

# The business benefits of GIS in Star Tribune

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Celebrating 150 years of covering  
what matters to Minnesotans

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America's  Newspapers

# Agenda

- What is GIS?
- GIS in Star Tribune's Sales and Marketing Department
- Business Benefits Examples:
  1. Audience Profiling: Segmentation Analysis and Prospect Targeting.
  2. Market Saturation: Combining Print + Addressable Geofencing.
  3. Routing Delivery Network: Home Subscribers and Retail Outlets.
  4. Interactive Map Tool: Easy-to-use dynamic map tool for sales reps., analysts, and managers.

# What is GIS?

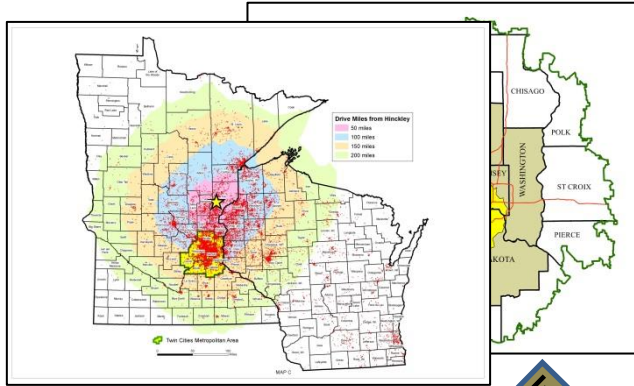
- Geographic Information Systems (GIS):  
Computer Mapping with sophisticated Spatial Analysis Capabilities.
- GIS is widely used in government agencies and in the private sector:
  - Urban Planning and Zoning
  - Forestry and Wildlife Management
  - Utility Companies: Electrical, Water, Gas, Cable
  - Retail, Insurance, Transportation, etc.
  - Newspapers:
    - Sales and Marketing Department
    - News Department

## Star Tribune's GIS Department

- Star Tribune has a GIS department dedicated to Sales and Marketing.
- It also provides occasional support to the Circulation Department.
- By design, it is separate and independent from the GIS Unit in News.
- Main Tools used by the Star Tribune's GIS department:
  1. GIS Platform: ArcGIS by ESRI
  2. Market Segmentation Systems: PRIZM Premier by Claritas and Tapestry by ESRI
  3. Consumer and Business Data Mining: Genie by Data Axle
  4. Data Hygiene and Standardization: Mailers+4 by Melissa Data

# GIS in Market Research, Sales, and Advertising

## Digital Geographies (Standard & Custom)

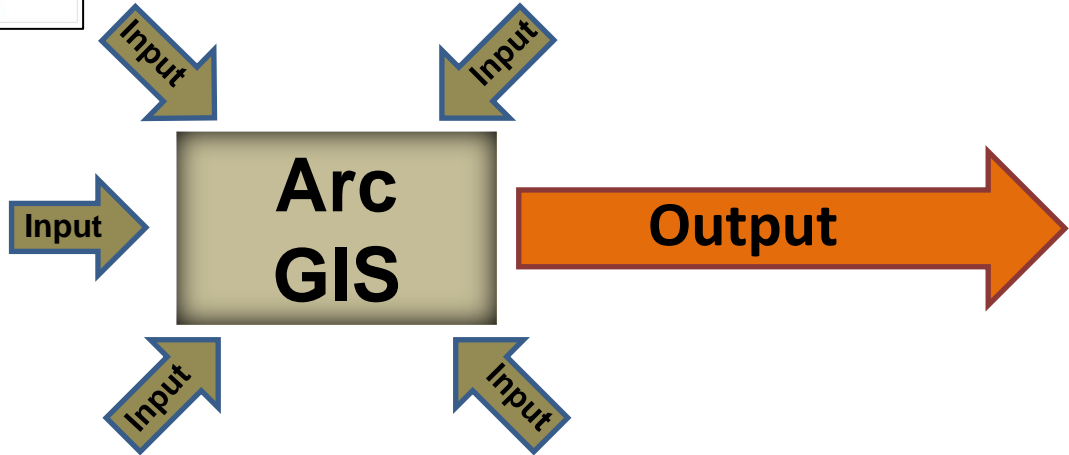


## Datasets (csv, txt, dbf, xlsx) such as: Transactional Sales, Customers Lists, etc.

Cust ID	SKU	DATE	SALES	CUST NAME	ADDRESS	CITY	ZIP CODE
01MEERM61Z	306532	6/13/2015	\$719.99	CUSTOMER 123	12345	CHICAGO	55123
00ZUNKG134	571002	11/4/2015	\$629.99	CUSTOMER 123	12345	CHICAGO	55124
01PAKA001	485176	11/4/2015	\$854.95	CUSTOMER 123	12345	CHICAGO	55125
01SCHMT433	703576	11/19/2015	\$809.95	CUSTOMER 123	12345	CHICAGO	55126
35MCGO002	571002	12/15/2015	\$854.95	CUSTOMER 123	12345	CHICAGO	55127
01HOWAE900	846473	3/20/2016	\$899.99	CUSTOMER 123	12345	CHICAGO	55129
01NASHT514	846473	10/10/2016	\$854.95	CUSTOMER 123	12345	CHICAGO	55130

## Store Locations

STORE ID	CITY
125	Bloomington
387	Coon Rapids
501	Golden Valley
471	Woodbury



- **Geographic Analysis:**
  - Customer Derived Trade Area Definition
  - High Potential Growth Areas
  - Site Selection
  - Store Cannibalization
  - Routing Delivery Network
  - Geocoding, buffering, joining, relating, etc
- **Customer Profile and Prospect Targeting**
- **Maps and Tabular Data Display**
- **Actionable Insights and Recommendations**

## Other Business Intelligence:

- Demographics
- Consumer Spending
- Retail Trade
- MRI Profiles
- Competitors Locations

## Market Segmentation Systems:

- Claritas Prizm®
- ESRI Tapestry®



# 1. Segmentation Profiling and Prospect Targeting Analysis

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To retain and attract potential new advertisers, Star Tribune partners as a Business Intelligence consultant with marketers such as:

- Retail Businesses: Furniture, Appliance, Groceries, Jewelers, etc.
- Financial Institutions: Credit Unions
- Dealers: Car, Boat, RV, Snowmobile, etc.
- Home Services: Remodeling, Tree Care, Solar Energy, etc.
- Professional Sports Organizations: Football, Basketball, Baseball, Hockey, etc.
- Entertainment: Casinos, Zoos, Museums, Orchestras, Theaters, etc.

