APPENDICES

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A. GLOSSARY OF ACRONYMS

TERM/ACRONYM	DEFINITION
Accessibility	The extent to which facilities are barrier free and useable by persons with disabilities, including wheelchair users.
ADA Paratransit Service	The Americans with Disabilities Act (ADA) guarantees people with disabilities the same access to public transportation as people without disabilities. People with disabilities who cannot use the fixed-route buses can use designated ADA paratransit service. The ADA paratransit service is a shared curb-to-curb transportation ride service. Passengers usually ride with others who are traveling in the same general direction, and drivers may stop to pick up or drop off passengers on route. ADA paratransit services are designed to operate the same days and hours as the fixed-route service available in the area. ADA paratransit services are complementary or comparable to fixed route and only operate within three-quarters of a mile of fixed-route services.
Advanced Public Transportation Systems (APTA)	Technology that is designed to improve transit services through advanced vehicle operations, communications, customer service and market development.
Alternative Fuels	Low-polluting fuels used to propel a vehicle instead of high-sulfur diesel or gasoline. Examples include methanol, ethanol, propane or compressed natural gas, liquid natural gas, low-sulfur or "clean" diesel and electricity.
American Community Survey (ACS)	An ongoing survey by the U.S. Census Bureau. It regularly gathers information previously contained only in the long form of the decennial census, such as ancestry, citizenship, educational attainment, income, language proficiency, migration, disability, employment, and housing characteristics.
Americans with Disabilities Act (ADA)	This law, signed into law on July 26, 1990, is a civil rights act that is designed to ensure equal access to employment, public accommodations, telecommunications and transportation for people with disabilities. Under the Act, persons with disabilities are to be provided equal access to public transportation services. To ensure equal access, the law requires that all new vehicles purchased for general fixed-route public transportation service be made accessible to persons with disabilities, among other requirements.
Automated Fare Collection System	Equipment that automatically counts passengers upon insertion of the correct fare. The system may include special equipment for transporting and counting revenues.
Automated Passenger Counters	An electronic device available for installation on transit vehicles including buses and rail vehicles which accurately records boarding and alighting data.

TERM/ACRONYM	DEFINITION
Automatic Vehicle Location (AVL)	Position determination via an automatic technology or combination of technologies, such as global positioning system (triangulation of satellite signals), signposts (beacons at known locations transmit signals picked up by vehicle), ground-based radio (triangulation of radio tower signals), or dead-reckoning (vehicle's odometer and compass used to measure new position from previous known position), and typically includes real-time reporting of that location to a dispatcher.
Autonomous Vehicle	A vehicle that is capable of sensing its environment and moving safely with little or no human input.
Average Daily Traffic (ADT)	The average 24 hour volume, being the total volume during a stated period dived by the number of days in that period. Unless otherwise stated, the period is a year.
Average Vehicle Ridership (AVR)	The ratio of all people traveling by any mode, including cars, buses, trains and bicycles (or telecommuting), in a given area during a given time period to the number of cars on the road. A key measure of the efficiency and effectiveness of a transportation network.
Base Fare	The price charged to one adult for one transit ride; excludes transfer charges, zone charges, express service charges, peak period surcharges and reduced fares.
Better Utilizing Investments to Leverage Development (BUILD) Grant	U.S. DOT's Better Utilizing Investments to Leverage Development (BUILD) Transportation Discretionary Grants program funds investments in transportation infrastructure, including transit.
Bus Lane	A street or highway lane intended primarily for buses, either all day or during specific periods, but sometimes also used by carpools meeting requirements set out in traffic laws.
Bus Rapid Transit (BRT)	A high-quality bus-based transit system that delivers fast, comfortable, and cost-effective services at metro-level capacities.
Bus Shelter	A building or other structure constructed near a bus stop, to provide seating and protection from the weather for the convenience of waiting passengers.
Bus Stop	A place where passengers can board or alight from the bus, usually identified by a sign.
Bus, Express	A bus that operates a portion of the route without stops or with a limited number of stops.
Busway	Exclusive freeway lane for buses and carpools.
Capacity	Number of passengers or vehicles that can travel in one or both directions over a specified time period.

TERM/ACRONYM	DEFINITION
Capital Cost	Expenditures, as defined by FTA guidelines, related to long-term assets of a public transit system such as property, buildings and vehicles. Under Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), FTA has broadened definition of capital costs to include bus overhauls, preventive maintenance and, when applicable, a share of ADA/paratransit expenses.
Capital Expenses	Equipment expenses.
Capital Investment	Money used to induce development and investment in communities surrounding transit projects by funding transit projects.
CBUS Downtown Circulator	COTA's CBUS is the city's free Downtown Circulator, traveling from the Brewery District through Downtown to the Short North and back again. CBUS runs every 10-15 minutes, 7 days a week.
CMAX Cleveland Avenue Bus Rapid Transit	Launched January 1, 2018, CMAX operates primarily along a 15.6-mile alignment along Cleveland Avenue between downtown Columbus and the OhioHealth Westerville Medical Campus. CMAX provides riders with more travel options, reduces travel times, improves pedestrian access and safety, and fosters opportunities for economic development within the corridor.
CNG Vehicle	An alternative fuel vehicle that uses compressed natural gas.
Complete Street	A transportation policy and design approach that requires streets to be planned, designed, operated, and maintained to enable safe, convenient and comfortable travel and access for users of all ages and abilities regardless of their mode of transportation.
Compressed Natural Gas (CNG)	Compressed Natural Gas (CNG) is natural gas fuel that has been compressed to less than 1% of its volume (at standard atmospheric pressure), making naturally odorless, colorless and gaseous. CNG is inexpensive to produce and store making it ideal for numerous fleet sizes: refuse trucks, buses, shuttles, taxis and heavy-duty trucks.
Computer Aided Dispatch (CAD)	A method of dispatching taxicabs, couriers, field service technicians, mass transit vehicles or emergency services assisted by computer.
COTA	Central Ohio Transit Authority
COTA Connect	An online app that allows the user to link their funds to the app and scan a QR code as they ride for a quick and convenient payment option.
COTA Mainstream	COTA Mainstream is a shared-ride public transportation service providing origin-to-destination transportation for people whose functional limitations prevent them from riding COTA's fixed-route buses for some or all of their trips. In 2019, COTA contracted with UZURV to provide private, accessible, same day, non-stop, door-to-door service. This also includes flexible advanced scheduling, guest permission, and requests for specific drivers.

TERM/ACRONYM	DEFINITION
COTA PIVOT	In August 2019, a mobility app known as Pivot was introduced in central Ohio. Powered by Smart Columbus, Pivot helps users get around town based on their preferred way to travel, such as the bus, bike, scooter, or personal vehicle.
COTA Plus	A first of its kind ride-hailing service that integrates technology with a microtransit solution to provide customers with further access to jobs, healthcare and more, while also offering a fast, convenient and comfortable transit solution.
C-Pass	Through in part a property-owner assessment and grant funding, C-Pass provides free transit to employees of eligible downtown businesses and agencies.
Dedicated Bus Lane	Separating buses from other vehicles in dedicated lanes protects them from traffic congestion and delays and improves the reliability of services.
Demand Response Transit	A transit service whereby passengers contact the transit operator to schedule transportation, and vehicles alter their routes based on particular transport demand rather than using a fixed route or timetable.
Enterprise Resource Planning (ERP) System	The integrated management of main business processes, often in real time and mediated by software and technology.
Environmental Justice	"This term stems from a Presidential Executive Order to promote equity for disadvantaged communities and promote the inclusion of racial and ethnic populations and low-income communities in decision-making. Local and regional transportation agencies must ensure that services and benefits, as well as burdens, are fairly distributed to avoid discrimination."
Environmental Protection Agency (EPA)	An independent agency of the United States federal government for environmental protection.
Farebox	A device that accepts coins, bills, passes, cards or other fare instruments given by passengers as payment for rides.
Federal Transit Administration (FTA)	Division of the U.S. Department of Transportation responsible for planning and programming of transit-related projects and programs throughout the nation. In providing financial, technical and planning assistance, the agency provides leadership and resources for safe and technologically advanced local transit systems while assisting in the development of local and regional traffic reduction. The FTA maintains the National Transit Library (NTL), a repository of reports, documents and data generated by professionals and others from around the country. The NTL is designed to facilitate document sharing among people interested in transit and transit-related topics.
Fixed Cost	An indirect cost that remains relatively constant, irrespective of the level of operational activity.

TERM/ACRONYM	DEFINITION
Fixed Route Transit	A system of transit vehicles that follow a schedule over one or more prescribed routes.
Fixed Route Service	Service provided on a repetitive, fixed-schedule basis along a specific route with vehicles stopping to pick up and deliver passengers to specific locations; each fixed-route trip serves the same origins and destinations, unlike demand responsive and taxicabs.
Fixing America's Surface Transportation (FAST) Act	A funding and authorization bill to govern United States federal surface transportation spending.
Fleet Vehicles	Groups of motor vehicles owned or leased by a business, government agency or other organization rather than by an individual or family. Typical examples are vehicles operated by car rental companies, taxicab companies, public utilities, public bus companies, and police departments.
Frequency of Service	The number of transit vehicles on a given route or line, moving in the same directions, that pass a given point within a specified interval of time, usually on hour.
Geographic Information System (GIS)	A system designed to capture, store, manipulate, analyze, manage, and present spatial or geographic data. GIS applications are tools that allow users to create interactive queries, analyze spatial information, edit data in maps, and present the results of all these operations.
Global Positioning System (GPS)	A navigational system using satellite signals to fix the location of a radio receiver on or above the earth's surface.
High-Occupancy Vehicle (HOV) Lane	The technical term for a carpool lane, commuter.
Hyperloop	A sealed tube or system of tubes through which a pod may travel free of air resistance or friction conveying people or objects at high speed while being very efficient, thereby drastically reducing travel times over medium-range distances.
Infrastructure for Rebuilding America (Infra) Grant	INFRA discretionary grants support fixing United States infrastructure by creating opportunities for all levels of government and the private sector to fund infrastructure, using innovative approaches to improve the processes for building significant projects and increasing accountability for the projects that are built. In addition to providing direct federal funding, the INFRA discretionary grant program aims to increase the total investment by state, local and private partners.
Integrated Voice Response (IVR)	A technology that allows a computer to interact with humans through the use of voice and DTMF tones input via a keypad.
Intelligent Transportation System (ITS)	The application of various technologies that improve information, control, and communication systems for a region's transportation system, including public transit.
Key Performance Indicators (KPIs)	A quantifiable measure used to evaluate the success of an organization, employee, etc. in meeting objectives for performance.

TERM/ACRONYM	DEFINITION
Light-Rail Transit (LRT)	Fixed guideway transportation mode that typically operates on city streets and draws its electric power from overhead wires; include streetcars, trolley cars and tramways. Differs from heavy rail that has a separated right of way, and includes commuter and intercity rail in that it has lighter passenger capacity per hour and more closely spaced stops.
Limited Stop Bus Service	A service that stops less frequently than a local service. Many limited-stop or semi-fast services are a combination of commuter rail and express train.
Long-Range Transportation Plan	Plan for regional or statewide transportation improvements that every MPO and state must develop. The plan usually looks 20 years ahead and is revised every five to six years.
Mass Transit	Transportation by bus, rail or other vehicles, providing service to the public on a regular and continuing basis.
Metropolitan Planning Area (MPA)	A federal requirement for the metropolitan planning process. The boundary is established by the governor and individual Metropolitan Planning Organizations within the state, in accordance with federal metropolitan planning regulations.
Metropolitan Planning Organization (MPO)	A federally required transportation planning body responsible for development of the areas respective regional transportation plan (RTP) and the accompanied transportation improvement program (TIP) in its region; the governor designates an MPO in every area with a population more than 50,000.
Metropolitan Transportation Improvement Program (TIP)	A list of upcoming transportation projects covering a period of at least four years. Required for every metropolitan planning organization to develop in cooperation with the state and public transit providers..
Microtransit	An on-demand form of transit that offers flexible routing and/or flexible scheduling of minibus vehicles.
Mobility Hub	Places of connectivity where different travel options – walking, biking, transit, and shared mobility – seamlessly converge.
MORPC	Mid-Ohio Regional Planning Commission
Multimodal	Refers to the availability of multiple transportation options, especially within a system or corridor. A concept previously embraced in the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), a multimodal approach to transportation planning focuses on the most efficient way of getting people or goods from place to place, be it by truck, train, bicycle, automobile, airplane, bus, boat, foot or even a computer modem.
National Environmental Policy Act (NEPA)	A United States environmental law that promotes the enhancement of the environment and established the President's Council on Environmental Quality.

TERM/ACRONYM	DEFINITION
NextGen	A plan completed by COTA in 2017 that presents a clear and strategic vision for the future, as well as identifies public transportation needs and opportunities through 2050.
Non-Revenue Support Vehicles	Vehicles used for services other than customer transportation; it may include vehicles used for supervisory and maintenance functions.
ODOT	Ohio Department of Transportation
Off-Peak Period	Nonrush periods of the day when travel is generally lower and less transit service is scheduled. Also called "base period."
On-Time Performance (OTP)	A measure of the ability of transport services to be on time. Almost all transportation systems have timetables, which describe when vehicles are to arrive at scheduled stops.
Operating Costs	The sum of all costs associated with the maintenance and operation of a transportation system. Generally includes interest paid on loans for capital equipment, property taxes on capital items and depreciation on plant and equipment when applicable.
Operating Revenue	Receipts derived from or for the operation of transit service, including fare box revenue, revenue from advertising, interest and charter bus service and operating assistance from governments.
Paratransit	Transportation service that supplements larger public transit systems by providing individualized rides without fixed routes or timetables.
Park-and-Ride Facility/Lot	Parking lots or facilities with public transport connections that allow commuters to leave their vehicles and transfer to a bus, rail system (rapid transit, light rail, or commuter rail), or carpool for the remainder of the journey.
Passenger Miles	The total number of miles traveled by passengers on transit vehicles; determined by multiplying the number of unlinked passenger trips times the average length of their trips.
Passenger Shelter	A building or other structure constructed at a bus stop, to provide seating and protection from the weather for the convenience of waiting passengers.
Peak Period	Morning and afternoon time periods when transit riding is heaviest.
Placemaking	A multi-faceted approach to the planning, design and management of public spaces. Placemaking capitalizes on a local community's assets, inspiration, and potential, with the intention of creating public spaces that promote people's health, happiness, and well-being.
Rapid Transit	Rail or motorbus transit service operating completely separate from all other modes of transportation on an exclusive right of way.
Real-time Bus Arrival Information	Any information available to transit providers or customers about the current status of vehicles, including approximate locations and predictive arrival times.

TERM/ACRONYM	DEFINITION
Real-Time Ridesharing	A service that arranges one-time shared rides on very short notice.
Ride Share	An agreement between two or more passengers to share a vehicle or the cost of travel between fixed locations on a regular schedule (e.g., carpooling).
Ridership	The number of rides taken by people using a public transportation system in a given time period.
Ridesharing	A form of transportation, other than public transit, in which more than one person shares the use of the vehicle, such as a van or car, to make a trip. Also known as "carpooling" or "vanpooling."
Right of Way (ROW)	A right of way is a type of easement granted or reserved over the land for transportation purposes.
Route Miles	The total number of miles included in a fixed-route transit system network.
Shared Mobility	The shared used of a vehicle, bicycle, or other transportation mode. Encompasses a variety of transportation modes including carsharing, bikesharing, peer-to-peer ridesharing, on-demand ride services, microtransit, and other modes.
Short-Range Transit Plan (SRTP)	A five-year comprehensive plan required of all transit operators by federal and regional transportation funding agencies.
Smart Mobility	Using modes of transportation alongside or even instead of owning a gas-powered vehicle. This can take on many different forms, including ride-sharing, car-sharing, public transportation, walking, biking, and more.
State Transportation Improvement Program (STIP)	Statewide list of transportation projects that covers at least a three year period. Required by SAFETEA-LU.
Transit Signal Priority (TSP)	A name for various techniques to improve service and reduce delay for mass transit vehicles at intersections (or junctions) controlled by traffic signals.
Transit Station	A dedicated transit facility where several transit routes converge, designed to accommodate several buses at once to permit transfer between transit routes. A transit center may provide transit passenger shelters and waiting areas, but does not include off-street parking for transit passenger vehicles.
Transit System Redesign (TSR)	The TSR features simplified routes, increased frequency, connections to more places and people, and reduced bus congestion downtown.
Transit-Oriented Development (TOD)	"A type of development that links land use and transit facilities to support the transit system and help reduce sprawl, traffic congestion and air pollution. It includes housing, along with complementary public uses (jobs, retail and services), located at a strategic point along a regional transit system, such as a rail hub or major transit stop."

TERM/ACRONYM	DEFINITION
Transportation Demand Management (TDM)	Low-cost ways to reduce demand by automobiles on the transportation system, such as programs to promote telecommuting, flextime and ridesharing.
Transportation Improvement Program (TIP)	A one to three year work plan that consists of regional MPO's list of construction and transportation projects it wants to implement with federal funding. Projects can appear on the TIP only if funding has already been secured.
Transportation Plan	The federally mandated long-range MPO transportation plan that includes short-term as well as long-term projects and activities. Transportation plans must be developed with the input of elected officials, public agencies and citizens.
Travel Demand Management (TDM)	The application of strategies and policies to reduce travel demand, or to redistribute this demand in space or in time. In transport, as in any network, managing demand can be a cost-effective alternative to increasing capacity.
ULI	Urban Land Institute
UZURV	UZURV is an adaptive transportation network designed for people living with disabilities or medical conditions.
Walkway	Transportation facility built for use by pedestrians, including persons in wheel chairs. Walkways include paths, paved shoulders and sidewalks.
Waycare	The Waycare initiative is being piloted as a means to give the Operator Call Center real-time live data of road conditions and any other situations that effect a route; this enables the Call Center to immediately direct any necessary changes to the operator and initiate public communication.

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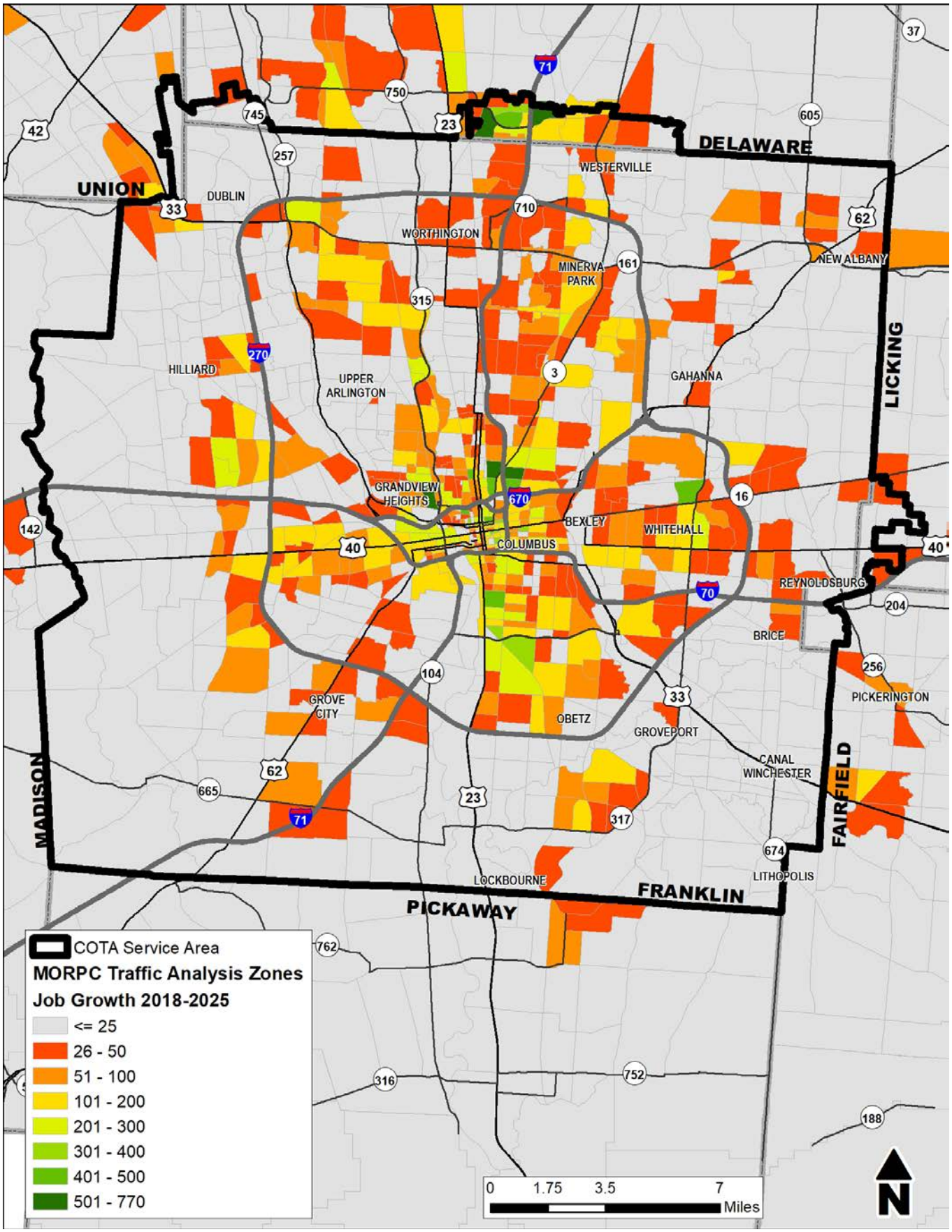
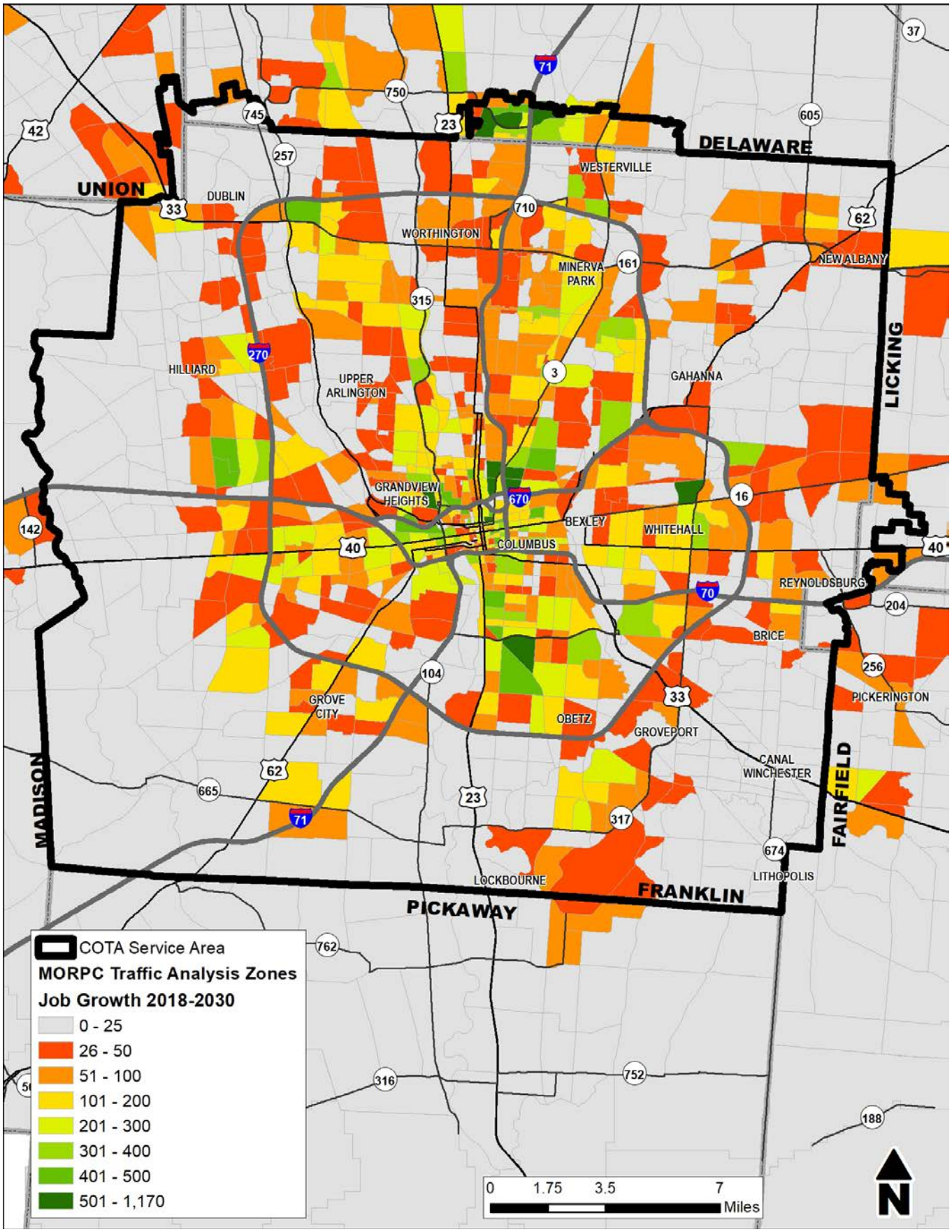
B. DEMOGRAPHIC DETAILS

