



CAMBRIDGE
SYSTEMATICS

Honoring the Past ➔ *Shaping the Future*

Studying Transit Market Demand Using Location Based Data

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presented by

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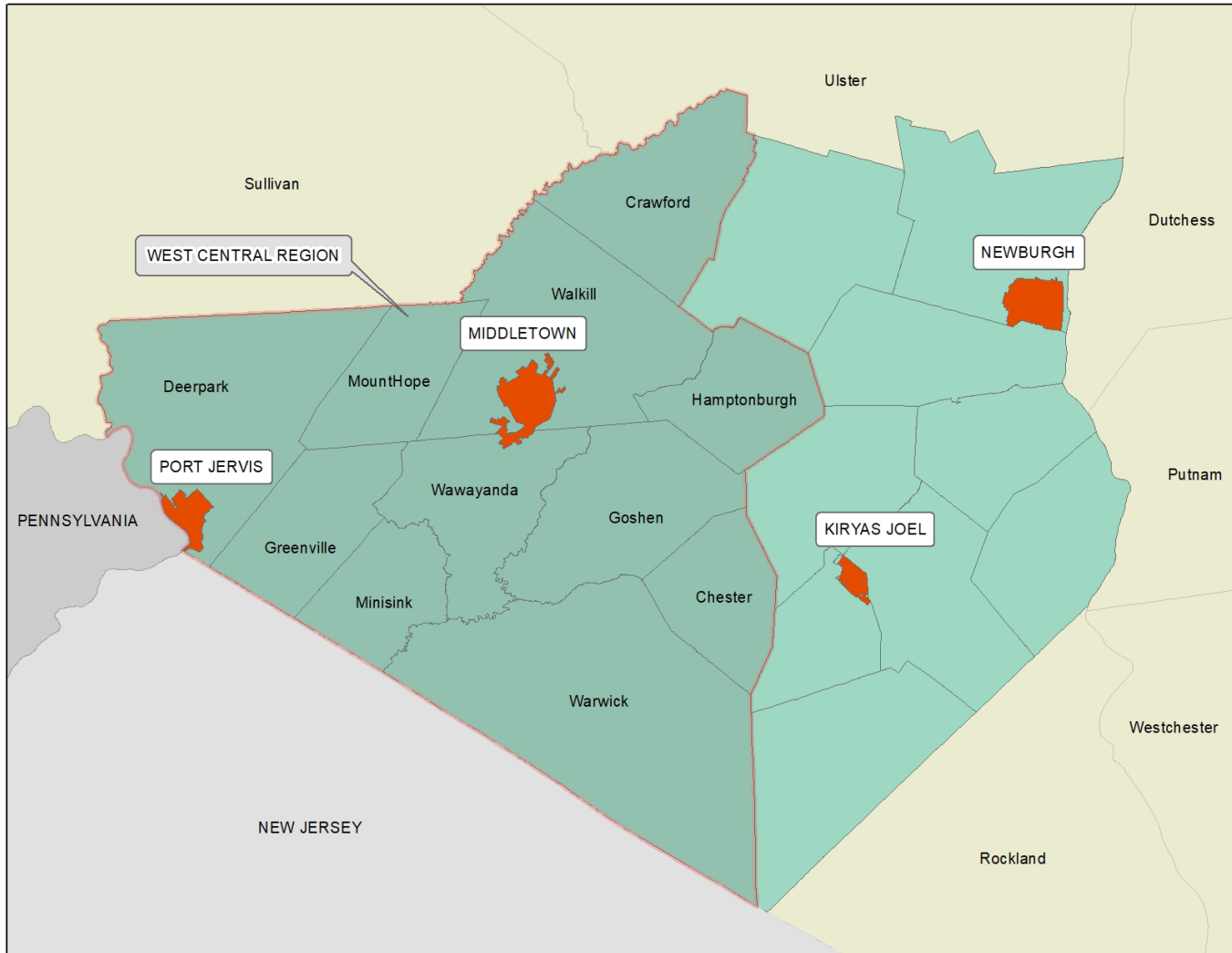
Outline

- Project Objectives and Goals
- Orange County – Context
- Approach
 - » Demand: LBS Data
 - » Supply: Bus Service Plan
- Findings

Project Objectives and Goals

- Identify transit needs in the West Central part of Orange County
- Transit needs are assessed through:
 - » Travel Demand
 - » Accessibility
 - » Equity
 - » Operational Characteristics
- Guide the MPO to make changes to its Transit service to better serve the population

Orange County, NY



- As of 2020, Orange County had a population of approximately 401,310
- West Central population: 184,000 people
- Four large cities – Middletown, Newburgh, Port Jervis, Kiryas Joel.
- The Town of Walkkill is a key economic driver.
- Middletown largest transit market