One thing they all have in common:

They maintain Customer/Subscriber/Membership Databases

Transaction#	First Name	Last Name	Address	City	State	Zip Code	Telephone	Date	Total Amount
1000	John	Smith	123 Main St	Minneapolis	MN	55410	612-123-4567	1/1/2016	\$1,000
1001	Jane	Johnson	10 Sunny Ln	St Paul	MN	55150	651-765-4321	7/5/2016	\$750
...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...
...	...	...	...	...	...	...	...	...	...
1999	Chuck	Blake	Iberia Ct	Shoreview	MN	55126	651-000-1111	12/31/2016	\$2,150

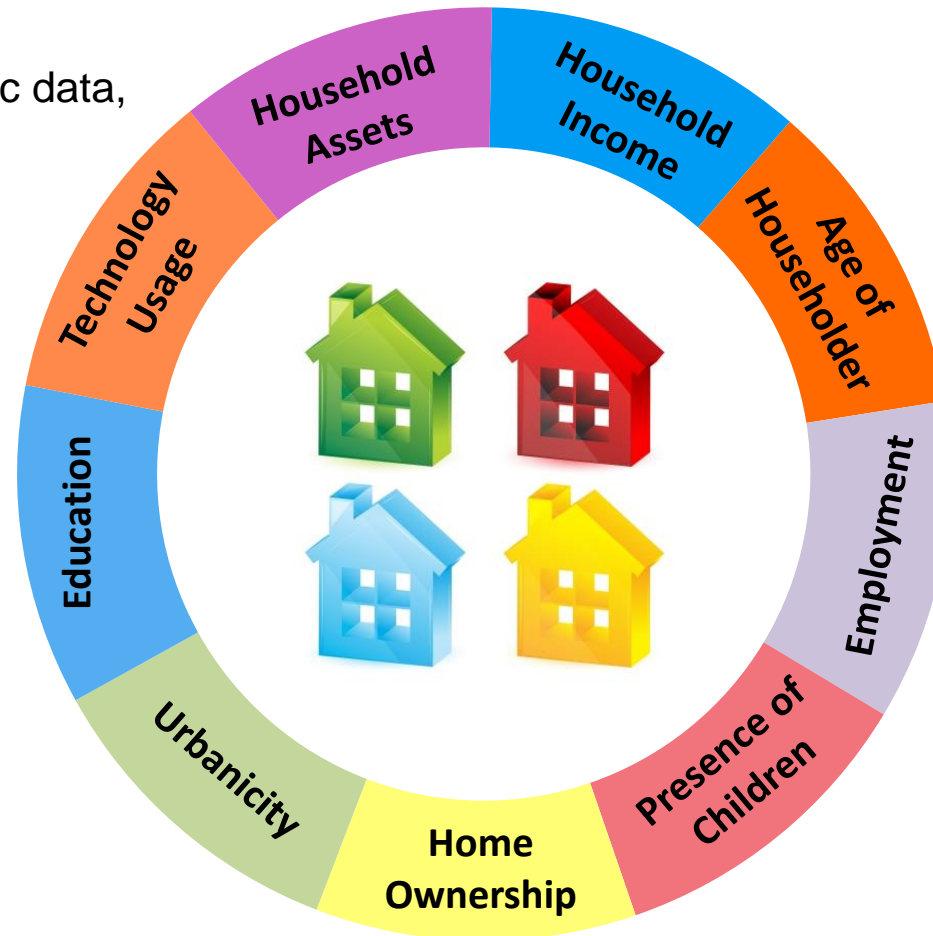
**Advertiser's Transactional Database**  
**+**  
**Geographic Information Systems (GIS)**  
**+**  
**Market Segmentation System (Prizm, Tapestry)**

- We convert the information hidden in their transactional datasets into Business Intelligence and answer these four crucial questions:
  1. *Where are your Subscribers/Members/Customers coming from?*
  2. *Who are your best Subscribers/Members/Customers?*
  3. *Where can you find more prospects like them?*
  4. *How can we help you reach, engage, and grow your customer base?*



## What is Claritas PRIZM® Premier?

- PRIZM® Premier is a consumer segmentation system. It classifies all households in the U.S. into unique, well-defined segments.
- PRIZM® combines geographic data, consumer behavior, and these nine characteristics to determine a household's unique PRIZM® segment.
- HH's in the same Segment have similar:
  - Demographics
  - Psychographics/Lifestyle
  - Socioeconomics
  - Consumer Behaviors

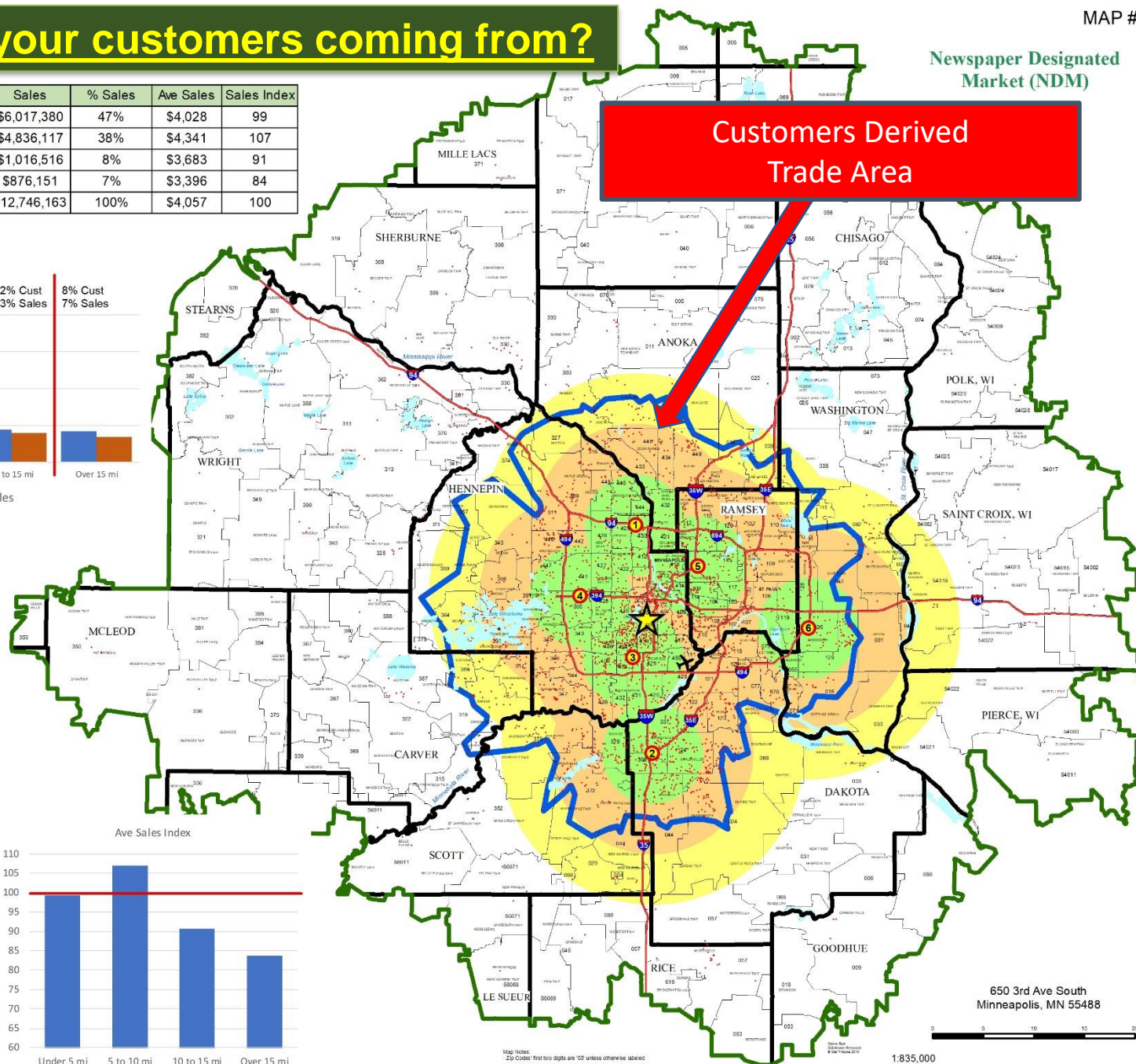
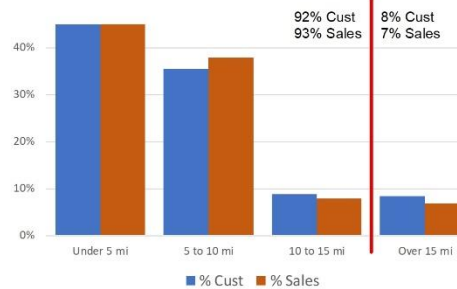