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MORPC Traffic Analysis Zones
Job Growth 2018-2030
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26 - 50
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101 - 200
201 - 300
301 - 400
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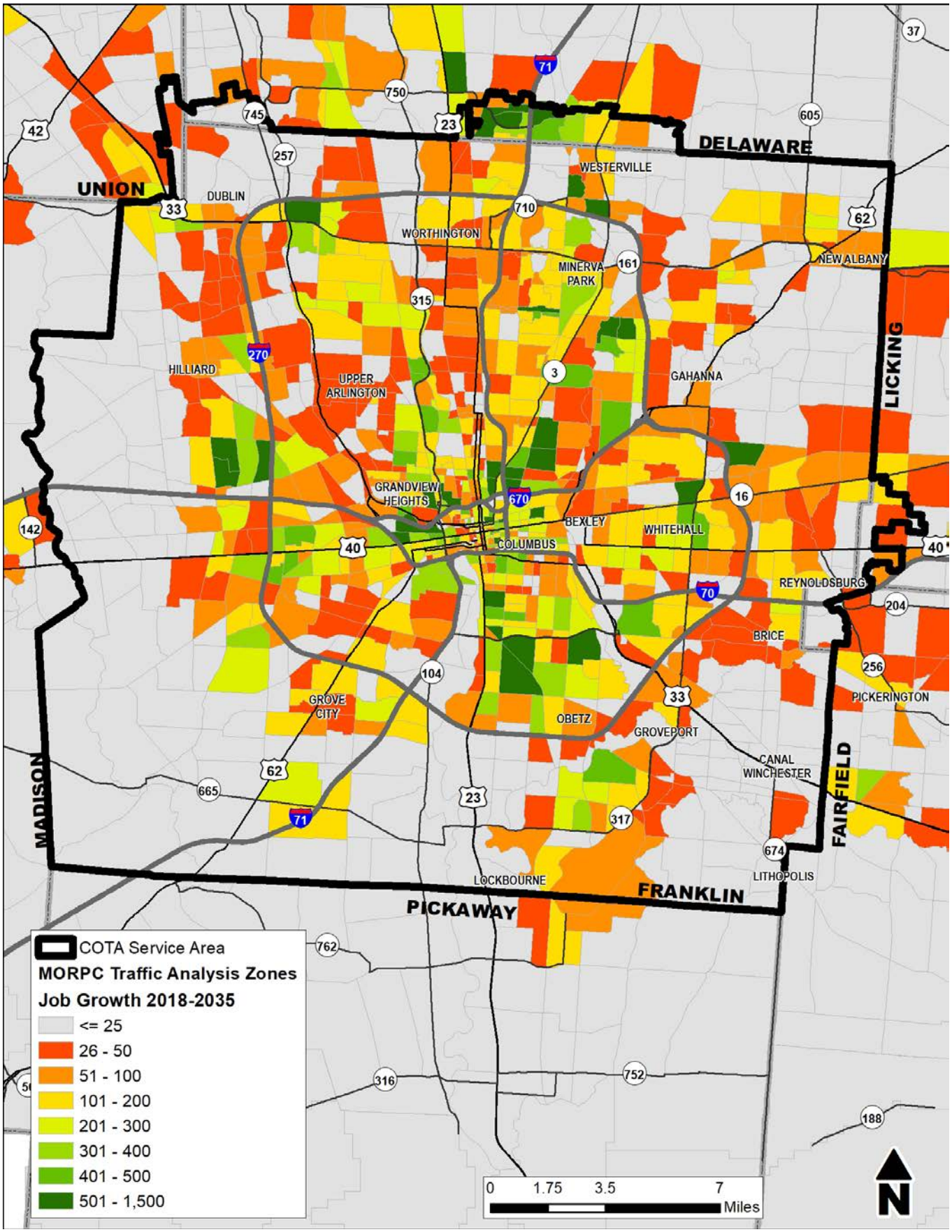
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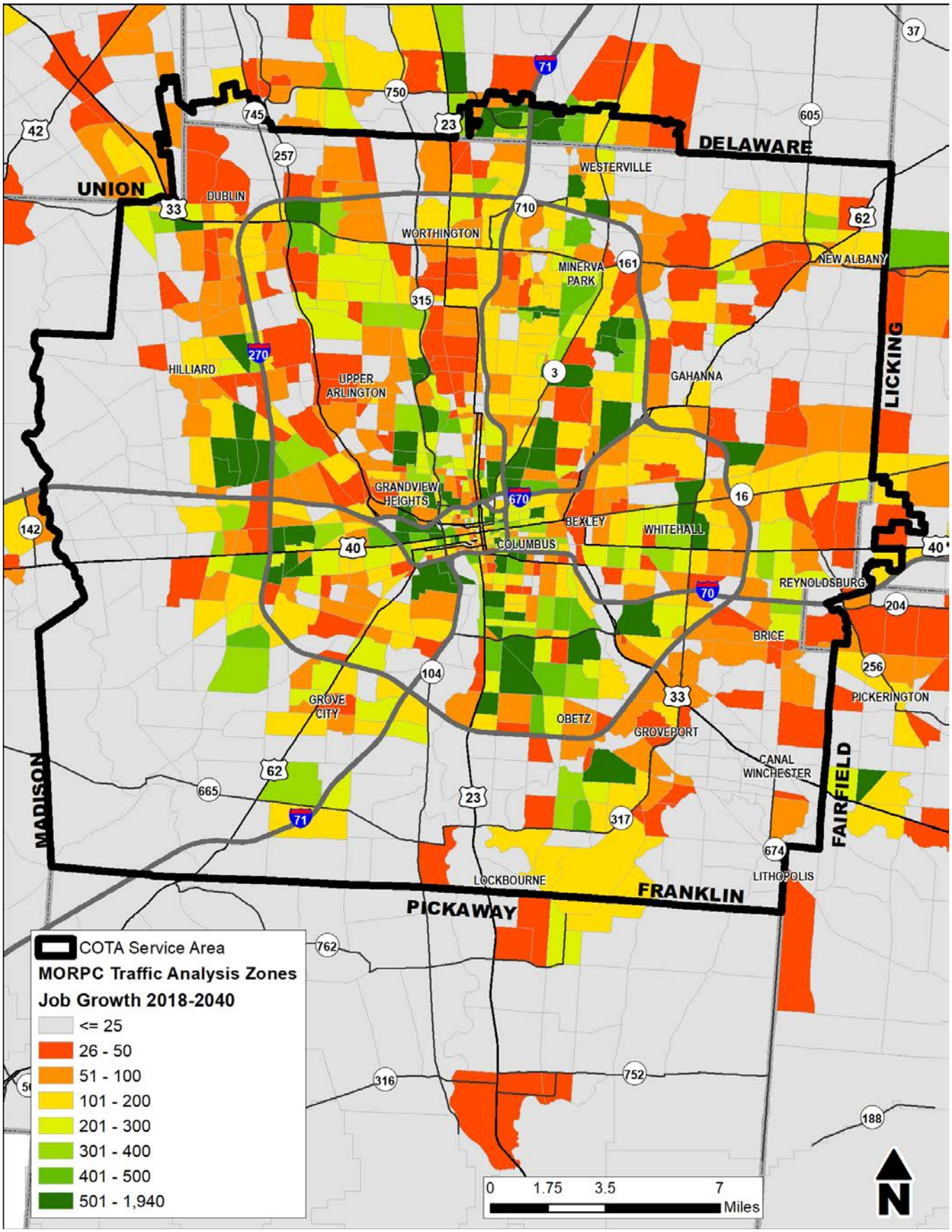
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COTA Service Area
MORPC Traffic Analysis Zones
Job Growth 2018-2040
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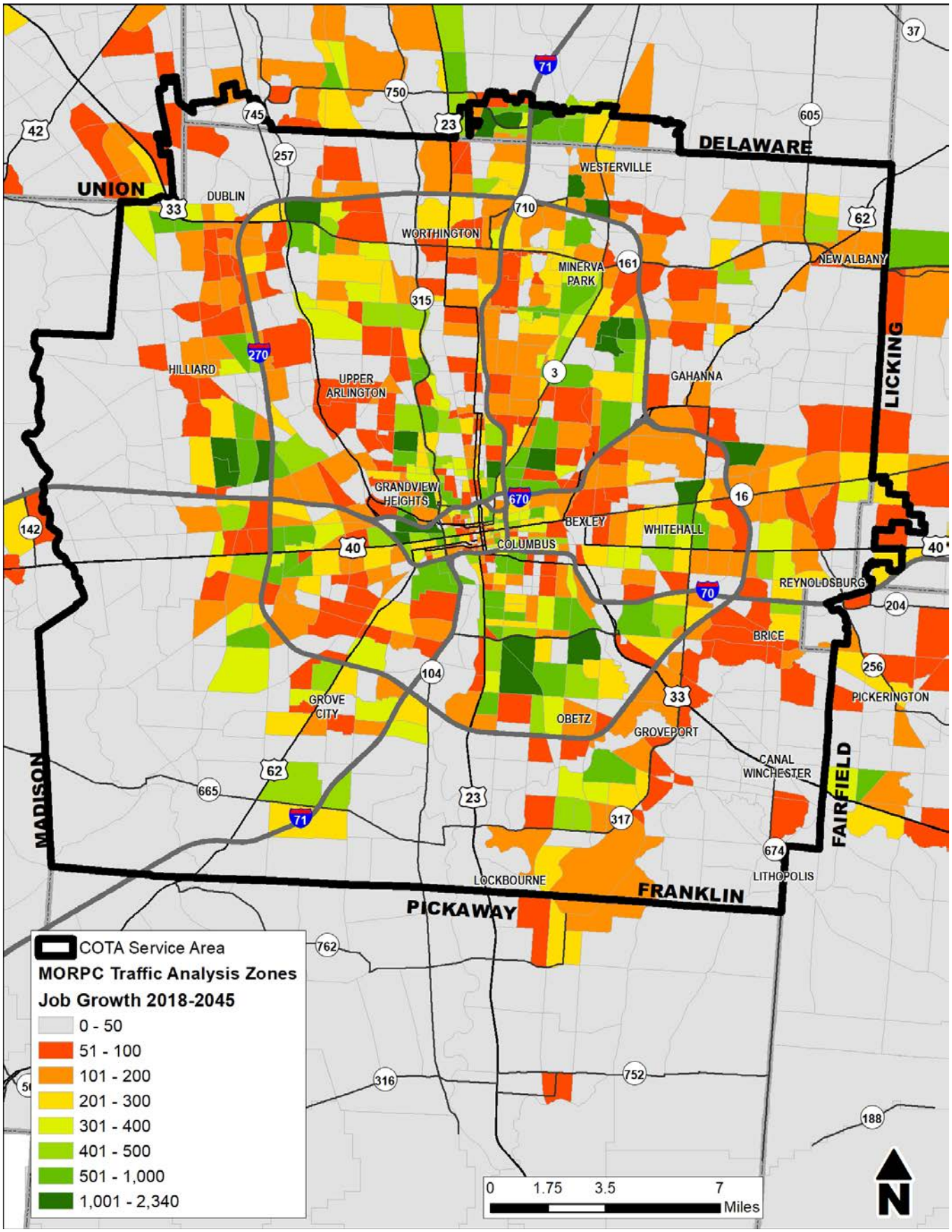
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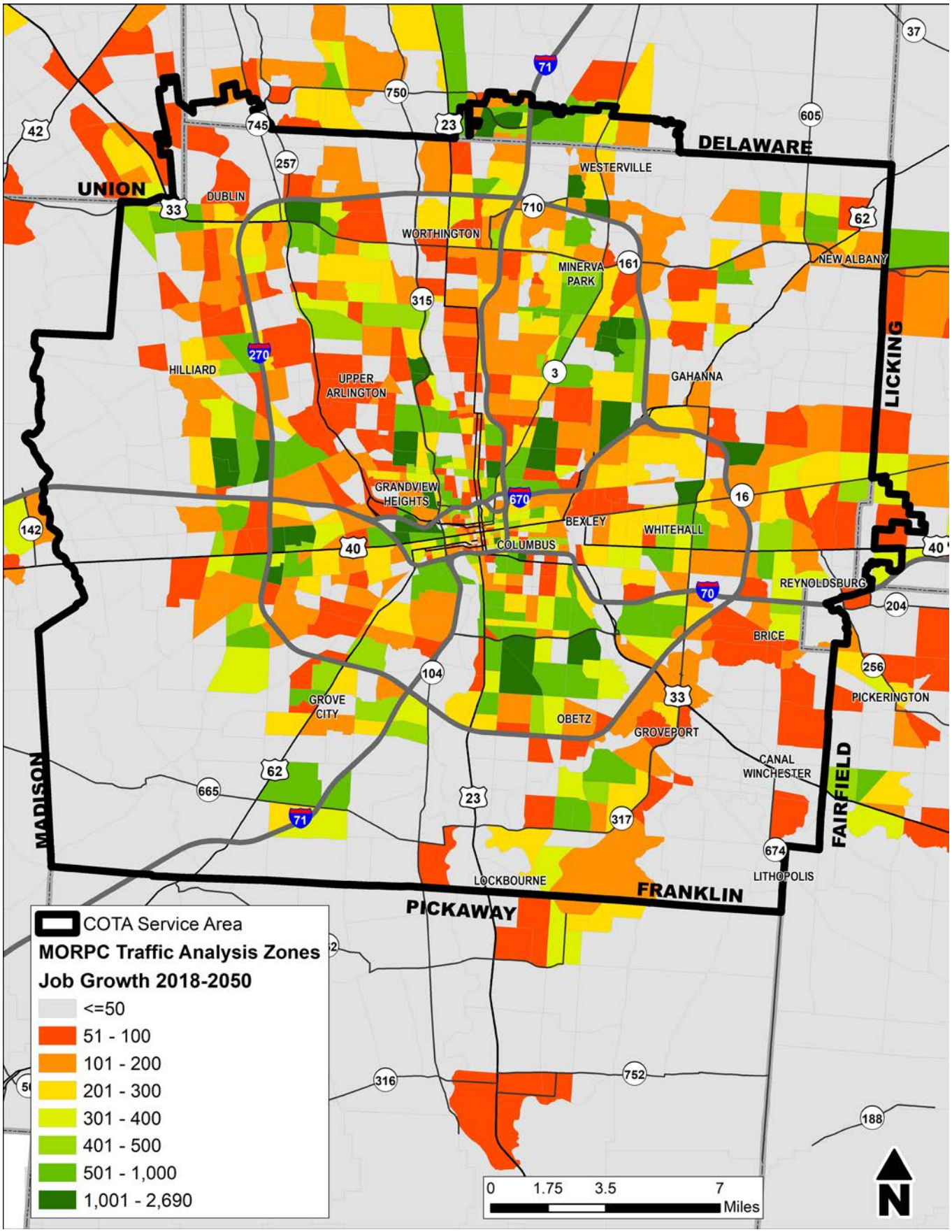
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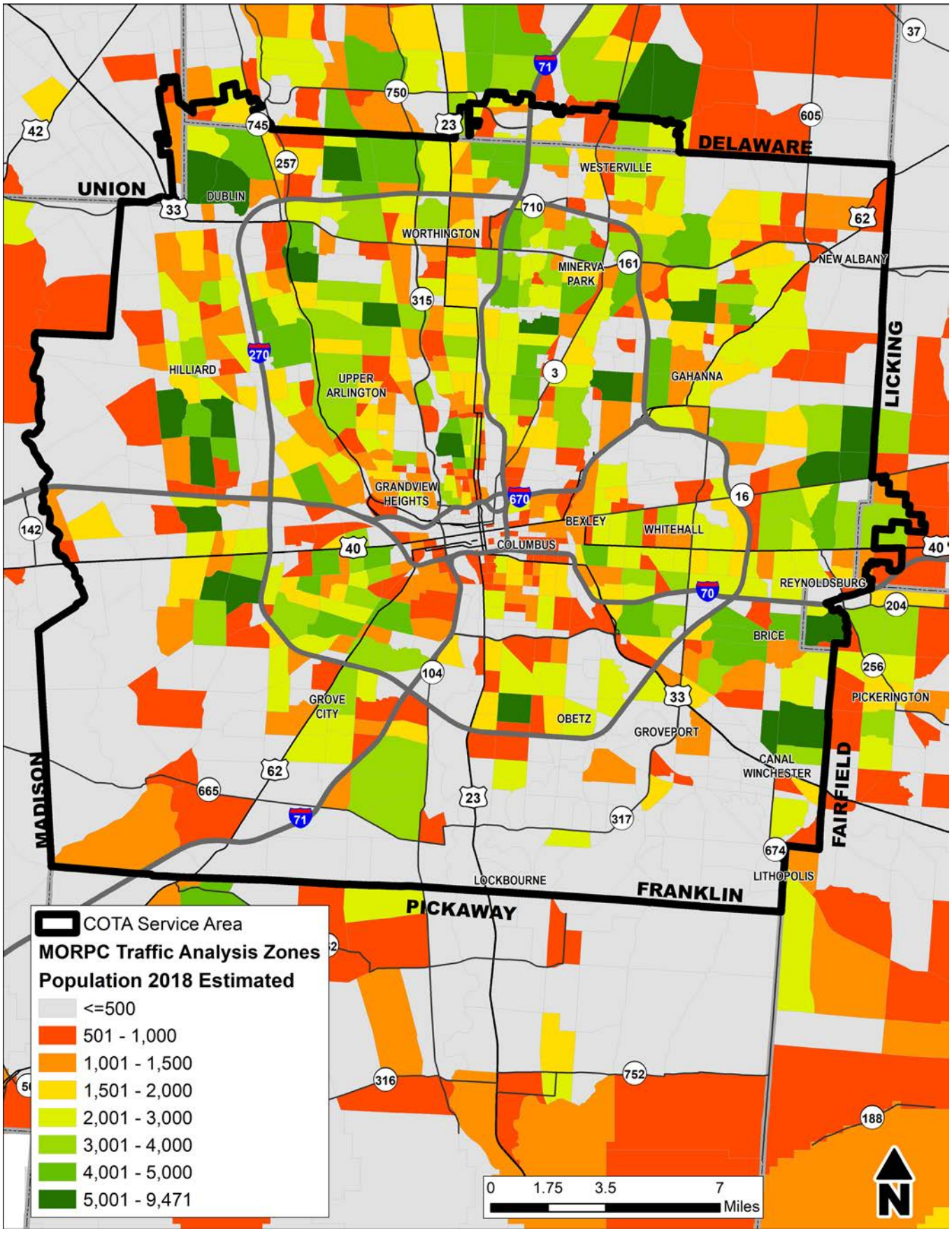
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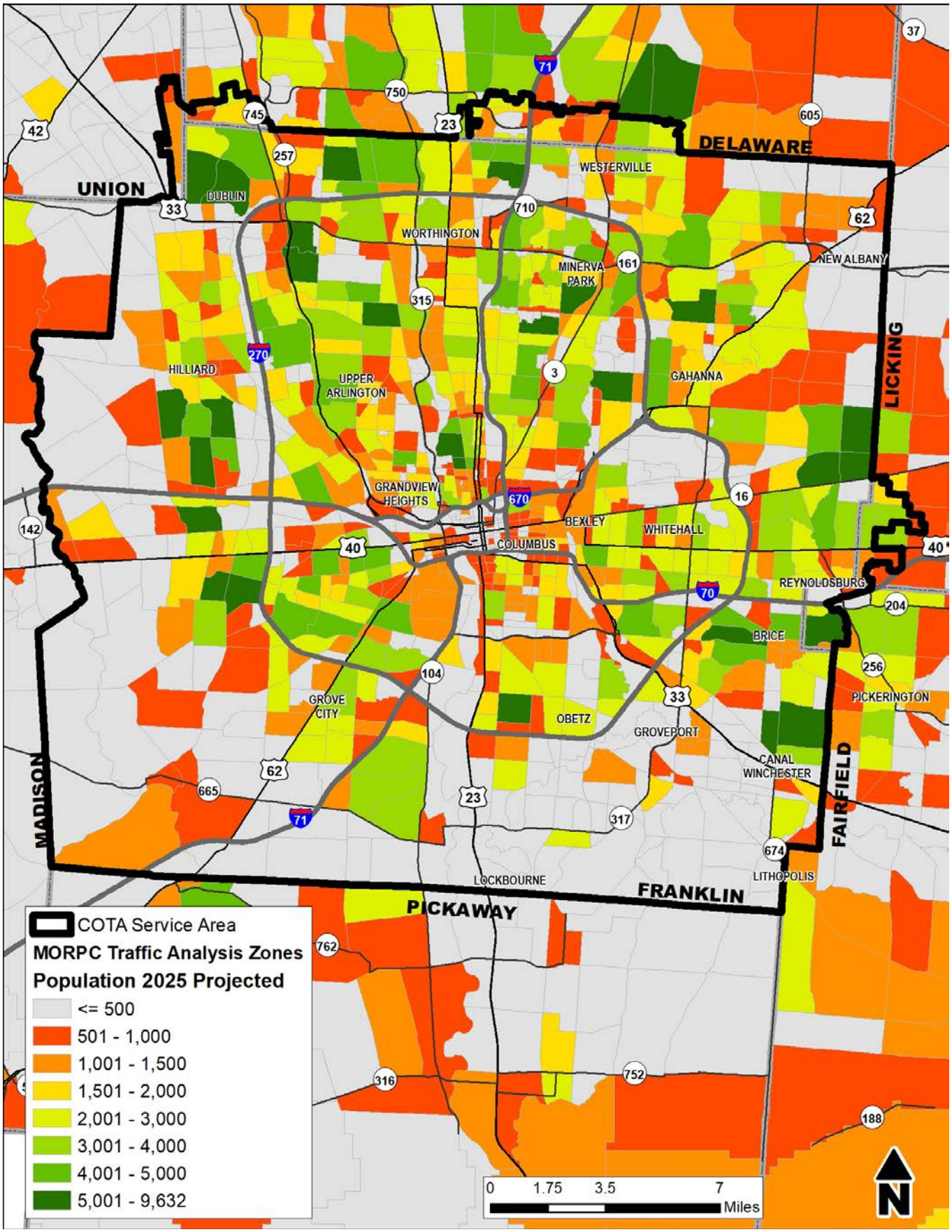
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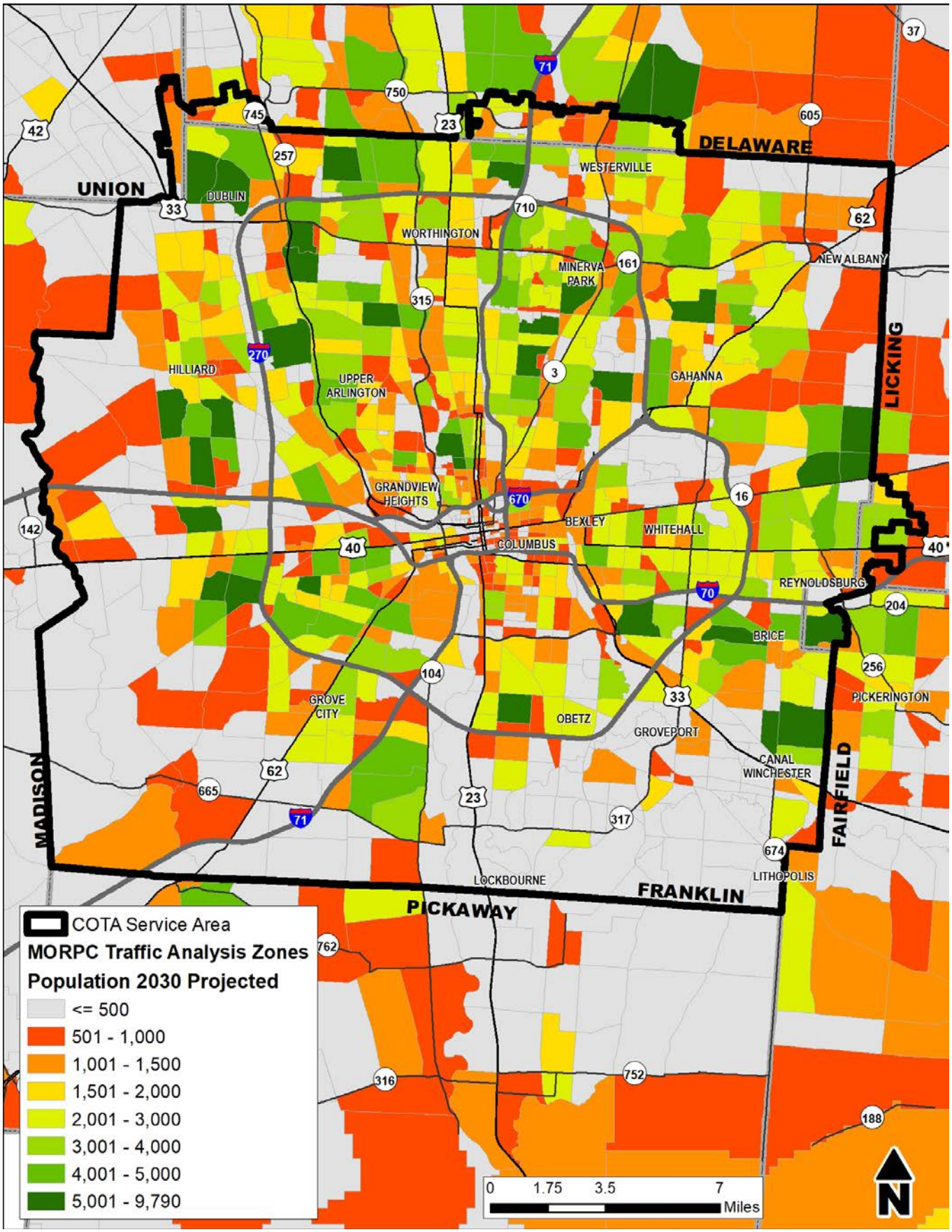
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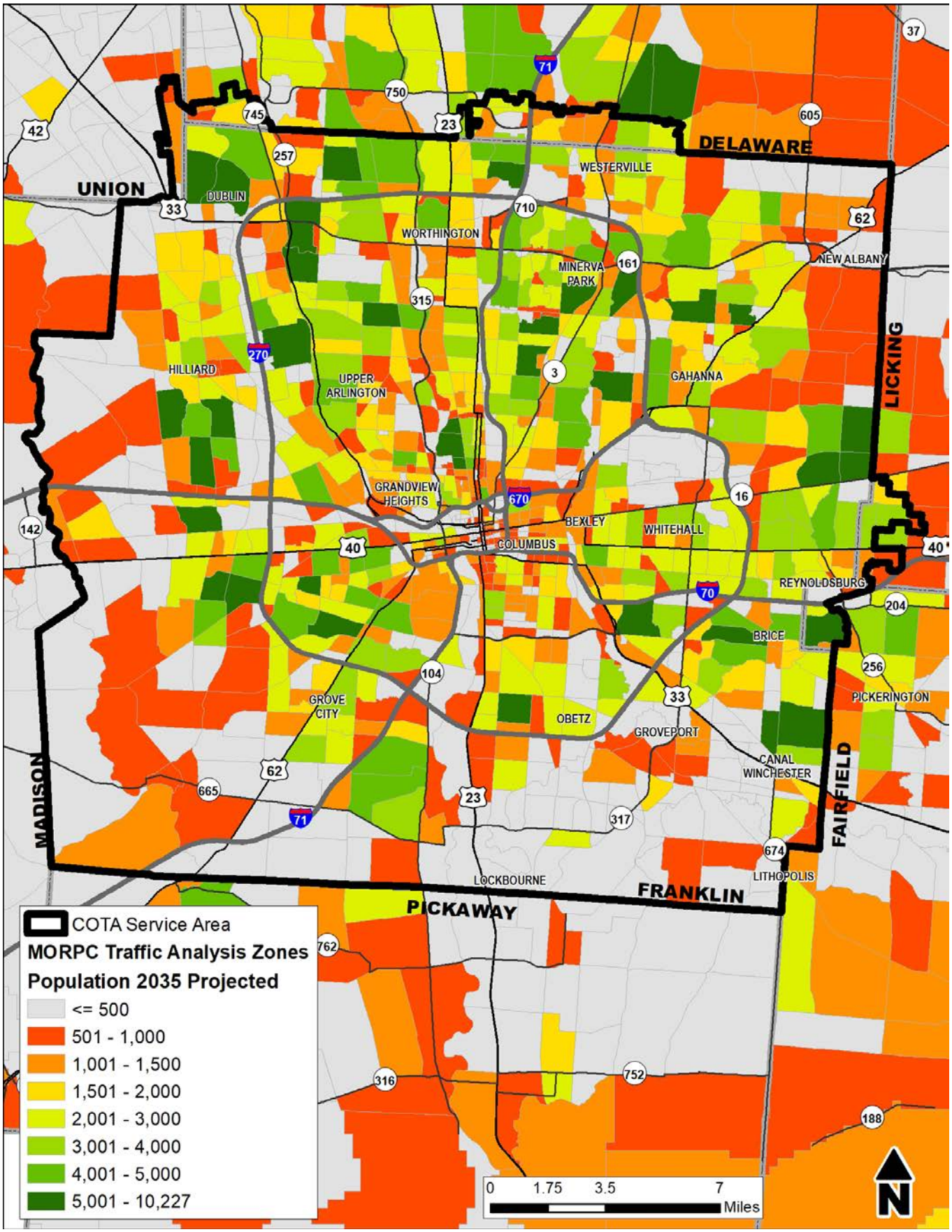
COTA Service Area
MORPC Traffic Analysis Zones
Population 2035 Projected
<= 500
501 - 1,000
1,001 - 1,500
1,501 - 2,000
2,001 - 3,000
3,001 - 4,000
4,001 - 5,000
5,001 - 10,227
0 1.75 3.5 7
Miles
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UNION
DELAWARE
LICKING
FAIRFIELD
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PICKAWAY
MADISON
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WESTERVILLE
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MINERVA PARK
NEW ALBANY
HILLIARD
UPPER ARLINGTON
GAHANNA
GRANDVIEW HEIGHTS
COLUMBUS
BEXLEY
WHITEHALL
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GROVE CITY
OBETZ
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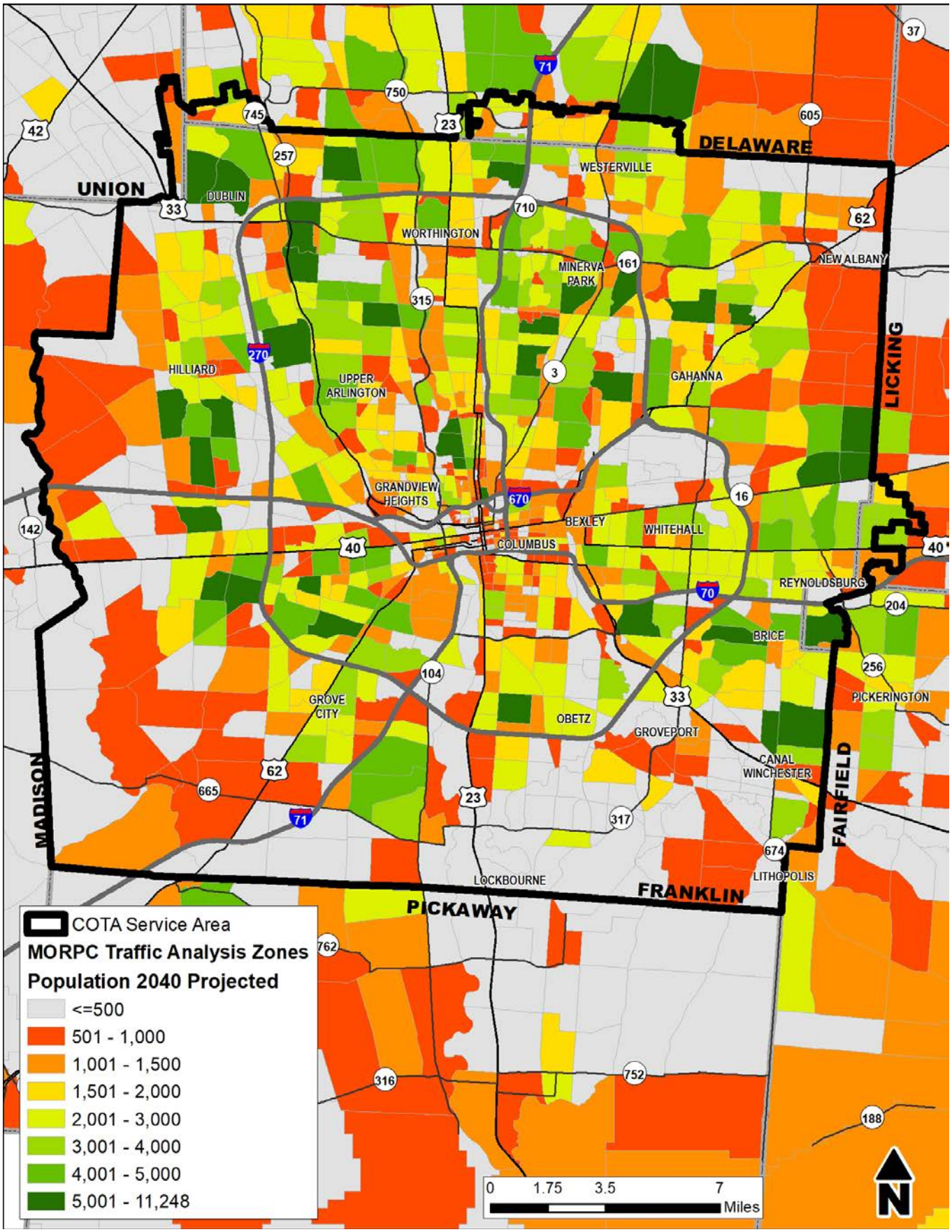
LITHOPOLIS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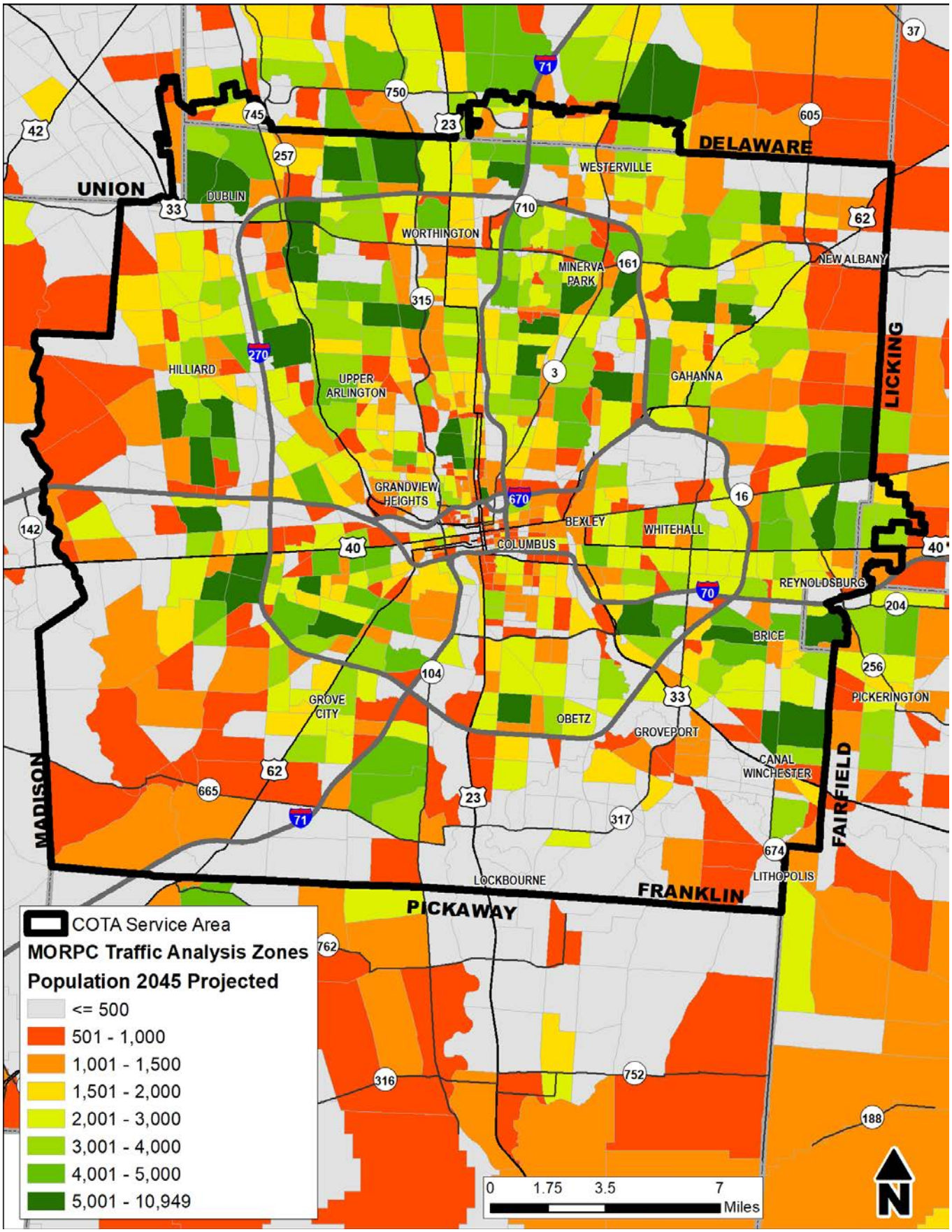
BRICE
PICKERINGTON
GROVE CITY
OBETZ
GROVEPORT
CANAL WINCHESTER
LOCKBOURNE
LITHOPOLIS
COTA Service Area
MORPC Traffic Analysis Zones
Population 2040 Projected
<=500
501 - 1,000
1,001 - 1,500
1,501 - 2,000
2,001 - 3,000
3,001 - 4,000
4,001 - 5,000
5,001 - 11,248
0 1.75 3.5 7
Miles
N