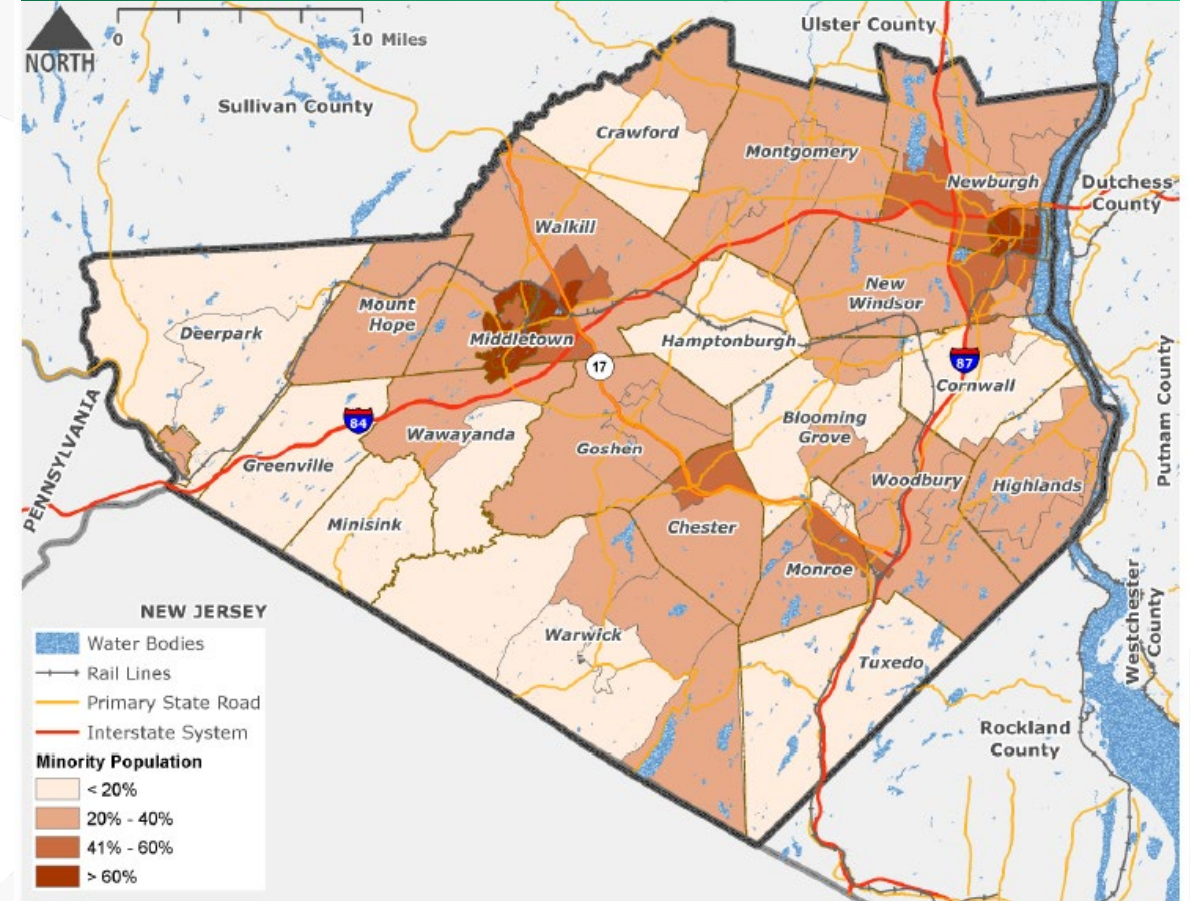
Orange County Demographics

Population Density



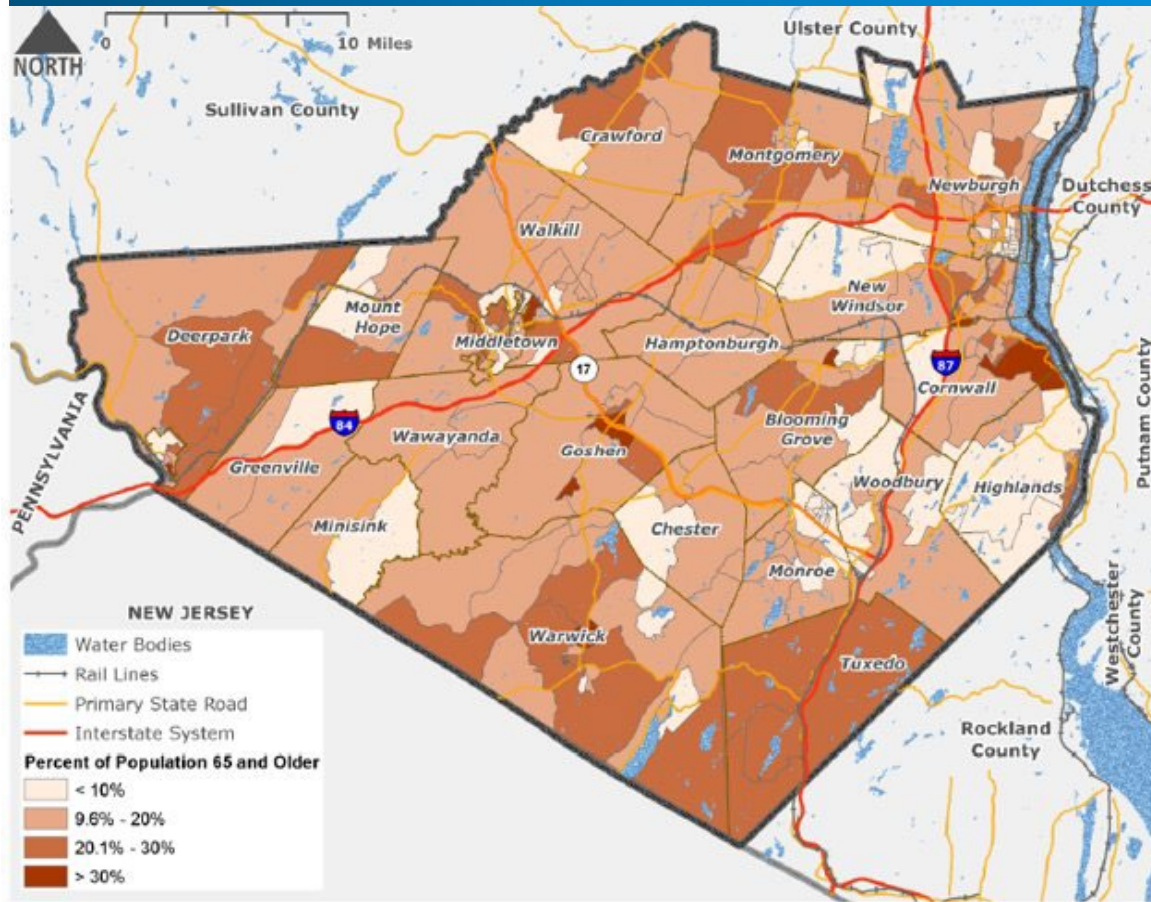
Source: U.S. Census Bureau, 2013-2017 American Community Survey 5-Year Estimates.

