

# GCRTA Economic Impact and Contributions to Local Economy

Presentation to RTA External Stakeholders & Advocacy Committee

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**CLEVELAND STATE UNIVERSITY**  
CENTER FOR ECONOMIC DEVELOPMENT



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# 2017 ECONOMIC IMPACT OF GCRTA ON CUYAHOGA COUNTY



OPERATIONS

CAPITAL  
INVESTMENTS

**TOTAL**

*Output*

\$292 million

\$30 million

**\$322 million**

*Employment*

2,837 jobs

140 jobs

**2,977 jobs**

*Earnings*

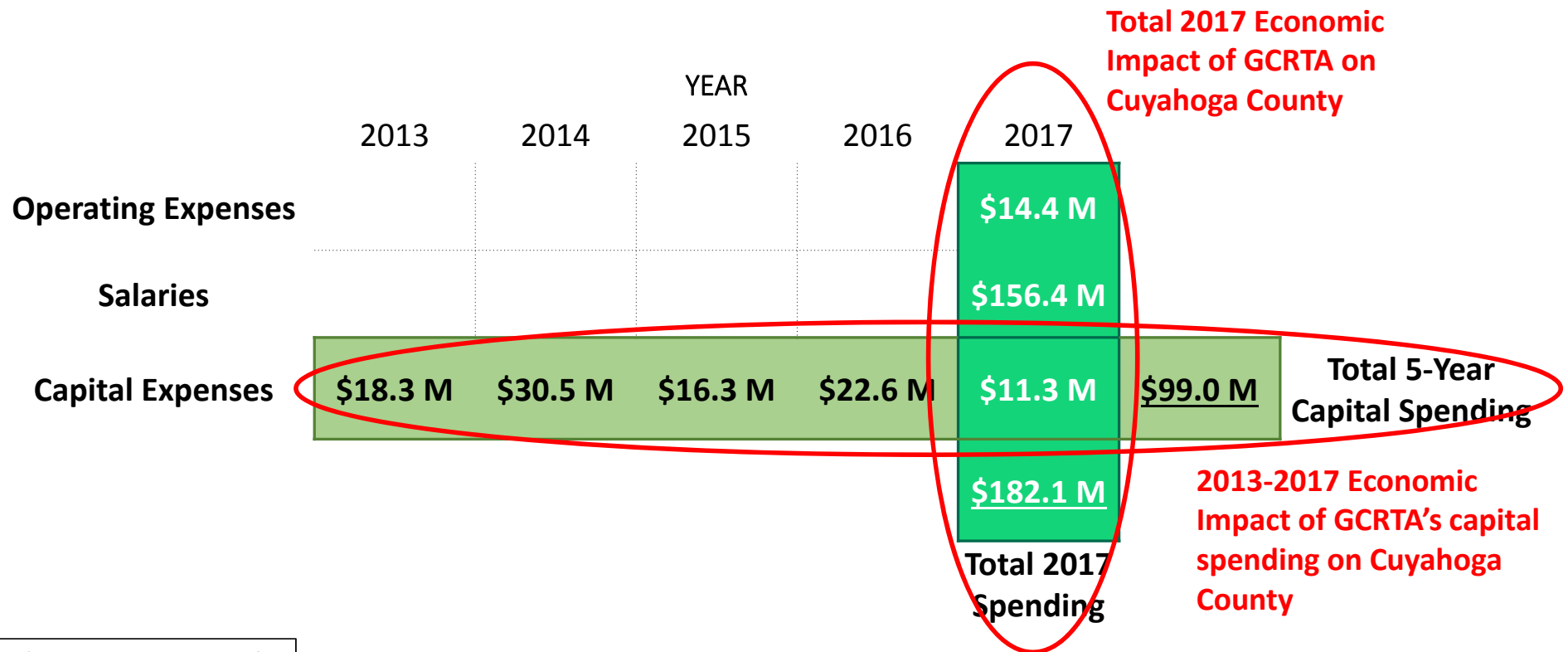
\$200 million

\$8 million

**\$208 million**

All monetary values in 2019 millions of dollars

# GCRTA SPENDING IN CUYAHOGA COUNTY



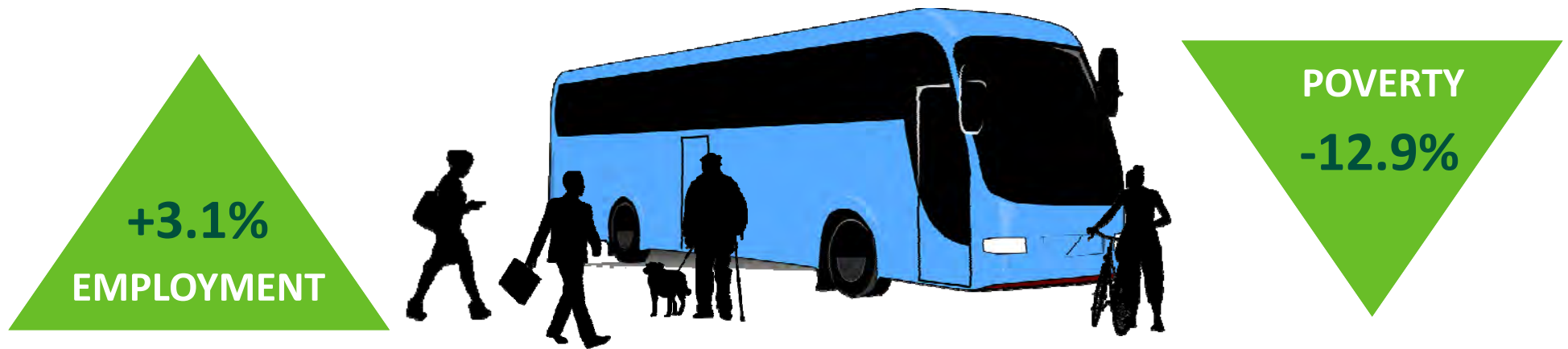
*\*Salaries include benefits*

# TRANSIT IMPACT ON CUYAHOGA COUNTY PROPERTY VALUES



- Property values increase by **3.5%** within a decade for previously unserved 429 census tracts which received some transit service
- 2010 median-based estimate of property value for those 429 census tracts is **\$65.7** billion in 2019 dollars
- The derived property value increase attributed to transit access is **\$2.2** billion in 2019 dollars

