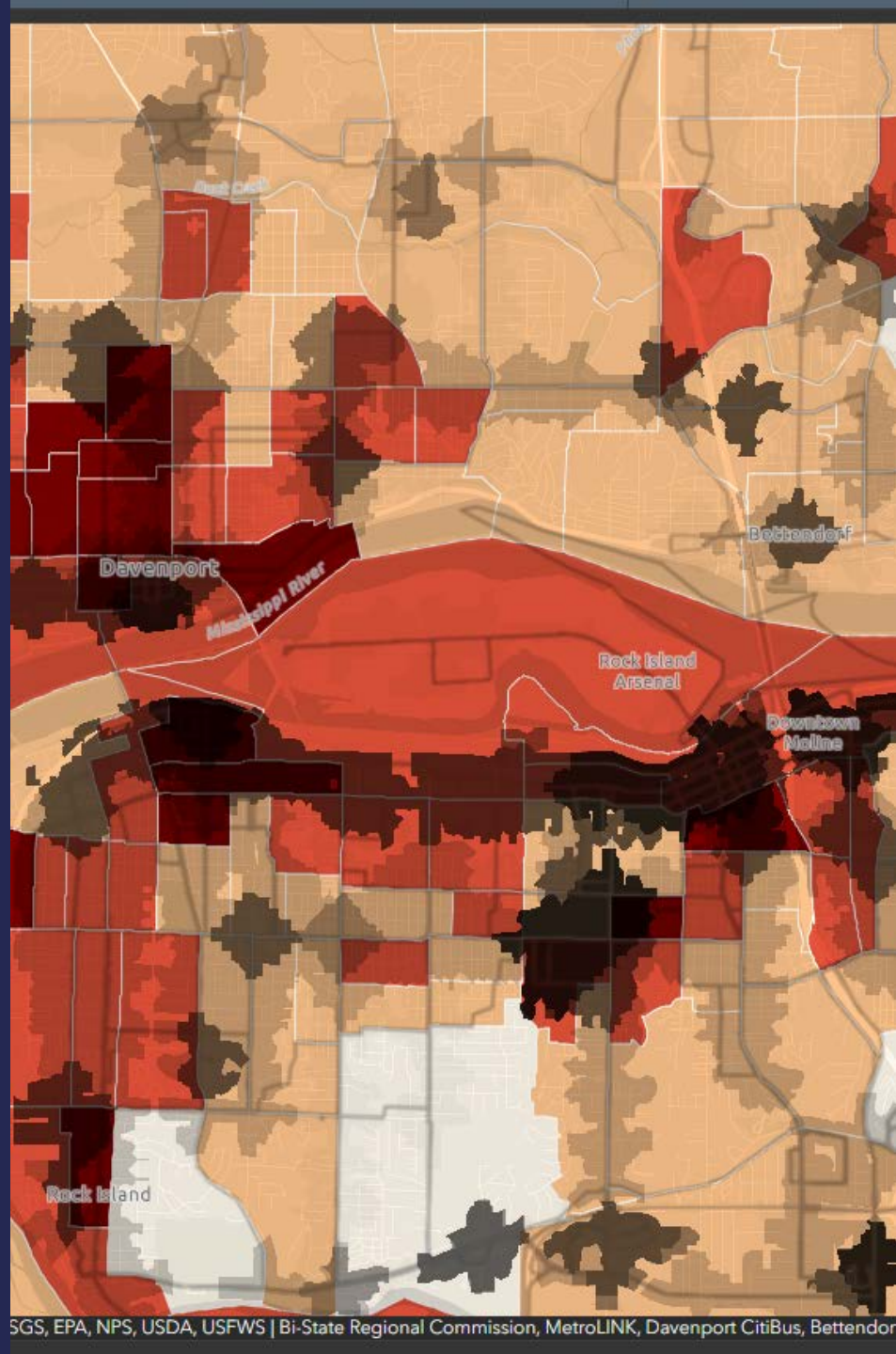
TRANSIT ACCESSIBILITY ANALYSIS

BRYAN SCHMID, AICP
BI-STATE REGIONAL COMMISSION
SEPTEMBER 25, 2024



Agenda

Problem

Goals

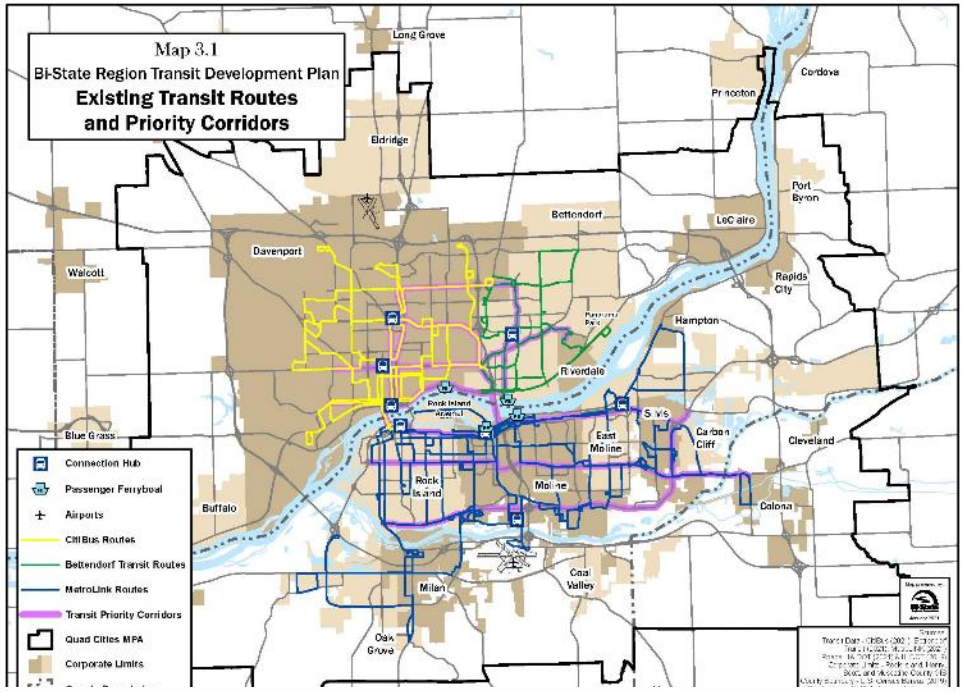
Methodology

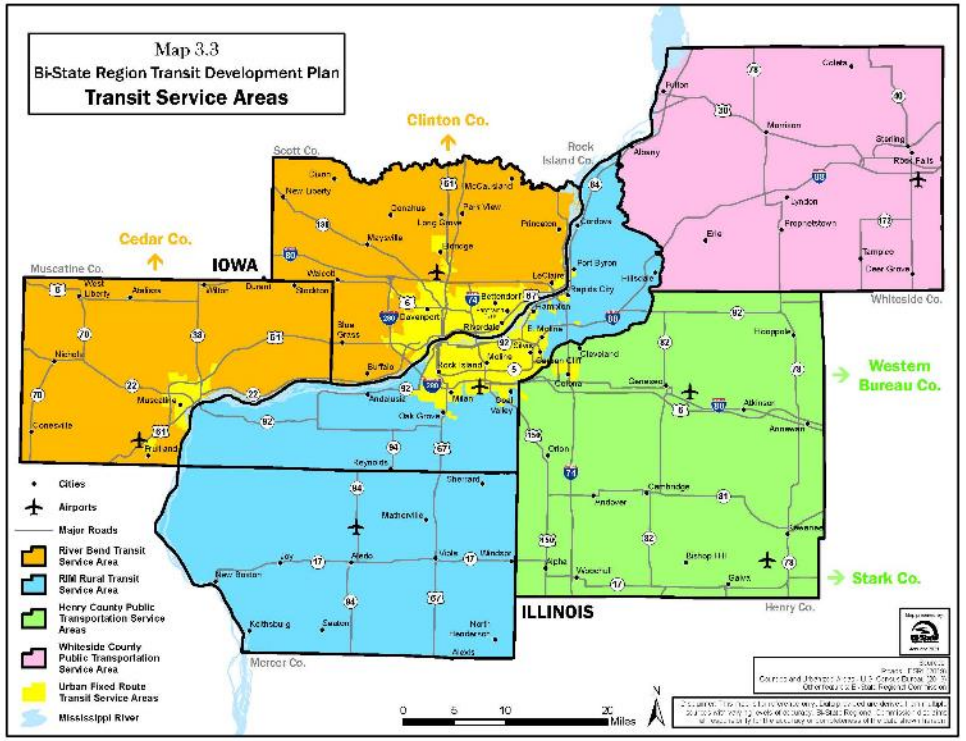
Analysis & Findings

Takeaways

THE PIOBLEM
-OR- PROBLEM

Made (poorly) using AI





The Problem

- TDP, the Frankenstein Plan
- Numerous geographies = multiple goals
- Disparate systems and providers

- 4 fixed-route systems
- 4 demand response services

GOALS


4 PURPLE
Feel the power.
Feel the speed.
XTREAM


DAVENPORT PUBLIC TRANSIT
2003

Project Goals

Which areas and populations are served by high-frequency transit, and which are not?