COTA Service Area
MORPC Traffic Analysis Zones
Population 2045 Projected
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1,501 - 2,000
2,001 - 3,000
3,001 - 4,000
4,001 - 5,000
5,001 - 10,949
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Miles
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NEW ALBANY
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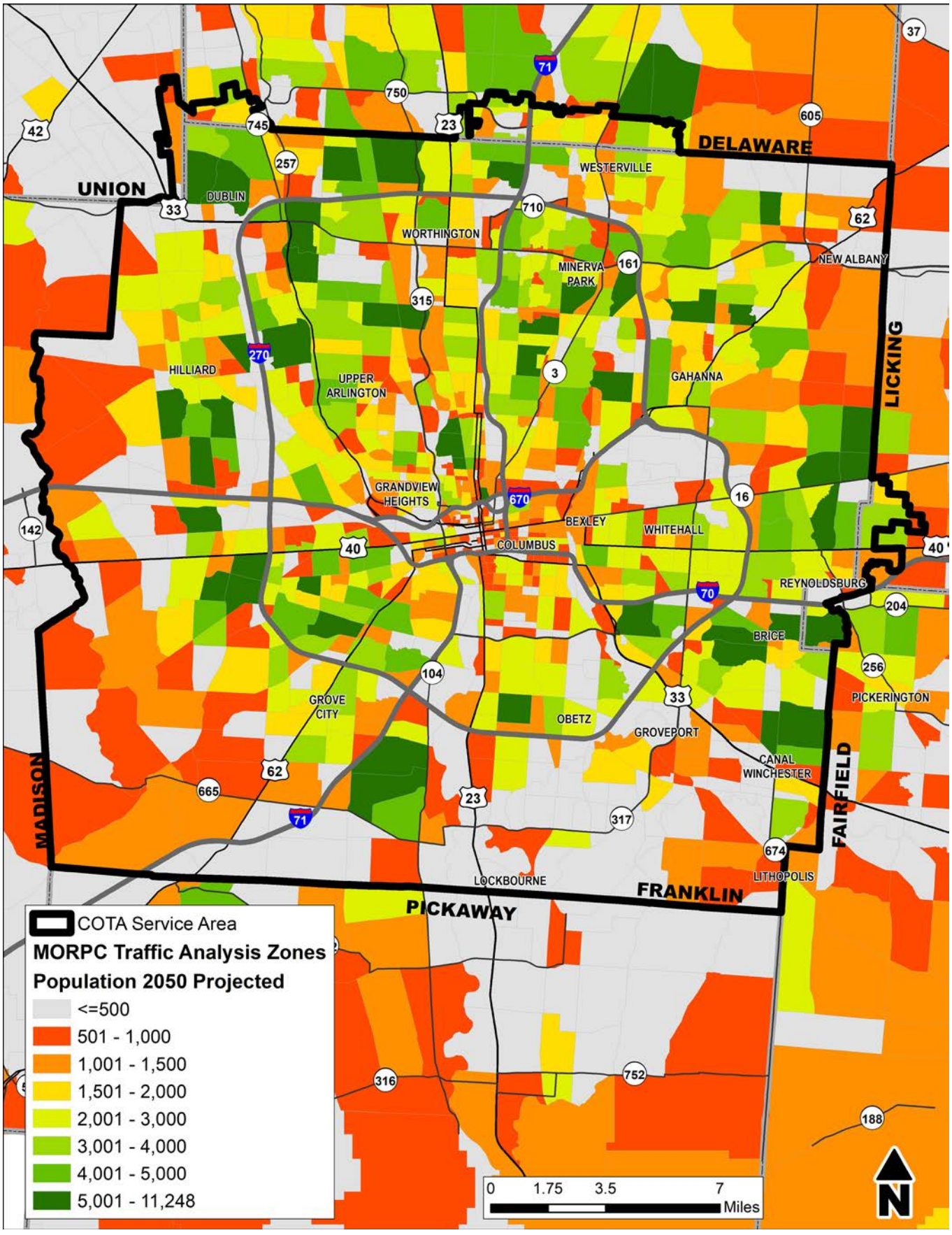
COTA Service Area
MORPC Traffic Analysis Zones
Population 2050 Projected
<=500
501 - 1,000
1,001 - 1,500
1,501 - 2,000
2,001 - 3,000
3,001 - 4,000
4,001 - 5,000
5,001 - 11,248
0 1.75 3.5 7
Miles
N
UNION
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LOCKBOURNE
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COTA
CENTRAL OHIO TRANSIT AUTHORITY

2018 ON-BOARD SURVEY

STRATEGIC AND OPERATIONAL PLANNING COMMITTEE

MARCH 27, 2019

Conducted during the Spring and Fall of 2018

- Fulfills FTA Title VI requirement to collect ridership survey data at least every five years (last conducted in 2013). Data is utilized as part of Title VI fare change and service equity analyses.
- Compiled statistically accurate information about transit customers and how they use the transit system.
- Ensures maintaining eligibility for potential FTA New Starts grant funding.
- Improves regional transit ridership forecasts and the travel demand model maintained by the Mid-Ohio Regional Planning Commission (MORPC).
- Partnered with Ohio Department of Transportation, FTA, and MORPC. Consultant team: ETC Institute (ETC), and Connetics Transportation Group (CTG).
- All the charts in this presentation are weighted by the “Secondary Linked Weight Factors” developed by CTG in order to refine the initial weight factors developed by ETC.

2018 On-Board Survey COTA

Two Surveys

"On-to-Off" Survey

- Measured the time, direction, transit trip length, duration and boarding/alighting location
- 11,619

"Main Surveys/OD surveys"

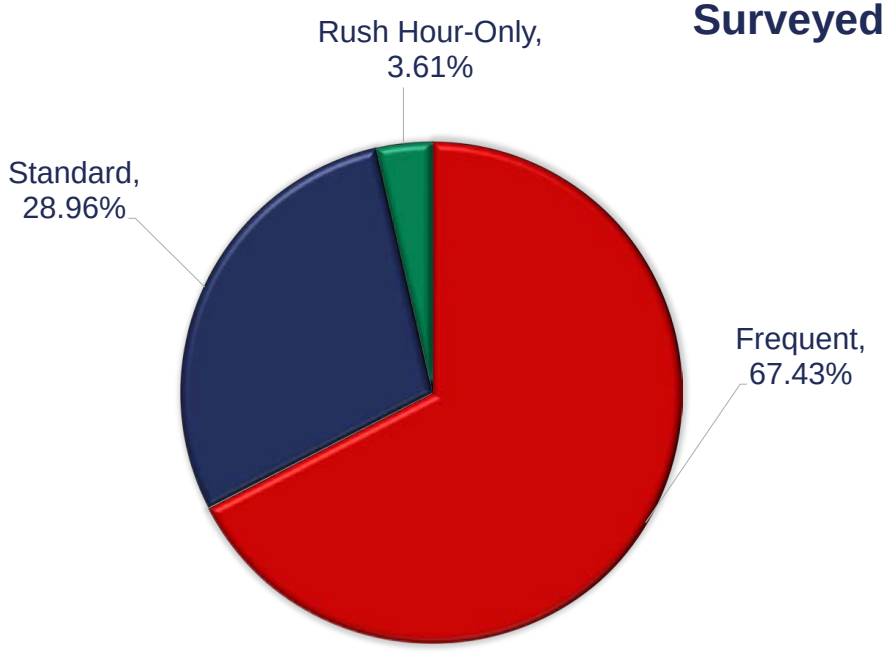
- Identified origin, destination, demographic characteristics, mode of access/egress, fare media used, and which customer service resources were utilized
- 8,868

Only weekday service was surveyed

2018 On-Board Survey

COTA

Surveyed Trips by Service Type



2018 On-Board Survey

COTA

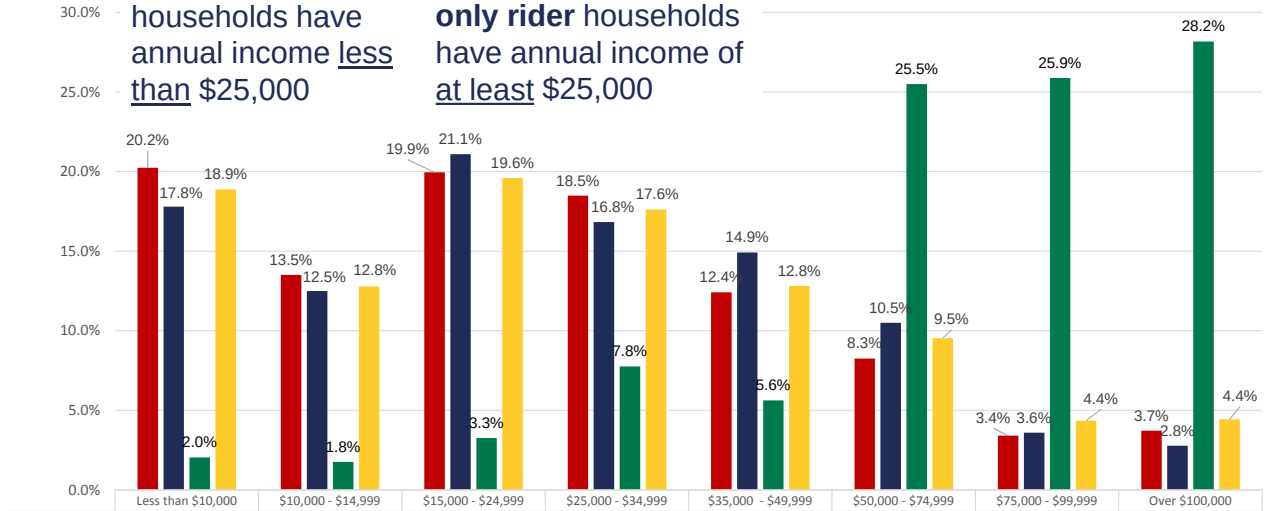
RIDER DEMOGRAPHICS

STRATEGIC AND OPERATIONAL PLANNING COMMITTEE

Total Annual Household Income

51% of **all rider** households have annual income <u>less than</u> $25,000

93% of **rush hour-only rider** households have annual income of <u>at least</u> $25,000



	Less than $10,000	$10,000 - $14,999	$15,000 - $24,999	$25,000 - $34,999	$35,000 - $49,999	$50,000 - $74,999	$75,000 - $99,999	Over $100,000
Frequent	20.2%	13.5%	19.9%	18.5%	12.4%	8.3%	3.4%	3.7%
Standard	17.8%	12.5%	21.1%	16.8%	14.9%	10.5%	3.6%	2.8%
Rush Hour-Only	2.0%	1.8%	3.3%	7.8%	5.6%	25.5%	25.9%	28.2%
Grand Total	18.9%	12.8%	19.6%	17.6%	12.8%	9.5%	4.4%	4.4%

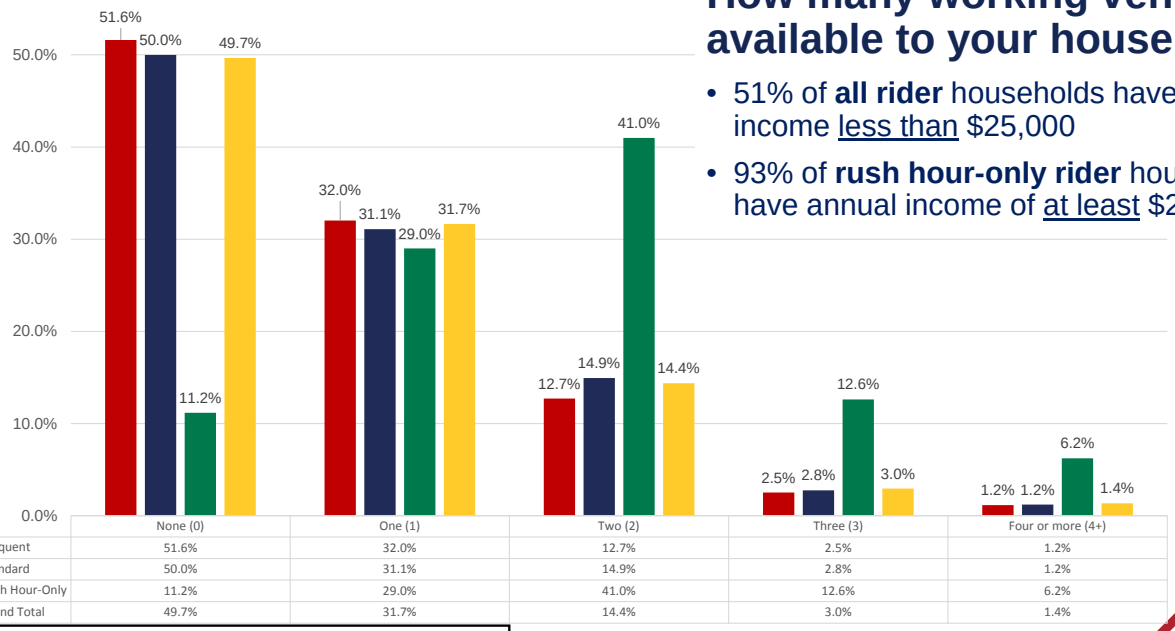
Frequent · Standard · Rush Hour- Only · Grand Total

2018 On-Board Survey

COTA

How many working vehicles are available to your household?

- 51% of **all rider** households have annual income less than $25,000
- 93% of **rush hour-only rider** households have annual income of at least $25,000



	None (0)	One (1)	Two (2)	Three (3)	Four or more (4+)
Frequent	51.6%	32.0%	12.7%	2.5%	1.2%
Standard	50.0%	31.1%	14.9%	2.8%	1.2%
Rush Hour-Only	11.2%	29.0%	41.0%	12.6%	6.2%
Grand Total	49.7%	31.7%	14.4%	3.0%	1.4%

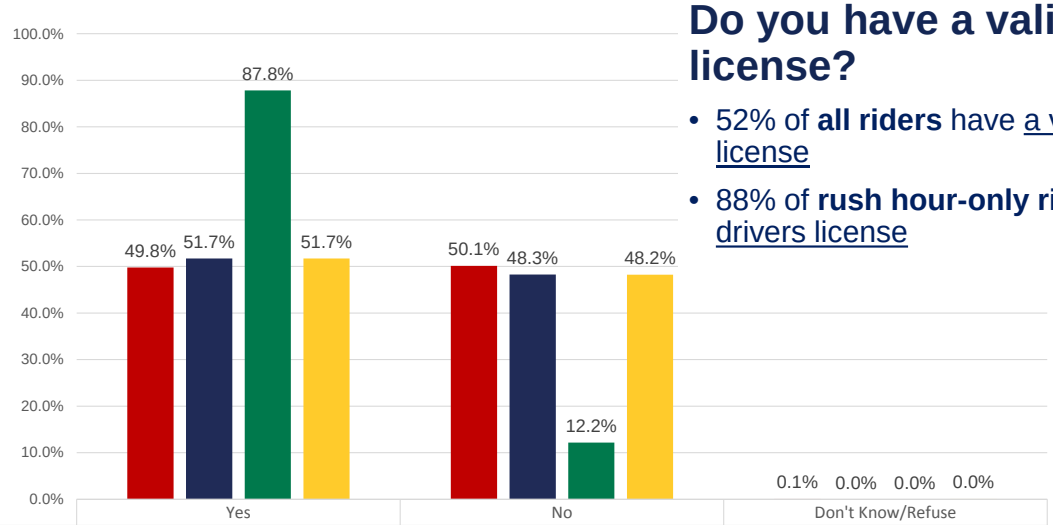
Frequent · Standard · Rush Hour- Only · Grand Total

2018 On-Board Survey

COTA

Do you have a valid drivers license?

- 52% of **all riders** have a valid drivers license
- 88% of **rush hour-only rider** have a valid drivers license



	Yes	No	Don't Know/Refuse
Frequent	49.8%	50.1%	0.1%
Standard	51.7%	48.3%	0.0%
Rush Hour-Only	87.8%	12.2%	0.0%
Grand Total	51.7%	48.2%	0.0%

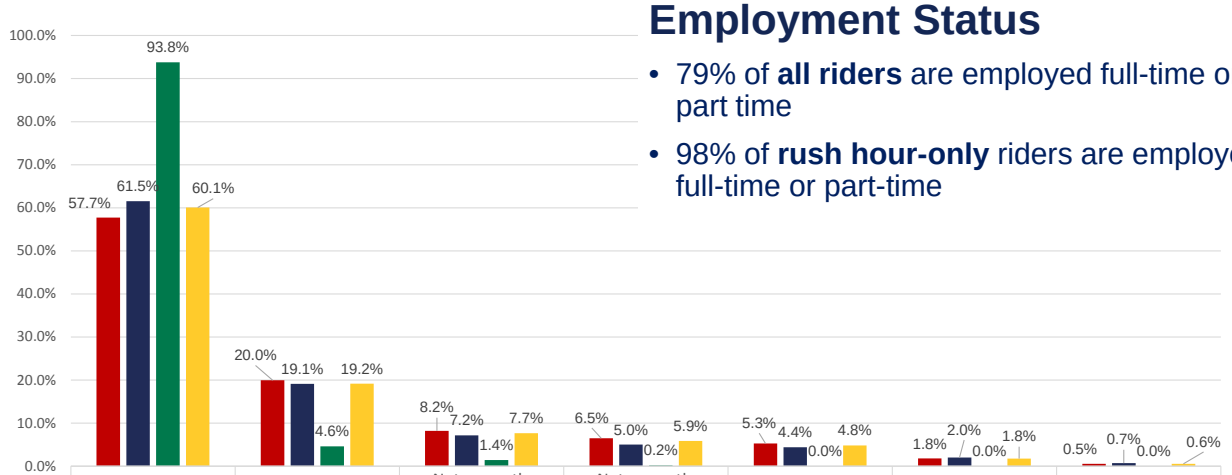
Frequent · Standard · Rush Hour- Only · Grand Total

2018 On-Board Survey

COTA

Employment Status

- 79% of **all riders** are employed full-time or part time
- 98% of **rush hour-only** riders are employed full-time or part-time



	Employed full-time	Employed part-time	Not currently employed, and not seeking work	Not currently employed, but seeking work	Retired	Other	Homemaker
Frequent	57.7%	20.0%	8.2%	6.5%	5.3%	1.8%	0.5%
Standard	61.5%	19.1%	7.2%	5.0%	4.4%	2.0%	0.7%
Rush Hour-Only	93.8%	4.6%	1.4%	0.2%	0.0%	0.0%	0.0%
Grand Total	60.1%	19.2%	7.7%	5.9%	4.8%	1.8%	0.6%

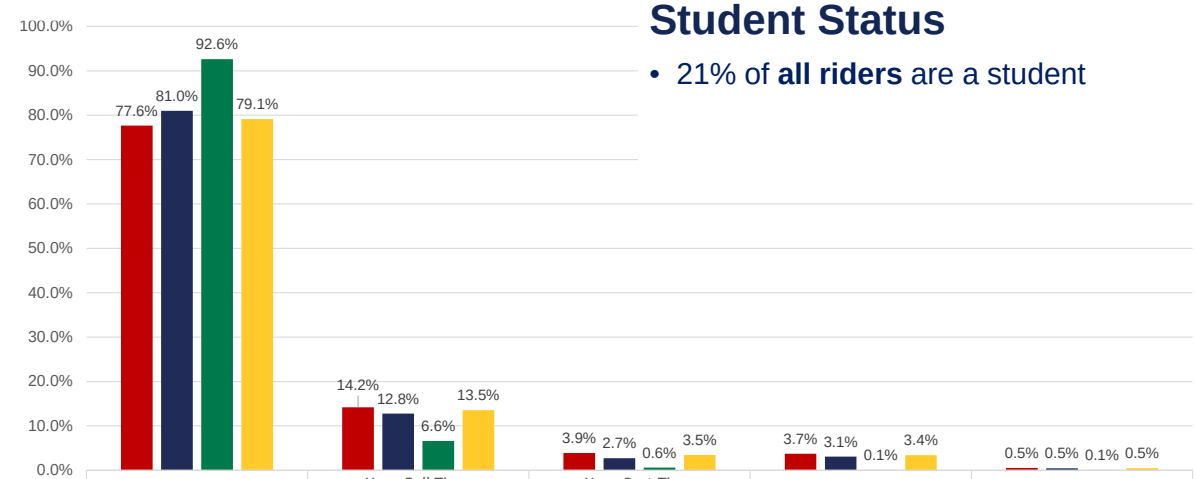
Frequent | Standard | Rush Hour- Only | Grand Total

2018 On-Board Survey

COTA

Student Status

- 21% of **all riders** are a student



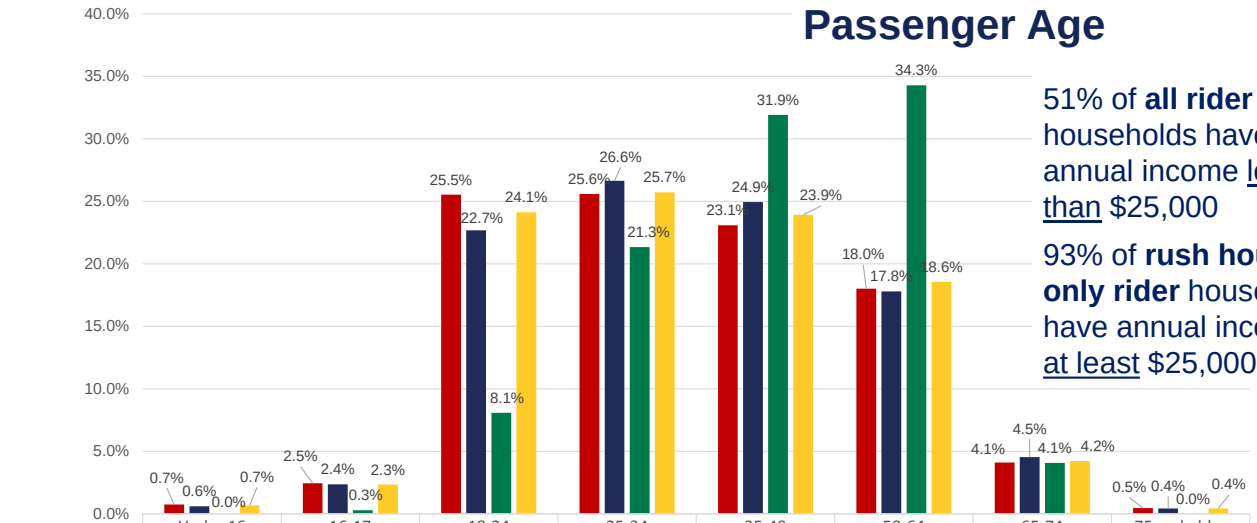
	Not a student	Yes - Full Time college/university	Yes - Part Time college/university	Yes - K-12th grade	Other
Frequent	77.6%	14.2%	3.9%	3.7%	0.5%
Standard	81.0%	12.8%	2.7%	3.1%	0.5%
Rush Hour-Only	92.6%	6.6%	0.6%	0.1%	0.1%
Grand Total	79.1%	13.5%	3.5%	3.4%	0.5%

Frequent | Standard | Rush Hour- Only | Grand Total

2018 On-Board Survey

COTA

Passenger Age



	Under 16	16-17	18-24	25-34	35-49	50-64	65-74	75 and older
Frequent	0.7%	2.5%	25.5%	25.6%	23.1%	18.0%	4.1%	0.5%
Standard	0.6%	2.4%	22.7%	26.6%	24.9%	17.8%	4.5%	0.4%
Rush Hour-Only	0.0%	0.3%	8.1%	21.3%	31.9%	34.3%	4.1%	0.0%
Grand Total	0.7%	2.3%	24.1%	25.7%	23.9%	18.6%	4.2%	0.4%