Minority Population

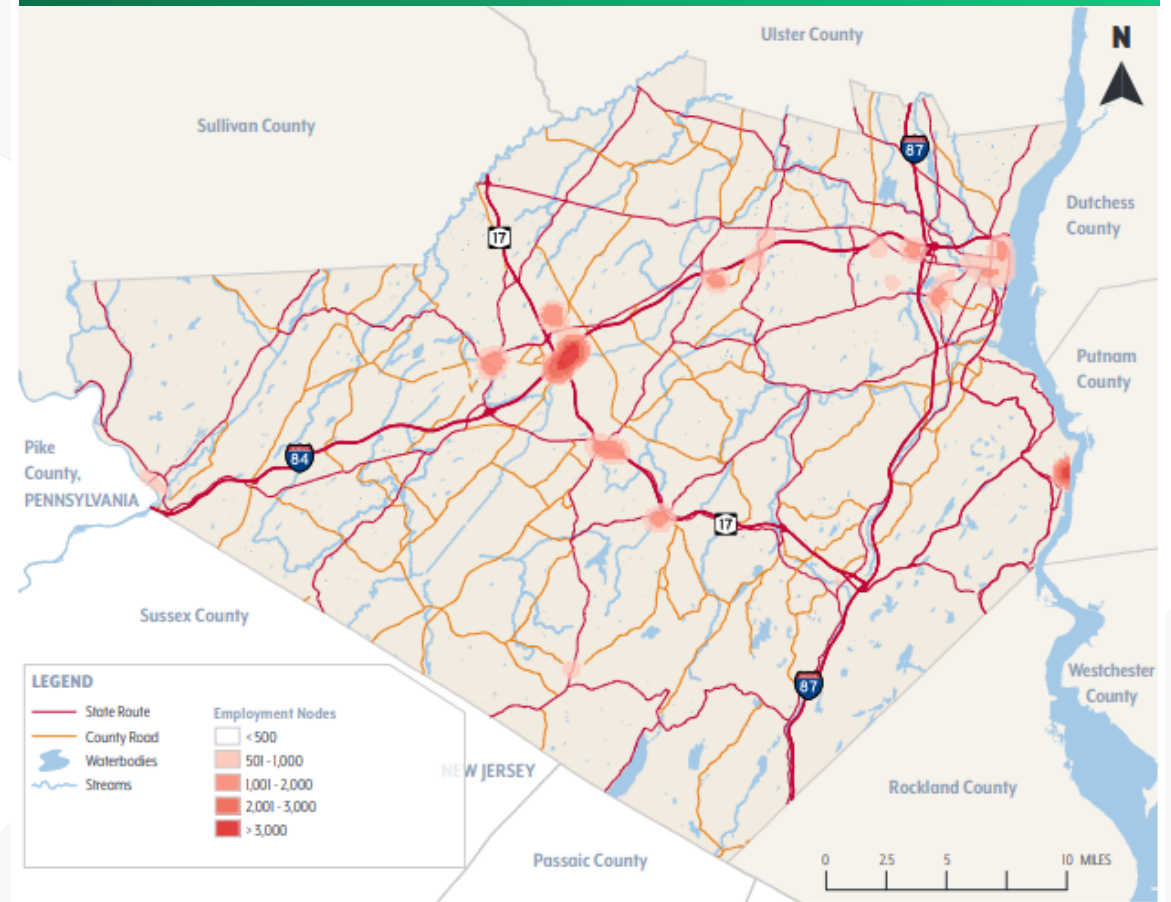


Elderly population and Employment

Population over the age of 65



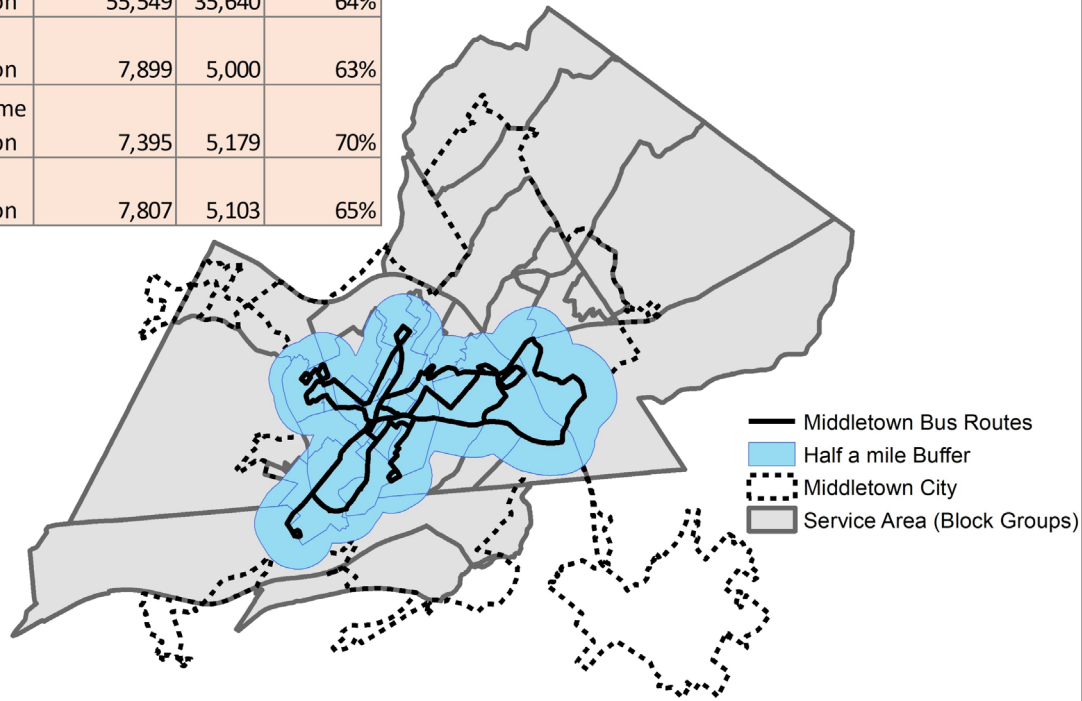
Employment Hotspots