# 1. Where are your customers coming from?

Newspaper Designated Market (NDM)

Geog	Cust	% Cust	Sales	% Sales	Ave Sales	Sales Index
Under 5 mi	1,494	48%	\$6,017,380	47%	\$4,028	99
5 to 10 mi	1,114	35%	\$4,836,117	38%	\$4,341	107
10 to 15 mi	276	9%	\$1,016,516	8%	\$3,683	91
Over 15 mi	258	8%	\$876,151	7%	\$3,396	84
NDM	3,142	100%	\$12,746,163	100%	\$4,057	100

Customers Derived Trade Area

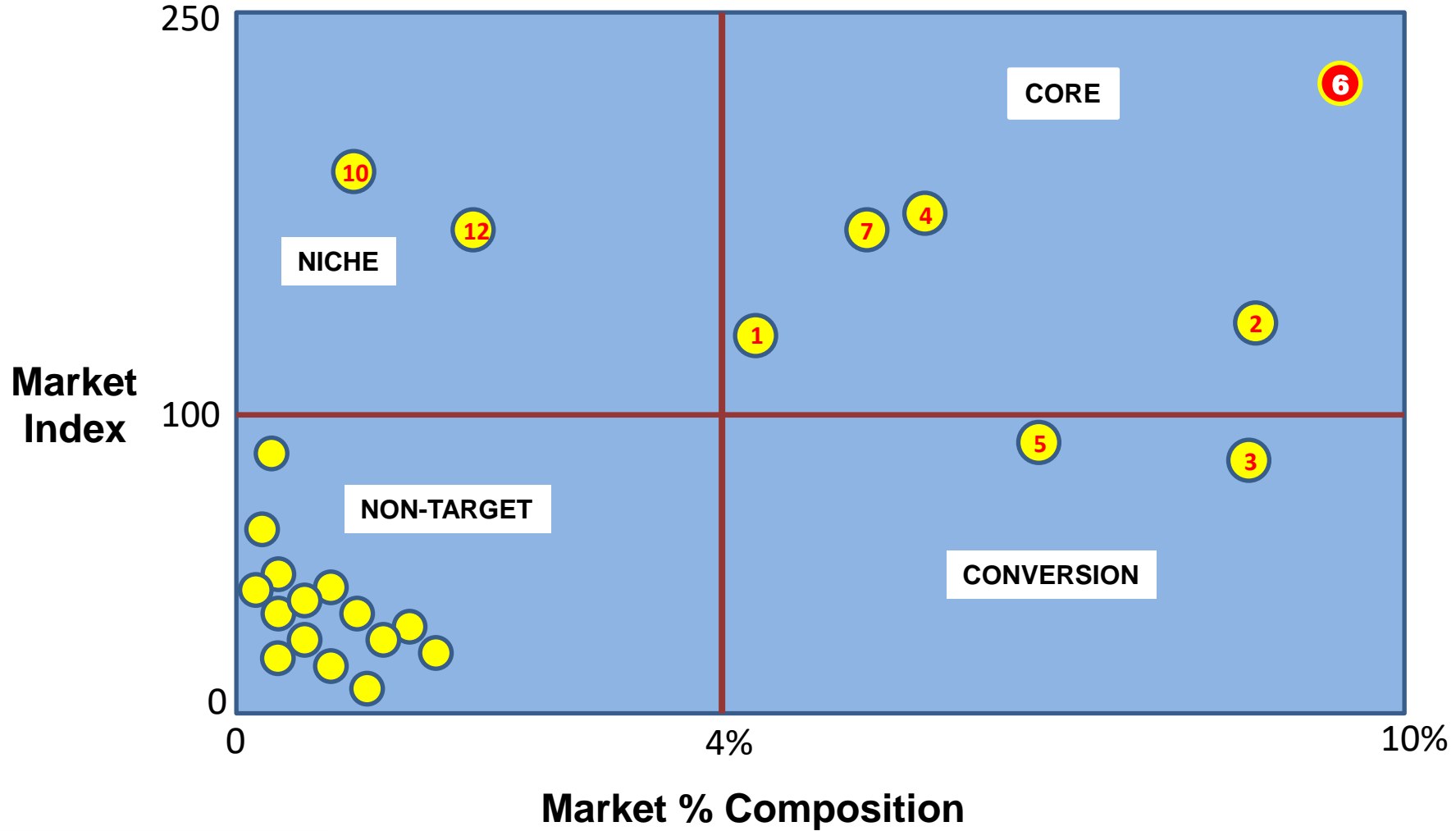


- Customer HH
- Mean Center
- Store
- 5 mi
- 10 mi
- 15 mi
- PTA
- Zip Code
- County



## 2. Who are your best customers?

### Your Customers PRIZM Profile Game Plan





# 06 – Winner's Circle

## F1 – Accumulated Wealth S2 – The Affluentials

### Core

%MEMBERS	INDEX	POTENTIAL
9.5%	240	32,973



### ABOUT ME

- Collection of mostly 35-54-year-old couples with large families in new-money subdivisions
- Surrounding their homes are the signs of upscale living – recreational parks, golf courses and upscale malls
- Big spenders who like to travel, eat at quick service restaurants, shop at clothing boutiques, and attend sporting events



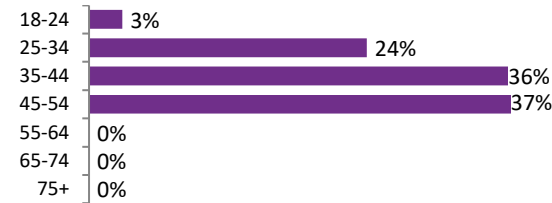
### LIFESTYLE & MEDIA

- Owns an Acura
- Eats at Chipotle
- Shops at Anthropologie
- Attends college sports events
- Flies Southwest
- Uses fantasy sports sites and apps
- Utilizes Apple music streaming services

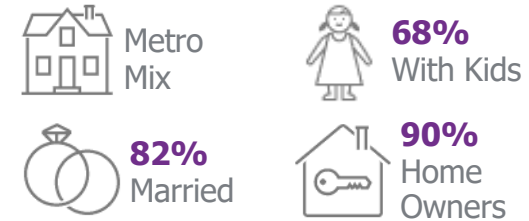


### DEMOGRAPHICS

#### HOUSEHOLD AGE

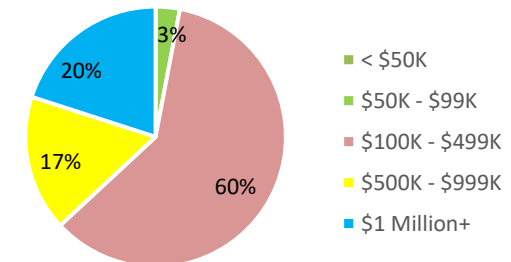


#### HOUSEHOLD DEMOGRAPHICS



**Median Household Income: \$ 133,929**

#### INCOME PRODUCING ASSETS



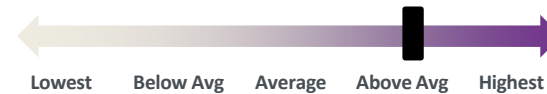
#### EDUCATION LEVEL



#### EMPLOYMENT



#### TECH USAGE



Sources: Claritas Household Demographics 2018, Claritas Consumer Profiles 2018, Claritas GfK MRI Behavior Profiles 2019, Nielsen Online Behavior Profiles 2017, Nielsen Television Behavior Profiles 2017,.