51% of **all rider** households have annual income <u>less than</u> $25,000

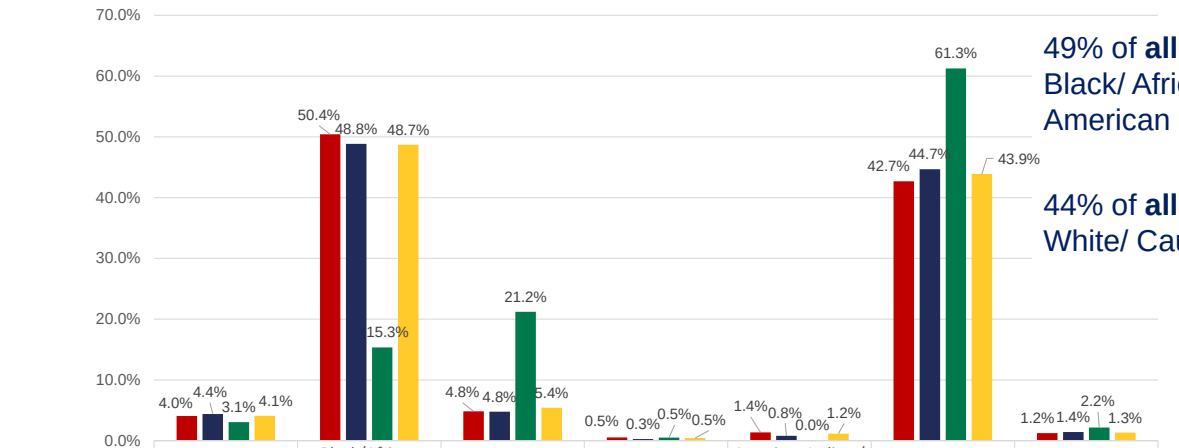
93% of **rush hour-only rider** households have annual income of <u>at least</u> $25,000

Frequent · Standard · Rush Hour- Only · Grand Total

2018 On-Board Survey

COTA

Race / Ethnicity



	Hispanic / Latino	Black/African American	Asian	Somali	American Indian / Alaska Native	White / Caucasian	Other
Frequent	4.0%	50.4%	4.8%	0.5%	1.4%	42.7%	1.2%
Standard	4.4%	48.8%	4.8%	0.3%	0.8%	44.7%	1.4%
Rush Hour-Only	3.1%	15.3%	21.2%	0.5%	0.0%	61.3%	2.2%
Grand Total	4.1%	48.7%	5.4%	0.5%	1.2%	43.9%	1.3%

49% of **all riders** were Black/ African American

44% of **all riders** were White/ Caucasian

Frequent · Standard · Rush Hour- Only · Grand Total

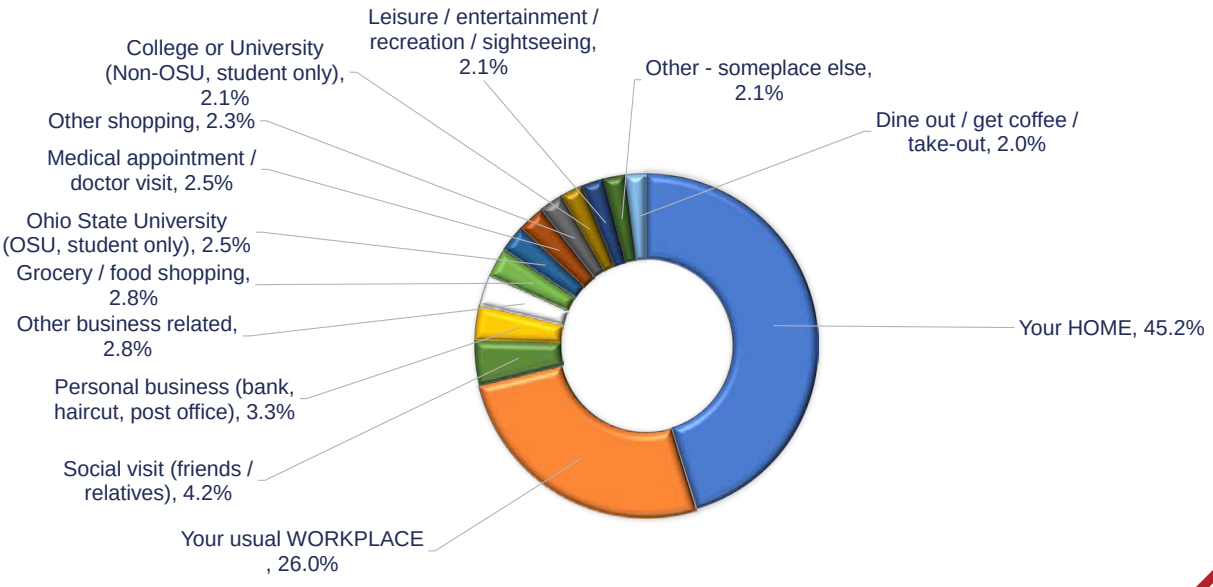
2018 On-Board Survey

COTA

TRAVEL CHARACTERISTICS OF RIDERS

STRATEGIC AND OPERATIONAL PLANNING COMMITTEE

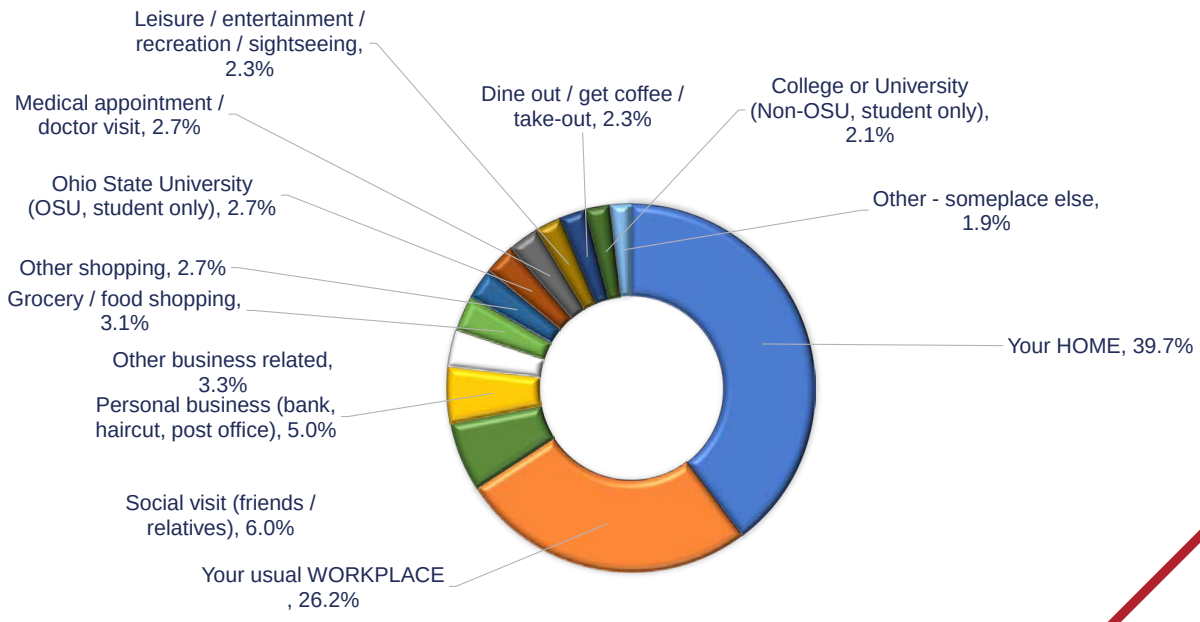
Trip Origin



2018 On-Board Survey

COTA

Trip Destination

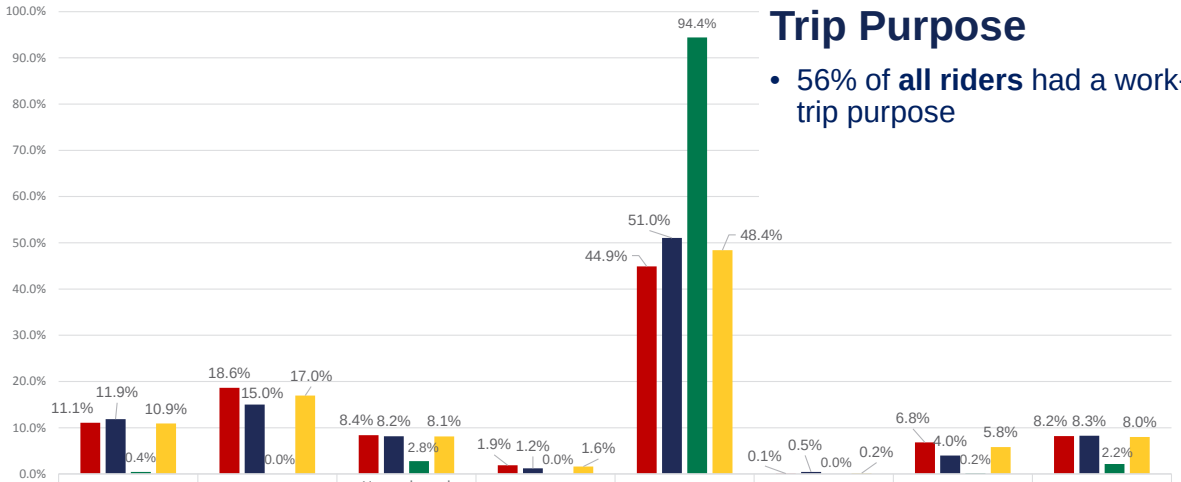


2018 On-Board Survey

COTA

Trip Purpose

- 56% of **all riders** had a work-related trip purpose

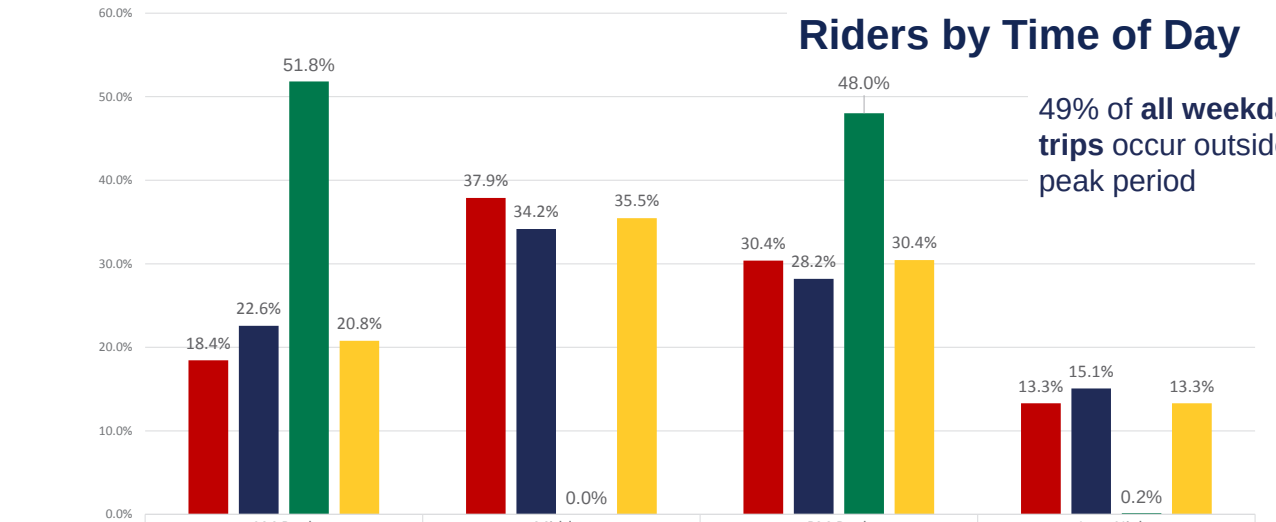


	Home-based Discretionary	Home-based Maintenance	Home-based Mandatory College/University	Home-based Mandatory School	Home-based Mandatory Work	Home-based Other	Sub-tour Other	Sub-tour Work
Frequent	11.1%	18.6%	8.4%	1.9%	44.9%	0.1%	6.8%	8.2%
Standard	11.9%	15.0%	8.2%	1.2%	51.0%	0.5%	4.0%	8.3%
Rush Hour-Only	0.4%	0.0%	2.8%	0.0%	94.4%	0.0%	0.2%	2.2%
Grand Total	10.9%	17.0%	8.1%	1.6%	48.4%	0.2%	5.8%	8.0%

2018 On-Board Survey

COTA

Riders by Time of Day



	AM Peak	Midday	PM Peak	Late Night
Frequent	18.4%	37.9%	30.4%	13.3%
Standard	22.6%	34.2%	28.2%	15.1%
Rush Hour-Only	51.8%	0.0%	48.0%	0.2%
Grand Total	20.8%	35.5%	30.4%	13.3%

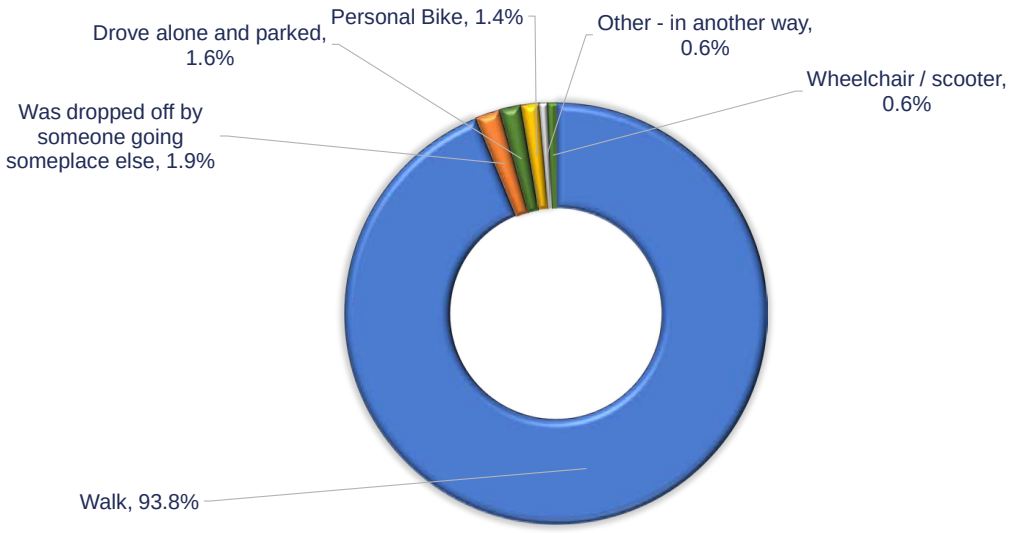
Frequent
Standard
Rush Hour- Only
Grand Total

49% of **all weekday trips** occur outside of peak period

2018 On-Board Survey

COTA

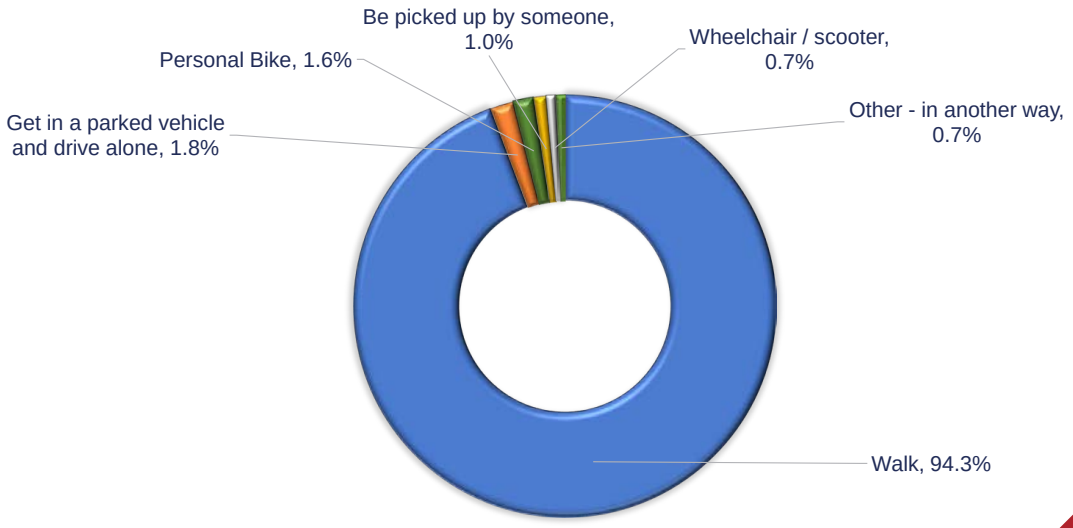
Access Model



2018 On-Board Survey

COTA

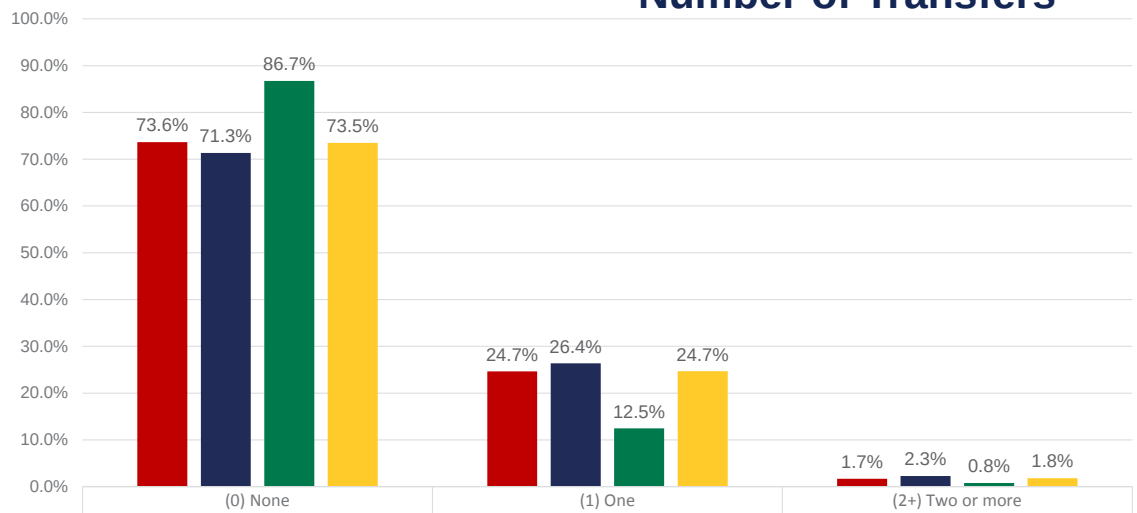
Egress Mode



2018 On-Board Survey

COTA

Number of Transfers*



	(0) None	(1) One	(2+) Two or more
Frequent	73.6%	24.7%	1.7%
Standard	71.3%	26.4%	2.3%
Rush Hour-Only	86.7%	12.5%	0.8%
Grand Total	73.5%	24.7%	1.8%

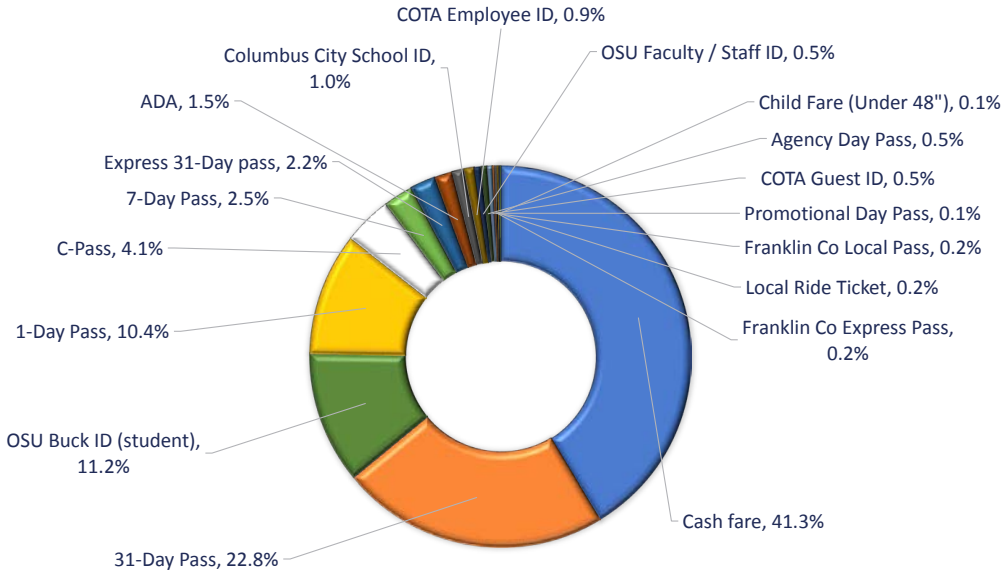
Frequent
Standard
Rush Hour- Only
Grand Total

*Transfer percentages were based on linked secondary expansion

2018 On-Board Survey

COTA

How did you pay today?



59% of **all riders** do not pay cash at the farebox

36% of **all riders** pay with 1, 7, or 31 day passes

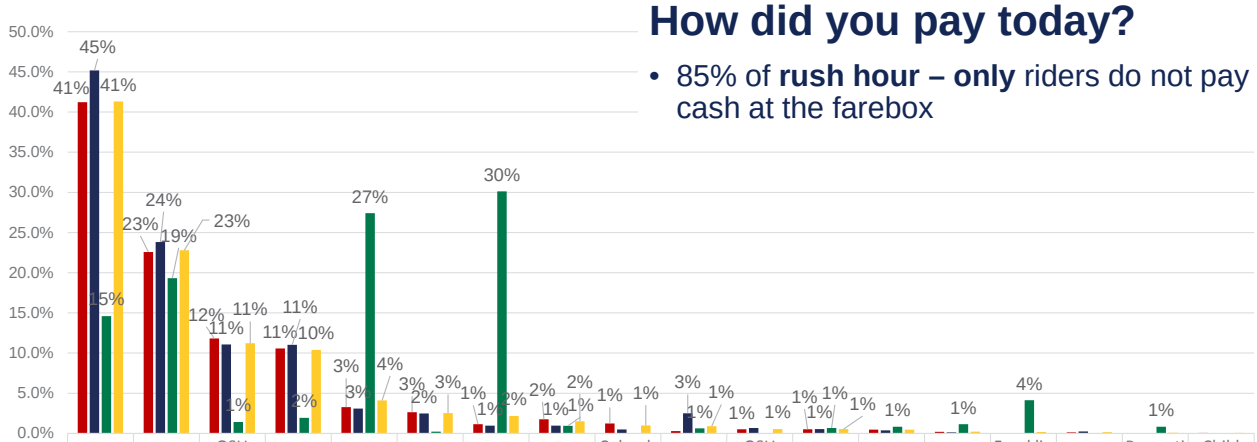
All riders

2018 On-Board Survey

COTA

How did you pay today?

- 85% of **rush hour – only** riders do not pay cash at the farebox



	Cash fare	31-Day Pass	OSU Buck ID (student)	1-Day Pass	C-Pass	7-Day Pass	Express 31-Day pass	ADA	Columbus City School ID	COTA Employee ID	OSU Faculty / Staff ID	Agency Day Pass	COTA Guest ID	Franklin Co Local Pass	Franklin Co Express Pass	Local Ride Ticket	Promotional Day Pass	Child Fare (Under 48")
Frequent	41.2%	22.6%	11.8%	10.6%	3.3%	2.6%	1.2%	1.8%	1.2%	0.3%	0.5%	0.5%	0.5%	0.2%	0.0%	0.1%	0.0%	0.1%
Standard	45.2%	23.8%	11.1%	11.0%	3.1%	2.5%	1.0%	1.0%	0.5%	2.5%	0.7%	0.5%	0.4%	0.1%	0.0%	0.2%	0.0%	0.0%
Rush Hour-Only	14.6%	19.3%	1.4%	1.9%	27.4%	0.2%	30.1%	1.0%	0.0%	0.6%	0.0%	0.7%	0.8%	1.1%	4.1%	0.0%	0.8%	0.0%
Grand Total	41.3%	22.8%	11.2%	10.4%	4.1%	2.5%	2.2%	1.5%	1.0%	0.9%	0.5%	0.5%	0.5%	0.2%	0.2%	0.2%	0.1%	0.1%

Frequent | Standard | Rush Hour- Only | Grand Total

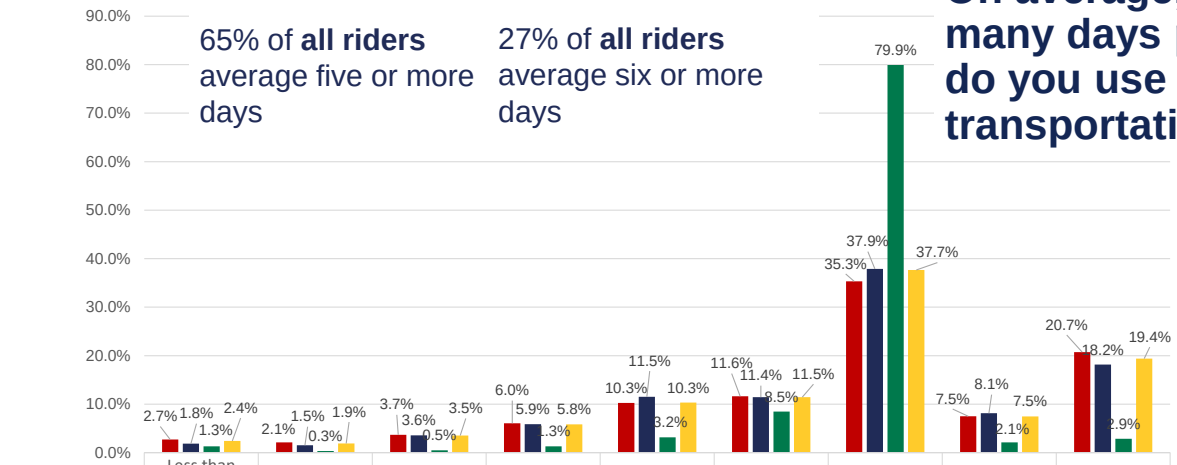
2018 On-Board Survey

COTA

On average, how many days per week do you use public transportation?

65% of **all riders** average five or more days

27% of **all riders** average six or more days



	Less than once a month	Once a month	One	Two	Three	Four	Five	Six	Seven
Frequent	2.7%	2.1%	3.7%	6.0%	10.3%	11.6%	35.3%	7.5%	20.7%
Standard	1.8%	1.5%	3.6%	5.9%	11.5%	11.4%	37.9%	8.1%	18.2%
Rush Hour-Only	1.3%	0.3%	0.5%	1.3%	3.2%	8.5%	79.9%	2.1%	2.9%
Grand Total	2.4%	1.9%	3.5%	5.8%	10.3%	11.5%	37.7%	7.5%	19.4%

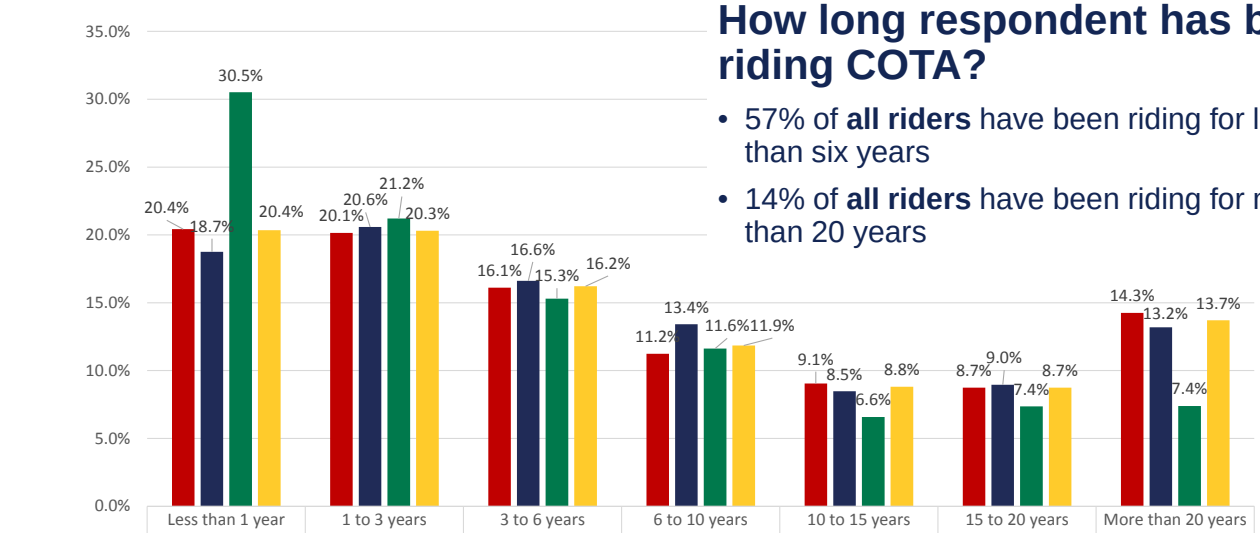
Frequent · Standard · Rush Hour- Only · Grand Total

2018 On-Board Survey

COTA

How long respondent has been riding COTA?