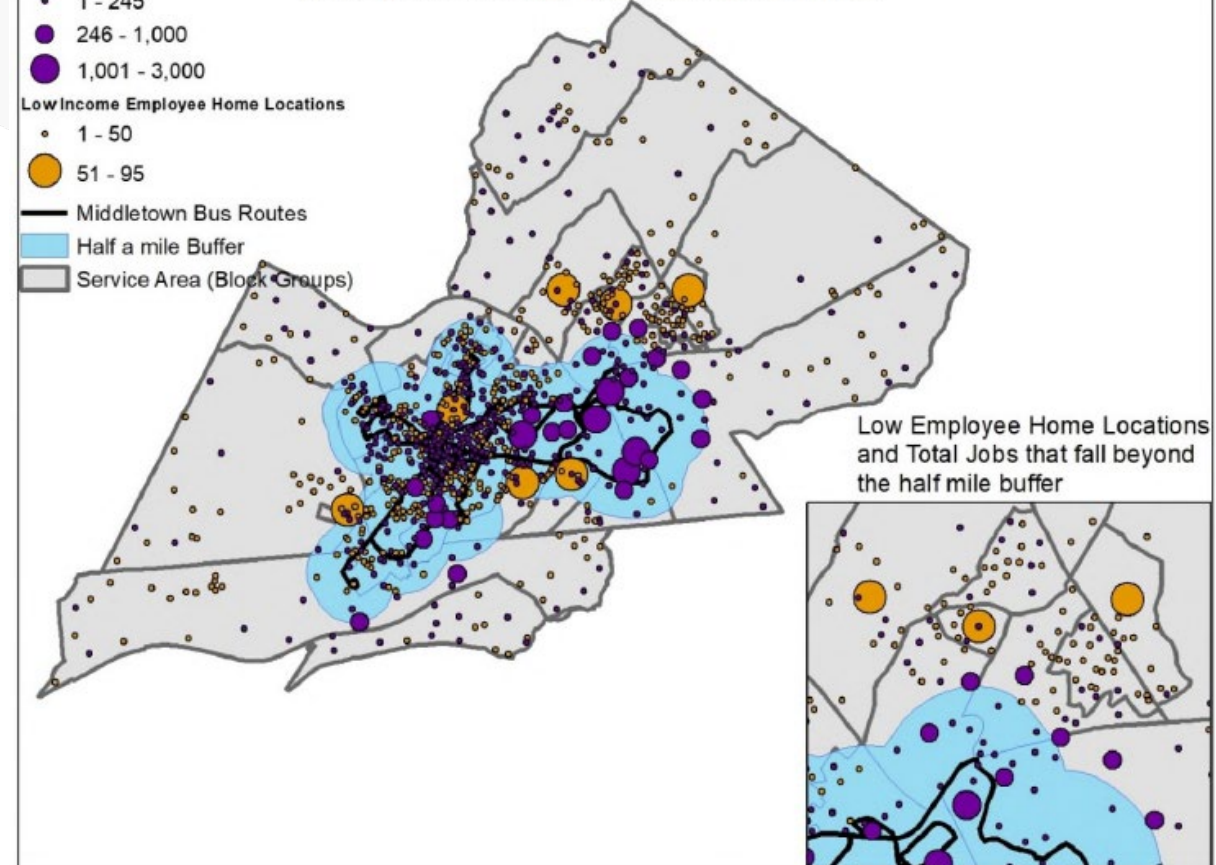
Demand Analysis and Gap Assessment

Middletown Half a Mile Buffer Analysis

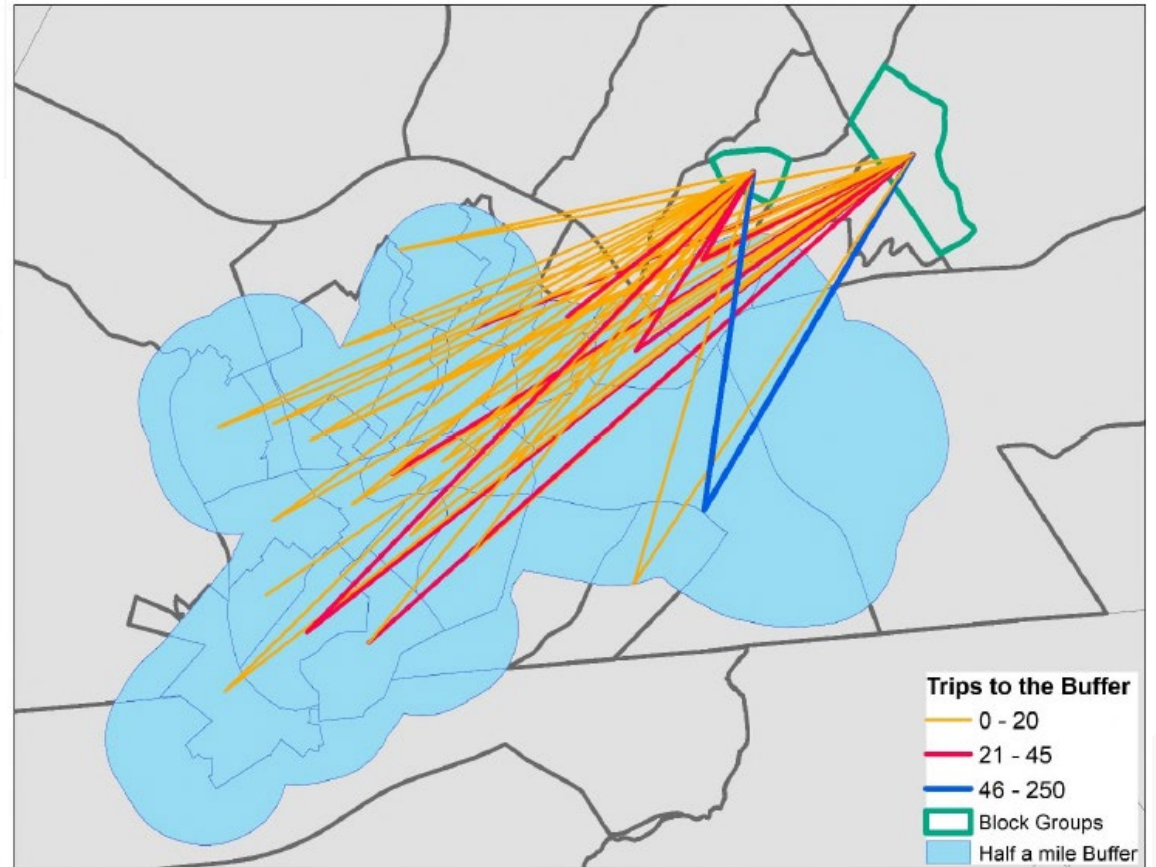
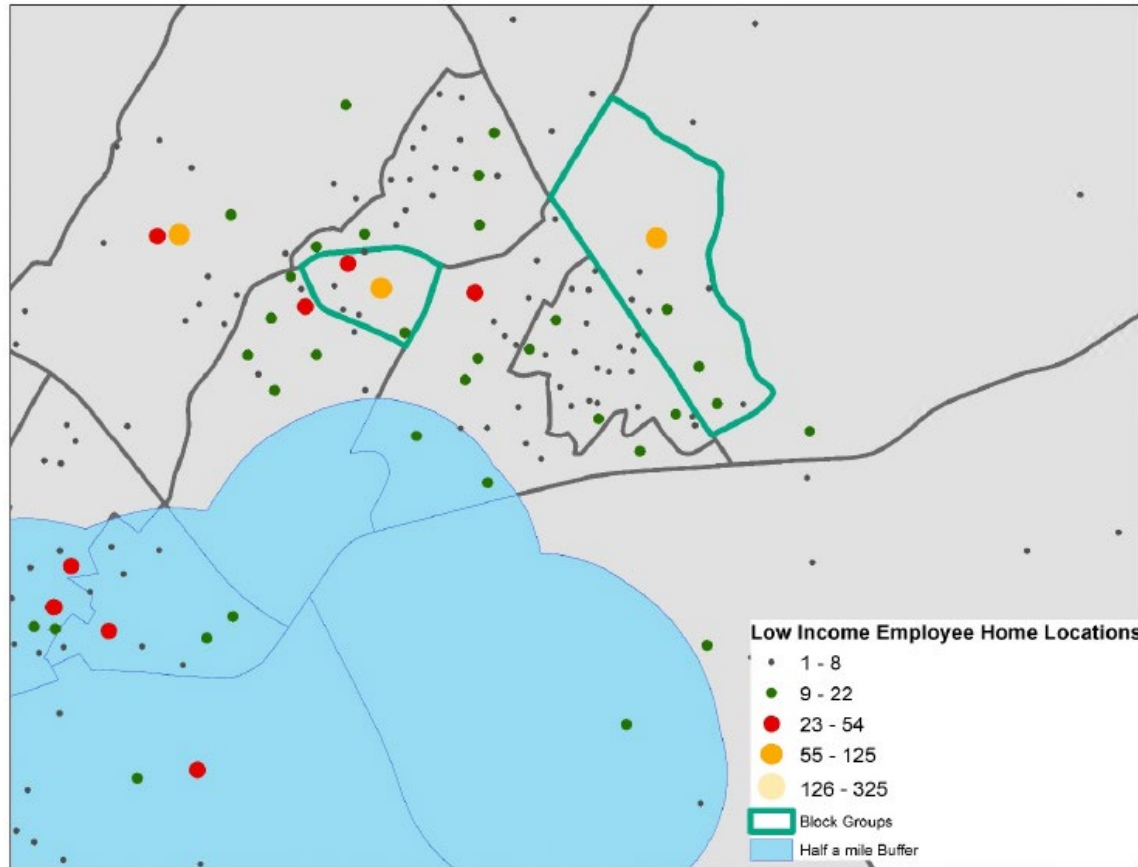
	Service Area	Buffer	Percent in Buffer
Total Population	55,549	35,640	64%
Elderly Population	7,899	5,000	63%
Low Income Population	7,395	5,179	70%
Disabled Population	7,807	5,103	65%