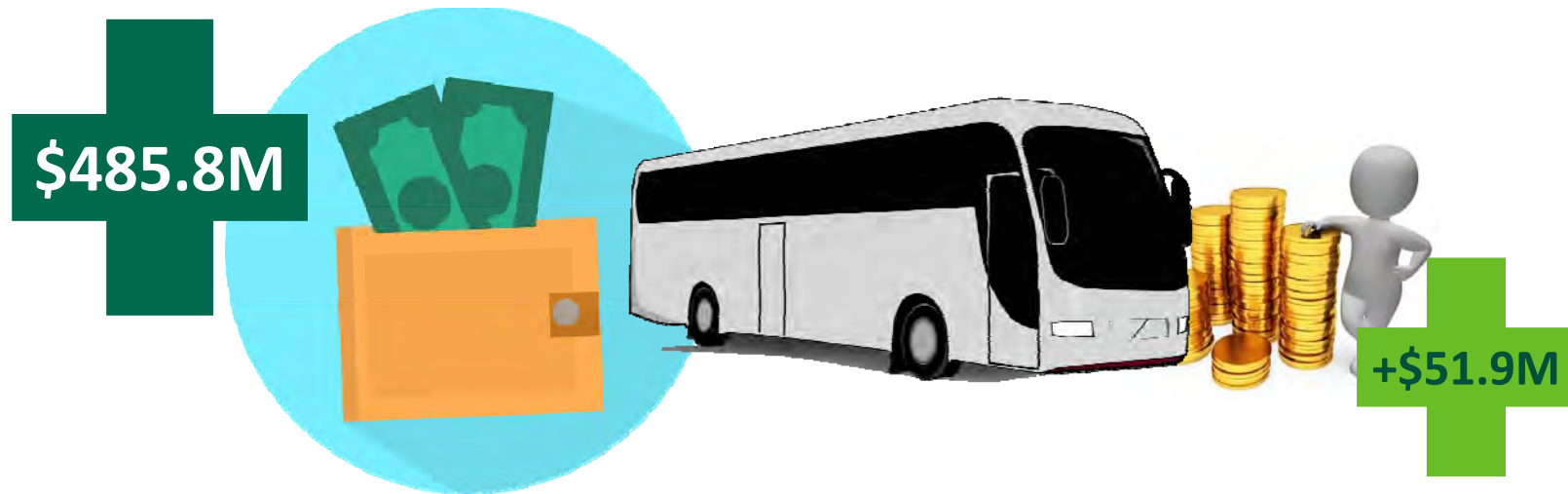
# TRANSIT ACCESS, EMPLOYMENT AND IMPACT ON POVERTY



Within a decade, for previously unserved areas that gain transit access:

- Employment increased by **3.1%**
- Poverty decreased by **12.9%**

# TRANSIT ACCESS AND CUSTOMERS



- An estimated **\$485.8 million** of annual earnings is brought home by those who depend on GCRTA transit services to get to work
- Direct annual savings for GCRTA passengers is **\$51.9 million**

# TRANSIT AND STUDENTS



**25%** of GCRTA riders tend to be students

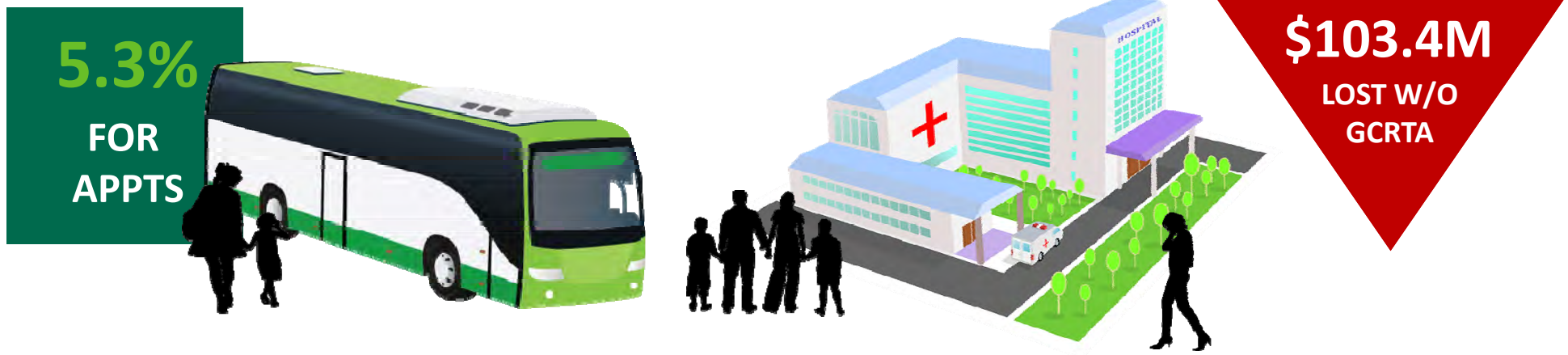
- **77%** of those are dependent on transit services