- 57% of **all riders** have been riding for less than six years
- 14% of **all riders** have been riding for more than 20 years



	Less than 1 year	1 to 3 years	3 to 6 years	6 to 10 years	10 to 15 years	15 to 20 years	More than 20 years
Frequent	20.4%	20.1%	16.1%	11.2%	9.1%	8.7%	14.3%
Standard	18.7%	20.6%	16.6%	13.4%	8.5%	9.0%	13.2%
Rush Hour-Only	30.5%	21.2%	15.3%	11.6%	6.6%	7.4%	7.4%
Grand Total	20.4%	20.3%	16.2%	11.9%	8.8%	8.7%	13.7%

Frequent · Standard · Rush Hour- Only · Grand Total

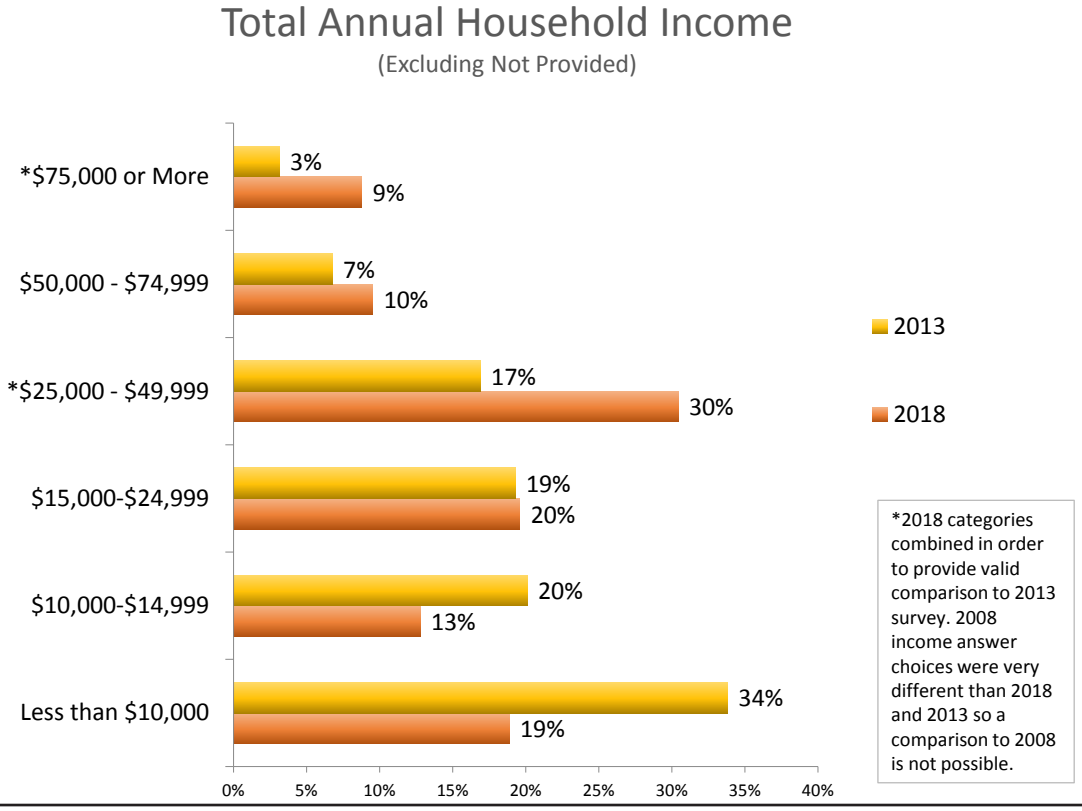
2018 On-Board Survey

COTA

Comparison of 2008, 2013, and 2018 Rider Demographics

STRATEGIC AND OPERATIONAL PLANNING COMMITTEE

51% of **all resident riders in 2018** had households with an annual income of less than $25,000 compared to 73% **in 2013.** These changes are likely due to significant increases in employment rate and average wage per hour in Columbus since 2013, along with the addition of higher income passengers utilizing the CBUS and CPASS.

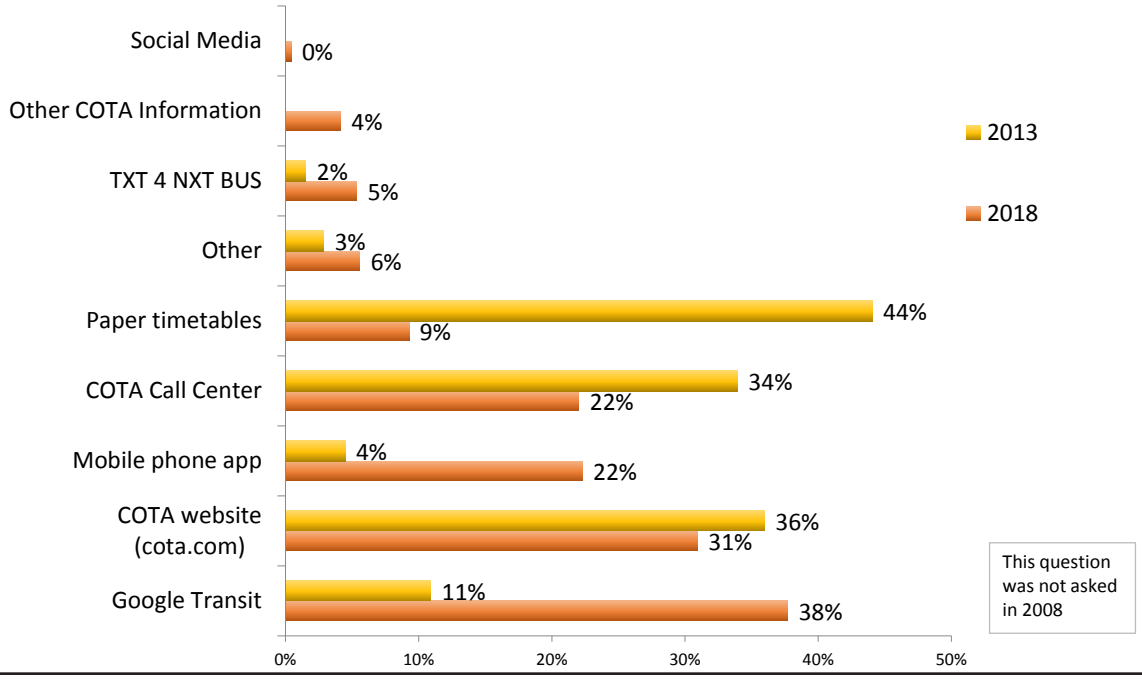


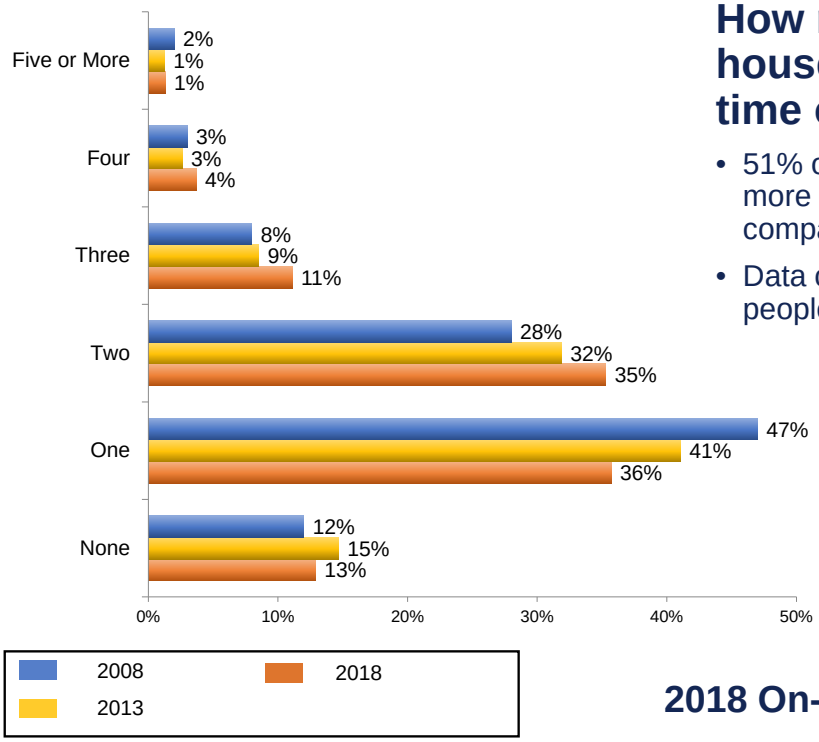
*2018 categories combined in order to provide valid comparison to 2013 survey. 2008 income answer choices were very different than 2018 and 2013 so a comparison to 2008 is not possible.

Which of the following do you use to get information on the COTA system?

(Multiple Responses Allowed)

96% of **all riders in 2018** get information on the COTA system from Google, COTA.com, a Mobile App, or TXT 4 NXT, compared to 53% of **all riders in 2013**





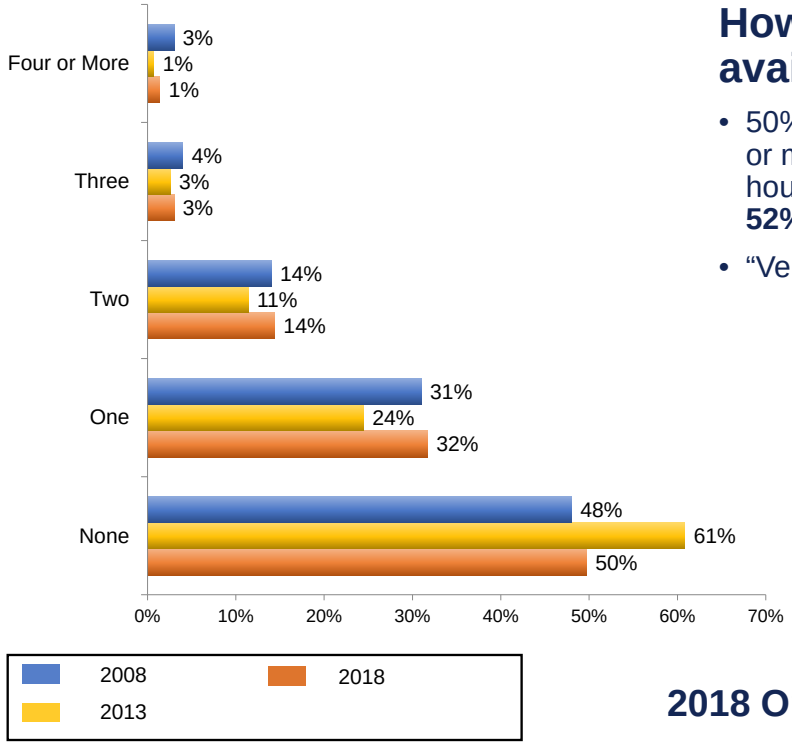
How many people in your household are employed full time or part-time?

- 51% of **all resident riders in 2018** had two or more employed people in their household compared to **45% in 2013** and **41% in 2008**
- Data collected included respondent and people over the age of 15

2018 On-Board Survey

COTA

How many working vehicles are available to your household?

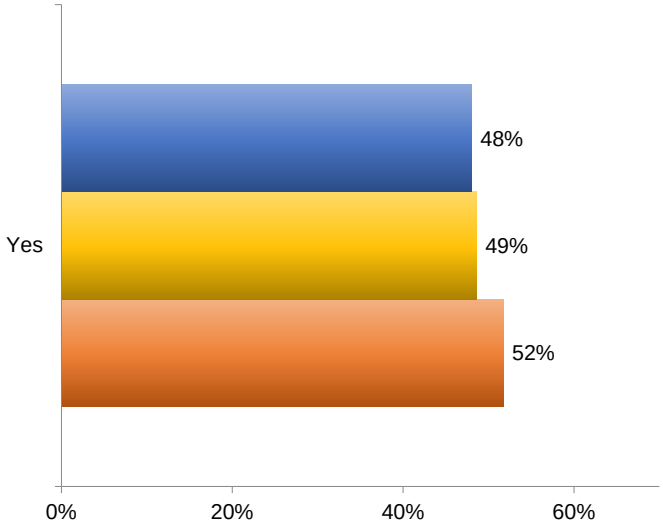


- 50% of **all resident riders in 2018** had one or more working vehicles available to their household compared to **39% in 2013** and **52% in 2008**
- "Vehicle" includes cars, motorcycles, or trucks

2018 On-Board Survey

COTA

Do you have a valid driver's license?

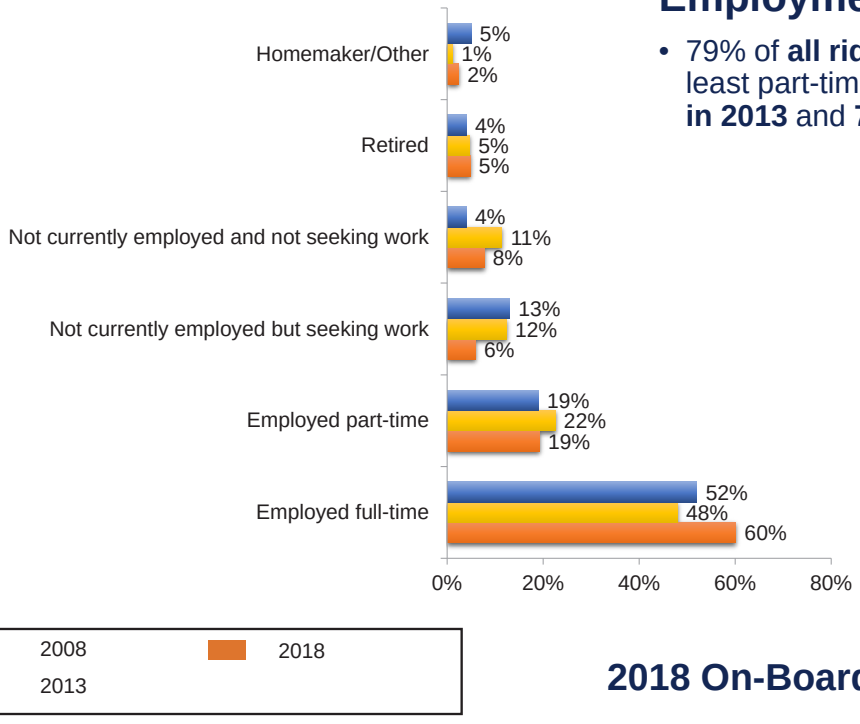


2018 On-Board Survey

COTA

Employment Status

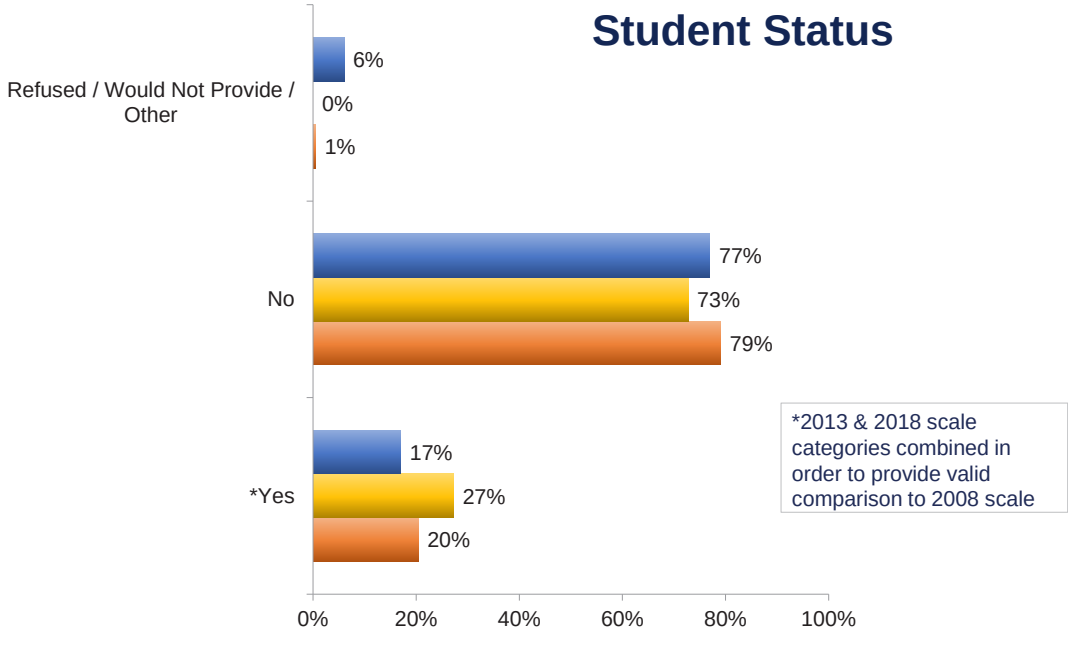
- 79% of **all riders in 2018** were employed at least part-time compared to **70% of all riders in 2013** and **71% in 2008**



2018 On-Board Survey

COTA

Student Status



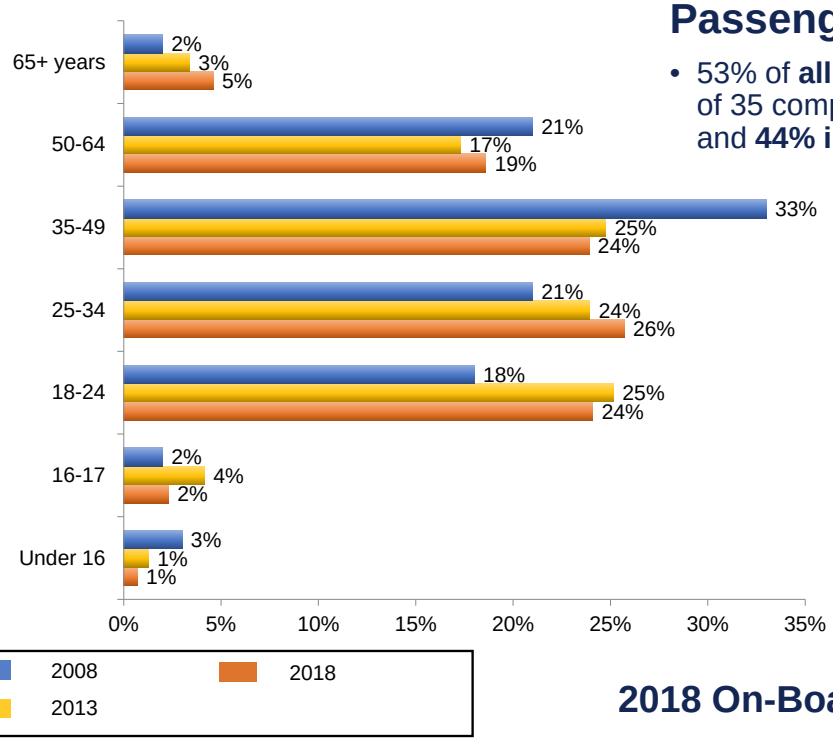
*2013 & 2018 scale categories combined in order to provide valid comparison to 2008 scale

2018 On-Board Survey

COTA

Passenger Age

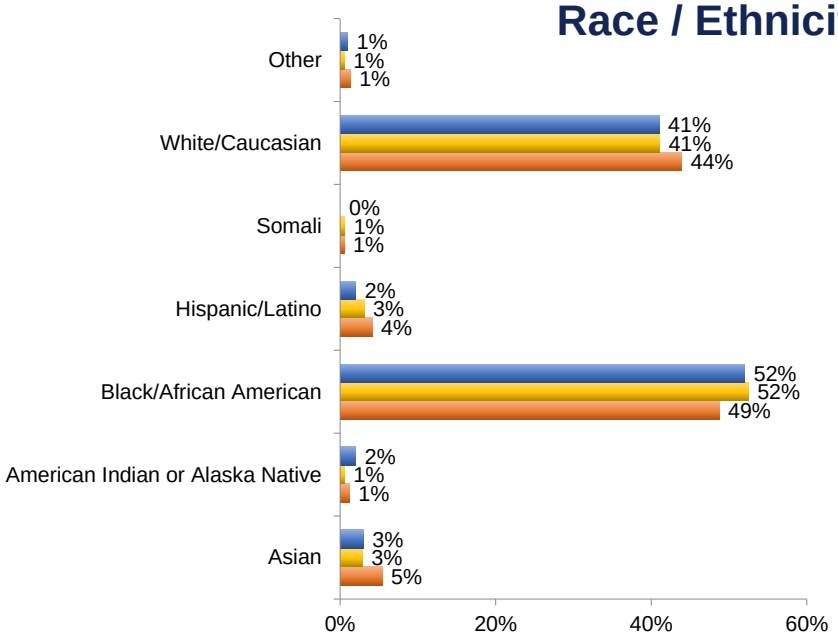
- 53% of **all riders in 2018** were under the age of 35 compared to **54% of all riders in 2013** and **44% in 2008**



2018 On-Board Survey

COTA

Race / Ethnicity

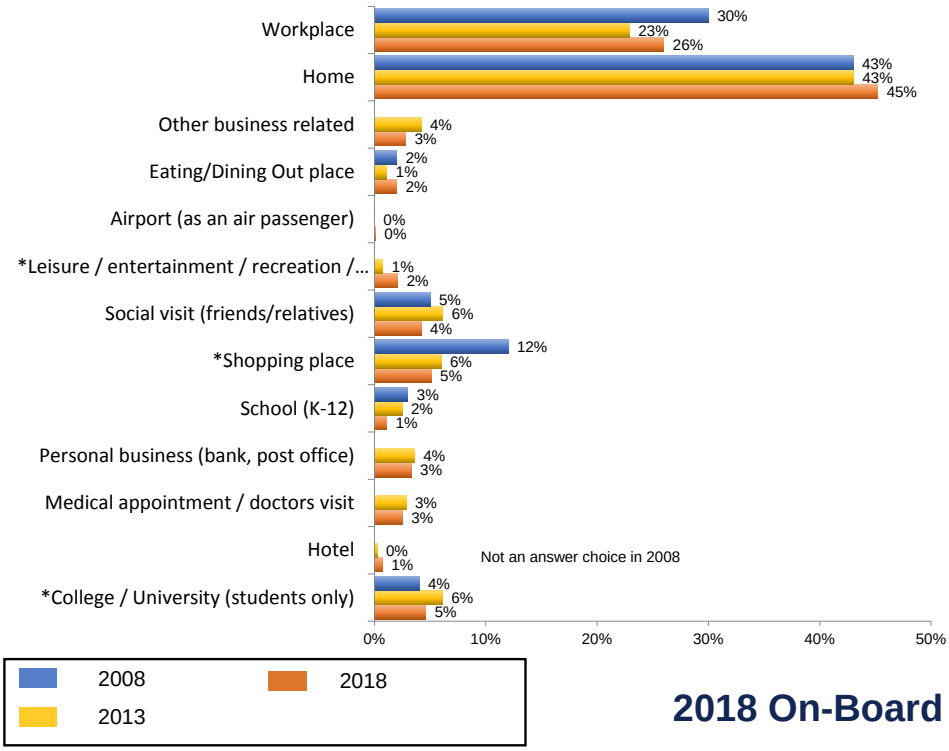


2018 On-Board Survey

COTA

Comparison of 2008, 2013, and 2018 Travel Characteristics of Riders

STRATEGIC AND OPERATIONAL PLANNING COMMITTEE

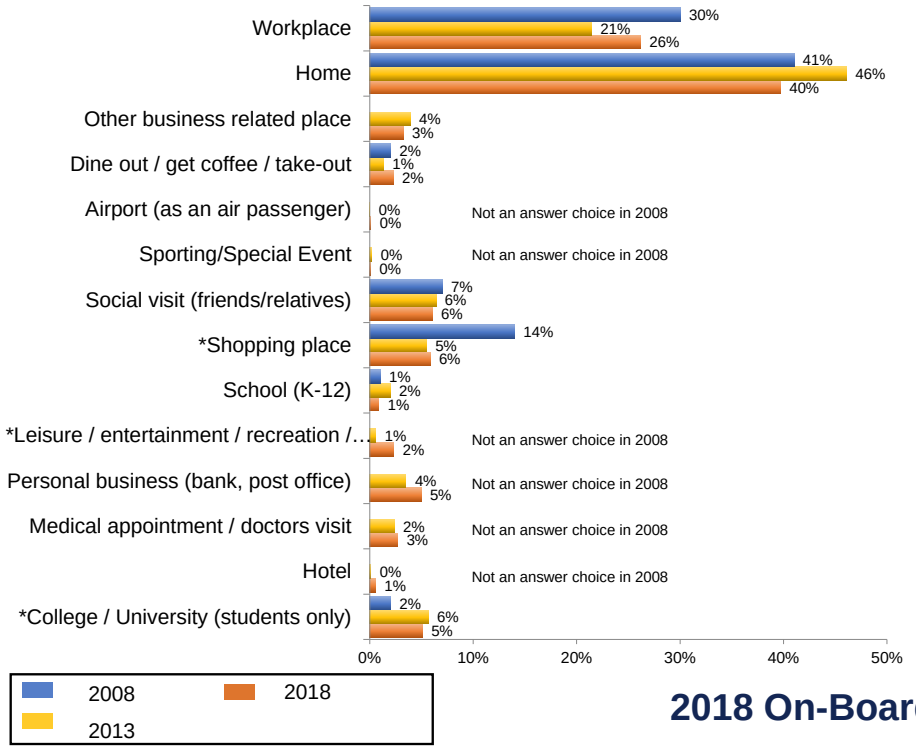


Trip Origin

45% of **all riders in 2018** were coming from home compared to **43% of all riders in 2013** and **43% in 2008**

2018 On-Board Survey

COTA

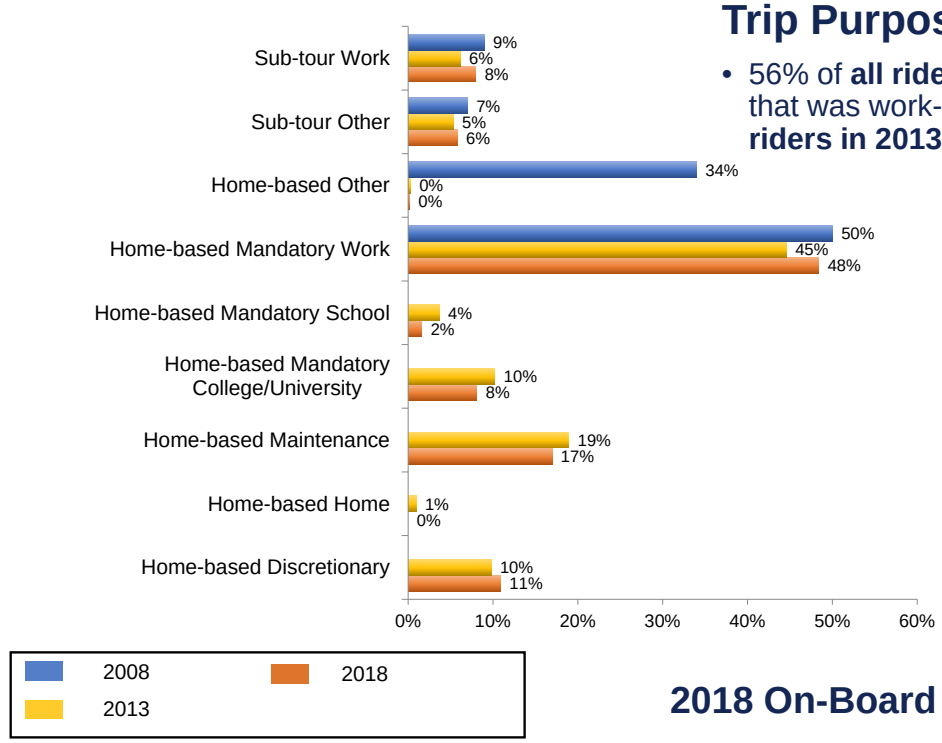


Trip Destination

26% of **all riders in 2018** were going to their usual workplace compared to **21% of all riders in 2013** and **30% in 2008**

2018 On-Board Survey

COTA



Trip Purpose

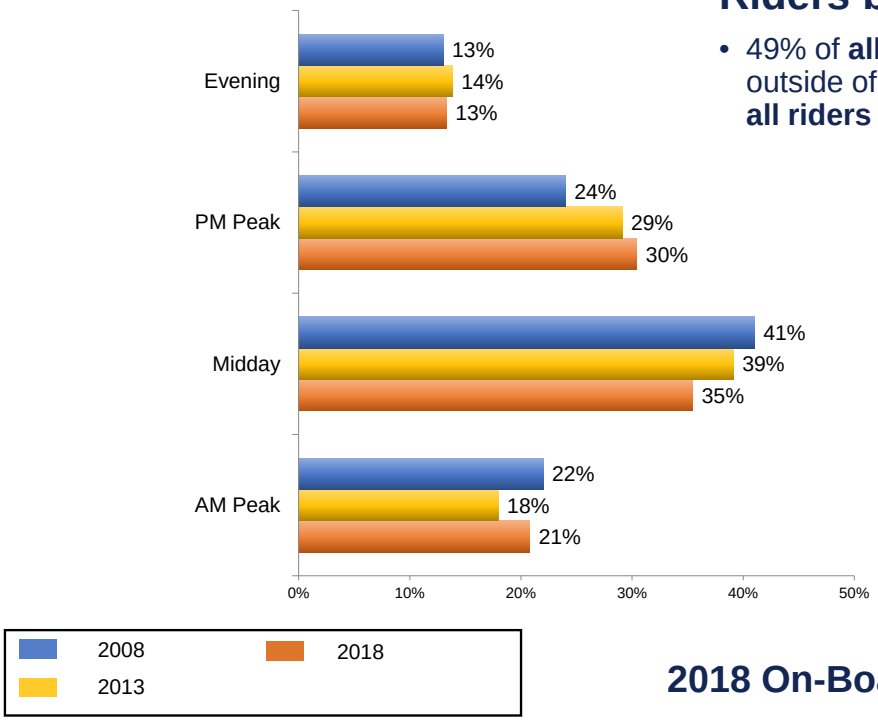
- 56% of **all riders in 2018** had a trip purpose that was work-related compared to **51% of all riders in 2013** and **59% in 2008**