Transit Accessibility in the Half Mile Buffer

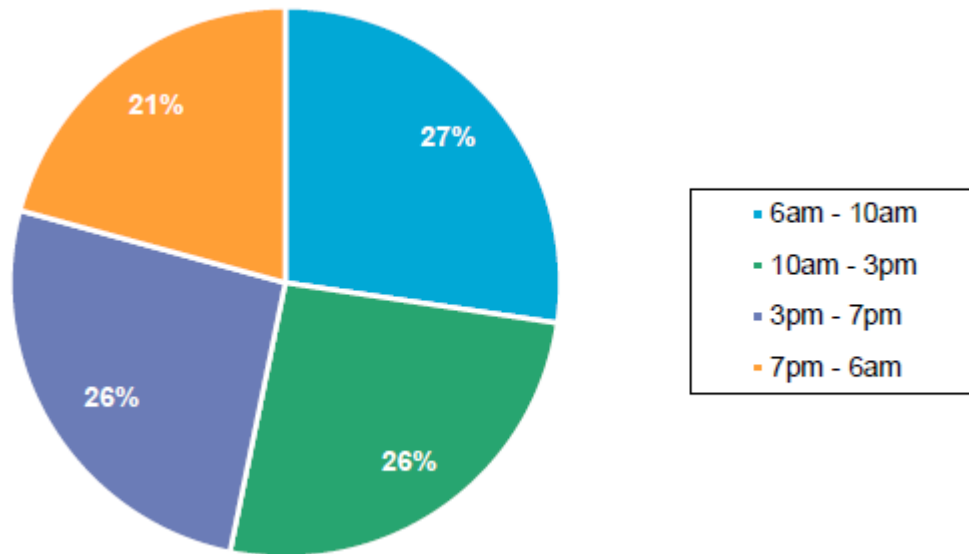


LBS Data for Gap Assessment

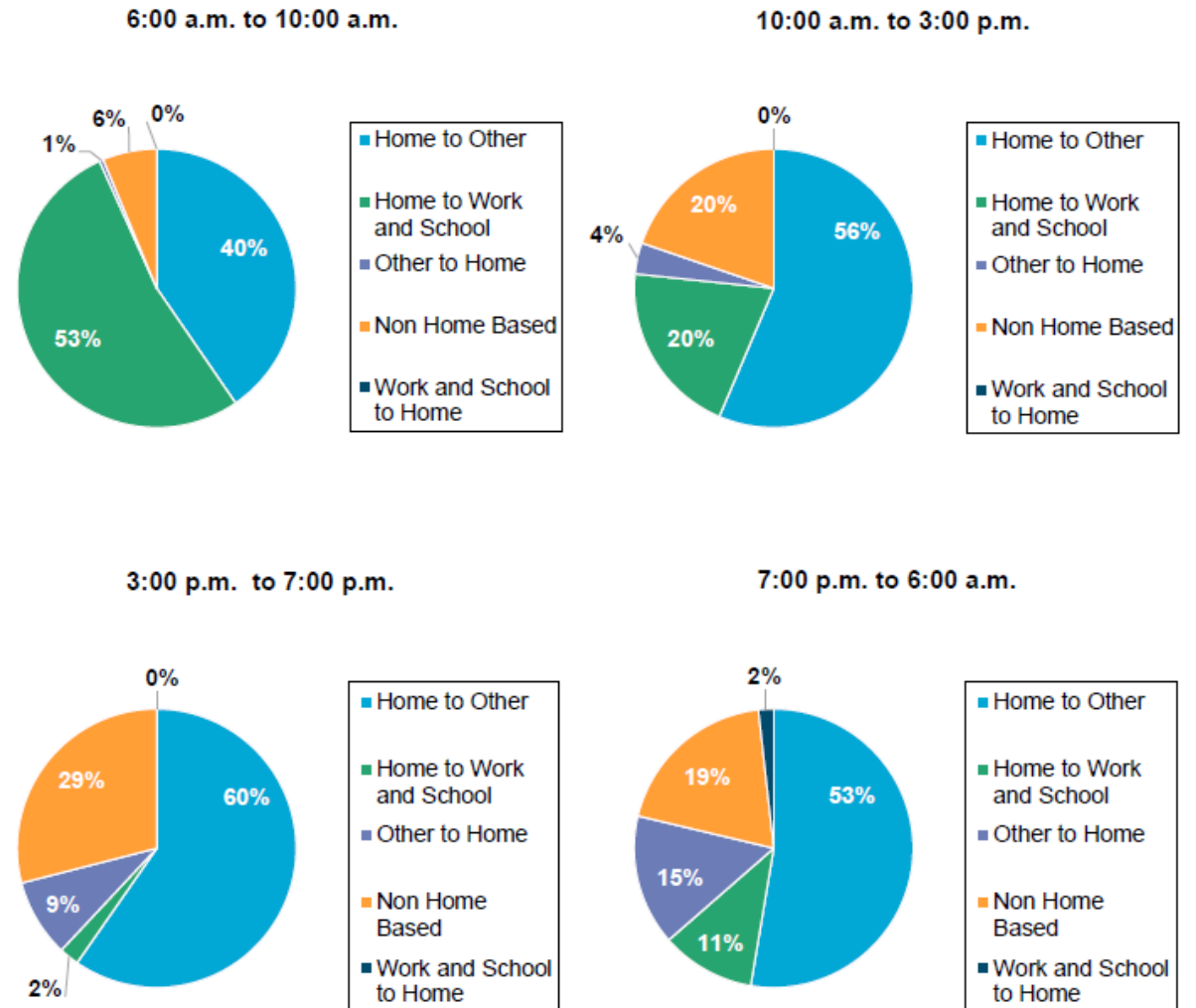


Temporal Distribution of trips to Middletown

Temporal Distribution of Scotchtown Origin Trips to Middletown

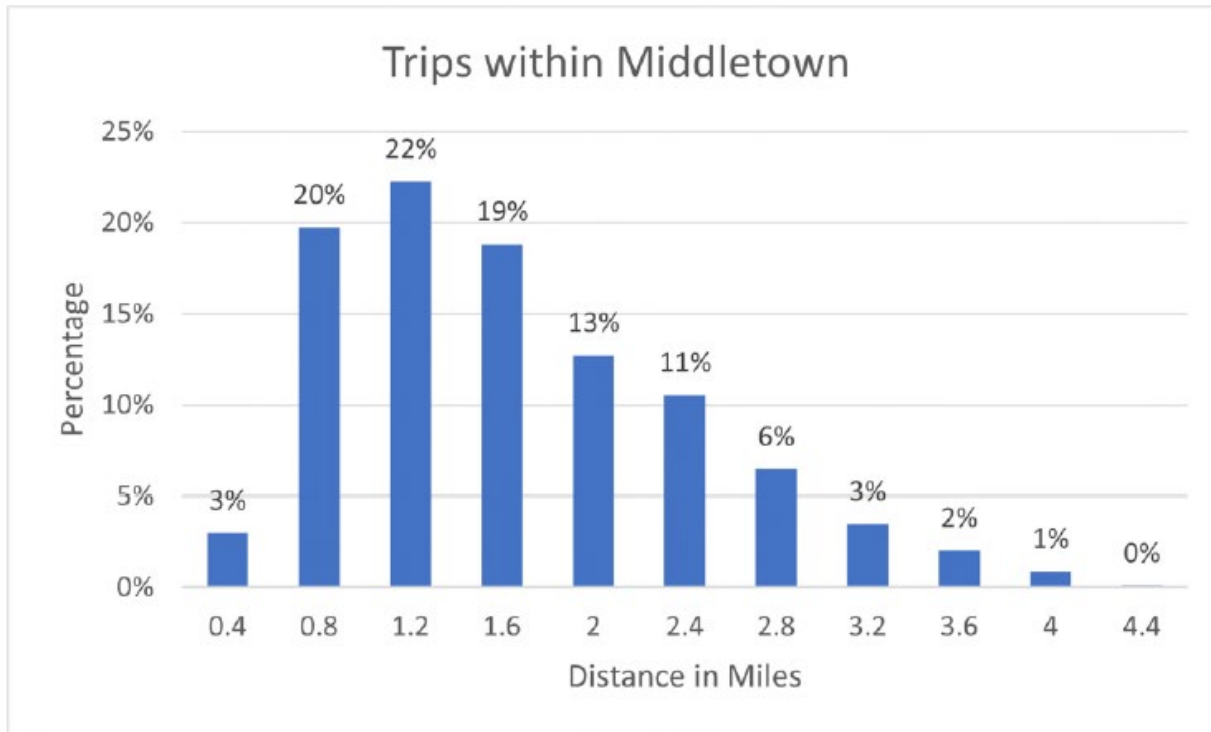


