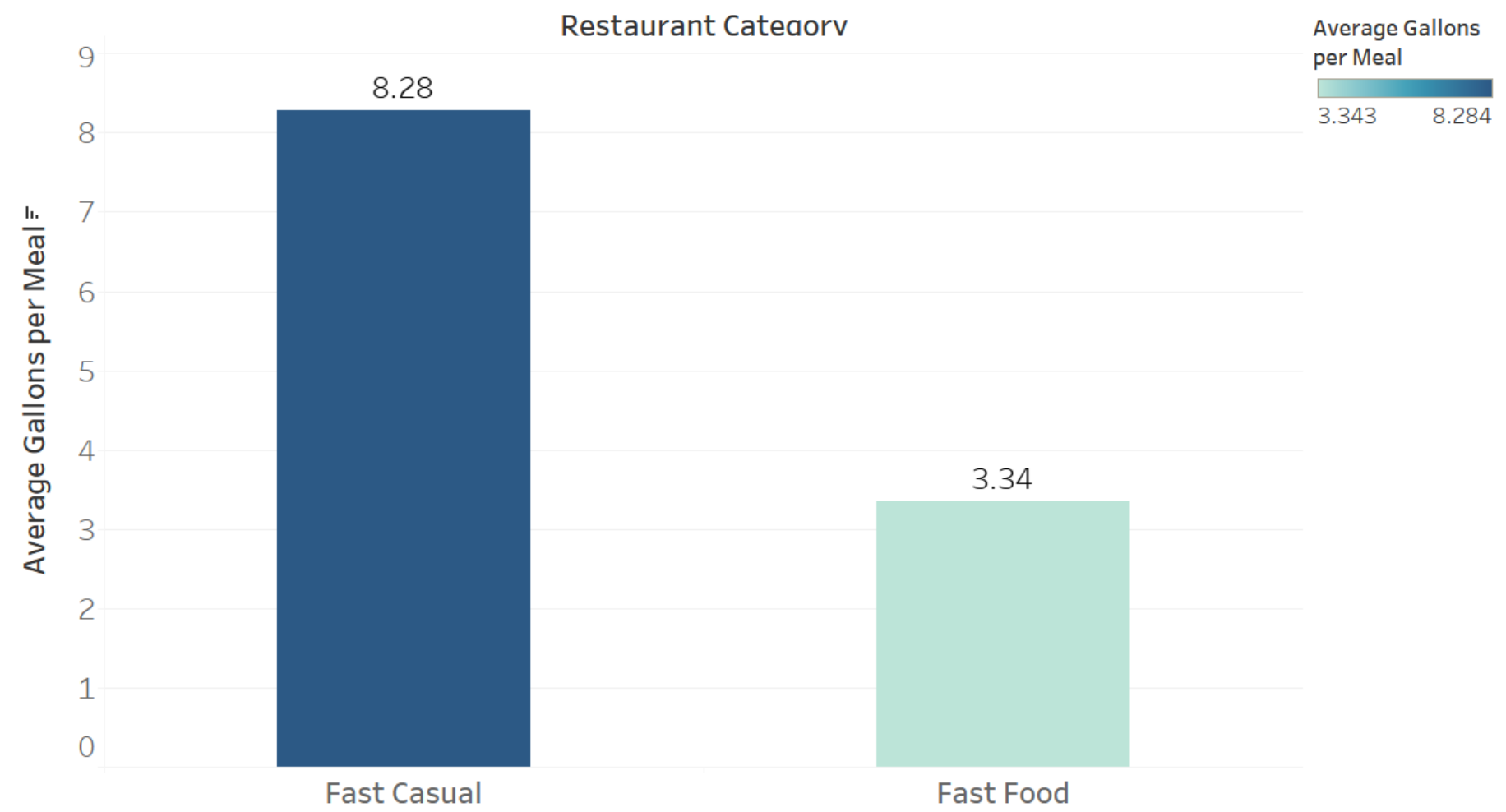
- Does not offer full table service
 - Advertises higher quality **food** than **fast food** restaurants
 - Fewer frozen or processed ingredients
 - Intermediate concept between **fast food** and **casual** dining.
 - \$13.30 Average Meal Cost vs \$6.70 for Fast Food
- Jason's Deli
 - Panera
 - Wingstop
 - Chipotle
 - Schlotzsky's
 - Jimmy John's
 - Zaxby's