2018 On-Board Survey

COTA

Riders by Time of Day

- 49% of **all weekdays trips in 2018** occur outside of peak period compared to **53% of all riders in 2013** and **54% in 2008**

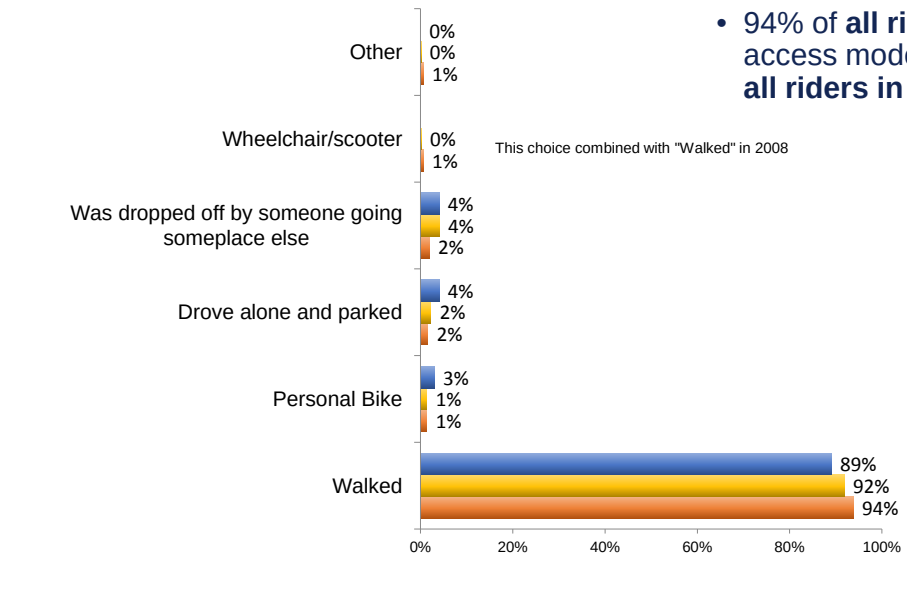


2018 On-Board Survey

COTA

Access Mode

- 94% of **all riders in 2018** "walked" as their access mode to transit compared to **92% of all riders in 2013** and **89% in 2008**

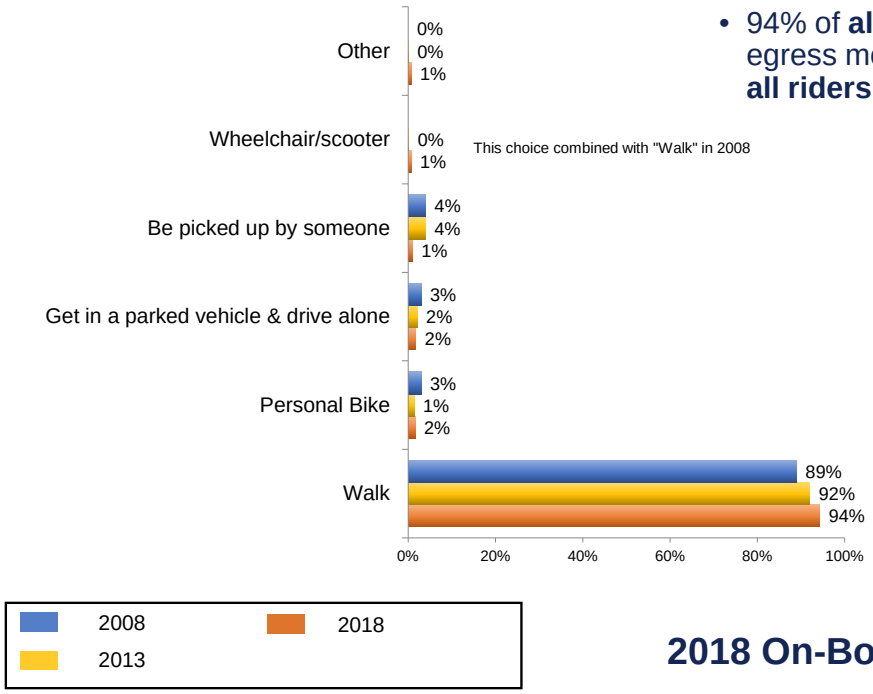


2018 On-Board Survey

COTA

Egress Mode

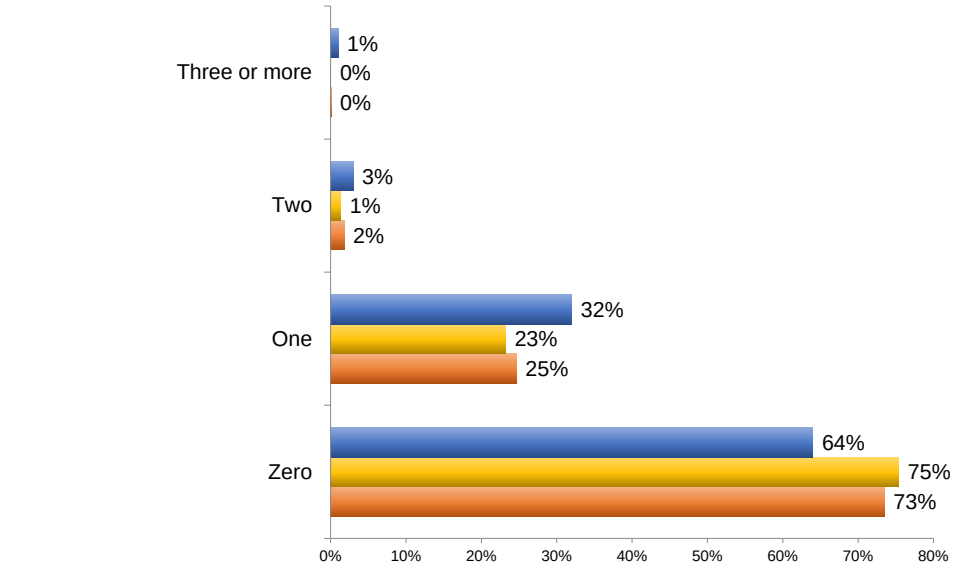
- 94% of **all riders in 2018** "walked" as their egress mode to transit compared to **92% of all riders in 2013** and **89% in 2008**



2018 On-Board Survey

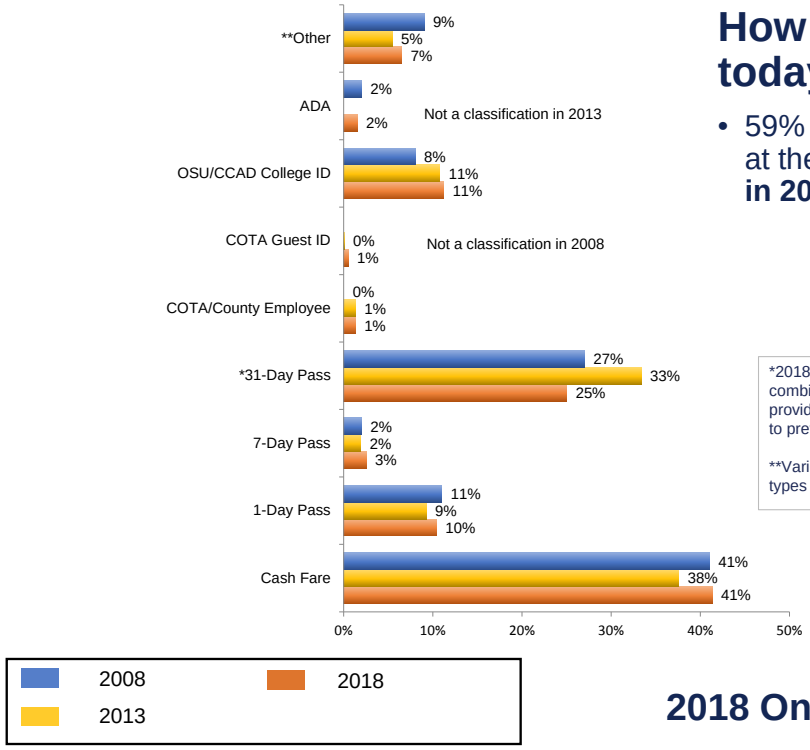
COTA

Number of Transfers



2018 On-Board Survey

COTA



How did you pay for your trip today?

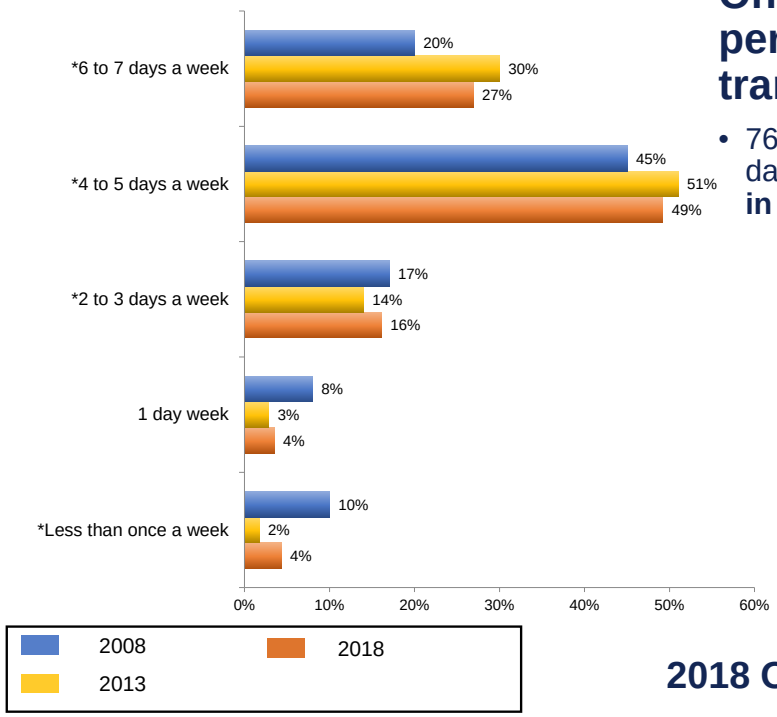
- 59% of **all riders in 2018** did not pay in cash at the farebox compared to **62% of all riders in 2013** and **59% in 2008**

*2018 categories combined in order to provide valid comparison to previous surveys

**Various "Other" fare types combined

2018 On-Board Survey

COTA



On average, how many days per week do you use public transportation?

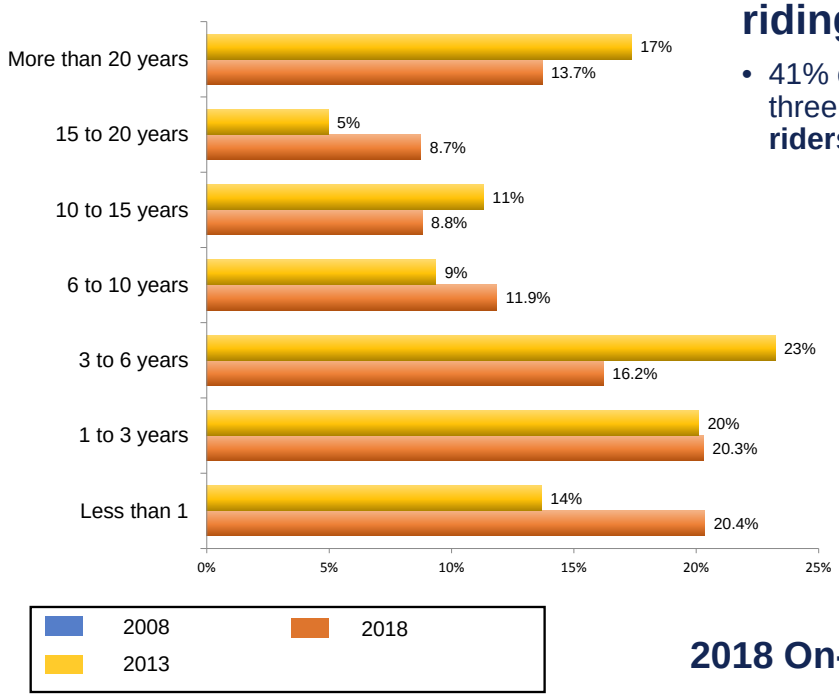
- 76% of **all riders in 2018** ride at least four days a week compared to **81% of all riders in 2013** and **65% in 2008**

2018 On-Board Survey

COTA

How long respondent has been riding COTA?

- 41% of **all riders in 2018** have been riding for three years or fewer compared to **34% of all riders in 2013**



2018 On-Board Survey

COTA

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1 TIP and Financial Plan

1.1 Background

The Ohio Department of Transportation's Statewide Transportation Improvement Program (STIP) and MORPC's regional TIP delineates a four-year operating and capital plan. Listed in Table 1-1 are COTA's annual service levels, operating and capital expenses, and anticipated funding levels. The TIP spans four State fiscal years[1] (2021-2024) while COTA's Short Range Transit Plan (SRTP) covers five calendar years.[2]

The 2021-2024 four-year TIP operating plan represents COTA's continued response to the growing transportation needs of the central Ohio region by providing an expanded, reliable, and safe transit system. The foundation for this TIP update is COTA's 2019-2024 strategic Plan, "Moving Every Life Forward" organized within the four guiding principles: Improve the Customer Experience; Achieve Organizational Excellence; Provide Access to Mobility Options; and, Prioritize the Use of Data Analytics.

See https://www.cota.com/who-we-are/strategic-plan/ for additional information.

1.2 Operating Plan

The following sections are a summary of the four-year operating component of the TIP including years 2021 through 2024. The most recent 2020 data has also been included in each table.

---

[1] State of Ohio's fiscal Year begins July 1.

[2] COTA's fiscal year begins on January 1, while the Federal Government's fiscal year begins on October 1.

Fixed Route Bus System

Total fixed-route hours of service have nearly doubled since the addition of the .25% renewable sales tax levy in 2006 (renewed in 2016), from 635,828 hours in 2007 to 1,244,509 hours in 2020. While COTA planned to maintain service hours at approximately 1.24 million annually, services have been significantly impacted by COVID-19, with ridership levels declining over 60%. Consequently, COTA has reflected an adjustment in fixed route service hours in 2020, 2021 and 2022 in response to the changing needs of the community. COTA remains committed to serving the community in the most responsible manner possible. *See Table 1-1 for existing and projected bus hours of service.*

Although the projection shows fixed-route service hours remaining flat during the five-year period, funding for service enhancements focused on bus shelters and amenities, micro-and para-transit opportunities as well technology investments are included. At this time, the operating plan assumption includes no fare increase.

On-demand Micro-transit

As central Ohio continues to experience population and job growth, COTA's is transforming to meet growing mobility demands. In 2019, COTA was awarded $946,400 in MORPC federal attributable funds to support launch of first/last mile micro-transit services. In addition to traditional fixed route lines, in July 2019, COTA implemented "**COTA Plus**" in Grove City, an on-demand micro-transit pilot project using smart phone app technology. https://www.cota.com/cotaplus/

As a funding model, COTA utilizes the MORPC grant as 50% operating funds match, with the other 50% from local community partners that utilize a COTA Plus zone (municipality, large employer/corporate sponsor). COTA will continue to work with local municipalities, businesses, and other stakeholders to grow the COTA Plus service areas, with a goal of additional micro-transit zones that feed into the larger fixed-route service area.

Mobility Services – Mainstream

COTA's Mobility Services department operates COTA Mainstream, a complimentary paratransit service. Mainstream is shared-ride public transportation providing origin-to-destination mobility for people whose functional limitations prevent them from riding COTA's fixed-route buses. Trips within ¾ mile of a fixed route are considered American with Disabilities Act (ADA) eligibility trips and receive first priority. For those eligible customers whose trip lies outside of the ¾ mile zone are considered "non-ADA", trips.

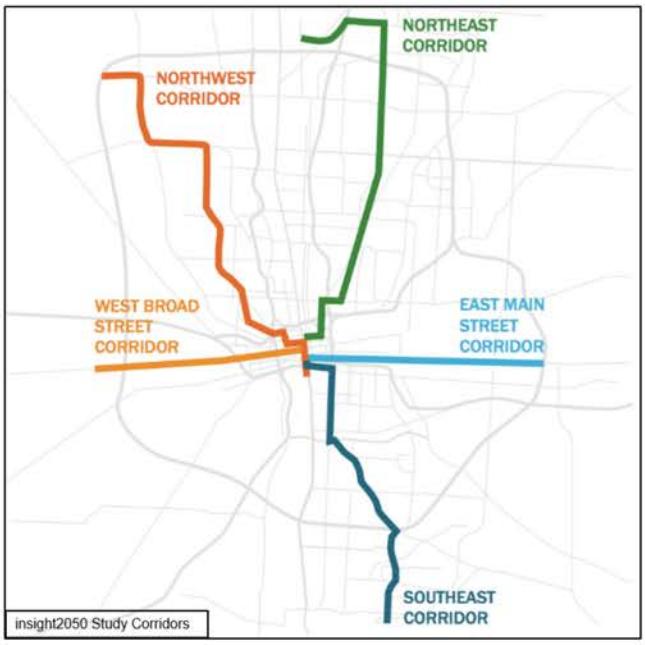
Due to the rising cost of and increased demand for Mainstream service, COTA continues to explore methods of cost reduction while meeting the transportation needs of the community. Once such example is "Mainstream On-Demand", a non-ADA service for Mainstream-eligible customers, which began in May 2019. Mainstream On-Demand provides TNC-style (Transportation Network Company/Ridesharing e.g. Uber, Lyft) service to non-ADA customers who want to travel beyond the fixed-route coverage area. Mainstream On-Demand offers a same-day travel option not previously available for Mainstream. Traditional Mainstream ADA one-way fare is $3.50; On-Demand non-ADA fares are determined by distance traveled at a rate of $1 per mile, with a minimum fare of $5. Customers can call as little as two hours in advance to schedule service, and will be able to book via a web app in 2020. Throughout this TIP period, COTA will continue to explore and expand innovative mobility options to enhance Mainstream services.

COTA plans for routine replacement of existing Mainstream cutaway and Ford Transit vehicles that will be approaching their expected useful life over the next five year planning cycle. COTA intends to utilize federal Section 5307 monies to help fund future vehicle purchases through 2024. As such, the replacement schedule for these vehicles is based on FTA's criteria for the minimum useful life of transit buses and vans. For planning purposes, COTA follows a minimum four-year and 200,000 mile limit or seven (7) years, whichever comes first, minimum life FTA criteria for paratransit vehicles.

The Mainstream fleet is currently at 74 vehicles, including 35 Ford Transit ADA accessible vans. During the 2020-2024 planning cycle, COTA has estimated $10.5 million on the replacement of Mainstream vehicles.

High Capacity Transit Corridors

Following the successful launch of COTA's $48.6 million CMAX Cleveland Avenue bus rapid transit (BRT) line in January 2018, during the 2020-2024 timeframe, COTA will continue efforts to implement high capacity transit service along more corridors in central Ohio. In addition to expanded bus service, COTA's *NextGen* 2050 long range visionary document outlined 14 corridors in which high-capacity transit may be applicable. Developed by MORPC, City of Columbus, Urban Land Institute-Columbus, COTA, and other local municipalities and stakeholders, the *insight 2050 Corridor Concepts Study Report* (April 2019) focused on five of those corridors as a means of holistic corridor job and housing growth in dense development that better serves a high-capacity system.



The 2020-2024 budget includes the Northwest Corridor Mobility Study, which the City of Columbus is managing with COTA as a partner ($200,000 participation); an East-West Corridor Analysis and preliminary design of a high-capacity transit system; a match for federal grant request for Transit-Oriented-Design and potential dedicated lane analysis for the Cleveland Avenue corridor, continued

investment in our existing BRT system; as well as two to three "end of the line" enhancements for other corridors. COTA will continue to work with local cities, Franklin County and larger institutions along the corridors to develop holistic and progressive initiatives along all potential high-capacity transit routes.

1.3 Local Funding

COTA's major source of local funding is sales and use tax receipts levied in all of Franklin County and small portions of adjacent Union, Delaware, Licking and Fairfield counties. Voters within the service area approved a permanent 0.25% sales tax; with an additional ten-year renewable 0.25% sales tax renewed in 2016 by 73% of the voters.

Between 2010 through 2019, sales tax revenue increased on average 4.4% annually. COTA has presented sales tax revenue estimates that reflect the uncertainty associated with the COVID-19 pandemic. With the highest level of unemployment since the Great Depression, COTA anticipates a significant reduction in sales tax revenue between 2020 and 2022 with no additional growth projected in 2023 and 2024.

1.4 Capital Plan

Major capital items in Table 1-2, such as buses, facilities, and strategic investments are described in greater detail in COTA's companion Short (2024) and Long-Range (2050) Plan document. Major capital items will be funded primarily with Federal Section 5307 Urbanized Area Formula program grants and Congestion Mitigation Air Quality (CM/AQ) funds. *See Table 1-2 for capital program.*

Existing federal transportation bill language gives regional transit authorities the latitude to use their Section 5307 Federal Formula Assistance on the capitalization of maintenance. This plan assumes that Section 5307 Urban Formula assistance will be utilized for any funding shortfall from other sources for revenue vehicle replacement and/or other qualifying capital projects.

1.5 Major Capital Projects

The total five-year Capital Acquisitions Plan is projected to cost over $169.7 million as identified in Table 1-2. During this SRTP timeframe and in alignment with the Authority's strategic plan, COTA is proposing significant capital improvement investments aimed to strengthen and provide new transit services in the central Ohio area. An average of 40% of projects are anticipated to be funded by COTA with the remainder coming from grants. The total amount of local funds needed is $70 million.

1.5.1 Bus Replacement and Expansion

Replacement of aging existing fixed-route coaches, paratransit and on-demand micro-transit vehicle expansion plans are a priority. This includes replacement of some diesel powered buses with battery electric powered coaches to further support COTA's environmental sustainability efforts.

- Replacement vehicles will consist of a combination of **CNG and battery powered electric buses**. New to the fleet, electric buses will be pilot tested for performance and overall cost/ benefit analysis. COTA was awarded approximately $8.8 million in grant funds through the Federal government and AEP to be applied to the purchase of the electric powered buses. Most recently, in January, 2020, the Ohio Diesel Emissions Reduction

Grant (DERG) Program awarded COTA $1,439,496 to cover 16 percent of the cost to replace nine model year 2009 diesel-powered buses with nine new electric-powered buses. COTA will procure at least two of the nine electric buses by 2021.

Options for further electric investment include conversion of a particular route to all electric operations or entering into a public private partnership to facilitate a larger transition to electric vehicles. Additional CNG-powered vehicle purchases are anticipated during this time period to replace older diesel and CNG powered buses.

- The **COTA Plus vehicle fleet** currently consists of five (5) Ford Transit ADA accessible vans. The vans hold 8-10 passengers each, which serves the target market. As COTA Plus expands, staff will determine the best vehicle type (e.g., lift equipped vans, sedans, etc.) to serve a particular community.

- COTA currently utilizes COTA-owned **cutaway vehicles and full-sized vans to operate Mainstream**, a complementary paratransit service for individuals who are unable to use the regular fixed-route bus service due to a disability. COTA remains committed to developing innovation solutions in the delivery of service to Mainstream passengers.

- **Non-revenue vehicles** are utilized to assist in the operations of COTA's services, and a consistent replacement schedule is established in the budget. Examples include vehicles for street supervisors, street facility and road crews, security operations, etc. The non-revenue fleet mix includes cars, vans, large trucks, dump trucks, and pick-up trucks.

1.5.2 Facility Construction Projects

Continued renovation of the Fields and McKinley Avenue bus storage and maintenance facilities is included in the five year capital plan. These projects expand CNG fueling capabilities, as well as future electric vehicle charging stations, to support the transition away from diesel coaches and modernizes facilities to account for current and future operations. Facilities construction projects within this plan cycle also include a new transit center in the Rickenbacker area to provide access to that major jobs center.

The **Fields Avenue** project consists of constructing a CNG fueling station and upgrading storage and maintenance facilities to permit CNG operations. This is critical as coach conversion to CNG has surpassed the 50% mark and it will not be feasible to operate all CNG buses out of COTA's McKinley Avenue facility within two years. This project also addresses facility infrastructure concerns such as roof replacement, a new bus wash, new vehicle maintenance equipment and facilities, new facilities maintenance spaces, and charging infrastructure for future electric bus operations. Construction started in 2019 and is expected to be complete by the end of 2020. COTA plans to use local money for this project; however, staff will make every effort to pursue available federal or state funding opportunities if they arise.

The **McKinley Avenue** renovation project is the final phase, completing design efforts in 2020. Construction is anticipated to begin in early 2021. COTA plans to use local money for this project; however, staff will make every effort to pursue available federal or state funding opportunities if they arise.

COTA is committed to protecting the environment and advancing the electrification of the Central Ohio region. The Fields Avenue and McKinley Avenue facility renovation projects include work to facilitate the operation of electric charging and service of electric buses.

The **Rickenbacker Area Mobility Center** (RAMC) is a conceptual transit center that is expected to be built in 2022. It is envisioned as a mobility center connecting COTA fixed route service with various workforce shuttle options as well as an interface with public transportation from Fairfield and Pickaway counties. The RAMC is envisioned as a partnership between the State of Ohio, COTA, the Columbus Regional Airport Authority, and various county and local municipality stakeholders.

1.5.3 Park & Rides

COTA maintains a network of park and rides which allow commuters heading to Downtown to leave their vehicles and board the bus for the remainder of the journey. Within the last three years, COTA has constructed the Northland Transit Center, Northern Lights, and Canal Winchester Park & Rides. COTA owns or leases twenty-five park and ride facilities serving the bus network. The following is anticipated:

- During this SRTP timeframe, COTA will investigate the feasibility of developing portions of select COTA-owned park and ride facilities that have excess or underutilized land areas.
- The existing COTA-owned Dublin Park & Ride is in discussion with City of Dublin officials and Bridge Park developers to ensure that park and ride customer needs are met as the design and development process in this area moves forward.

COTA will continue to purchase real property to be used for park and rides, future facilities or expansions to existing facilities, operating corridors, properties of current or future development potential, and any property that COTA feels is a wise investment in the community or its operation.

In total, COTA has programmed $46.8 million of local funds in the 2020-2024 TIP for strategic investment planning and acquisitions that provide transportation or development options in the region.

1.5.4 Intelligent Transportation Systems (ITS)

ITS is the application of various technologies that improve information, control, and communication systems for a region's transportation system, including public transit. COTA desires to leverage artificial intelligent technologies to improve mobility within the Central Ohio Region.

COTA's ITS applications are designed to make bus travel easier and more convenient, reduce traffic congestion, provide timely and comprehensive transit information, improve on-time performance, and facilitate integration of COTA's operations into a regional transportation network.

In some cases working with regional partners, COTA plans to add to and expand existing ITS components during this planning period, including:

- Traffic signal priority systems that adjust signal timing to expedite bus service
- Enhanced fare collection systems, which provide best fare options for customers
- Real time information for passengers including arrivals and departures

- Smart card and mobile payment technologies
- Onboard automated stop announcements
- Automated passenger counters; and
- Safety and security systems

ITS provides COTA with the ability to provide real-time schedule updates to the public at various passenger facility locations (i.e., CMAX Cleveland Avenue BRT stations, transit centers, COTA's website, and on various mobile apps). COTA's Innovation team is partnering with **WayCare** to improve COTA's software infrastructure and on-time performance with an artificial intelligence (AI) driven platform. The platform, which is being piloted by members of Transportation Services, combines real-time traffic data from multiple sources with COTA's routes and GPS location data to identify incidents along bus lines and proactively reroute coaches to avoid traffic delays. See https://waycaretech.com/ for additional information.

COTA will continue to work closely with the **Smart Columbus** project team to implement new technologies for smart mobility options; including but not limited to PIVOT, the multimodal trip planning and payment system; Linden LEAP self-driving vehicle shuttle pilot, which will connect with COTA fixed route lines on Cleveland Avenue; Smart Mobility Hubs, and the Smart Columbus Operating System, an online data hub to visualize and share open, secure data from a variety of mobility providers and other stakeholders.

1.5.5 Bus Stop Shelter and Transit Enhancements

COTA's Capital Improvement Plan includes various passenger amenity improvements for convenient, comfortable, and safe passenger waiting areas for customers. Bus stop improvements include a goal to provide shelter amenities at all COTA stops that meet a minimum ridership threshold of 35 boardings per day. This goal will be accomplished by installing up to 50 new shelters a year from 2020-2022. When complete, 70% of all COTA's passenger trips will originate at a stop that includes shelter amenities. To meet this goal, COTA has programmed nearly $5.4 million for associated transit improvements during the 2020-2024 timeframe. COTA will also continue deployment of passenger benches for bus stop locations that have insufficient space for passenger shelters, or at stop locations that do not warrant, based on ridership, installation of shelters.

1.6 2020-2024 Strategic Plan and the Financial Plan

Based on existing funding levels and revenue sources, the five-year financial plan projects COTA is limited in fixed-route bus service hours expansion. The current team is investigating how to diversify the revenue stream beyond the local transit sales tax, farebox revenues and traditional grant opportunities. Examples of other revenues may be transportation improvement districts, tax increment finance districts, bonding capacity, and other public/private partnership endeavors.