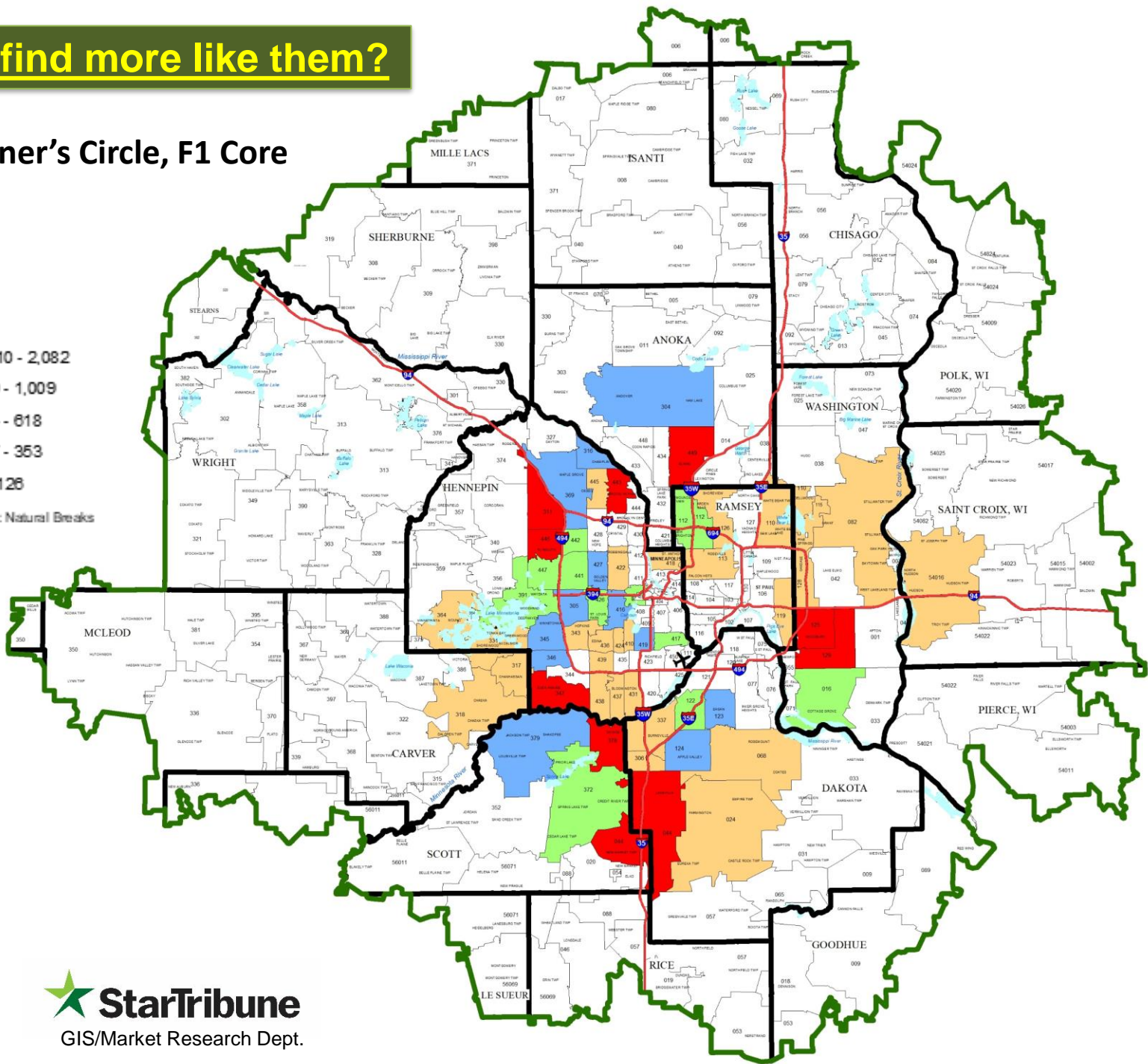
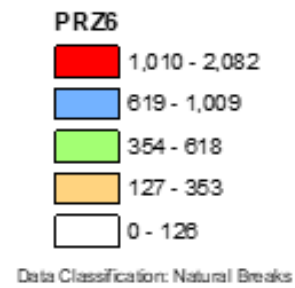


# 3. Where can you find more like them?

Top 20 Zip Codes

ZIP	ZipGeo	Sum of PRZ6
55125	Woodbury	2,082
55347	Eden Prairie	1,976
55449	Blaine	1,867
55446	Plymouth	1,840
55044	Lakeville	1,451
55443	Brooklyn Park	1,442
55311	Maple Grove	1,396
55378	Savage	1,308
55129	Woodbury	1,238
55304	Andover/Ham Lake	1,009
55379	Shakopee	937
55416	St Louis Park	868
55316	Champlin	791
55124	Apple Valley	786
55123	Eagan	751
55345	Minnetonka	751
55369	Maple Grove/Osseo	744
55419	Minneapolis - Far South	734
55427	New Hope/Golden Valley	722
55346	Eden Prairie	719
<b>Grand Total</b>		<b>23,412</b>

## 6 – Winner’s Circle, F1 Core



## 4. How can we help you reach, engage, and grow your customer base?

Grow your Membership by targeting your best prospects:

- 1) tailoring messages and products that resonate to them
- 2) focusing on areas with high concentration of them
- 3) using the right combination of advertising media options:
  - Star Tribune Digital (Startribune.com, Mobile, Tablet, SEM, E-mail)
  - Digital Geofencing
  - Combination of Star Tribune Print + Digital
  - Star Tribune Print Saturation (ST + STX + TCV)
  - Saturation: Print (ST + STX) + Digital Geofencing (Non-Subs)
  - Direct Mail + Star Tribune HD (unduplicated)