Top 5 Benchmarked Fast Foods

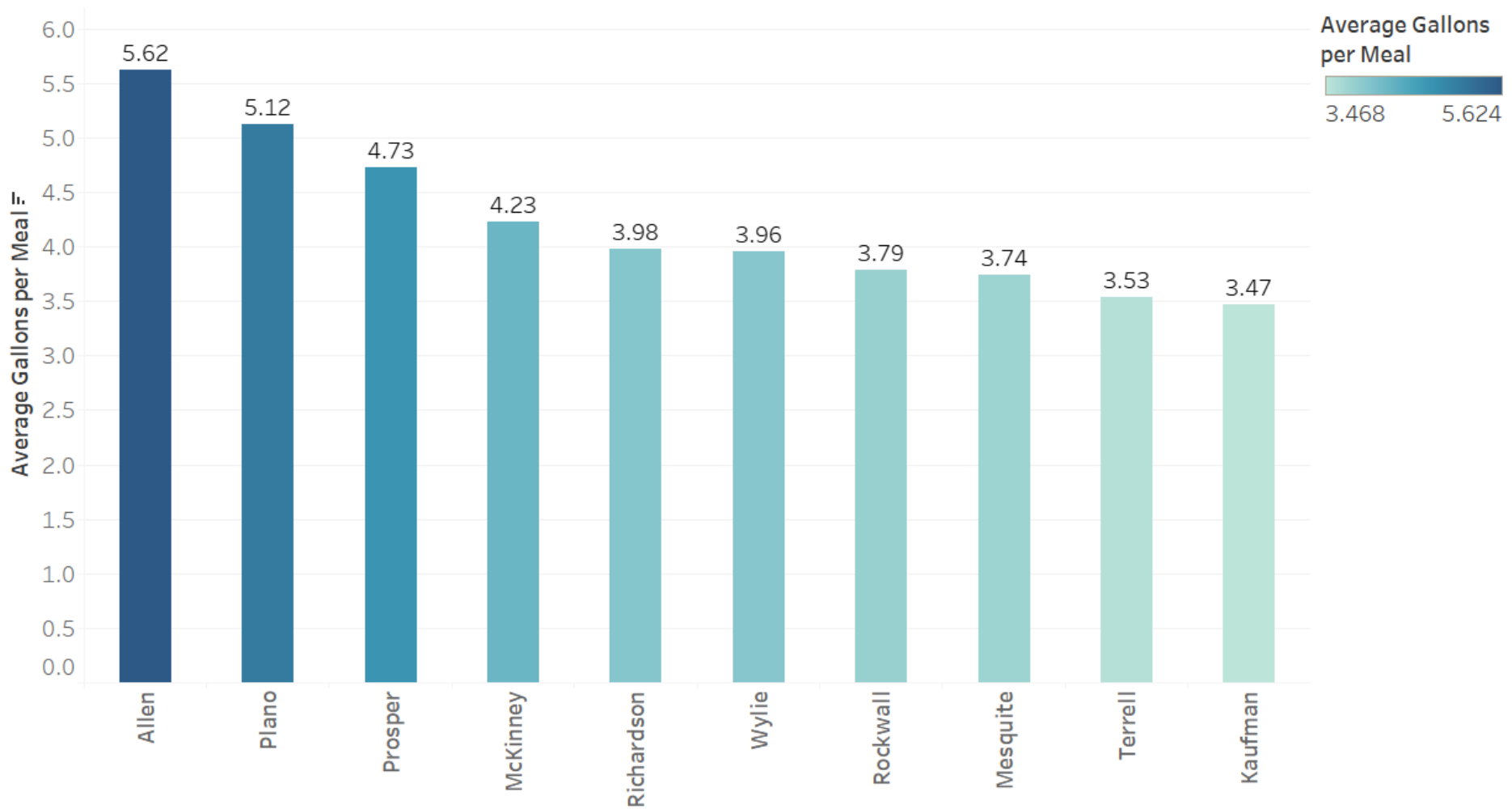


Restaurant	Restaurant Category	City	Benchmark (Gal/Meal)
PIZZA STORE	Fast Casual	PLANO	125.58
ANOTHER PIZZA STORE	Fast Casual	ALLEN	91.98
THAI RESTAURANT	Fast Casual	RICHARDSON	33.82
PETER PAN'S FRIEND	Fast Food	MESQUITE	20.71
TOFU RESTAURANT	Fast Casual	RICHARDSON	20.61