COTA is cognizant that population growth is the greatest factor in sales tax revenues growth. To address the fast-paced changes occurring in the mobility arena, however, COTA has developed a list of initiatives as part of the Authority's "Moving Every Life Forward" Strategic Plan.

The Strategic Plan includes many initiatives that the organization will consider, some which will require other revenue streams to cover costs, such as:

1. Transit corridor studies, locally preferred alternatives, preliminary design environmental clearance, final design, construction, and implementation.
2. Dedicated bus lanes on surface streets; Dedicated bus lanes or high-occupancy vehicle (HOV) lanes on highways;
3. Improving bus stops amenities, "place making", real-time signage, and the pedestrian experience along transit corridors and between bus stops and destinations;
4. Work with developers and employers to site developments close to transit and improve pedestrian connections;
5. Encourage municipalities to develop transit supportive policies, guidelines and practices;
6. New vehicles types focused on comfort and capacity;
7. New transit centers in areas of high ridership.
8. Expanded first mile/last mile connections with micro-transit and partnership with other services;
9. Review fare policies and potentially change fares;
10. Follow data driven service standards
11. Update bus stop spacing standards;
12. Real-time passenger alerts and online customer service;
13. Customer and Community Insights Program;
14. Customer loyalty program;

1.7 Financial Summary

Table 1-1 is a financial summary of the system, which displays COTA's projected annual fixed-route service levels, sources of revenue, operating expenses, net capital outlays and resulting cash balances through 2024.

This five-year plan (2020-2024) takes into account numerous public and stakeholder comments received during development of the 2020 Short and Long-range transit plan updates, numerous public service change meetings, input from operators, the NextGen long-range visionary document (2017) and stakeholder input received during development of the 2020-2024 strategic plan.

COTA planned to maintain service levels at approximately 1.24 million service hours annually between 2020 and 2024. However, due to the COVID-19 pandemic, COTA anticipates a significant reduction in sales tax revenue between 2020 and 2022 with no additional growth projected in 2023 and 2024.

Since the passage of an additional 10-year renewable 0.25% sales tax in November 2006, and subsequent renewal in 2016, COTA has implemented many transit enhancements described in the 2006 LRTP as well as additional improvements documented in succeeding plan updates (Transit System Redesign, CMAX BRT, WiFi on buses, COTA Plus, account-based fare payment, etc.). While sales tax revenue is anticipated to continue to fund a large percentage of the Authority's expenditures, staff will be seeking ways to diversity and grow its non-sales tax revenue. COTA will work with partners in both the private and public sector to obtain additional grant funding and capture

revenue generated from development and redevelopment efforts in order to help fund mobility improvements that will benefit the region. Additionally, COTA will explore the possibility of funding improvements through the use of long-term financing.

Moving Every Life Forward is COTA's vision and is supported by the 2019-2024 Strategic Plan. The plan defines and articulates the strategic direction for COTA for the next five (5) years. COTA's five-year TIP incorporates initiatives from the Strategic Plan with an eye on enhancing COTA's services for the citizens of Central Ohio. With a clear focus on equity, diversity, and inclusion, the Board of Trustees and Staff are committed to executing the plan by providing affordable, cost-effective public transit services and making capital investments that will transform the region's mobility options and continue to Move Every Life Forward.

Table 1-1: Financial Summary

Central Ohio Transit Authority						
SRTP 2020-2024						
		Projected 2020	Projected 2021	Projected 2022	Projected 2023	Projected 2024
Fixed Route Service Hours		845,509	1,014,611	1,217,533	1,244,509	1,244,509
Passengers		10,470,432	14,110,107	19,979,332	19,979,332	19,979,332
Sources						
Sales Tax		$ 99,943,321	$ 97,379,287	$ 133,035,433	$ 134,365,787	$ 134,365,787
Passenger Revenue		$ 9,578,535	$ 21,181,120	$ 20,990,120	$ 21,023,272	$ 21,233,504
Non-Operating Revenue		$ 2,357,255	$ 2,530,868	$ 2,530,868	$ 2,530,868	$ 2,530,868
Federal Assistance		$ 1,574,404	$ 1,574,404	$ 1,574,404	$ 1,574,404	$ 1,574,404
State & Local Assistance		$ 674,633	$ 674,633	$ 674,633	$ 674,633	$ 674,633
Investment Income		$ 3,600,000	$ 1,111,760	$ 1,080,839	$ 1,033,672	$ 999,669
CARES Act Funding		$ 49,878,307	$ -	$ -	$ -	$ -
TOTAL SOURCES		**$ 167,606,455**	**$ 124,452,073**	**$ 159,886,297**	**$ 161,202,636**	**$ 161,378,866**
Uses						
Labor & Benefits		$ 105,936,376	$ 104,829,331	$ 104,829,331	$ 104,829,331	$ 104,829,331
Materials & Supplies		$ 14,964,541	$ 14,964,541	$ 14,964,541	$ 14,964,541	$ 14,964,541
Fuel		$ 5,563,903	$ 5,563,903	$ 5,563,903	$ 5,563,903	$ 5,563,903
Purchased Transportation (Paratransit)		$ 10,090,900	$ 10,090,900	$ 10,090,900	$ 10,090,900	$ 10,090,900
Services		$ 22,927,673	$ 22,250,005	$ 22,250,005	$ 22,250,005	$ 22,250,005
Utilities, Taxes, Leases & Rents		$ 4,285,440	$ 4,285,440	$ 4,285,440	$ 4,285,440	$ 4,285,440
Miscellaneous		$ 3,545,173	$ 2,618,811	$ 2,618,811	$ 2,618,811	$ 2,618,811
Debt Service		$ -	$ 160,000	$ 160,000	$ 160,000	$ 160,000
TOTAL USES		**$ 167,314,006**	**$ 164,762,931**	**$ 164,762,931**	**$ 164,762,931**	**$ 164,762,931**
NET (OPERATIONS)		$ 292,449	$ (40,310,858)	$ (4,876,634)	$ (3,560,295)	$ (3,384,065)
Local Capital Requirement		$ (28,086,002)	$ (17,058,433)	$ (11,582,666)	$ (3,983,600)	$ (2,948,800)
ENDING CASH BALANCE		**$ 151,001,455**	**$ 93,632,164**	**$ 77,172,864**	**$ 70,108,970**	**$ 63,936,105**

Table 1-2: System Capital Program

Central Ohio Transit Authority						
Capital Program						
SRTP 2020-2024						
		Projected 2020	Projected 2021	Projected 2022	Projected 2023	Projected 2024
Sources						
Federal Funding		$ 39,832,200	$ 15,680,960	$ 9,726,664	$ 14,482,400	$ 14,523,200
State & Other Grant Funding		$ 2,494,000	$ 2,964,000	$ -	$ -	$ -
Long-Term Financing		$ -	$ 2,000,000	$ -	$ -	$ -
TOTAL SOURCES		**$ 42,326,200**	**$ 20,644,960**	**$ 9,726,664**	**$ 42,326,200**	**$ 42,326,200**
Uses						
Fixed Route & Paratransit Vehicles		$ 18,540,250	$ 20,572,231	$ 20,054,330	$ 18,103,000	$ 18,154,000
Non-Revenue Support Vehicles		$ 23,000	$ 360,000	$ -	$ 360,000	$ -
IT Hardware/Software		$ 5,367,482	$ 6,132,605	$ 650,000	$ 650,000	$ 650,000
Facility & Equipment Replacements & Upgrades		$ 186,598	$ 2,292,500	$ 305,000	$ 1,205,000	$ 520,000
COTA Facility Renovations/Improvements		$ 44,244,872	$ 250,000	$ -	$ -	$ -
Rickenbacker Transit Center		$ 1,250,000	$ 5,750,000	$ -	$ -	$ -
Bus Rapid Transit (Corridor Developments & Improvements)		$ 500,000	$ 2,000,000	$ -	$ -	$ -
Park & Ride Construction & Improvements		$ 300,000	$ 346,057	$ 300,000	$ 300,000	$ 300,000
TOTAL USES		**$ 70,412,202**	**$ 37,703,393**	**$ 21,309,330**	**$ 20,618,000**	**$ 19,624,000**
Local Capital Requirement		**$ (28,086,002)**	**$ (17,058,433)**	**$ (11,582,666)**	**$ (3,983,600)**	**$ (2,948,800)**

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Fixed-Route Design Standards and Service Monitoring

Performance standards are the primary criteria for route evaluation and recommendation processes and are applied to both service changes and the design and monitoring of new routes.

Fixed Route Design Standards

COTA's Fixed Route Design Standards codify good transit planning and operational practices. These guidelines and standards serve several purposes:

- To inform decision-makers, who may not have a background in the transit industry, about good transit practices;
- To provide an oasis for planning new services and evaluating existing services;
- To serve as a compass for both staff and decision-makers who often may be caught up in reactive responses to external factors; and
- To support the route performance evaluation process and standards described in the second set of performance monitoring indicators.

A second set of indicators, Route Performance Evaluation Measures, are used in an annual evaluation of existing services that generate recommendations for service changes designed to improve the productivity of existing and planned services.
The recommended Route and Schedule Design Standards and Route Performance Evaluation Process are described in the following sections.

Design Service

Fixed Route design standards guide COTA when implementing new service or modifying current service in response to public requests and changes in land-use, employment and operations. The goal of the standards are to provide a systematic process. Four primary steps are taken when considering proposed changes to fixed-route bus service. While COTA may consider other factors and take additional steps, these four form the foundation of examining proposed changes.

1. **Designing service –** This includes a proposed alignment, frequency and span of service.

2. **Determine if service should be implemented –** A three step process to determine if the service would improve the network overall.
3. **Evaluate cost of service –** Estimation of cost of service.
4. **Analyze Title VI and Environmental Justice impacts –** Ensure the change in service does not discriminate against specific populations.

Design Service

Proposed new bus service or modifications to bus service must be designed with a set of criteria that ensures a high quality, effective design based on the goal of the proposal (ridership or coverage).

To develop a proposal for new service or modifying current service, the proposal must have a clear purpose to either generate ridership with 30 minute or better service or serve locations more difficult to reach, in less dense areas, with less-frequent 30 to 60 minute service, or express service.

An initial alignment must be drawn based on the purpose of the proposal generally following the guidelines below:

- **Ridership lines** (higher frequency, higher ridership) should be linear with minimal to no deviations, serving areas with high population and job density, ample sidewalk connections and continuous development while not overlapping other ridership lines. Ridership lines should serve only the busiest corridors.
- **Coverage lines** (lower frequency, lower ridership) should be designed to serve as many jobs and population as possible while deviating from the main alignment only to increase the number of people served. Coverage lines typically serve suburban areas or areas between two higher-frequency lines.

Service Frequency

Frequency is how often a bus serves any particular stop on a bus line per hour. Service frequency is dependent upon two factors, first the purpose of the service (ridership or coverage) and second the population and job densities surrounding the alignment. The frequency of service by population and employment density is found in Table 2-1. The exception is express (rush hour) service that is more dependent on how competitive a service can be with the car, accounting for traffic congestion, cost, travel time, etc.

Table 2 1 Frequency minimums by Residential and Employment Density

Level of Service	Min. Residential Density per acre	Min. Employment Density per acre
60 min.	4-5 du	50-80 employees
30 min.	6-9 du	80-200 employees
15 min.	10-11 du	200-500 employees
10 min.	12-15+ du	500+ employees

COTA measures the density within ¼ mi. of service, taking into account that an area may have high residential density but low employment density, or vice versa. In these cases, the best frequency should be assigned. The results will guide the decision on what frequency to assign to proposed service. Other factors, such as available budget, proximity to nearby service and physical characteristics of a roadway are also considered.

Alignment: Route Directness Standards

Service should be as direct as possible to minimize travel times while still fulfilling the purpose of a proposed change. Ridership service should be as direct as possible, operating on major arterial roadways, while coverage service can deviate to serve locations of importance, such as job centers, medical facilities and apartment complexes.

The following standards shall be applied to deviations and/or terminal loops based on purpose of the service:

Ridership Lines

- To the extent possible, two-way service shall be provided on the same street;
- No mid-route or end-on-line deviations or loops shall be operated without substantial justification

Coverage Lines

- To the extent possible, two-way service shall be provided on the same street;
- Deviations from the line alignment to serve activity centers will be made only when the deviation serves more residents and jobs;
- Additional time to operate route deviations should not exceed five minutes (one-way) or 10% of the one-way travel time, whichever is less;

- Terminal loops shall not exceed 25% of a route's total length.
- Rush Hour (Express) service shall be routed in the most direct manner possible.

Hours of Operation

At a minimum, all service should operate during the following times.

Minimum Hours of Operation

Weekday	
Frequent & Standard	5:30 a.m. to 11:30 p.m.
Rush Hour (Express)	6:00 to 8:30 a.m. and 4:00 to 6:30 p.m.
Saturday	
Frequent & Standard	6:30 a.m. to 10:30 p.m.
Rush Hour (Express)	Not operated
Sunday and Holidays	
Frequent & Standard	6:30 a.m. to 9:30 p.m.
Rush Hour (Express)	Not operated

Determining Recommendations for Implementation

To determine if a service request should be implemented, a three step process was developed to evaluate if the service improves the characteristics of all ridership lines, all coverage lines or should not be implemented. The process is outlined below:

1. Does the requested additional service or modification of service increase the characteristics of all ridership lines? If so, consider implementing, if not go to step 2.
2. Does the request increase ridership growth in the long term due to changes in land-use or demographics? If so, re-evaluate under step 1 using future estimates. If not, go to step 3.
3. Does the request increase the characteristics of all coverage lines? If so, consider implementing, if not, consider not implementing.

Evaluate Cost of Service

Availability of resources to implement changes to service is dependent on available service hours. If COTA is able to continue to expand service, decision makers must determine if a proposed change to service should be implemented. If so, the added service must follow the guidelines of allocating 70 percent of service to ridership service and 30 percent to coverage service.

Analyze Title VI and Environmental Justice Impacts

Once it is determined that there are available resources to implement the proposed service, a Title VI and Environmental Justice impact analysis must occur. As a federally funded and regulated transit provider through the FTA, COTA has a responsibility to adhere to the objectives of Title VI of the Civil Rights Act of 1964 as well as the policies set forth in the Executive Order on Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (1994).

Part of this adherence is analyzing how proposed changes affect minority and low-income communities. This analysis compares effected populations to that of COTA's entire service area. If a proposed changed is found to not be in compliance with Title VI, COTA may decide to modify or not implement the proposed change.

Service Monitoring

Critical to the success of COTA is monitoring how fixed-route bus service is performing in relation to its purpose (ridership or coverage) and making adjustments to ensure resources are allocated in the most-cost effective manner possible. Service is analyzed by service category established in Table 2-2. As such, each line must be assigned to appropriate categories.

Service shall be monitored and updated every two years with the update of the Short-Range Transit Plan. Service found not performing well would be subject to modification. Table 4-3 below displays the service monitoring standards which includes minimum frequency, minimum span of all-day frequency (frequent, 30 minute, 60 minute or trips per peak for Rush Hour), minimum total span for weekday, Saturday and Sunday, on-time performance goals, maximum load, average boardings per revenue hour and percentage of population and jobs within entire network.

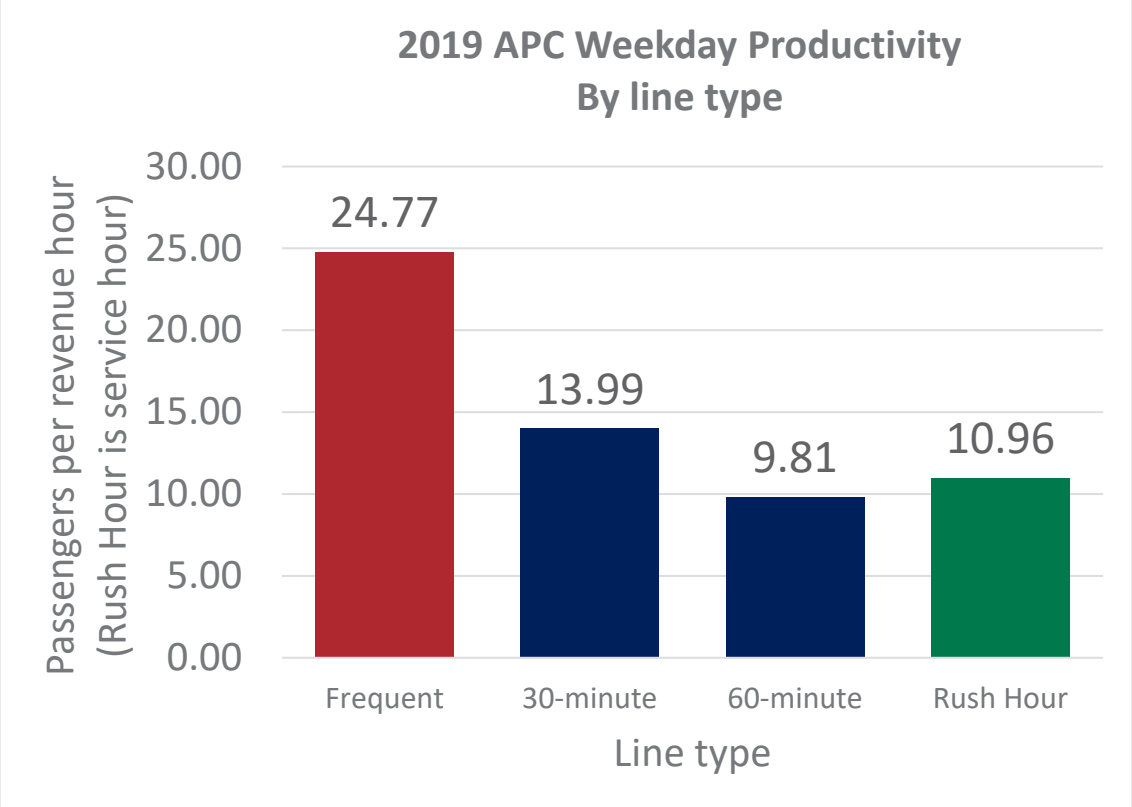
Table 2 2 Service Standards and Monitoring

	Characteristics of Service								Metrics	
									Ridership	Coverage
Service Category	Prevailing Purpose	All Day Frequency (min)	Min. Duration of All Day Frequency 7-days a week (hrs)	Min. Span of Weekday Service (hrs)	Min. Span of Saturday Service	Min. Duration of Sunday Service	On-time Performance (%)	Max. % of seated capacity at peak load periods	Boardings/ Revenue Hour Average	% of pop + jobs within 1/4 mi.
Frequent	Ridership	15	14	18	17	15	73.5	120%	24.77	-
30-Minute	Mixed*	30	14	18	17	15	73.5	120%	13.99	-
60-Minute	Coverage	60	14	14	14	14	73.5	120%	9.81	53%
Rush Hour	Coverage	2 trips/peak						100%	10.96**	-

*30-Minute lines can be ridership or coverage
** Rush Hour uses total service hours instead of revenue

The ridership metric measures the average productivity (riders per revenue hour) of each service category. The productivity standards shown here are not acceptable minimums, but rather an acceptable average across all lines in the category.

Figure 2.4: Productivity by Line Type



To set a starting goal, the ridership metric is based on the most productive trimester from the fixed-route bus network from May 2018 - April 2019. Figure 2-4 displays the productivity of COTA's 2018-2019 fixed-route bus network by service category.

The coverage metric shown in Table 1-3 measures the percentage of population and jobs served by COTA's entire network. The primary outcome of coverage service is a basic level of access to as many people and jobs as possible. The measure of this outcome is the percentage of the COTA taxing area's residents and jobs that are within a fixed access distance of service. COTA's standard is that 50 percent of population and jobs will be within ¼ mi. of service. In 2019, 1.15 million population and jobs were within ¼ mile of service and 2.187 million population and jobs are within COTA's taxing district. With these numbers, COTA's service is accessible to 53% of the population and jobs within the taxing district.

The coverage analysis will need to be periodically updated as development patterns change.

Alignment of Categories with Service Purpose

The guidelines for allocating 70 percent of resources to ridership service and 30 percent to coverage service requires a method of assigning routes to one of the two categories. Assigning a route to one of the two purposes is straightforward except in the case of 30-minute service.

The following methodology is to be used:

- Frequent lines are *ridership justified*. The expensive concentration of resources on certain streets is an inefficient way to provide coverage but seems to be essential for the best ridership outcomes, as demonstrated by the high performance of frequent lines in the existing network.

- Hourly lines are *coverage justified*. This minimal level of service generates poor productivity wherever it is operated. Instead, the purpose of this level of service is about extending a basic level of access to as many people or jobs as possible. This implies spreading resources thinly across a large area, which is the coverage goal.

- Express lines are *coverage justified*. Currently, the Columbus area lacks the traffic congestion, downtown-parking costs and other disincentives to driving that would

motivate nine-to-five long-distance commuters to seek alternatives to driving in large numbers. This may change over time and it is possible that a ridership-justified express service could emerge in the future.

- Half-hourly lines may have a mixture of both purposes. Segments may be:
  - Ridership-justified, because they are top performers in the half-hourly category and ready for promotion to frequent service as soon as resources permit; or
  - Coverage-justified, if the necessary conditions for very high ridership are not present, but ridership is still high enough to justify the frequency. Typically, this means that the line is unlikely to graduate into the Frequent Network, but is more productive than it would be if the service were cut to hourly.

Assigning Categories to Line Segments

One challenge of using frequency-based or purpose-based standards is that part of a line may be in one category and part in another. Many lines in the proposed network have an inner frequent segment, which is clearly ridership-justified and less frequent tails, or branches that could be considered coverage-justified.

On-time Performance

To ensure that transit riders have confidence that service will perform reliably in accordance with the public timetables prepared and distributed by COTA, on-time performance standards have been established. A vehicle is considered “on-time” when its arrival is from zero to 4 minutes and 59 seconds after the scheduled time. A vehicle is considered “late” when it arrives five minutes or more after the scheduled time. To improve the quality of service provided on express lines.

Express (rush hour) buses can arrive at stops up to five minutes early after leaving the last stop outside of Downtown in the morning and after leaving the last stop within Downtown in the evening. Reverse-commute (rush hour) express buses from Downtown to the suburbs are allowed to arrive five minutes early after leaving the last stop within Downtown in the morning and after leaving the last stop outside of Downtown in the evening.

Missed Trips

The percentage of trips operated is defined as the ratio of trips actually operated divided by the scheduled number of trips. The annual objective shall be to operate a minimum of 99% of scheduled trips.

Load Standards

The intent of load standards is to balance passenger comfort and safety with operating costs. These standards define maximum passenger loads at different times of day to ensure acceptable levels of rider comfort and safety, while providing COTA good operating efficiencies. The load standards shown in Table 2-4 represent the total number of riders as a percent of the number of seats on the bus:

Table 2.4: Load Standards

Time Period	Frequent	30-Minute	60-Minute	Rush Hour
Weekday				
AM, PM peak	120%	120%	120%	100%
Midday	100%	100%	100%	100%
Night	100%	100%	100%	100%
Saturday	100%	100%	100%	100%
Sunday	100%	100%	100%	100%

Data Collection and Service Change Process

Route performance data is used to evaluate service. COTA collects data in a number of ways:

- 170 buses equipped with Automatic Passenger Counters (APC) provide COTA with travel time, passenger activity at the bus stop level, passenger load data, and other statistics used in route planning;
- Electronic fareboxes collect revenue and ridership data through customer and driver interaction with the units. COTA's entire active fleet of fixed-route buses is equipped with these fareboxes; and
- The new COTA Connector mobile will be able collect data from the purchase of tickets electronically.

The Development Division recommends service changes and then prepares a list of changes that are reviewed by the Board of Trustees and the President/CEO. The final set of service changes is then directed to the offices and departments that have responsibility for the implementation of new service. The division staff monitors the progress of each service change to ensure the process stays on schedule. Changes are scheduled three times a year on the first Monday of January, May, and September.

Bus Stop Design Guide

Purpose

The purpose of this guide is to provide municipalities and developers reliable design criteria that is consistent with COTA Standards, including regulations set forth by the Federal Transit Authority (FTA) and the Americans with Disabilities Act (ADA). The manual is available for use and download at www.COTA.com.

In general, COTA is responsible for the siting and installation of new bus stops and determining appropriate stop amenities. COTA works with the appropriate municipal jurisdiction to obtain permits for the installation of any new bus stop and ensures that the bus stop meets all federal, state, and local regulations, including FTA and ADA standards.

It is the role of the municipalities and developers to provide infrastructure for pedestrians and bicyclists to access the bus stop service. Thus, when new development or redevelopment occurs at or near an existing COTA bus stop, it is the developer's (or municipality's) responsibility to ensure that the bus stop can be adequately served by COTA's transit vehicles and easily accessed by transit customers.

COTA encourages developers to take existing and proposed bus stops into account from the beginning of the planning and design processes. Developers and local officials should seek the guidance of COTA staff when making design decisions on development and local infrastructure that affect transit stops in the early planning stages to minimize potential conflicts later in the development process. Please note, that it is the responsibility of the developer to ensure that

all applicable local regulations are met, particularly when they are more stringent than COTA guidelines.

Goals

By collaborating on development projects early in the planning and design phases, it is COTA's goal to achieve the following objectives:

- Bus stops should be placed in convenient locations that do not compromise the safety of customers, pedestrians, bicyclists, or vehicles.
- Bus stops should be spaced to maximize efficiency of transit service while not requiring riders to walk excessive distances (i.e. greater than one half mile) to the nearest bus stop.
- Bus stops should be clearly and consistently identifiable with up-to-date information for riders about services at the bus stop.
- Bus stops should have appropriate amenities based on the usage of that stop and the surrounding land use.
- Where reasonable, bus stops should be accessible. Americans with Disabilities Act (ADA) considerations will be given top priority in the siting and design of new and existing bus stops.
- Bus stops should be well-maintained and free of trash and vandalism.
- Facilities surrounding bus stops such as roadways and pedestrian amenities should be transit-supportive and designed according to ADA requirements and appropriate traffic engineering practices. (i.e. stopping sight distances, driver visibility)

Bus Stop Spacing Guidelines

Bus stops should be spaced to balance the need for a quick in-vehicle travel time with consideration given to the distance customers must travel to access the bus stop. When stops are spaced closely together, customers have convenient access to service; however, closely spaced stops result in a longer ride for customers because of the number of times the bus needs to decelerate, come to a complete stop, and then accelerate and re-merge into traffic. Having fewer stops along a bus route can require some customers to travel further to the nearest stop, which may be difficult for those with mobility limitations. At the

same time, greater distances between stops reduces the in-vehicle travel time and benefits the transit agency through reduced maintenance costs of underutilized bus stops. Optimally spacing bus stops can have positive impacts on the quality of service as well as operational effectiveness and efficiency.

The following bus stop spacing guidelines were developed based on research studies on the optimal spacing of bus stops, existing bus stop spacing standards at other transit agencies, and feedback from the public, municipalities, and other stakeholders.

Table 1 Bus Stop Spacing Guidelines

Density	Bus Stop Spacing Range
High Density, CBD, Shopping (>20 persons/acre)	500 – 700 ft.
Fully developed residential area (10 – 20 persons/acre)	700 – 850 ft.
Low density residential (3 – 10 persons/acre)	850 – 1200 ft.
Rural (or Express Bus Service) (0 – 3 persons/acre)	1200+ ft.

In addition to the general guidelines, COTA also uses the following criteria when determining actual bus stop placement:

- Ridership – COTA will prioritize removing stops with low ridership rather than stops with very high ridership, which may result in uneven spacing on portions of the lines, if for example two very high ridership stops exist in close proximity to each other;
- Crosswalks- COTA will prioritize placing new stops at intersections with safe crosswalks to discourage unsafe pedestrian crossings, which may result in uneven stop spacing on portions of the lines;
- Accessibility – COTA may choose not to place or to remove stops along unsafe roadways with no pedestrian amenities, even if the spacing guidelines call for more closely spaced stops;
- Special Populations – COTA may place stops more closely together if the stops are in close proximity to concentrations of people with mobility limitations, elderly populations, or medical facilities;
- Nearby Destinations – COTA may place stops more closely than the guidelines call for if there are major trip-generating destinations such as employment centers; and

- Transfer Opportunities – COTA may place stops more closely together than recommended if it is necessary to do so in order to make transfers possible between multiple lines.

Bus Stop Inventory and ADA Improvements

The bus stop is the primary location where passengers interact with the transit service. Thus, it is important that COTA has an accurate and detailed information regarding the physical and service-related attributes of each bus stop in the system. Bus stops are inventoried with a handheld computer device that can collect several attributes of each bus stop, such as the presence of shelters and sidewalks, as well as GPS location and photographs.

One of the major goals of this bus stop inventory is to take stock of the pedestrian accessibility to each of COTA's bus stops, with particular attention paid to accessibility for persons with limited mobility and adherence to the standards put forth by the Americans with Disabilities Act (ADA). With the accessibility information gathered during the bus stop inventory process, COTA's long-term goal is to regularly pursue funding opportunities to improve bus stops and increase accessibility.