Scotchtown–Middletown Trips by Time Period



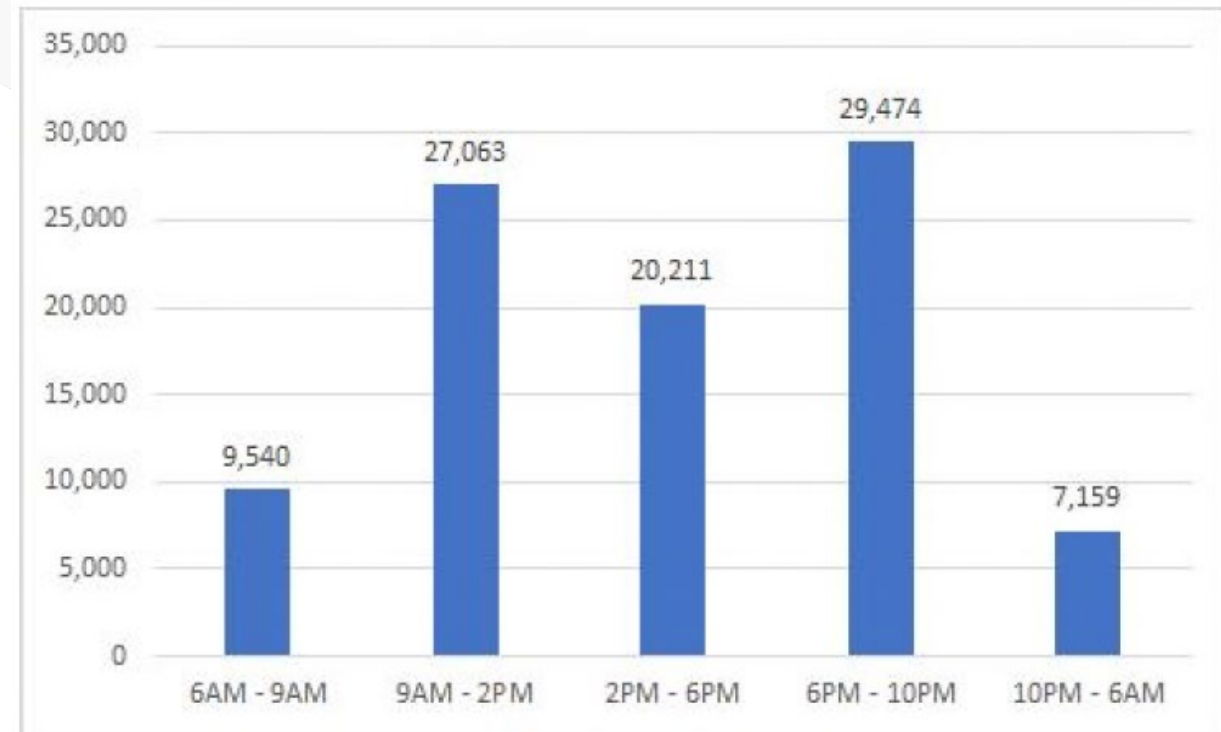
Trip Distribution Metrics

Middletown Trip Lengths



➤ Around 45% of trips within Middletown are under 1.2 miles.

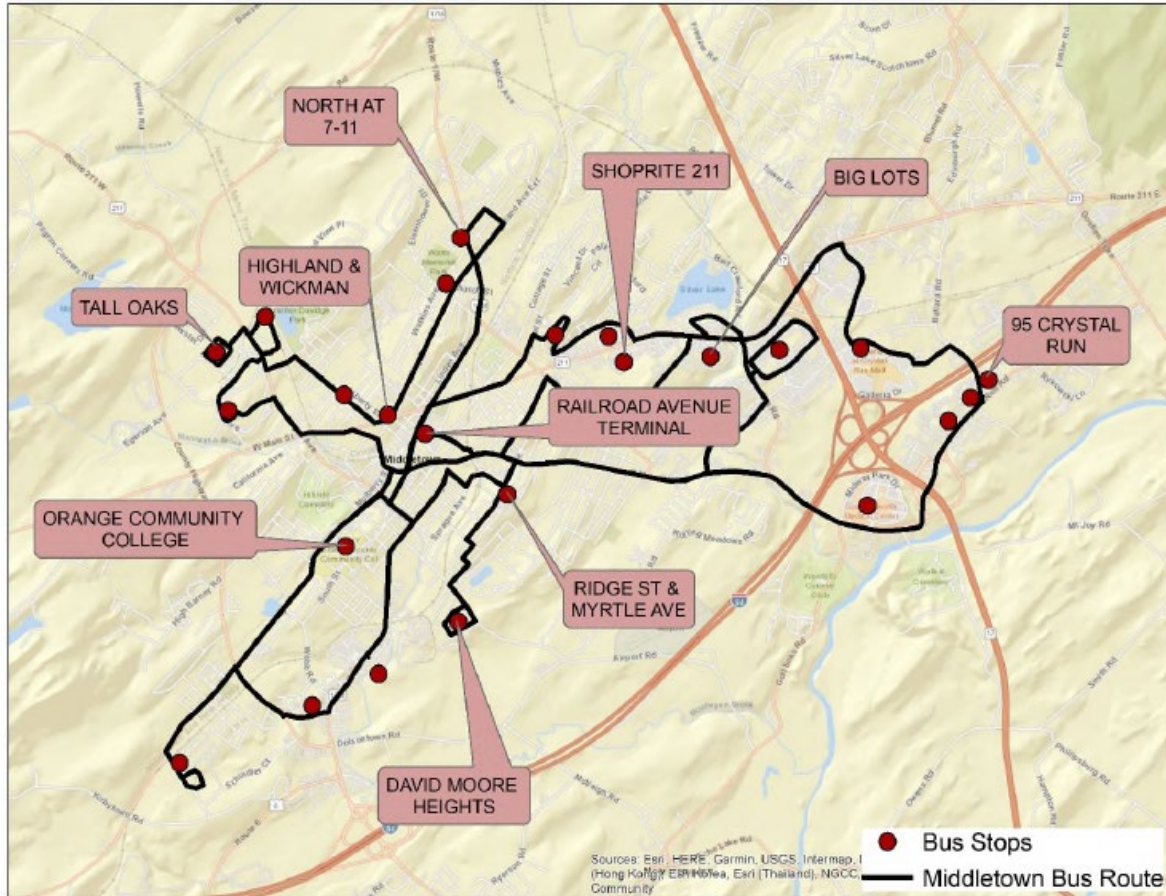
Temporal Distribution of Trips within Middletown