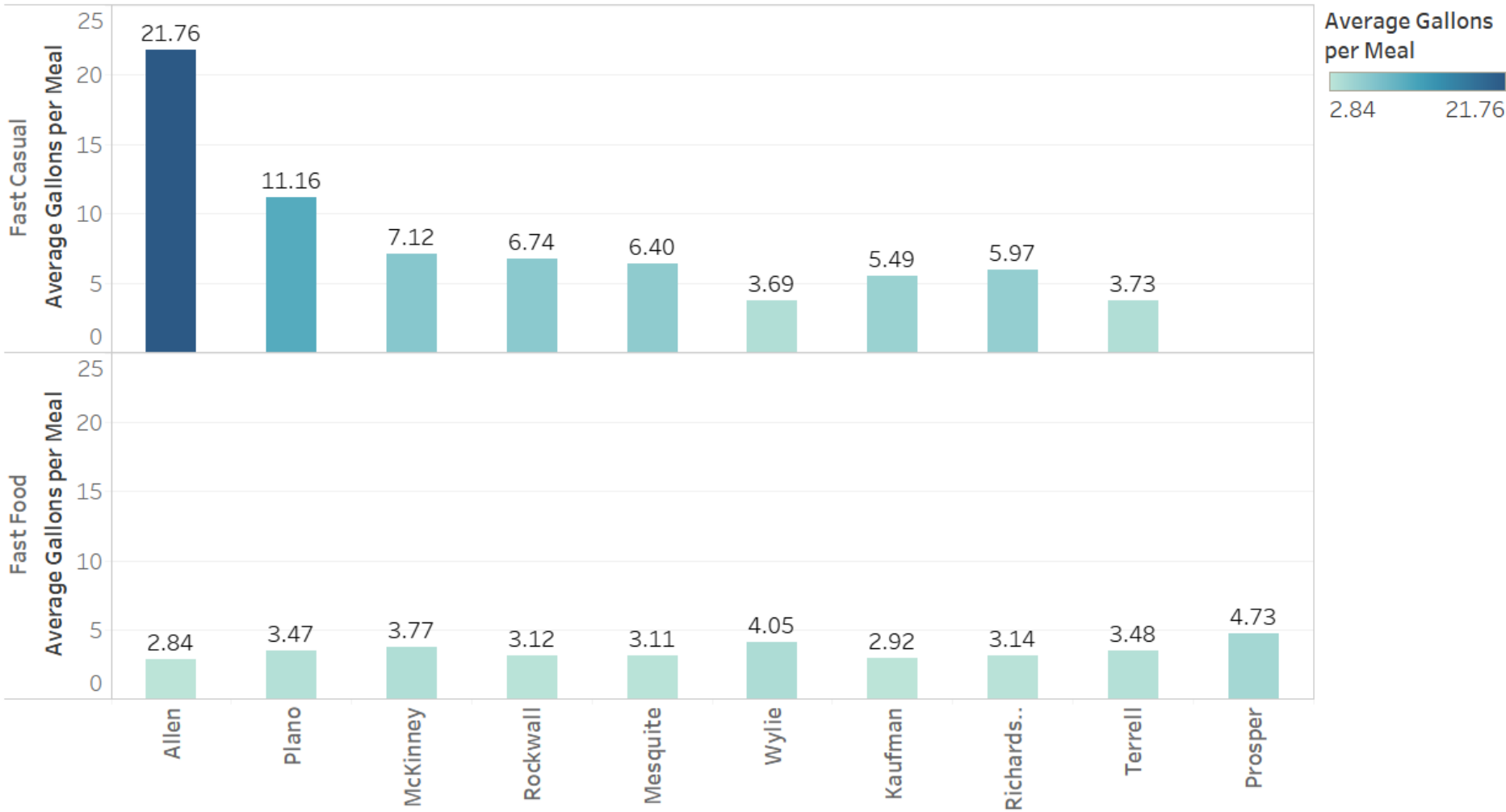
Average Benchmark by Restaurant Type



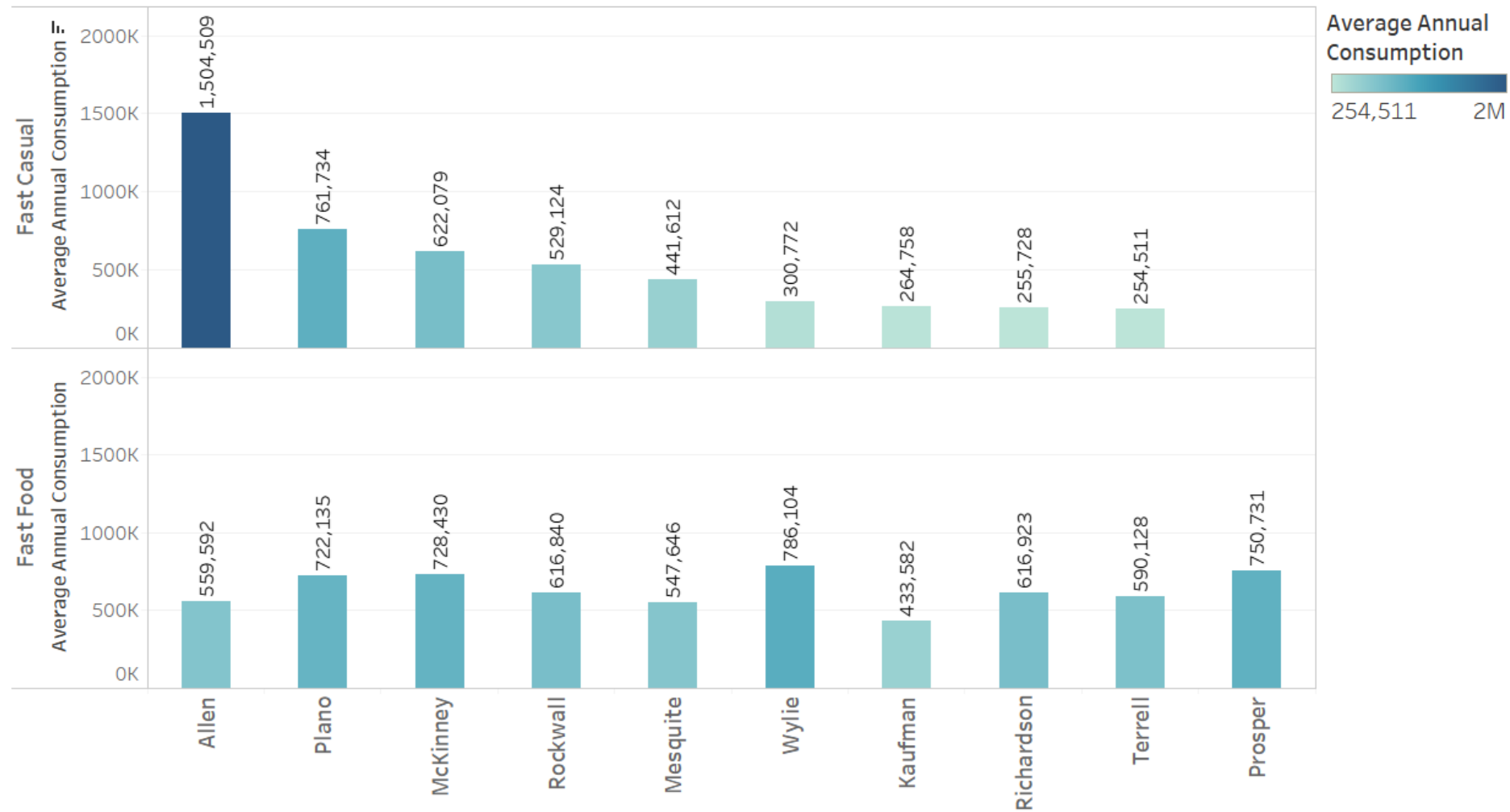
