

# IMPROVING TRAFFIC STUDIES THROUGH BETTER DATA

November 6th , 2019



# **Outline**



- How Data Drives Traffic Studies
- Case Studies
  - Atlanta Downtown Connector
  - Arnold Mill Bypass City of Woodstock
  - I-440 Reconstruction
  - Chapman Highway/Henley Bridge Analysis
- What Does the Future Look Like?

# How Data Drives Traffic Studies – ARCADIS Back in the Day...

- High Quality Data
- Time Intensive
  - Field Work
  - In-Office Processing
- Must be Pre-Planned
- High Cost



Source: San Antonio Express-News

Reduced Cost Reduced Accuracy



ARCADIS Design & Consultancy for natural and built assets

# How Data Drives Traffic Studies – Back in the Day...



- Low Cost
- Relatively Quick
- Able to Identify Future Trends
- Lower Reliability
- Only Available in Areas with a Regional Model







# How Data Drives Traffic Studies – The Era of Big Data





- Based on sampling set similar to field survey
- Combines data collection/analysis into one step
- Historic data available
- More in-depth data possible
- Available within minutes



Increasing Cost Increasing Accuracy Reduced Cost Reduced Accuracy

# Turn Big Data into actionable transportation analytics on demand



STREETLIGHT DATA PROPRIETARY AND CONFIDENTIAL |

### **Downtown Connector – Overview**





- GDOT is conducting a study of Atlanta's Downtown Connector, the common section of I-75 and I-85 through the Atlanta Central Business District.
- One of the primary goals of the study is to improve regional mobility.
- The composition of road users was determined through the analysis of traffic data sets including StreetLight origindestination data.

# **Downtown Connector – Regional Travel Patterns**

- The Connector serves as the spine of the regional transportation network
- Team wanted to better understand cross-regional trips using the facility
- Can I-285 improvements improve the Connector?



# **Downtown Connector – Corridor Travel Patterns**

- Reviewed regional flows to identify patterns for motorists located within the Perimeter
- Analysis showed that a large portion of motorists were using the Connector for "non-through" trips
- Assisted team in defining the current and future purpose of the Connector



# Downtown Connector – Segment-Level Data

- Data was also used to drill down into specific segments
- Utilized count data to put actual numbers to the percentages
- Detailed data led to more questions

### ARCADIS Design & Consultancy for natural and built assets Through vs. Local Trips Time of Day Through Total Loca 3,906 (23%) 12,739 (77%) 16,645 Through traffic travels the full 4,015 (29%) 13,790 9,775 (71% length of the Downtown Connector 70 734 /349/1 156 231 (66%) 735 465 10<sup>th</sup> St and N m Pkwy Off-Ram Total 16,245 4,966 (31%) 11,279 (69%) Time of Day Through Local Total 10,660 13,115 3,906 (30%) 9.209 (70%) 134,931 (67%) 202,070 8.030 4.015 (50%) 4 015 /50% Daily 79,234 (50%) 79.326 (50%) 158 560 v Dobbs and Job Portman Blvd Total Time of Day Local 4,966 (56%) 3,909 (44%) 8,875 5.572 (62% 9.030 67 139 (45%) 83 356/5590 150.495 20 rial D HOV Local Total Fulton St and I-20 Off 8.055 3.089 (38%) 7.927 (70%) 11,385 Time of Day Through Total 67,139 (47%) 75,356 (53%) 142,495 68.6 3 906 (43%) 5.084 (57%) 8,990 8,435 4,420 (52% on University Ave and d Pkwy 79,234 (52%) 72,346 (48%) 151,580 Total Local 8,070 ford Plowy and 4,966 (62%) 3.104 (38%) 9,257 (73%) 12,715 3.458 (27%) Time of Day Through Local Total 78,351 (54%) 145,490 67.139 (46%) 0.54 3.906 (37% 10,495 6 589 (63%) 01.1 4.015 /46 8.705 Dai 81.771 (51%) 161.005 79.234 (49%)