- **Identify populations that disproportionately need and use transit**
- **Explore a “level of service” for transit as a whole, and within high-need areas**

METHODOLOGY

Methodology

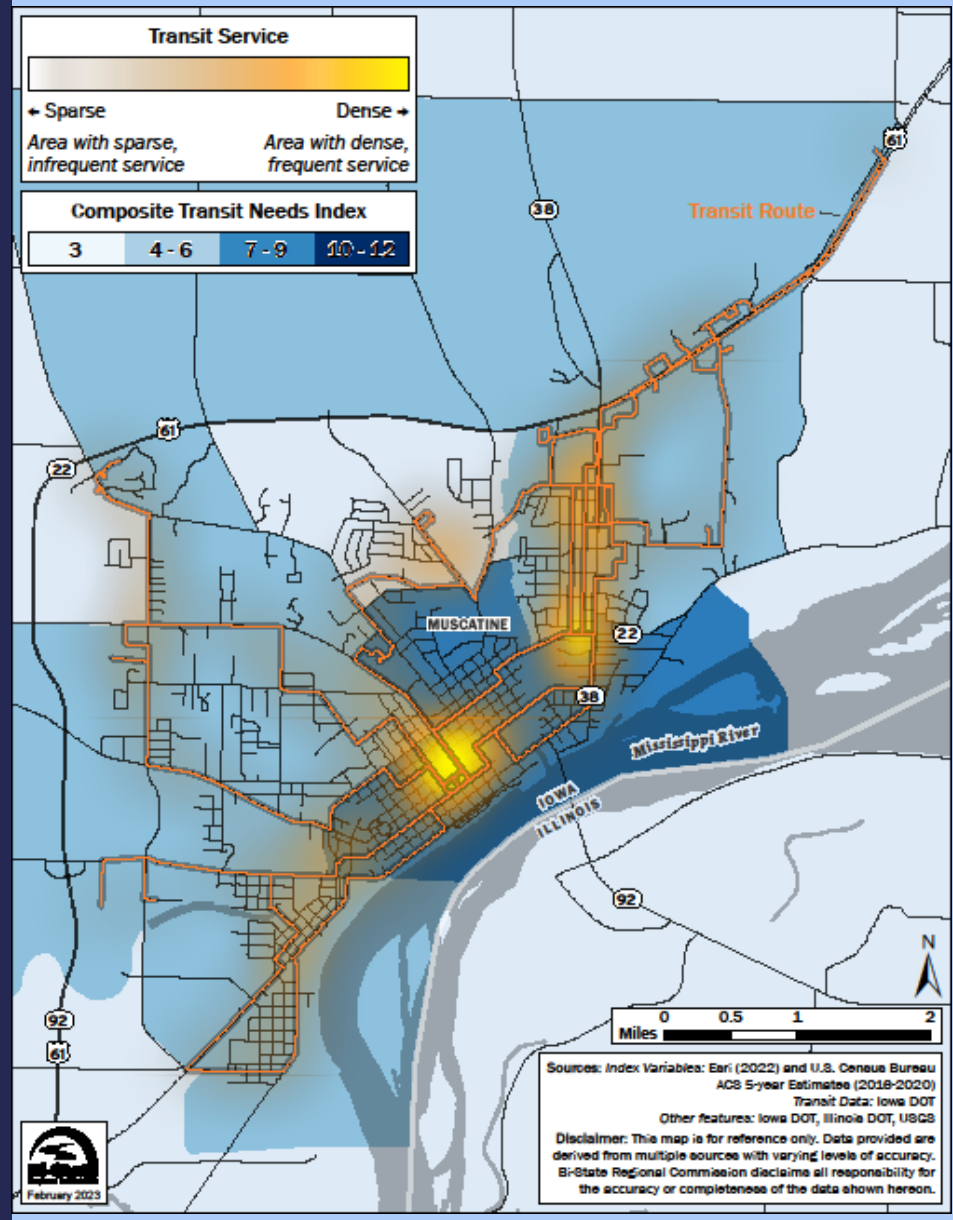
- Economic & demographic data
  - Index determinations
- GTFS Feeds
  - Bus frequency
- Walksheds
- Analyses within “service zones”