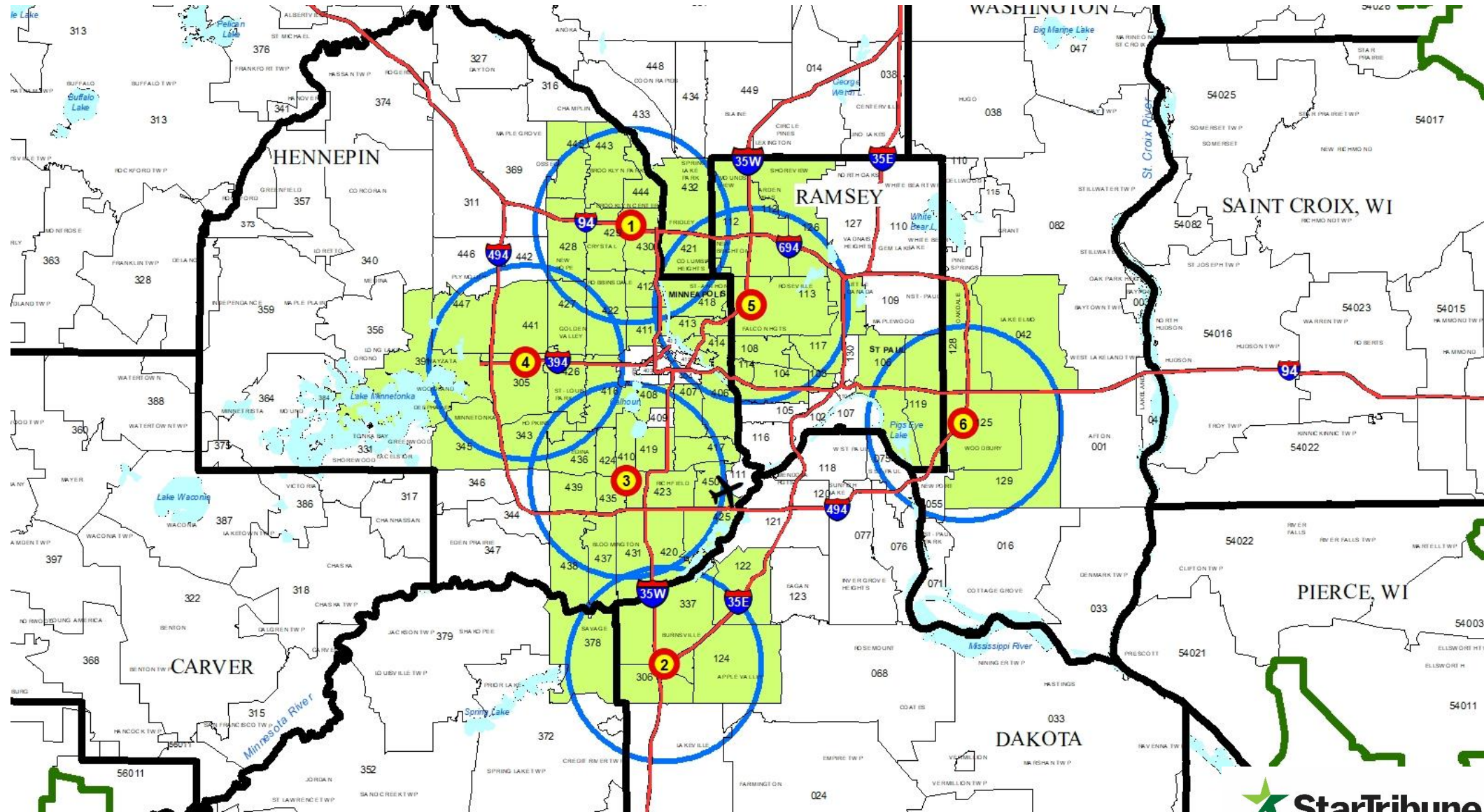
## 2. Market Saturation: Print + Addressable Geofencing

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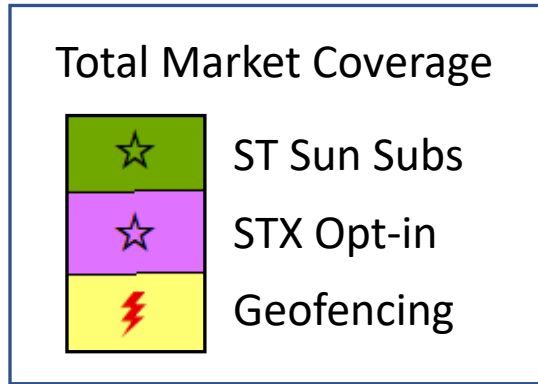
- OBJECTIVE:
  - Increase foot traffic to the physical stores of a major Home Improvement retailer.
- STRATEGY:
  - Market saturation of Zip Codes within each stores' Trade Areas.
  - Send Preprint Inserts to all Sunday paid-subscribers and recipients of our Opt-in product (StribExpress).
  - Reach the remaining households that do not receive the Preprint Insert with digital sales messages via Addressable Geofencing.



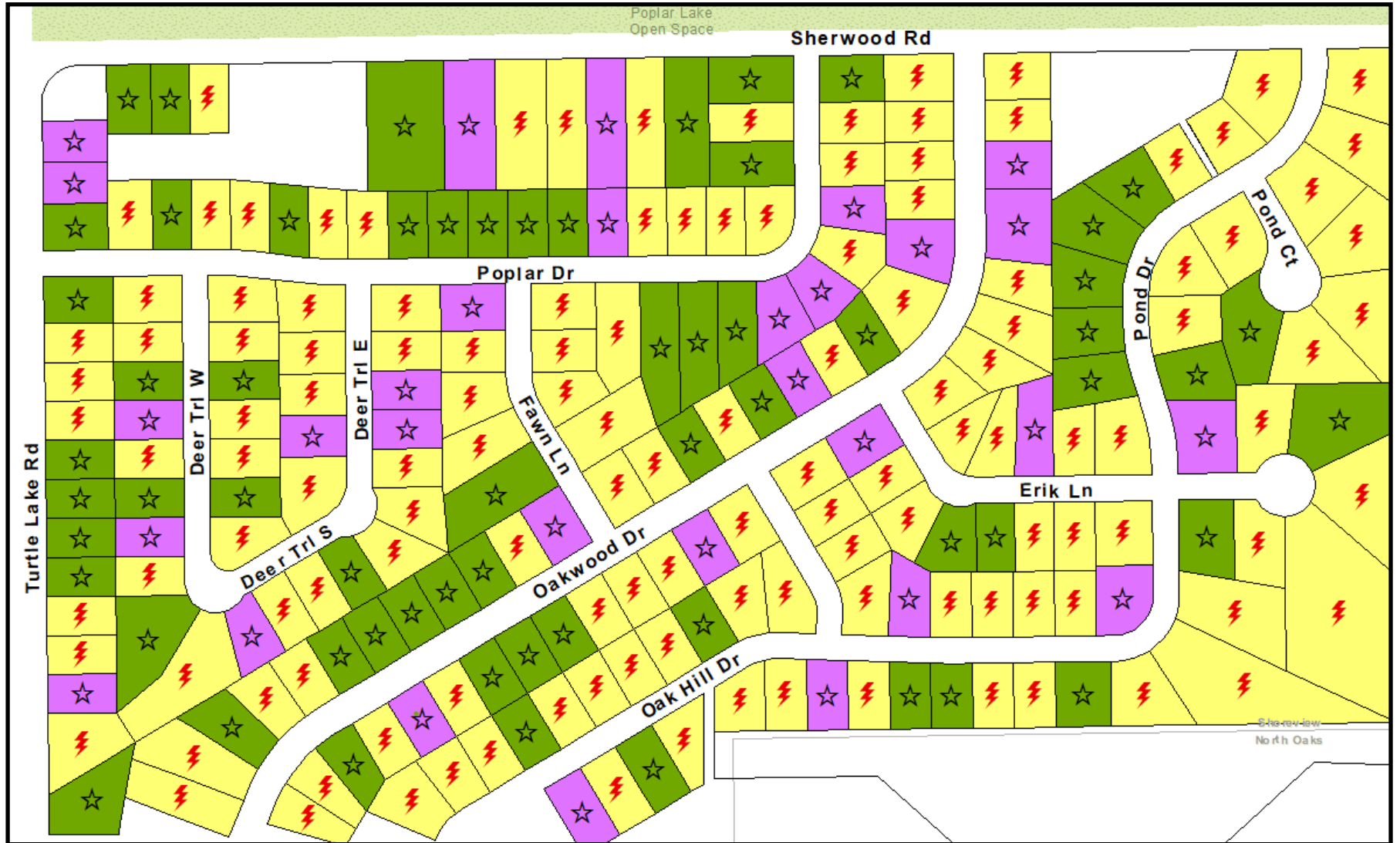
# Target Footprint: Zip Codes within 5 mi Trade Areas