Buses stop at 5:30 but demand is the highest 6pm – 10pm.

Middletown Area Transit Service Characteristics

Middletown Area Transit Select Origin-Destination Pairs



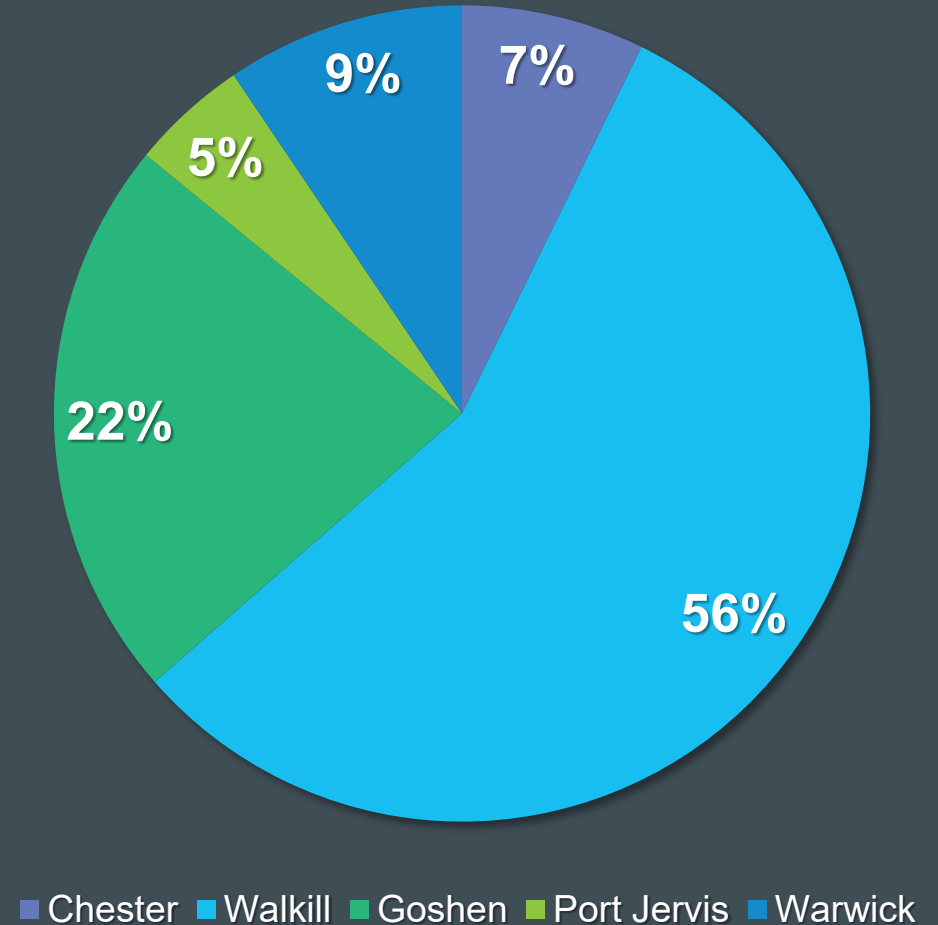
From	To	Transfer	Time Taken by Bus	From GIS (As the Crow Flies)
Tall Oaks	Orange Community College	Yes—1 (Railroad Avenue Terminal)	53 mins	1.3 miles
Tall Oaks	Highland & Wickham	Yes—1 (Railroad Avenue Terminal)	1 hr 14 mins	0.8 miles
David Moore Heights	Shoprite 211	Yes—1 (Railroad Avenue Terminal)	49 mins	1.7 miles
95 Crystal Run	Shoprite 211	Yes—1 (Railroad Avenue Terminal)	37 mins	2 miles
Ridge St & Myrtle Ave	Railroad Avenue Terminal	Yes—1 (Railroad Avenue Terminal)	59 mins	2.8 miles
David Moore Heights	Big Lots	Yes—1 (Railroad Avenue Terminal)	1 hr 14 mins	2 miles
North at 7 -11	David Moore Heights	Yes—1 (Railroad Avenue Terminal)	43 mins	1.9 miles

- High travel times for short trips
- Many trips require a transfer
- Strong case for service redesign

Inter-town Travel

- Emphasis on Middletown to Chester, Goshen, Walkkill, Port Jervis and Warwick
- Largest demand between Walkkill and Middletown
 - Potential to improve transit and possibly active transportation facilities

Daily flows to/from Middletown



Findings

- Through this approach of using LBS data for Demand Gap Analysis, we were able to analyze:
 - » Geographical and Temporal gaps
 - » Measured Average Trip Lengths
 - » Compare Service and Demand
- System – wide redesign