If GCRTA services are suspended, impact would affect **16,872** college and K-12 students

The current saving for the CMUSD due to the GCRTA services is about **\$28.7** million annually

- Approximately **6,000** 7th and 8th grade CMUSD students ride GCRTA

# TRANSIT AND HEALTH CARE



- About **5.3%** commuters use GCRTA to get to their medical appointments; **89%** of them depend on RTA
- Healthcare institutions in the regions **may lose \$103.4 M annually** when patients dependent on transit miss or cancel appointments



# THIS PRESENTATION

- Economic impact of GCRTA on Cuyahoga County
  - Economic impact: (1) 2017 operation + operating/capital spending; (2) cumulative 5-year capital
  - IMPLAN modeling
  - Direct, indirect and induced economic impact
- Descriptive Analysis of GCRTA Wage Distribution
- Local Contributions to the Economy - Statistical Models
  - Historical System Maps processing
  - Service Level model
- Job Access and Spatial Mismatch Analysis
- Other Contributions

# ECONOMIC IMPACT OF GCRTA: ASSUMPTIONS

- Economic impact is created by GCRTA operations and expenditures made within the region of impact – Cuyahoga County
- Despite the fact that GCRTA is funded by local money, the substitution effect is not applicable due to the nature of GCRTA services
- Economic impact is calculated based on a question how Cuyahoga County's economy would be affected if GCRTA suspends its services
- Total spending in 2017 in Cuyahoga -- \$182.1 million

# MEASURES OF ECONOMIC IMPACT

- Employment impact measures the number of jobs created and supported in the region as a result of GCRTA operations and expenditures
- Labor income impact measures the additional labor earnings created in the region due to GCRTA operation and expenditures
- Value added impact measures the additional economic value created in the region as a result of GCRTA operations and expenditures. Value added is calculated as output less the value of intermediary goods (such as security services or gasoline)
- Output impact measures the additional value of all goods and services produced in the region as a result of GCRTA operations and expenditures
- Tax impact measures the additional federal, state, and local tax revenues collected in the region as a result of GCRTA operations and expenditures

# TOTAL 2017 ECONOMIC IMPACT OF GCRTA ON CUYAHOGA COUNTY

*All monetary values in 2019 millions of dollars*

	Employment	Labor Income	Value Added	Output	State & Local Tax
<b>Direct</b>	1,800	\$156.4	\$169.5	\$182.1	\$7.0
<b>Indirect</b>	433	\$14.8	\$21.2	\$35.0	\$1.0
<b>Induced</b>	744	\$36.3	\$64.9	\$104.6	\$5.7
<b>Total</b>	<b>2,977</b>	<b>\$207.5</b>	<b>\$255.6</b>	<b>\$321.7</b>	<b>\$13.8</b>

- Spending of \$182.1 million for operation and purchases triggered increase of economic activity by \$321.7 million
- 60% (1,800) of the total impact is due to the direct RTA employment
- 25% (744) of total employment impact is created as an induced effect – spending done by GCRTA's employees and the employees of its suppliers by buying goods and services in the region of impact
- Local spending at consumer-driven industries generated 41% (\$5.7 M) of the collected taxes

# COMPONENTS OF TOTAL 2017 IMPACT

Operations & Operational Expenditures		Employment	Labor Income	Value Added	Output	State & Local Tax
	Direct	1,800	\$156.4	\$163.7	\$170.7	\$7.0
	Indirect	322	\$8.3	\$12.5	\$20.2	\$0.6
	Induced	715	\$34.9	\$62.4	\$100.6	\$5.5
	<b>Total</b>	<b>2,837</b>	<b>\$199.6</b>	<b>\$238.6</b>	<b>\$291.5</b>	<b>\$13.1</b>
2017 Capital Expenditures		Employment	Labor Income	Value Added	Output	State & Local Tax
	Direct	0	\$0.0	\$5.8	\$11.3	\$0.0
	Indirect	111	\$6.5	\$8.7	\$14.8	\$0.4
	Induced	29	\$1.4	\$2.5	\$4.1	\$0.2
	<b>Total</b>	<b>140</b>	<b>\$7.9</b>	<b>\$16.9</b>	<b>\$30.2</b>	<b>\$0.6</b>
<b>TOTAL</b>	<b>Total</b>	<b>2,977</b>	<b>\$207.5</b>	<b>\$255.6</b>	<b>\$321.7</b>	<b>\$13.8</b>

*Spending  
\$2017*

*\$170.8 million*

*\$11.3 million*

*\$182.1 million*

# TOP INDUSTRIES AFFECTED BY TOTAL 2017 IMPACT: EMPLOYMENT

*All monetary values in 2019 millions of dollars*

Industry	Employment	Labor Income	Output
Transit and ground passenger transportation	2,039	\$159.9	\$176.0
Construction of other new nonresidential structures	82	\$4.6	\$10.2
Hospitals	48	\$4.3	\$8.5
Full-service restaurants	40	\$1.0	\$2.0
Limited-service restaurants	38	\$0.7	\$3.1
Real estate	32	\$0.5	\$8.3
Retail - Food and beverage stores	22	\$0.6	\$1.4
Services to buildings	21	\$0.5	\$1.0
Individual and family services	21	\$0.7	\$0.8
Home health care services	21	\$0.7	\$0.9