Geofencing Audience = (Not a Sunday Subs or STX Opt-in) AND (in Trade Area) AND (Single Family Unit)



Retargeting & Frequency



# 3. Routing Delivery Network

### 3. Routing Delivery Network

- PROBLEM to SOLVE:
  - Last July, our Duluth delivery contractor gave us notice that they were quitting the distribution of our products in the North Shore market area.
  - Before we could hire new agents and drivers, the GIS Dept was tasked with the creation of a new delivery network from scratch.
  - As to not jeopardize the delivery of our Duluth subscribers we had to have the delivery network completed very quickly.

- OBJECTIVE:

Based on the total number of subscribers, single copy outlets, and hard delivery parameters, create the most efficient distribution network of routes as to minimize the overall cost in time and miles.

- GIS to the rescue!!! Tools used:

- ArcGIS Network Analyst, is an ESRI extension that runs on top of ArcMap and solves complex routing problems.
- ArcGIS StreetMap Premium, is a street network with real-life intelligence such as speed limits, one-ways, no left-turns, overpass, underpass, no U-turns, etc.



# Delivery Parameters and Route Requirements:

## Sunday Deliveries:

- Total = 1,174 (1,051 HD and 135 SC Outlets)

## Daily Deliveries:

- Total = 828 (693 HD and 123 SC Outlets)

## Type of Routes:

- Sunday Combo (HD+SC)
- Daily Combo (HD+SC)

## Publications:

- ST, NYT, WSJ, WSJB

## Service Time:

- HD = 30 seconds
- SC Outlet = 90 seconds

## Maximum Route Time:

- Sunday = 5 hours
- Daily = 3 hours

## Deadline:

- Sunday before 9:00am
- Daily before 7:00am

## Starting Point:

- Duluth Distribution Depot

## End Point:

- Last Delivery based on most efficient delivery sequence algorithm

- **OUTCOME:**

- We met the tight deadline and provided our director of state circulation with the time and miles needed to calculate the routes' pricing and profit before meeting with prospective agents and contractor drivers.
- As a result, no subscriber household or single copy outlet missed a delivery.

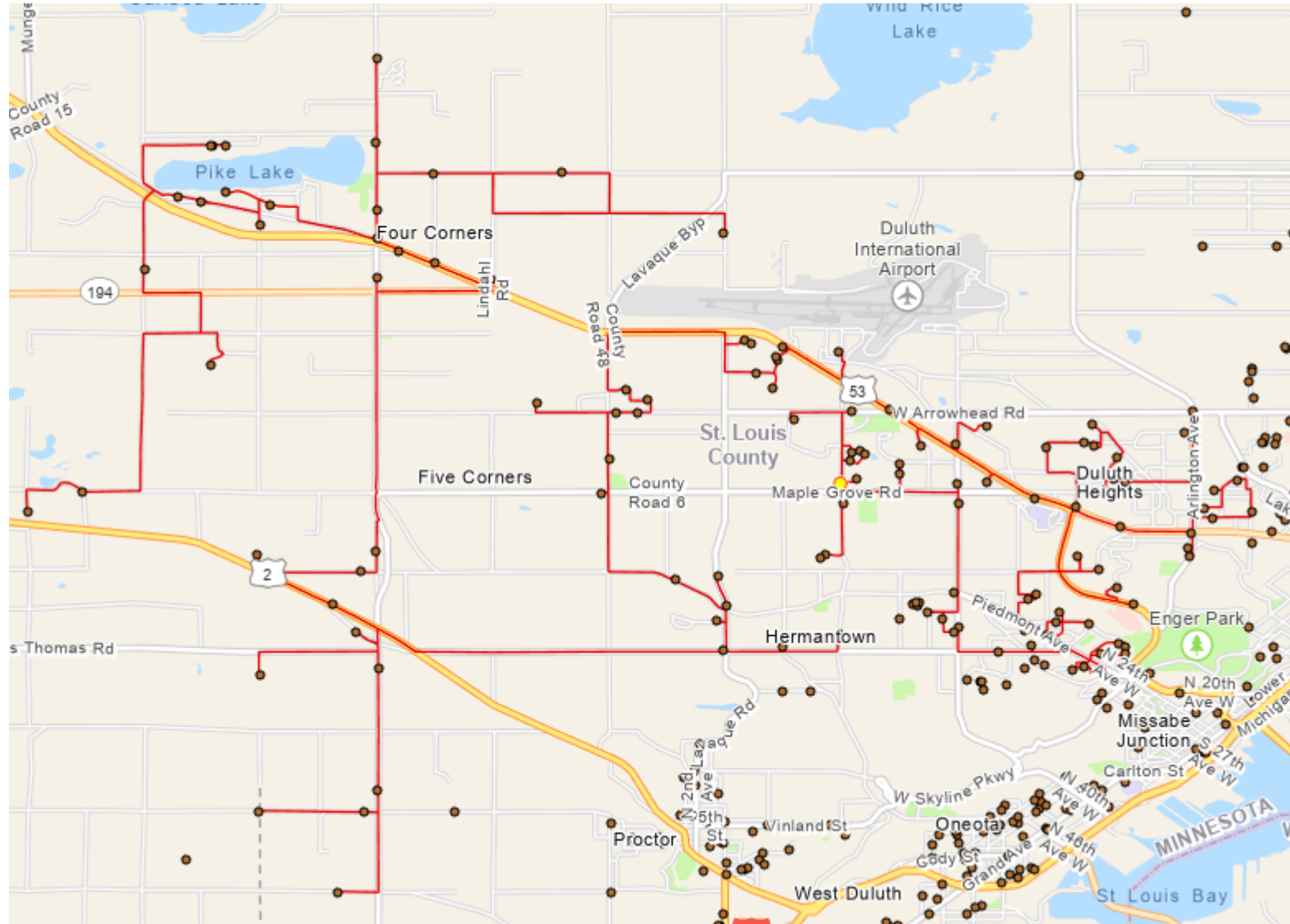
Duluth Sunday Routes Breakdown					
Name	Stops	Service Time	Travel Time	Total Time	Total Miles
Route 1	17	00:12	01:37	01:49	75.9
Route 2	98	00:50	04:06	04:57	166.6
Route 3	92	00:55	03:52	04:47	116.6
Route 4	149	01:18	03:40	04:58	94.1
Route 5	150	01:24	03:35	04:59	58.1
Route 6	131	01:14	03:43	04:57	100.2
Route 7	210	01:53	03:05	04:59	48.6
Route 8	231	01:59	03:00	04:59	44.0
Route 9 (Superior)	58	00:37	02:13	02:51	55.9
Route 10 (North Shore)	38	00:30	03:25	03:55	146.1
<b>Total</b>	<b>1,174</b>	<b>10:54</b>	<b>32:20</b>	<b>43:15</b>	<b>905.8</b>