Average Benchmark by City

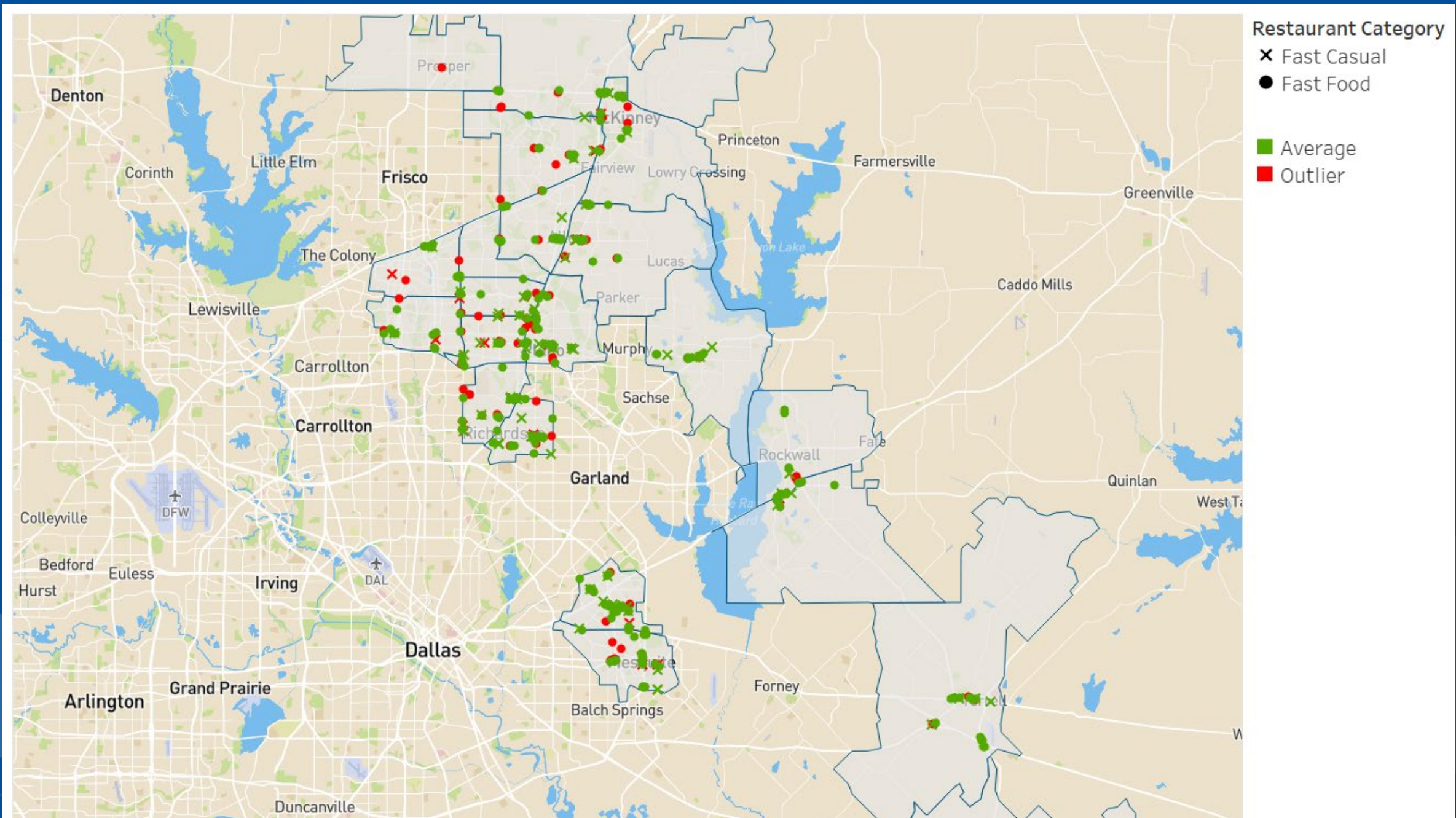


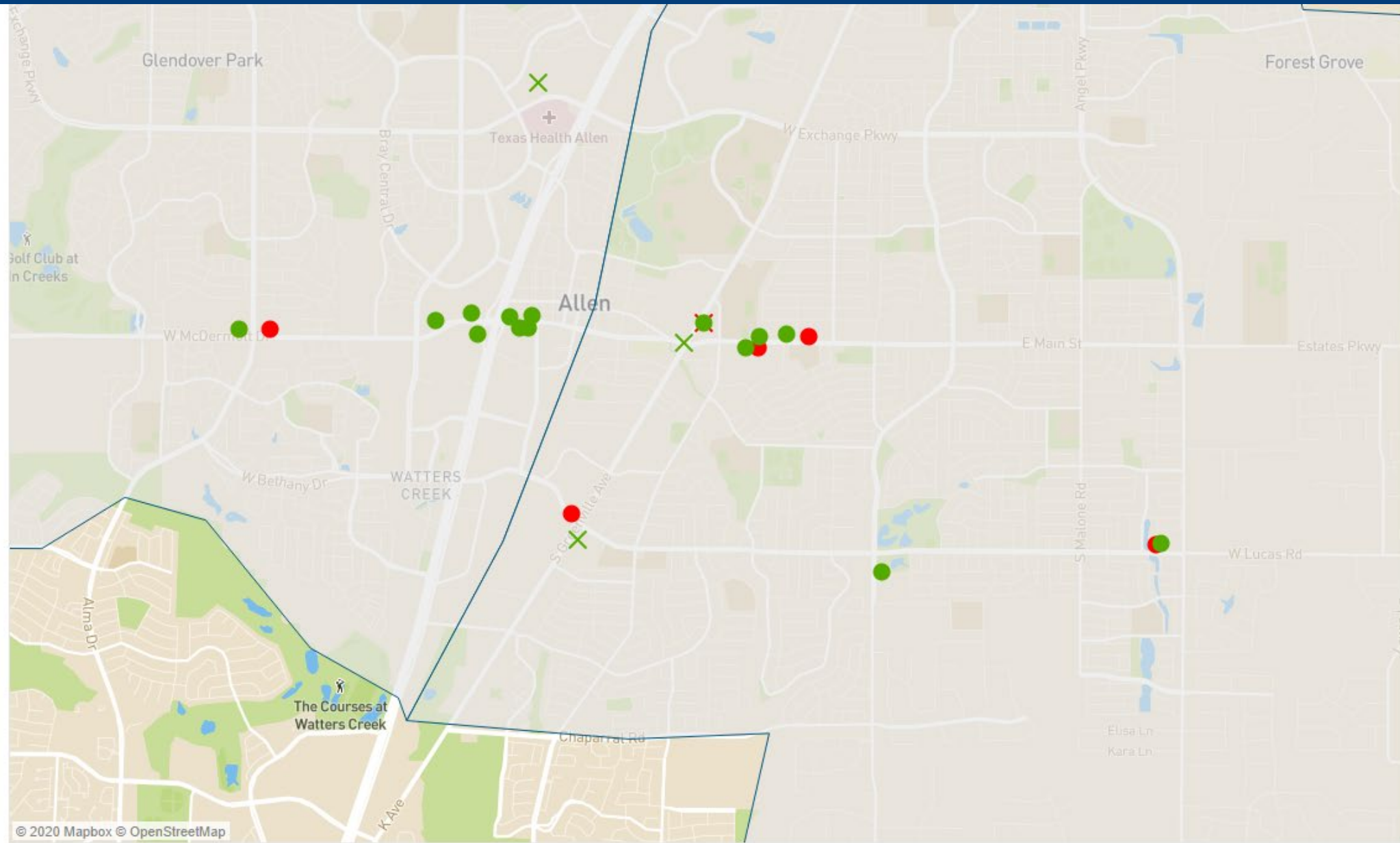
Average Benchmark by City by Restaurant Type



Average Annual Consumption City by Restaurant Type









PLUMMER

QUESTIONS?

Eddie Wilcut, Water and Energy Efficiency Services Practice Leader

Melissa Brewer, Water and Energy Efficiency Analyst