- There are two types of industries affected by operations and spending of GCRTA:
  - GCRTA-driven -- those in transportation, construction and related professional, trade, and financial services (supply chain industries)
  - Population-driven in consumer goods and services industries: healthcare, retail, real estate, and other population services

# TOTAL IMPACT OF GCRTA CAPITAL EXPENDITURES ON CUYAHOGA COUNTY, 2013-2017

*All monetary values in 2019 millions of dollars*

	Employment	Labor Income	Value Added	Output	State & Local Tax
<b>2013</b>	235	\$13.6	\$19.2	\$32.3	\$1.1
<b>2014</b>	382	\$21.9	\$31.2	\$53.2	\$1.8
<b>2015</b>	201	\$11.5	\$16.3	\$27.8	\$0.9
<b>2016</b>	278	\$15.9	\$22.6	\$37.9	\$1.3
<b>2017</b>	140	\$7.9	\$11.2	\$18.9	\$0.6
<b>Average</b>	<b>247</b>				
<b>Total</b>		<b>\$70.9</b>	<b>\$100.5</b>	<b>\$170.1</b>	<b>\$5.8</b>

<i>Spending, \$2017</i>
<i>\$18.2</i>
<i>\$30.5</i>
<i>\$16.3</i>
<i>\$22.5</i>
<i>\$11.3</i>
<i>\$19.8</i>
<b><i>\$98.8</i></b>

# GCRTA WAGE DISTRIBUTION

- Out of \$137 million spent on salaries by GCRTA, \$112 million are paid to workers residing in Cuyahoga County (82%)
- 65% of salaries paid in Cuyahoga County are distributed to workers living in top 10 municipalities in Cuyahoga
- 31.5% of locally paid salaries are paid to workers who live in Cleveland

*Derived from descriptive analysis*



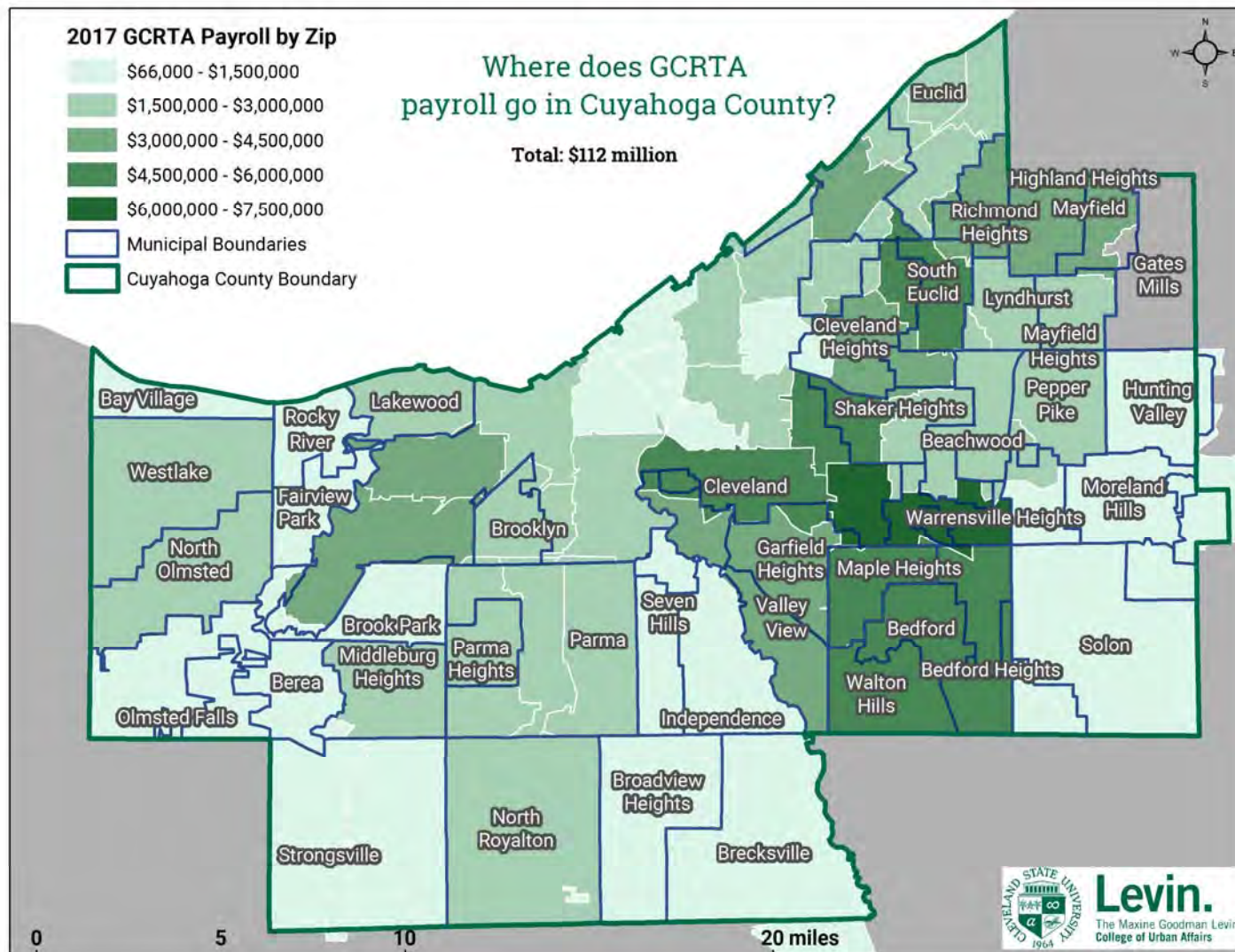
# GCRTA SALARY DISTRIBUTION IN CUYAHOGA COUNTY