Duluth Daily Route Breakdown					
Name	Stops	Service Time	Travel Time	Total Time	Total Miles
Route 1 (South)	19	00:14	02:41	02:55	117.1
Route 2	81	00:43	02:51	03:34	104.5
Route 3	60	00:39	02:54	03:33	94.7
Route 4	79	00:42	02:51	03:33	85.9
Route 5	93	00:57	02:37	03:34	44.7
Route 6	101	00:57	02:35	03:33	62.4
Route 7	181	01:33	02:01	03:34	31.4
Route 8	118	01:07	02:27	03:34	41.8
Route 9 (Superior)	63	00:40	02:53	03:33	80.8
Route 10 (North Shore)	33	00:27	03:11	03:38	135.7
<b>Total</b>	<b>828</b>	<b>08:01</b>	<b>27:05</b>	<b>35:07</b>	<b>799.2</b>

## Sunday Combo Route # 6

- Stops = 131
- Total Time = 4:57
- Total Miles = 100.2

GIS can help you find savings in time and miles

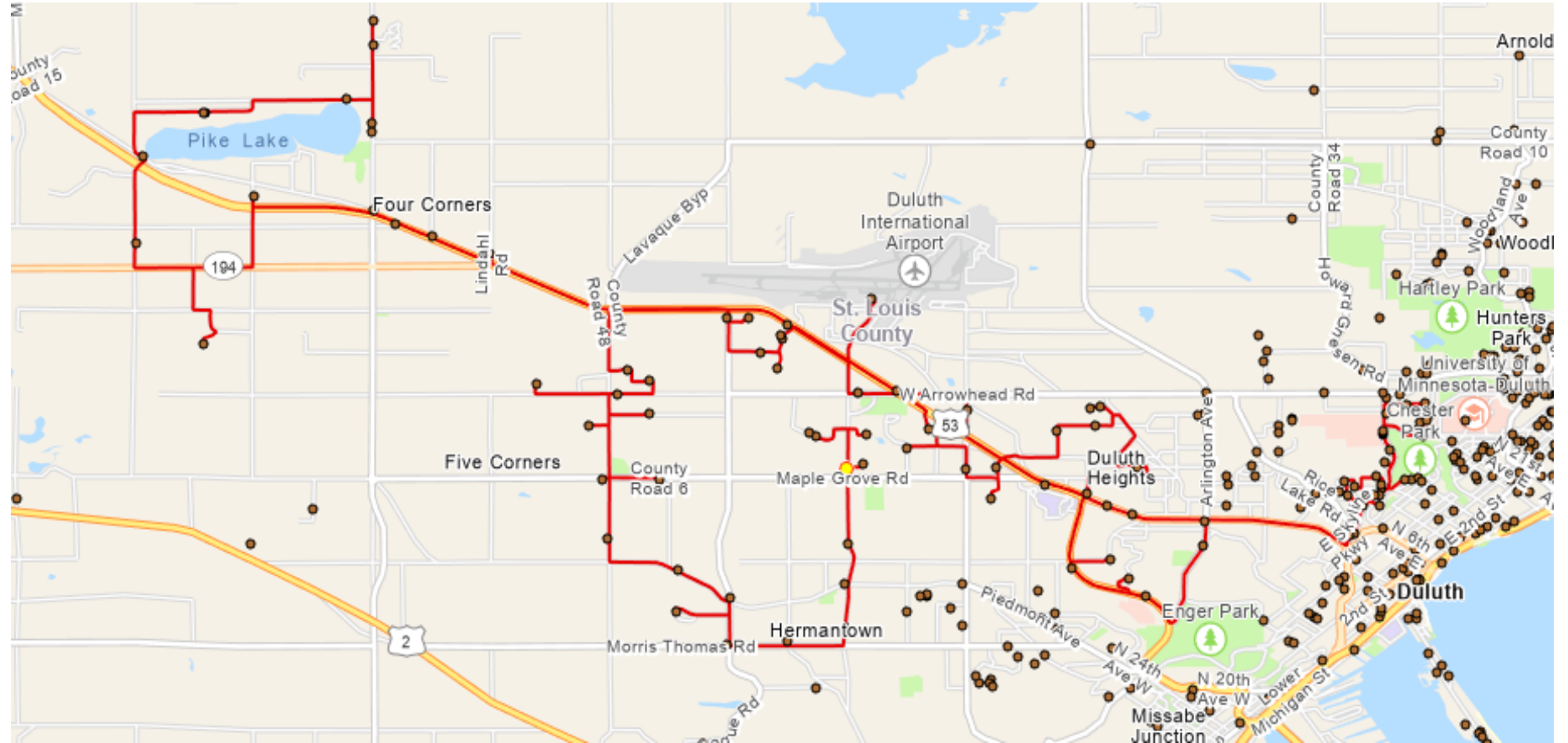




### Daily Combo Route # 6

- Stops = 101
- Total Time = 3:33
- Total Miles = 62.4

GIS can help you find savings in time and miles



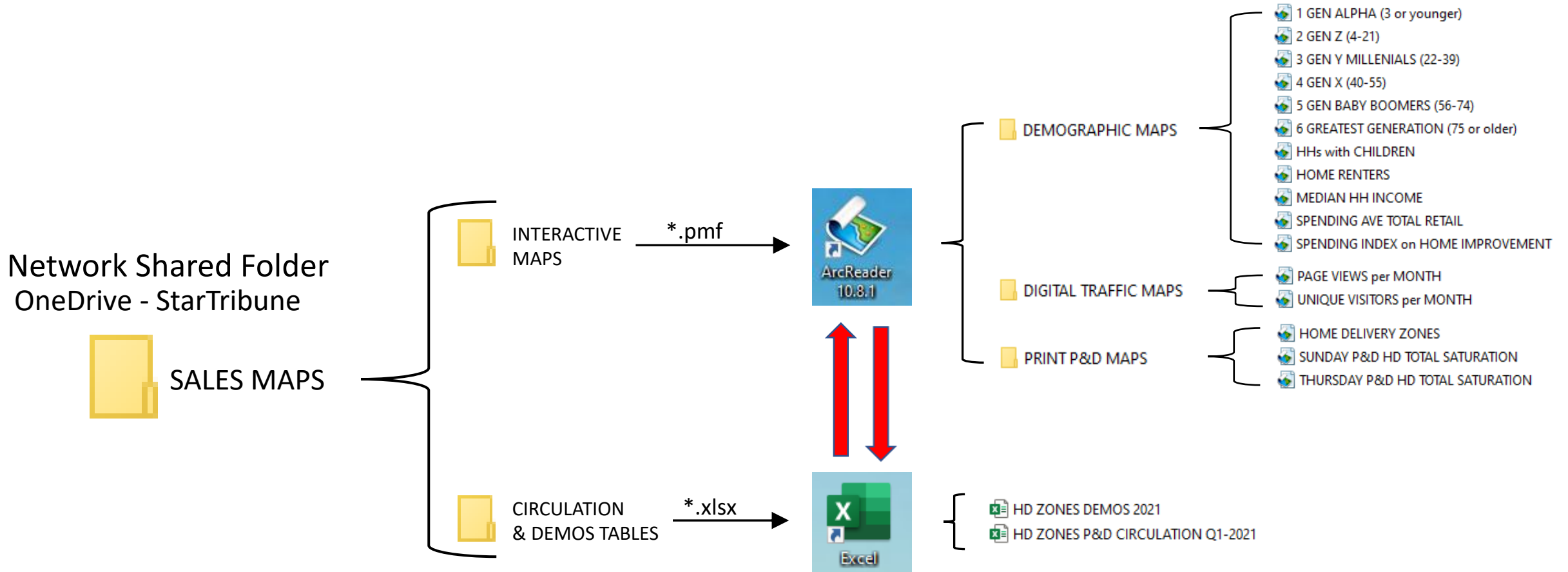
## 4. ArcReader: Interactive-Map tool for Sales Reps