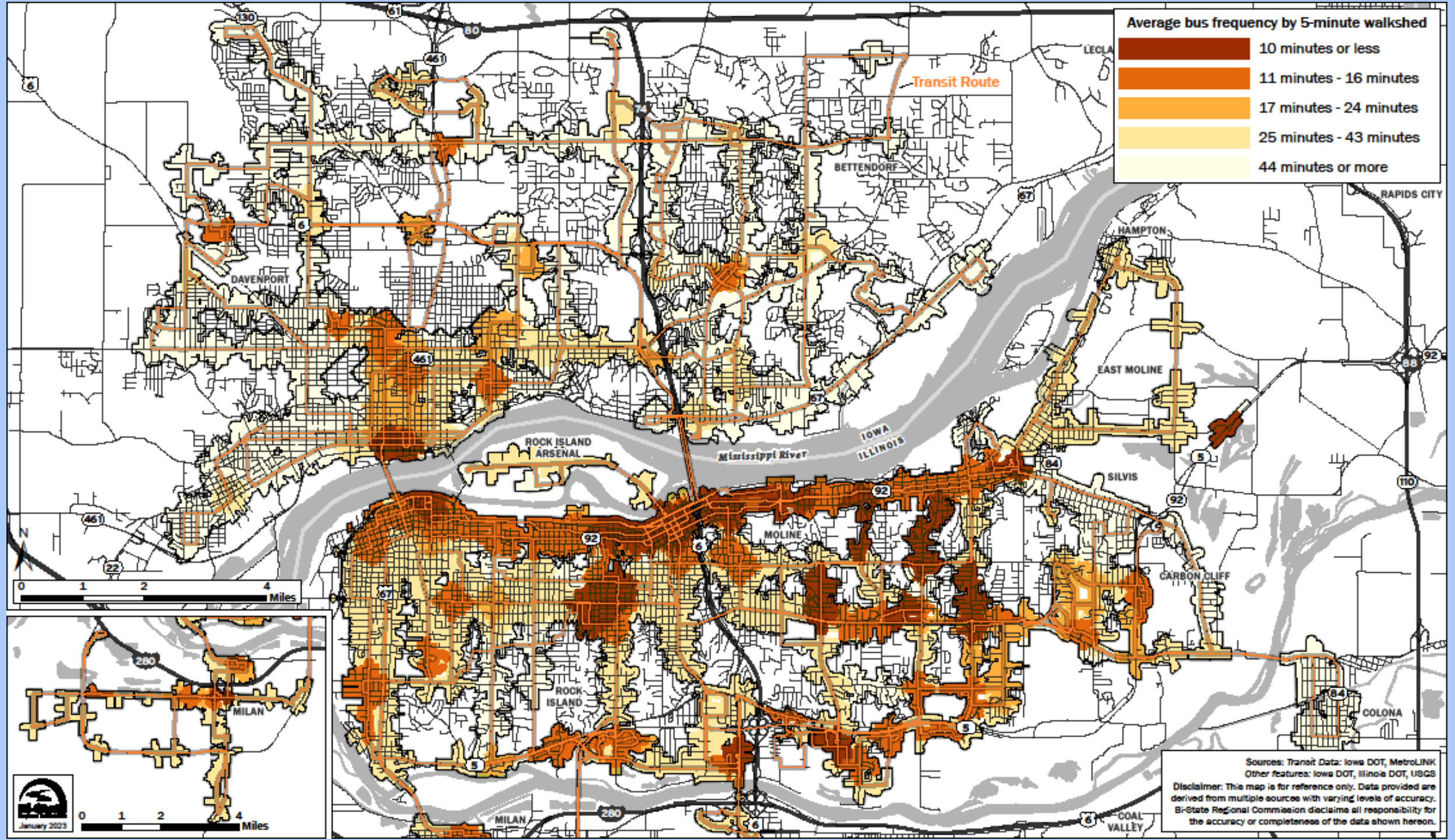
Lower Bound	Upper Bound	Classified Index Value
0 (7.588528 min)	2,500	1
2,500.000001	5,000	2
5,000.000001	7,500	3
7,500.000001	(10,547.477976 max)	4