- **\$137 million GCRTA salaries** in 2017
- **\$112 million salaries** in Cuyahoga County
- 82% salaries are paid in the county

## Top 10 Municipalities

MUNICIPALITY	AREA-BASED PROPORTIONAL SALARY
Cleveland	\$35,278,333
Euclid	\$7,874,021
Maple Heights	\$5,100,236
Parma	\$4,610,463
Cleveland Heights	\$4,221,016
Walton Hills	\$3,771,076
Shaker Heights	\$3,741,882
South Euclid	\$3,149,444
Warrensville Heights	\$2,763,235
North Olmsted	\$2,370,678

*All monetary values in 2017 millions of dollars*



# CONTRIBUTIONS TO LOCAL ECONOMY

*Within a decade, for previously un-served areas that gain transit access:*

- Employment increases by 3.1%
- Poverty decreases by 12.9%
- Property values increase by 3.5% (\$2.3 billion)

*Derived from statistical modeling*

# CONTRIBUTIONS TO LOCAL ECONOMY

- Methods
  - Statistical models were run on 462 Cuyahoga County census tracts from 1970 to 2010
  - Socioeconomic data from LTDB (Longitudinal Tract Data Base)
  - Uses measure of “access to transit”
- Investigate effects on:
  - Poverty rates and employment
  - Part-time and minimum wage workers along transit
  - Housing and property values
  - Access to jobs

# LOCAL CONTRIBUTIONS: ACCESS TO TRANSIT

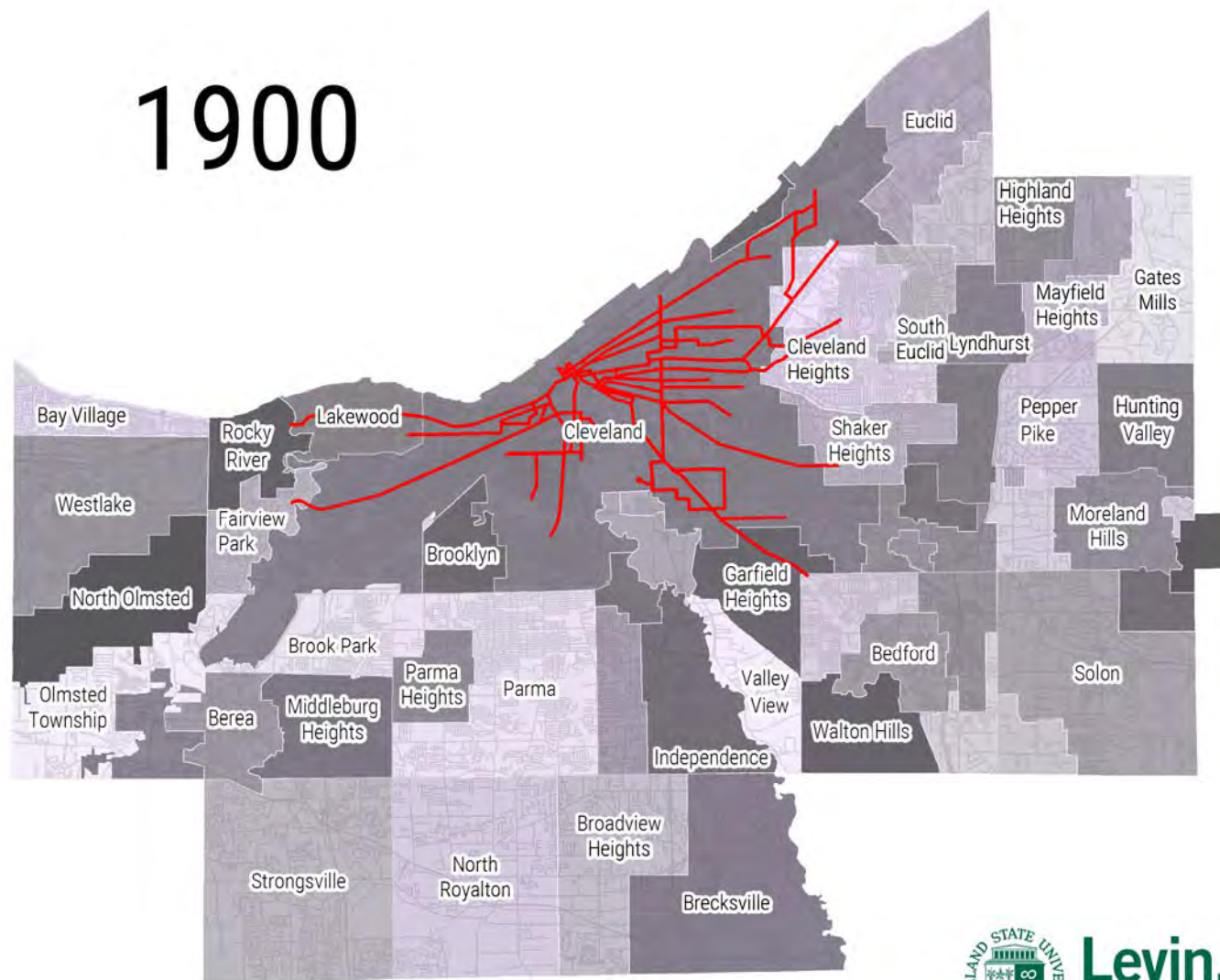
- Historical system maps
- Manually convert to shapefiles of networks
- Can say if census tract had “access to transit”
- “Access to transit” = route running through the tract
- No digital stop or frequency info before 2009 makes detailed models impossible