## 4. ArcReader: Interactive-Map tool for Sales Reps

- We are about to roll out an easy-to-use interactive map tool to our sales reps and managers.
- Key benefits:
  1. Faster and easier way for sales reps. to make straight forward sales recommendations on their own, at the office and in the field.
  2. Provides the ability to consult and sell virtually in real time via Teams or Zoom meetings with advertising customers.

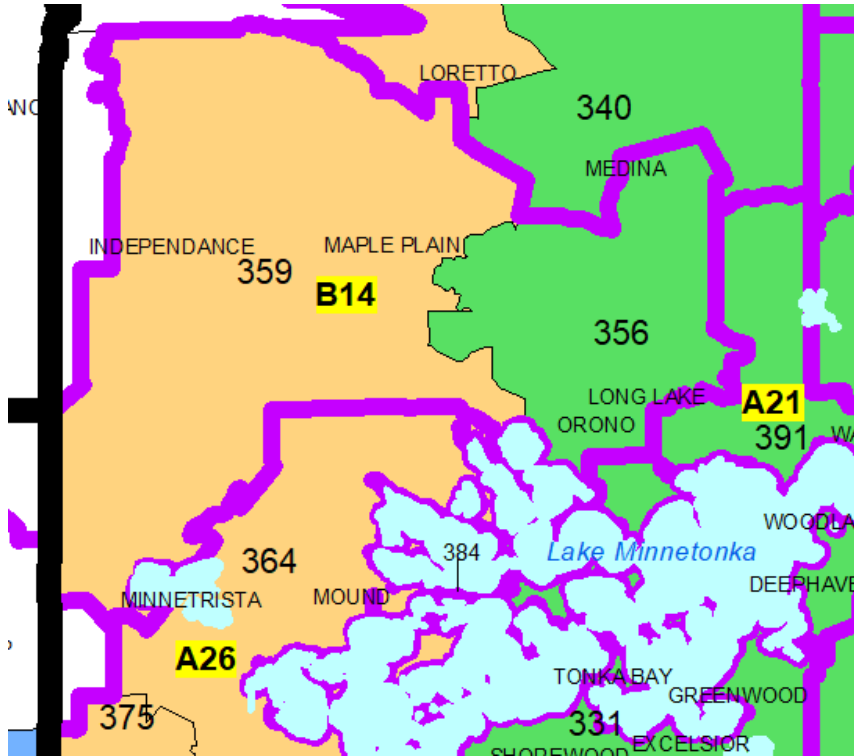
Note: ArcReader does not replace the regular GIS support.

# SALES MAPS: Interactive-Maps Catalog



# Data available at the Home Delivery Zone

## Home Delivery Zone "B-14"



■ ST + STX + TCV  
■ ST + STX

P&D Quarterly Average Circ. with 3% pad  
(Source: Order Saturation Form)

(matching P&D saturation options in AdBooker)

Previous month digital traffic counts  
(Source: Adobe Analytics)

Annual demographics  
(Source: ESRI)

Population by age by generation  
(Source: ESRI)

Annual consumer spending  
(Source: ESRI)

Identify from: **HD ZONES**

Location: 2,713,415.501 1,053,771.704 Feet

Field	Value
HD ZONE	B14
GEOG	Independence
# ZIP CODES	2
PRINT CIRCULATION P&D	ZONE TOTALS, Q1-21
TOTAL HH'S	4,649
SU HD	990
TH HD	600
STX	330
TCV	1,390
SUNDAY P&D	ZONE TOTALS, Q1-21
SU + STX	1,320
% SU + STX	28.4%
(SU + STX) E-mail EXTENSION	<null>
SU + STX + TCV	2,710
% SU + STX + TCV	58.3%
GEOFENCING Non-Sub SFU's	2,321
THURS P&D	ZONE TOTALS, Q1-21
TH + STX	930
% TH + STX	20%
TH + STX + TCV	2,320
% TH + STX + TCV	49.9%
MONTHLY DIGITAL TRAFFIC	ZONE TOTALS, DEC-20
UNIQUE VISITORS	10,917
VISITS	34,805
PAGE VIEWS	155,951
DEMOGRAPHIC ATTRIBUTES	ANNUAL ZONE TOTALS
2020 Median Household Income	\$119,782
2020 Median Home Value	\$489,254
2018 HH's w Children	1,519
2018 % HH's w Children	32.7%
2020 Owner Occupied HUs	3,707
% Owners	83.5%
2020 Renter Occupied HUs	735
% Renters	16.5%
POPULATION by GENERATION	ANNUAL ZONE TOTALS
2020 Total Population	12,058
% Gen ALPHA (2017 or later)	3.3%
% Gen Z (1999-2016)	23.7%
% Millennials (1981-1998)	14.1%
% Gen X (1965-1980)	24.5%
% Baby Boomers (1946-1964)	27.9%
% Greatest Gen (1945 or earlier)	6.5%
CONSUMER SPENDING	ANNUAL ZONE TOTALS
2020 Retail Goods: Total	\$194,391,039
2020 Retail Goods: Avg/HH	\$43,762.05
2020 Retail Goods: Index	189
2020 Home Improvement: Total	\$31,018,142
2020 Home Improvement: Avg/HH	\$6,982.92
2020 Home Improvement: Index	217

Identified 1 feature

# Top Commercial GIS Systems

MapInfo® Pro

MapInfo Professional by Precisely

<https://www.precisely.com/product/precisely-mapinfo/mapinfo-pro>



Maptitude GIS by Caliper

<https://www.caliper.com/maptovu.htm>



ArcGIS by ESRI

<https://desktop.arcgis.com/en/>

# Top Profile Segmentation Systems



Mosaic by Experian

<https://www.experian.com/marketing-services/consumer-segmentation>



Personicx by Acxiom

<https://www.acxiom.com/customer-data/consumer-segmentation-personicx/>



Tapestry by ESRI

<https://www.esri.com/en-us/arcgis/products/tapestry-segmentation/overview>



PRIZM Premier by Claritas

<https://claritas.com/prizm-premier/>

***THANK YOU!***