Lower Bound	Upper Bound	Classified Index Value
0%	5%	1
5.000001%	10%	2
10.000001%	15%	3
15.000001%	100% (86.9% max)	4

Lower Bound	Upper Bound	Classified Index Value
0%	8.52%	1
8.520001%	19.11%	2
19.110001%	33.43%	3
33.430001%	1005 (57.9% max)	4

ANALYSIS & FINDINGS

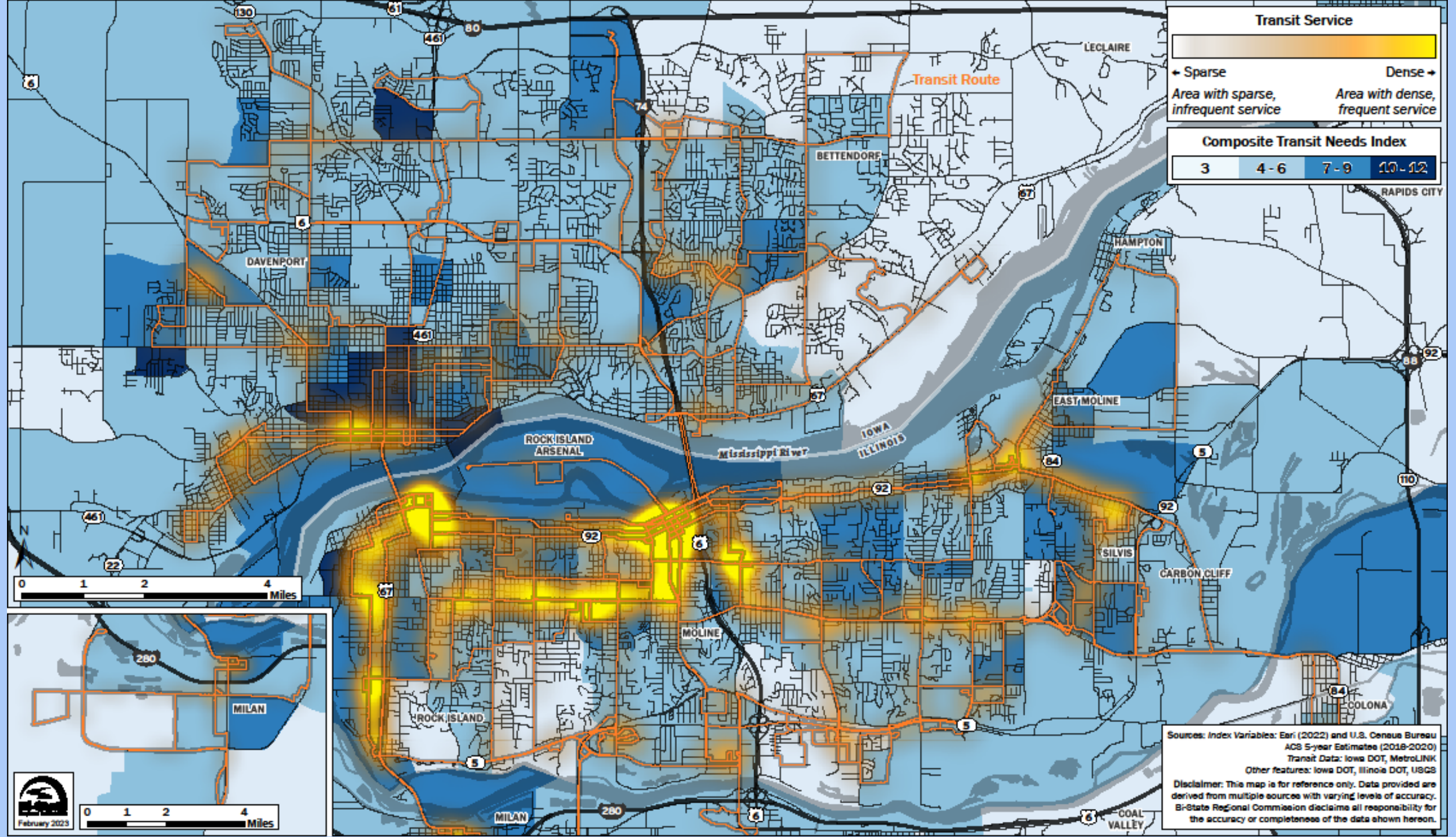



Average bus frequency by 5-minute walkshed
10 minutes or less
11 minutes - 16 minutes
17 minutes - 24 minutes
25 minutes - 43 minutes
44 minutes or more
Transit Route
DAVENPORT
BETTENDORF
LECLAIRE
RAPIDS CITY
HAMPTON
EAST MOLINE
SILVIS
MOLINE
CARBON CLIFF
ROCK ISLAND
ROCK ISLAND ARSENAL
COLONA
COAL VALLEY
MILAN
Mississippi River
IOWA
ILLINOIS
N
0 1 2 4 Miles
January 2023
Sources: Transit Data: Iowa DOT, MetroLINK
Other features: Iowa DOT, Illinois DOT, USGS
Disclaimer: This map is for reference only. Data provided are derived from multiple sources with varying levels of accuracy. Bi-State Regional Commission disclaims all responsibility for the accuracy or completeness of the data shown hereon.

Findings

Geography	Z	Route Frequency	Buses per Hour	2022 Total Population	2022 Total Population: Proportion	2022 Daytime Pop - Total Pop
Quad Cities	1	10 minutes or less	5.43 - 18.25 (max)	11,702	8.75%	7,349
Quad Cities	2	11 minutes - 16 minutes	3.18 - 5.42	18,730	14.01%	4,240
Quad Cities	3	17 minutes - 24 minutes	2.34 - 3.17	9,214	6.89%	3,050
Quad Cities	4	25 minutes - 43 minutes	1.18 - 2.33	46,053	34.45%	123
Quad Cities	5	44 minutes or more	0.08 (min) - 1.17	47,984	35.89%	-3,065
Total				**133,683**	**100.00%**	**11,697**
				Population by zone	Population by zone as % of population in all zones	Difference between daytime population and total population

Geography	Z	Route Frequency	Buses per Hour	2022 Total Population	2022 Total Population: Proportion	2022 Daytime Pop - Total Pop
Muscatine	1	10 minutes or less	5.43 - 18.25 (max)	647	4.51%	1,092
Muscatine	2	11 minutes - 16 minutes	3.18 - 5.42	0	0.00%	103
Muscatine	3	17 minutes - 24 minutes	2.34 - 3.17	420	2.93%	-157