# TRANSIT NETWORK CHANGE OVER THE YEARS

## 1900



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# IMPACT OF GCRTA SERVICES ON DYNAMICS OF EMPLOYMENT: LONG TERM

Table A5: Dependent variable – Employment (long-term impact)					
	(1)	(2)	(3)	(4)	(5)
TR_ACCESS		0.330*** (0.052)	0.043*** (0.013)	0.028*** (0.010)	0.031*** (0.011)
POPDENS	0.777*** (0.029)		1.041*** (0.019)	0.782*** (0.029)	0.775*** (0.029)
H30OLD	0.014** (0.007)		0.0320*** (0.008)	0.011* (0.006)	0.011* (0.007)
RENTVAL	0.106*** (0.035)		0.128*** (0.047)	0.103*** (0.035)	0.103*** (0.035)
MANUF	0.241*** (0.023)			0.245*** (0.023)	0.240*** (0.023)
HH_BLACK	0.005* (0.003)				0.005* (0.003)
Constant	-1.495*** (0.239)	6.975*** (0.049)	-2.534*** (0.281)	-1.549*** (0.239)	-1.466*** (0.237)
Census Tract FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	2,143	2,214	2,211	2,208	2,143
R-squared (within)	0.873	0.127	0.835	0.875	0.873
No. of Census Tracts	443	443	443	443	443

Employment increases by 3.1% within a decade for previously unserved areas that gain transit access

# IMPACT OF GCRTA SERVICES ON POVERTY: LONG TERM

Table A8: Dependent variable – Poverty (long-term impact)					
	(1)	(2)	(3)	(4)	(5)
TR_ACCESS		-0.162*** (0.046)	-0.124*** (0.046)	-0.111** (0.044)	-0.129*** (0.043)
POPDENS	0.023 (0.095)		-0.087 (0.070)	0.122 (0.096)	0.031 (0.095)
H30OLD	0.014 (0.024)		-0.001 (0.024)	0.012 (0.024)	0.023 (0.024)
RENTVAL	-0.437*** (0.113)		-0.454*** (0.112)	-0.451*** (0.116)	-0.423*** (0.114)
MANUF	-0.214*** (0.051)			-0.196*** (0.051)	-0.207*** (0.050)
HH_BLACK	0.072*** (0.009)				0.072*** (0.009)
Constant	4.657*** (0.763)	1.913*** (0.043)	4.772*** (0.704)	4.063*** (0.792)	4.537*** (0.780)
Census Tract FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	2,143	2,215	2,211	2,208	2,143
R-squared (within)	0.381	0.320	0.342	0.356	0.384
No. of Census Tracts	443	443	443	443	443

Poverty decreases by 12.9% within a decade for previously un-served areas that gain transit access



# IMPACT OF GCRTA SERVICES ON PROPERTY VALUES: LONG TERM

Table A10 : Dependent variable – Property Value (long-term)					
	(1)	(2)	(3)	(4)	(5)
TR_ACCESS		0.040* (0.023)	0.042** (0.020)	0.037* (0.020)	0.035* (0.021)
POPDENS	0.069* (0.035)		0.110*** (0.027)	0.040 (0.033)	0.066* (0.035)
H30OLD	-0.067*** (0.013)		-0.059*** (0.012)	-0.066*** (0.012)	-0.070*** (0.012)
RENTVAL	0.237*** (0.059)		0.253*** (0.061)	0.236*** (0.058)	0.232*** (0.059)
MANUF	0.076*** (0.018)			0.072*** (0.018)	0.075*** (0.018)
HH_BLACK	-0.018*** (0.004)				-0.018*** (0.004)
Constant	8.222*** (0.345)	9.918*** (0.022)	8.116*** (0.327)	8.412*** (0.326)	8.262*** (0.344)
Census Tract FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	2,135	2,205	2,203	2,200	2,135
R-squared (within)	0.932	0.926	0.933	0.935	0.932
No. of Census Tracts	443	443	443	443	443