# Downtown Connector – Segment-Level Data

Southbound between 10 <sup>th</sup> St and North Ave				
Time of Day	Through	Local	Total	
AM	4,966 (31%)	11,279 (69%)	16,245	
PM	3,458 (32%)	7,202 (68%)	10,660	
Daily	67,139 (33%)	134,931 (67%)	202,070	

Portman Blvd				
Time of Day	Through	Local	Total	
AM	4,966 (56%)	3,909 (44%)	8,875	
PM	3,458 (38%)	5,572 (62%)	9,030	
Daily	67,139 (45%)	83,356 (55%)	150,495	

### ARCADIS Design & Consultancy for natural and built assets Through vs. Local Trips n Williams St and 10<sup>th</sup> St North Time of Day Through Local Total AM 3,906 (23%) 12,739 (77%) 16,645 Through traffic travels the full PM 4,015 (29%) 9,775 (71%) 13,790 length of the Downtown Connector. Deile 79.234 (34%) 156.231 (66%) 235.465 nd between 10<sup>th</sup> St and North Ave nd Between Freedom Pkwy Off-Ram Time of Day Through Local Total and Irwin St On-R AM 4,966 (31%) 11,279 (69%) 16,245 Time of Day Through Local Total PM 3,458 (32%) 7,202 (68%) 10,660 3,906 (30%) 9,209 (70%) AN 13,115 67,139 (33%) 134,931 (67%) 202,070 Daih PM 4.015 (50%) 4.015 (50%) 8,030 Daily 79.234 (50%) 79.326 (50%) 158 560 d between Wesley Dobbs and John Portman Blvd Total Time of Day Through Local AM 4,966 (56%) 3,909 (44%) 8,875 3,458 (38%) 5,572 (62%) 9,030 67,139 (45%) 83,356 (55%) 150,495 20 d between I-20 and M norial Dr HOV Time of Day Through Local Total Northbound Between Fulton St and I-20 Off-AM 4,966 (62%) 3,089 (38%) 8,055 Ramo 3,458 (30%) 7,927 (70%) 11,385 Time of Day Through Total Local 67,139 (47%) 75,356 (53%) 142,495 AM 3,906 (43%) 5,084 (57%) 8,990 4,015 (48%) 4,420 (52%) 8,435 und between University Ave and Langford Pkwy 79,234 (52%) 72,346 (48%) 151,580 Total Time of Da Through Local 4,966 (62%) 3,104 (38%) 8,070 d Betw en Langford Pkwy and AM University Ave 3,458 (27%) 9,257 (73%) 12,715 Through Total Time of Day Local 67,139 (46%) 78,351 (54%) 145,490 AM 3.906 (37%) 6.589 (63%) 10,495 PM. 4,015 (46%) 4,690 (54%) 8,705 Daily 79,234 (49%) 81,771 (51%) 161,005

### **Arnold Mill Connector – Overview**



 The City of Woodstock, Georgia conducted a study to determine the impact of constructing a reliever road to the east of the intersection of two major corridors through the city.

- Two alignments for the reliever road were proposed.
- Origin-destination data was used to quantify potential users of each alternative.

# Arnold Mill Connector – Setting up Zones

- Users create their own zones or utilize standard areas
- Zones need to have sufficient population or traffic
- Zone scheme can include middle filters if you want to be more specific with results



# **Arnold Mill Connector – Results**



- Trip ratios were applied to collected traffic counts to calculate diversion percentages.
- Length of the new facility and TAZ size would have led to potentially erroneous results



### **I-440 Reconstruction – Overview**



Source: TDOT

# I-440 Reconstruction – Through Traffic





# I-440 Reconstruction – Segment-Level Destinations

- Drilled down to use by segments
- Figures shows percent of traffic by where it leaves I-440



# **Henley Bridge Origins**



### **O-D Traffic**

Colors indicate the O-D Traffic from each TAZ during the selected time period.



# **Henley Bridge Destinations**







# What Does The Future Look Like? ARCADIS Design & Consultance built assets

- Datasets will become more integrated
- Need skill sets to analyze and provide answers from large datasets



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