Muscatine	4	25 minutes - 43 minutes	1.18 - 2.33	8,721	60.80%	-5,667
Muscatine	5	44 minutes or more	0.08 (min) - 1.17	4,556	31.76%	-3,270
Total				**14,344**	**100.00%**	**-7,899**


Transit Service
← Sparse
Dense →
Area with sparse, infrequent service
Area with dense, frequent service
Transit Route
Composite Transit Needs Index
3
4 - 6
7 - 9
10 - 12
LECLAIRE
BETTENDORF
RAPIDS CITY
DAVENPORT
HAMPTON
EAST MOLINE
ROCK ISLAND ARSENAL
Mississippi River
IOWA
ILLINOIS
SILVIS
CARBON CLIFF
MOLINE
ROCK ISLAND
MILAN
COLONA
COAL VALLEY
0 1 2 4 Miles
February 2023
Sources: Index Variables: Esri (2022) and U.S. Census Bureau ACS 5-year Estimates (2016-2020)
Transit Data: Iowa DOT, MetroLINK
Other features: Iowa DOT, Illinois DOT, USGS
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Key Findings

- 8.75% of urban population (11,702) close to a high-frequency bus stop
  - 4.5% in Muscatine
- General positive correlation between route frequency, % residents taking transit to work, % daytime population of workers, and daytime pop – total pop (i.e. jobs/job flows)
- Higher % of residents use transit in areas with frequent service
- Daytime pop in well-served zones swells, while it shrinks in zones with poor service
- Highly served Muscatine Mall zone has 0 residents

Takeaways

IMPACT ON QC & MUSCATINE

- Walkshed analysis
- Highlight flows and overall populations served by high-frequency transit
- Network-wide “level of service” analysis

ADDITIONAL QUESTIONS

- How does demand response service fit in?
- Can multimodal analyses be introduced adequately?

Additional Resources

- **Transit Accessibility Analysis GIS Application:** https://www.arcgis.com/apps/dashboards/0ffc2c83c67b43b0a9fbf24f8d11ea06
- **Tutorial/framework:** https://www.esri.com/arcgis-blog/products/arcgis-pro/transportation/assess-access-to-public-transit-a-gis-recipe/

THANK YOU

Bryan Schmid, AICP
Principal Planner
Bi-State Regional Commission

309-793-6300 x.1123
bschmid@bistateonline.org