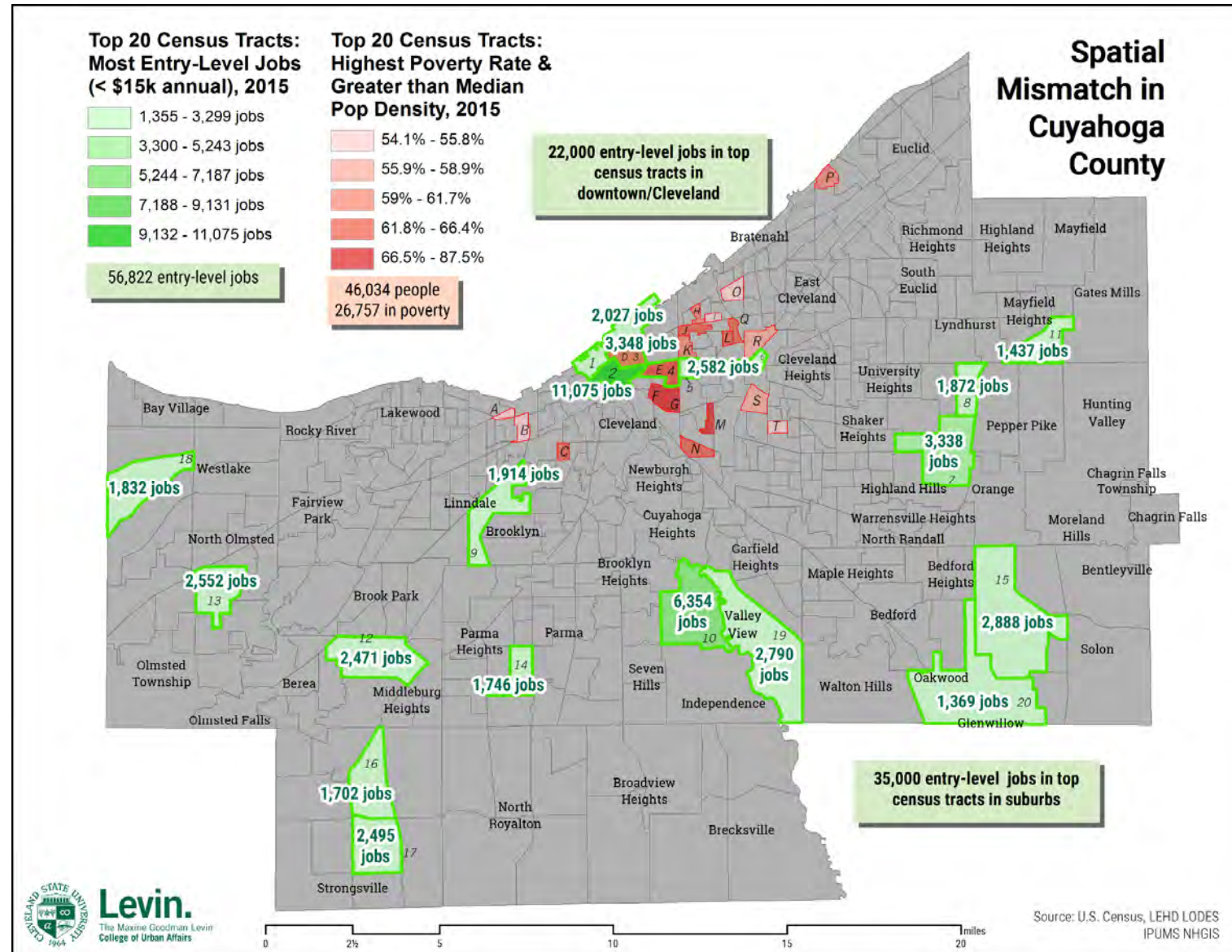
- Property values increase by 3.5% within a decade for previously un-served tracts that gain transit access
- 2010 median-based estimate of property value for those 429 Census Tracts is \$65.7 billion in 2019 dollars
- The derived property value increase attributed to transit access is \$2.2 billion in 2019 dollars

# JOB ACCESS AND SPATIAL MISMATCH

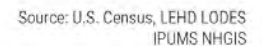
- GCRTA services reduce effects of spatial mismatch between people and jobs
- The quicker GCRTA services are, the more likely individuals from high-poverty areas are to find work at low-skill jobs
- GCRTA may be facilitating workforce participation in the economy

*Derived from descriptive analysis*

# SPATIAL MISMATCH INVESTIGATION

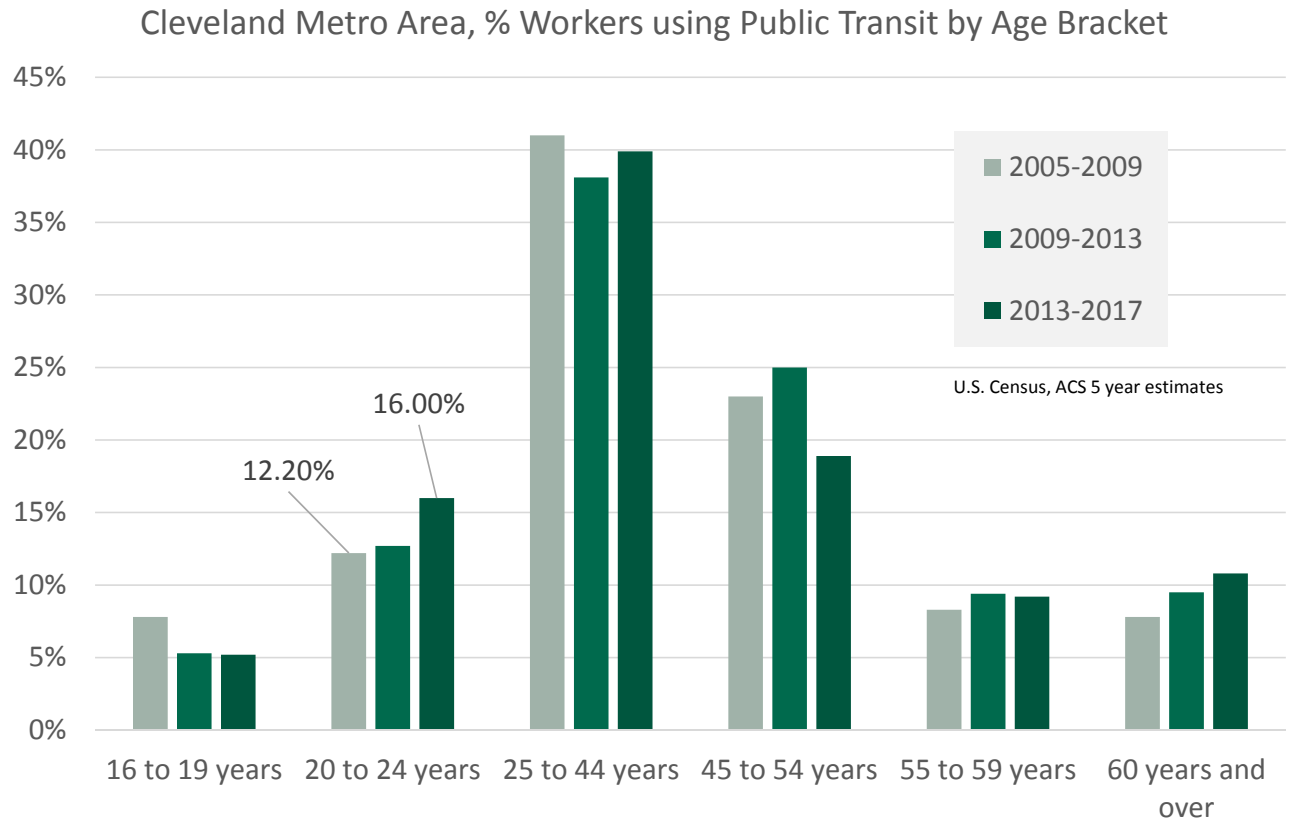


# DISTRIBUTION OF AREAS WITH LOW VEHICLE OWNERSHIP



# JOB ACCESS: EVOLVING COMMUTING TREND

- Number of total transit commuters is falling
- The percent of riders composed of younger millennials (20-24) saw a noticeable uptick
- It signals preferences of future workers





# OTHER LOCAL CONTRIBUTIONS

- Based on 2013 On-Board GCRTA Surveys (31,753 observations)
- Estimates in this section are speculative

## OTHER CONTRIBUTIONS: MAIN FINDINGS

- GCRTA helps **34,202** people (14%) in Cuyahoga Country get to their jobs daily; they bring home about **\$485.8 million** in wages and salaries
- Over **5% (1,700 people)** commuters use GCRTA to get to their medical appointments
- GCRTA commuters save **\$51.9 M** on transportation cost
- **25%** of GCRTA riders (about 17,000 people) tend to be students
- The current saving for the CMSD is about **\$28.7 million** annually

*Derived from direct calculations*

## OTHER CONTRIBUTIONS: DATA SOURCES

- There were 31,753 observations in 2013 GCRTA On-Board Transit Survey
- Based on 2013 National Transit Database (NTD), there were **67,406** estimated daily riders, assuming all roundtrips
- The number of observations in survey is statistically significant. Ratios can be applied to the estimated daily riders figure



## OTHER CONTRIBUTIONS: WORKFORCE AND TRANSIT

- Half of GCRTA riders (50.7%) are headed to a workplace
- GCRTA helps **34,202** people in Cuyahoga Country get to their jobs every day
  - Of these, **24,721** are dependent of GCRTA services
  - Of these, **14,611** are highly dependent on GCRTA services to commute
- Such individuals will be at a risk of losing their current jobs if GCRTA ceases to exist
- An estimated **\$485.8 million** of annual earnings is brought home by those who depend on GCRTA transit services to get to work

## OTHER CONTRIBUTIONS: HEALTHCARE SERVICES

- About **5.3%** commuters use GCRTA to get to their medical appointments
- Healthcare institutions in the regions **may lose \$103.4 M annually** when patients dependent on transit miss or cancel appointments

## OTHER CONTRIBUTIONS: COST SAVINGS FOR COMMUTERS

- Commuters collectively paid **\$45.4 M** (2017) in fares to GCRTA
- If GCRTA passengers traveled those miles by car, it would have cost them **\$97.4 M**
- Direct annual savings for RTA passengers is **\$51.9 M**

# OTHER CONTRIBUTIONS: COST SAVINGS TO CMSD

- **25%** of GCRTA riders tend to be students and **77%** of them are dependent on transit services
- The current saving for the school district due to the GCRTA services is about **\$28.7 million annually**
- If there were no contract between CMSD and GCRTA, CMSD would probably modify its policy to only transport to the state medium requirements, which is of 7th and 8th graders, of which there are approximately 6,000 students



## SUMMARY: ECONOMIC IMPACT

- In 2017, GCRTA employed 1,800 from Cuyahoga County (82% of their total employment)
- In addition, \$156.4 million was spent in 2017 on local salaries and benefits
- In 2017, it spent \$25.7 million locally from capital and operational budgets (not including salaries). Over the last five years, on average, GCRTA spends \$34 million locally on operating and capital expenses



## SUMMARY: ECONOMIC IMPACT

- In 2017, GCRTA's operation and spending created economic impact in Cuyahoga County equivalent to:
  - Almost 3,000 jobs
  - \$208 million in labor income
  - \$256 million in value added
  - \$322 million in output
  - \$14 million in state and local taxes



## SUMMARY: ECONOMIC CONTRIBUTIONS

- GCRTA service access is associated with a 3.1% increase in employment in the long-term
- GCRTA service access is associated with a 12.9% decrease in neighborhood poverty in the long-term
- GCRTA service access is associated with a 3.5% increase in property values in the long-term, totaling \$2.2 billion
- GCRTA facilitates connecting low-income population to entry-level jobs



## SUMMARY: OTHER CONTRIBUTIONS

- Commuters spend 53% less in transportation costs by using GCRTA transit verses driving, saving \$51.9 million
- GCRTA helps 34,202 people in Cuyahoga Country get to their jobs every day; 24,721 commuters depend on GCRTA to get work
- 3,599 individuals are using GCRTA for medical purposes daily; 3,219 of them would be at risk of canceling/missing their medical appointment in the absence of GCRTA
- CMSD saves nearly \$28.7 million annually with GCRTA services
- If GCRTA services are suspended, the mobility of 16,872 students will be adversely affected in Cuyahoga County