Title VI Adherence and Environmental Justice

Title VI

The objectives of the FTA Title VI program are as follows:

- To ensure FTA-assisted benefits and related services are equitably distributed without regard to race, color or national origin;
- To ensure that both the level and quality of transit services provide equal access and mobility for any person without regard to race, color or national origin;
- To prevent the denial, reduction, or delay in benefits related to programs and activities that benefit minority populations or low-income populations;
- To ensure that access to the planning and decision-making process is open and provided without regard to race, color or national origin;
- To ensure that decisions on the location of transit facilities and services are made without regard to race, color or national origin; and

- To ensure meaningful access to programs and activities by persons with limited English proficiency.

These objectives are the basis for the implementation of the FTA Title VI program. To comply with these objectives, COTA has adopted the suggested methodology and framework set forth in the Title VI reporting guidelines (FTA Circular 4702.1B) for compliance assessment.

In 2019, COTA submitted a new Title VI triennial report to FTA, which documented the results of this methodology and showed COTA's compliance with the Title VI regulations during 2016-2019. The next Title VI triennial report will be compiled in 2022 for 2019-2022.

Environmental Justice (EJ)

Although no formal report is required, FTA requires transit providers to incorporate environmental justice and non-discrimination principles into transportation planning and decision-making processes as well as environmental review for specific projects. The two primary classes considered are minorities and low-income populations.

Three main principles guide the EJ process:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations;

- To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process; and

  To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

EJ policy requires analysis of transit activities if a low-income and/or minority population is impacted by such activities. The analysis compares the impacts of low-income and minority populations to those of non-low-income and non-minority populations. COTA reviews the results of the analysis to guide decision makers in choosing alternative actions that reduce the difference in impacts between low-income and minority populations and non-low-income and non-minority populations.

Results of Service Monitoring

To properly monitor the characteristics of each line type, each line was broken into segments based upon its frequency and purpose. Five service categories exist:

1) Frequent segments and lines, that are classified as ridership allocation
2) 30 minute segments and lines that can be categorized as either ridership, coverage or if an entire line is 30 minute it can be mixed between the two,
3) 60 minute segments and lines, that are classified as coverage allocation
4) Rush Hour lines that are classified as coverage allocation
5) Special and seasonal service which include the Night Owl, Zoo Bus, OSU Air and AirConnect

	Characteristics of Service								Metrics	
									Ridership	Coverage
Service Category	Prevailing Purpose	All Day Frequency (min)	Min. Duration of All Day Frequency 7-days a week (hrs)	Min. Span of Weekday Service (hrs)	Min. Span of Saturday Service	Min. Duration of Sunday Service	On-time Performance (%)	Max. % of seated capacity at peak load periods	Boardings /Revenue Hour Average	% of pop + jobs within 1/4 mi.
Frequent	Ridership	15	14	18	17	15	73.5	120%	24.77	-
30-Minute	Mixed*	30	14	18	17	15	73.5	120%	13.99	-
60-Minute	Coverage	60	14	14	14	14	73.5	120%	9.81	53%
Rush Hour	Coverage	2 trips/peak						100%	10.96**	-

*30-Minute lines can be ridership or coverage

** Rush Hour uses total service hours instead of revenue

When service was designed for the Transit System Redesign in 2017, the lines and service were set to meet the minimum characteristics of service. Due to this, most of the lines meet these requirements. The few exceptions include:

- Line 12 McKinley/Fields not meeting the minimum span of Saturday and Sunday service. The weekend span doesn't meet the minimum characteristics because the primary function of the line 12 is to provide employees and operators travel between McKinley Garage, the COTA Administrative building and the Fields Garage. Once there are no more operator transfers there is no longer a need for the line 12 to continue running.
- Line 24 Hamilton has a segment south of Eastland Mall that only has seven round trips to Rickenbacker area during peak times. COTA plans to improve the frequency of this segment to 30 minutes all day once additional service hours are available.

On-time Performance

For on-time performance, COTA's 2020 target is 73.5% and goal is 75%. 22 of 29 of COTA's all-day service meets this target. Of the lines that did not meet 73.5%, three are special or seasonal service lines: NightOwl, Zoo Bus and OSU Air. The other lines that did not meet the 73.5% are line 9 W Mound/Brentnell,, line 22 OSU/Rickenbacker, CMAX and 102 Polaris Pkwy/N High. Those four lines all averaged between 69%-72%, just below the target. COTA's scheduling team adjusts schedules each service change/trimester to improve the on-time performance. These lines will be focused on for adjustments in 2020.

Loads

COTA's load standards are frequently checked to make sure that there are no trips that are exceeding the 120% for all-day and 100% loads for Rush Hour service. The information is compiled through customer comments, feedback and APC data. If a trip exceeds these load standards on a normal basis, schedule adjustments will be made or additional buses will be added to alleviate over-crowding.

Results of Metrics

The ridership metric for each service category is comparing that line segment's productivity to the average productivity across all lines in that service category. January 2019, May 2019 and September 2019 was used to conduct the analysis.

- For frequent segments and lines the average productivity is 24.77. All the frequent segments and lines are above 16.35 which is 2/3 of 24.77.
- For 30 minutes segments and lines the average productivity is 13.99. Line 7 Mt Vernon, line 10 E Broad and line 32 North Broadway have segments that fall below 9.23 which is 2/3 of 13.95. These three route's 30 minute segments should be considered for review.
    - Line 7 Mt Vernon operates frequent service from downtown to E 5th Ave and Cassidy Ave and then is 30 minute service to the airport and 30 minute service to Easton. It is believed that due to the length of the airport segment and lower ridership, the 30 minute line 7 segments have a productivity of 6.93. In comparison the frequent segment of line 7 has 25.35 productivity.
    - Line 10 E Broad operates frequent service to Mt Carmel East hospital. From Mt Carmel East hospital to The Limited it operates every 30 minutes. The 30 minute segment has a productivity of 7.17. In comparison the frequent segment of line 10 has productivity of 26.35.
    - Line 32 North Broadway operates 30 minute service from Kingsdale Shopping Center to Easton and 60 minute service from Kingsdale Shopping Center to Hilliard. The 30 minute segment has productivity of 9.14 which is just below 9.23.
- For 60 minute segments and lines the average productivity is 9.81. The line 32 N Broadway and the line 33 Henderson have segments that fall below 6.47 which is 2/3 of 9.81. Both of these route's 60 minute segments should be considered for review.
    - Line 32 North Broadway 60 minute segment also falls below the 60 minute standard with a productivity of 4.84. With both the 30 minute and 60 minute segments falling below the standard, this entire line should be considered for review.
    - Line 33 Henderson operates 30 minute service from N High St to Sawmill Rd & SR 161 and 60 minute service to Dublin Metro Place and to Sawmill Rd & Summer Dr. The 60 minute segments have a productivity of 5.84. In comparison the 30 minute segment of the line 33 has a productivity of 9.91
- For Rush Hour lines the productivity is 10.96. All the lines are at least 7.23 which is 2/3 of 10.96. The line 74 Smoky Row is the closest to the minimum of 7.23, with a productivity of 7.56.

The purpose of coverage lines are to ensure that COTA's network provides access to service to more than 50% of the taxing service area. In 2020, COTA's network provides access to 1.15

million population and jobs. The total number of jobs and population in the taxing service area is 2.187 million. The 1.15 million represents about 53% and exceeds the 50%. Due to this, at this time this warrants that the coverage service is meeting the needs of the service area.

Frequent		Characteristics of Service					Metrics	
Line #	Prevailing Purpose	All Day Frequency (min)	Min. Duration of All Day Frequency 7 days a week (hrs)	Min. Span of Weekday Service (Hrs)	Min. Span of Saturday Service	Min. Duration of Sunday Service	Boardings/ Revenue Hour Average	% compared to Average
		15	*14*	*18*	*17*	*15*	24.77	
1	Ridership	Y	Y	Y	Y	Y	27.37	110%
2	Ridership	Y	Y	Y	Y	Y	31.09	126%
5	Ridership	Y	Y	Y	Y	Y	18.45	74%
7	Ridership	Y	Y	Y	Y	Y	25.35	102%
8	Ridership	Y	Y	Y	Y	Y	17.00	69%
10	Ridership	Y	Y	Y	Y	Y	26.35	106%
23	Ridership	Y	Y	Y	Y	Y	17.17	69%
34	Ridership	Y	Y	Y	Y	Y	16.59	67%
101	Ridership	Y	Y	Y	Y	Y	27.07	109%
121	Ridership	Y	Y	Y	Y	Y	37.88	153%

30-Minute		Characteristics of Service					Metrics	
Line #	Prevailing Purpose	All Day Frequency (min)	Min. Duration of All Day Frequency 7 days a week (hrs)	Min. Span of Weekday Service (Hrs)	Min. Span of Saturday Service	Min. Duration of Sunday Service	Boardings/ Revenue Hour Average	% compared to Average
		30	*14*	*18*	*17*	*15*	13.99	
1	Ridership	Y	Y	Y	Y	Y	12.38	88%
2	Coverage	Y	Y	Y	Y	Y	11.69	84%
3	Mixed	Y	Y	Y	Y	Y	14.53	104%
4	Mixed	Y	Y	Y	Y	Y	13.72	98%
5	Mixed	Y	Y	Y	Y	Y	18.15	130%
6	Ridership	Y	Y	Y	Y	Y	19.28	138%
7	Coverage	Y	Y	Y	Y	Y	6.93	50%
8	Ridership	Y	Y	Y	Y	Y	16.41	117%
10	Coverage	Y	Y	Y	Y	Y	7.17	51%
12	Ridership	Y	Y	Y	N	N	16.36	117%
22	Mixed	Y	Y	Y	Y	Y	16.28	116%
24	Ridership	Y	Y	Y	Y	Y	16.47	118%
31	Ridership	Y	Y	Y	Y	Y	16.42	117%
32	Coverage	Y	Y	Y	Y	Y	9.14	65%
33	Coverage	Y	Y	Y	Y	Y	9.91	71%
101	Ridership	Y	Y	Y	Y	Y	9.91	71%
102	Mixed	Y	Y	Y	Y	Y	14.66	105%

60-Minute		Characteristics of Service					Metrics	
Line #	Prevailing Purpose	All Day Frequency (min)	Min. Duration of All Day Frequency 7 days a week (hrs)	Min. Span of Weekday Service (Hrs)	Min. Span of Saturday Service	Min. Duration of Sunday Service	Boardings/ Revenue Hour Average	% compared to Average
		60	*14*	*14*	*14*	*14*	9.81	
5	Coverage	Y	Y	Y	Y	Y	7.26	74%
9	Coverage	Y	Y	Y	Y	Y	12.78	130%
11	Coverage	Y	Y	Y	Y	Y	10.57	108%
21	Coverage	Y	Y	Y	Y	Y	8.36	85%
24	Coverage	N	N	N	N	N	6.89	70%
25	Coverage	Y	Y	Y	Y	Y	9.35	95%
32	Coverage	Y	Y	Y	Y	Y	4.84	49%
33	Coverage	Y	Y	Y	Y	Y	5.64	58%
35	Coverage	Y	Y	Y	Y	Y	9.76	99%

Rush Hour		Characteristics of Service	Metrics	
Line #	Prevailing Purpose	All Day Frequency (min)	Boardings/ Service Hour Average	% compared to Average
		2 trips/ peak	10.96	
13	Coverage	Y	8.91	81%
41	Coverage	Y	11.15	102%
42	Coverage	Y	8.62	79%
43	Coverage	Y	9.21	84%
44	Coverage	Y	8.75	80%
45	Coverage	Y	11.01	100%
46	Coverage	Y	9.59	87%
51	Coverage	Y	13.10	120%
52	Coverage	Y	13.83	126%
61	Coverage	Y	9.70	89%
71	Coverage	Y	10.76	98%
72	Coverage	Y	11.47	105%
73	Coverage	Y	12.64	115%
74	Coverage	Y	7.56	69%

Service Characteristics	
Line #	On-time Performance (%)
Target	>73.5%
1	75%
2	74%
3	74%
4	78%
5	76%
6	79%
7	75%
8	76%
9	72%
10	78%
11	76%
12	79%
21	85%
22	72%
23	80%
24	76%
25	75%
31	76%
32	78%
33	86%
34	81%
35	83%
101	72%
102	69%
121	76%
131	67%
141	53%
151	69%
152	75%

Special and Seasonal service		On-time Performance (%)	Boardings/ Revenue Hour Average
131	Special	67%	9.73
141	Seasonal	53%	7.59
151	Seasonal	69%	n/a
152	Special	75%	3.96

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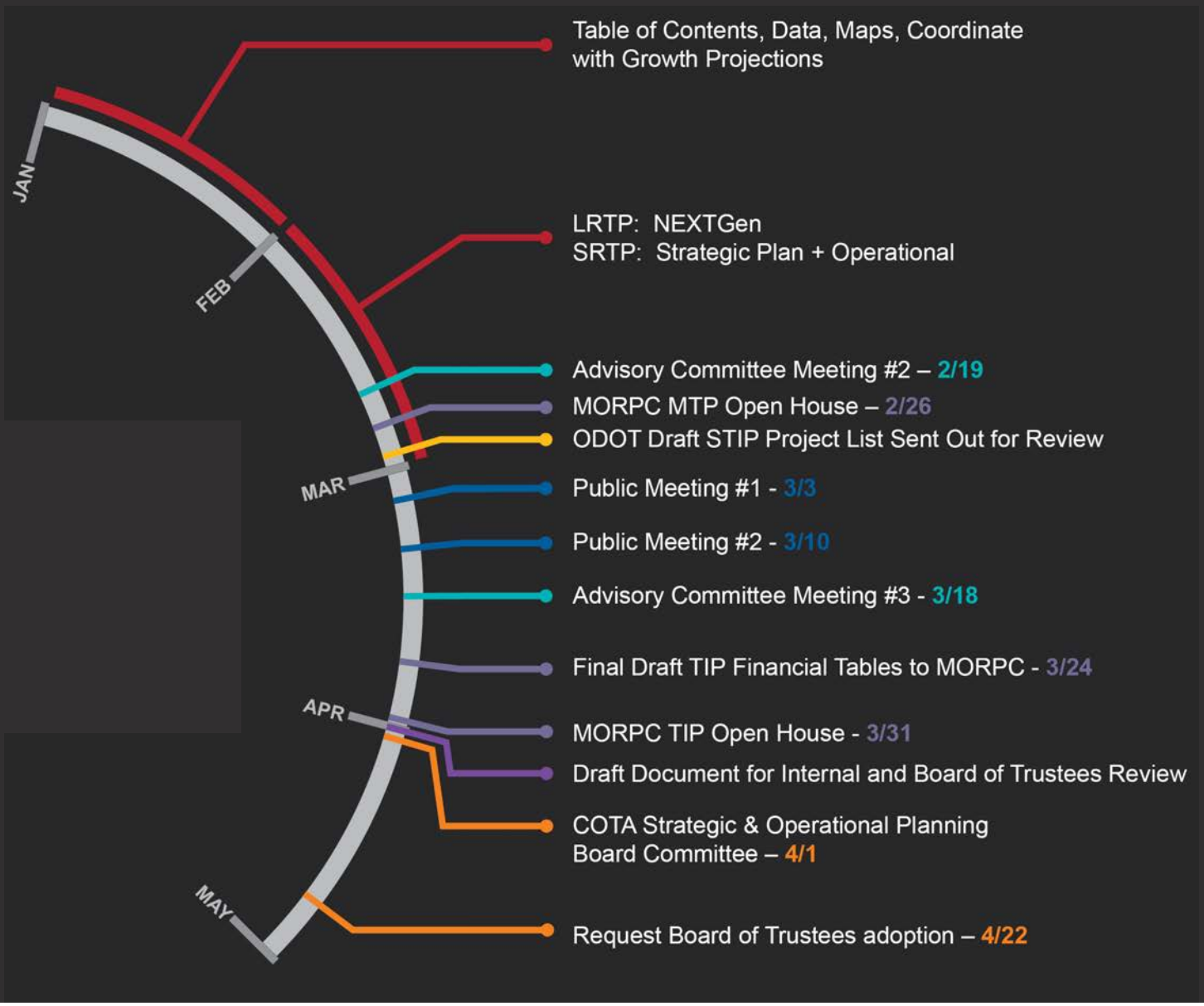
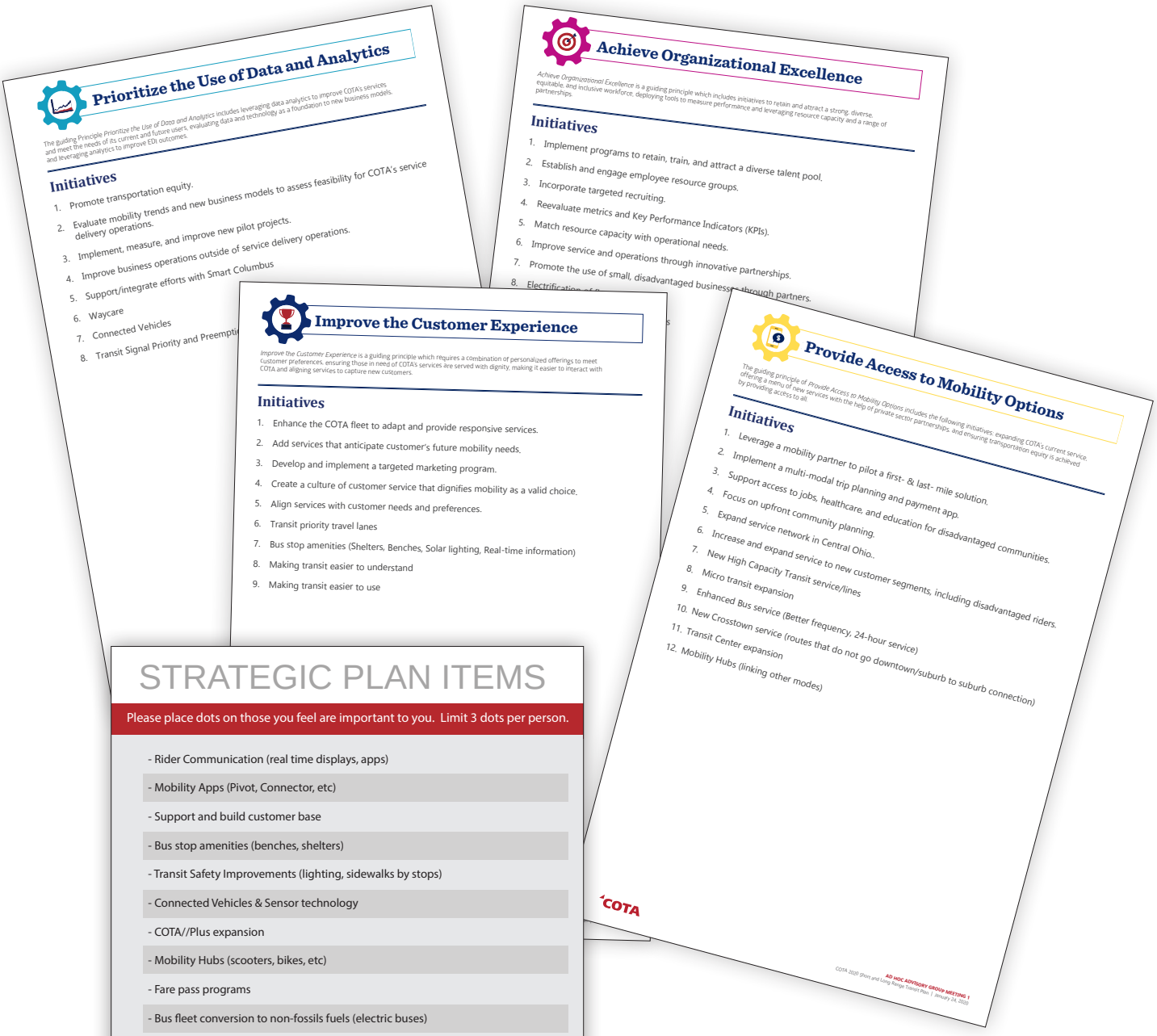
F. PUBLIC AND AD HOC MEETINGS

SLRTP + PUBLIC / AD HOC MEETING SCHEDULE



Meetings Materials



Prioritize the Use of Data and Analytics

The guiding Principle *Prioritize the Use of Data and Analytics* includes leveraging data analytics to improve COTA's services and meet the needs of its current and future users, evaluating data and technology as a foundation to new business models and leveraging analytics to improve EDI outcomes.

Initiatives

1. Promote transportation equity.
2. Evaluate mobility trends and new business models to assess feasibility for COTA's service delivery operations.
3. Implement, measure, and improve new pilot projects.
4. Improve business operations outside of service delivery operations.
5. Support/integrate efforts with Smart Columbus
6. Waycare
7. Connected Vehicles
8. Transit Signal Priority and Preempti

Achieve Organizational Excellence

Achieve Organizational Excellence is a guiding principle which includes initiatives to retain and attract a strong, diverse, equitable, and inclusive workforce, deploying tools to measure performance and leveraging resource capacity and a range of partnerships.

Initiatives

1. Implement programs to retain, train, and attract a diverse talent pool.
2. Establish and engage employee resource groups.
3. Incorporate targeted recruiting.
4. Reevaluate metrics and Key Performance Indicators (KPIs).
5. Match resource capacity with operational needs.
6. Improve service and operations through innovative partnerships.
7. Promote the use of small, disadvantaged business through partners.
8. Electrificatio

Improve the Customer Experience

Improve the Customer Experience is a guiding principle which requires a combination of personalized offerings to meet customer preferences, ensuring those in need of COTA's services are served with dignity, making it easier to interact with COTA and aligning services to capture new customers.

Initiatives

1. Enhance the COTA fleet to adapt and provide responsive services.
2. Add services that anticipate customer's future mobility needs.
3. Develop and implement a targeted marketing program.
4. Create a culture of customer service that dignifies mobility as a valid choice.
5. Align services with customer needs and preferences.
6. Transit priority travel lanes
7. Bus stop amenities (Shelters, Benches, Solar lighting, Real-time information)
8. Making transit easier to understand
9. Making transit easier to use

Provide Access to Mobility Options

The guiding principle of *Provide Access to Mobility Options* includes the following initiatives: expanding COTA's current service offering a menu of new services with the help of private sector partnerships, and ensuring transportation equity is achieved by providing access to all.

Initiatives

1. Leverage a mobility partner to pilot a first- & last- mile solution.
2. Implement a multi-modal trip planning and payment app.
3. Support access to jobs, healthcare, and education for disadvantaged communities.
4. Focus on upfront community planning.
5. Expand service network in Central Ohio..
6. Increase and expand service to new customer segments, including disadvantaged riders.
7. New High Capacity Transit service/lines
8. Micro transit expansion
9. Enhanced Bus service (Better frequency, 24-hour service)
10. New Crosstown service (routes that do not go downtown/suburb to suburb connection)
11. Transit Center expansion
12. Mobility Hubs (linking other modes)

COTA

AD HOC ADVISORY GROUP MEETING 1
COTA 2020 Short and Long Range Transit Plan | January 24, 2020

STRATEGIC PLAN ITEMS

Please place dots on those you feel are important to you. Limit 3 dots per person.

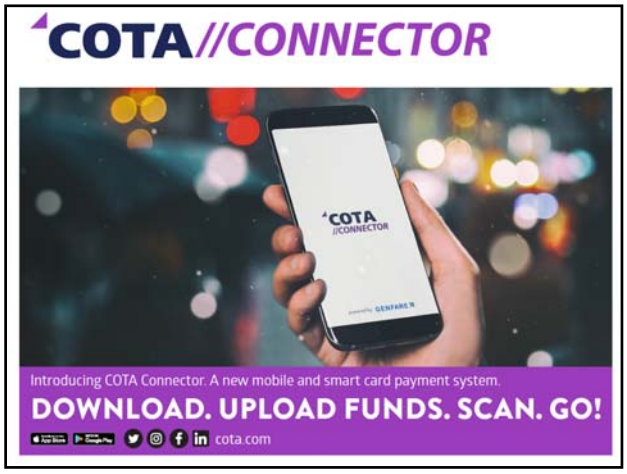
- Rider Communication (real time displays, apps)
- Mobility Apps (Pivot, Connector, etc)
- Support and build customer base
- Bus stop amenities (benches, shelters)
- Transit Safety Improvements (lighting, sidewalks by stops)
- Connected Vehicles & Sensor technology
- COTA//Plus expansion
- Mobility Hubs (scooters, bikes, etc)
- Fare pass programs
- Bus fleet conversion to non-fossils fuels (electric buses)
- Partnerships with other businesses
- Dedicates lanes for key corridors
- Service for special events (Bus it to the Buckeyes; Red, White & Boom)
- Key Performance Indicators on Reporting Dashboards
- Expanded High-Capacity Transit (Bus Rapid Transit, etc)
- Mobility Innovation Tests
- Creative funding streams

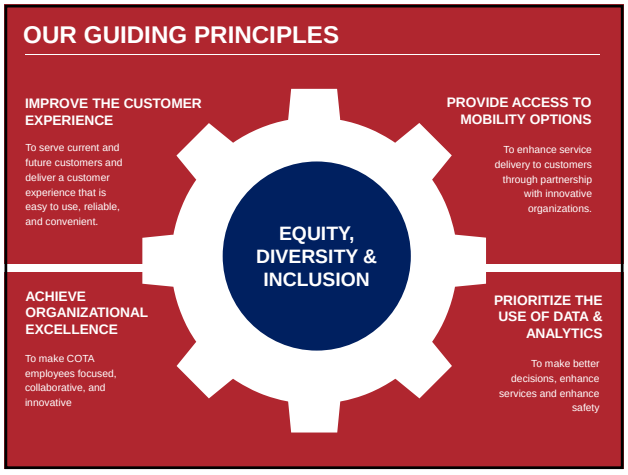
See something missing? Tell us on a comment card!

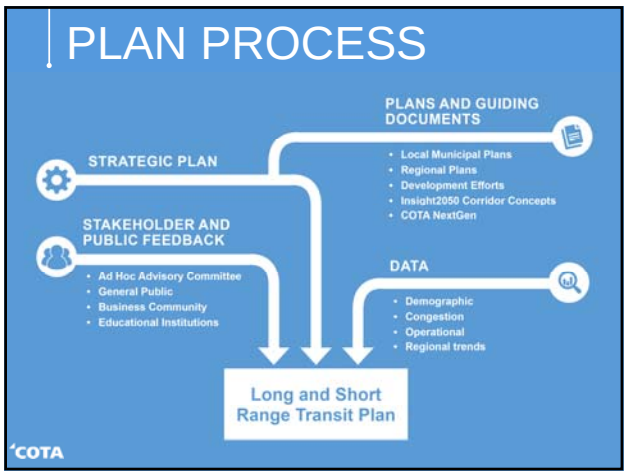
COTA

Mentimeter

Ad Hoc Meeting 1 (January 24, 2020)





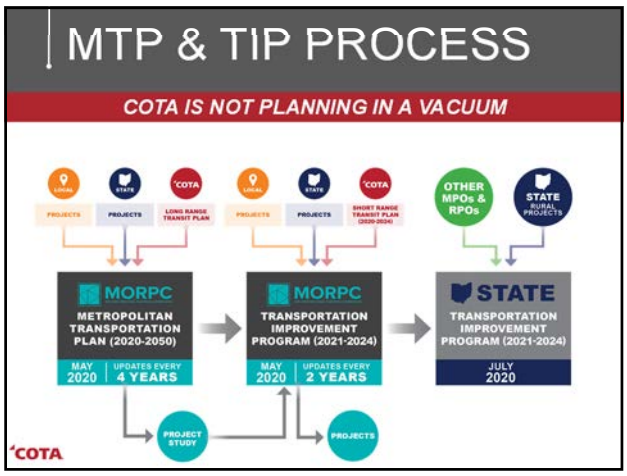


2020 BUDGET

Leverage COTA's resources to expend $170,059,975 in support of our vision

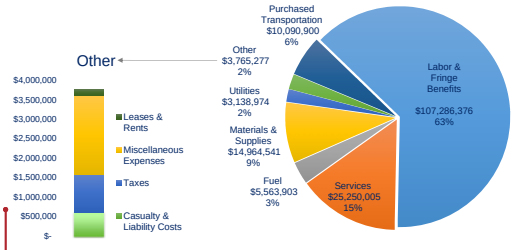
- Serve approximately 19.5 million passengers
- Provide over 1.24 million fixed route hours
- Improve the customer experience by adding buses and increasing bus frequency
- Expand COTA//PLUS services by providing approximately 55,000 hours of service
- Serve our Mainstream population by providing an estimated 210,000 of hours of service combined with 28,300 UZURV trips (direct, door-to-door service)
- Prepare the region for the future growth by allocating funds for three corridor developments

COTA



2020 BUDGET

Total Operating Expenses $170,059,975
(excludes depreciation and non-operating expense)



COTA

FINANCIAL PARAMETERS

COTA MOVING EVERY LIFE FORWARD

2020 REVENUE ESTIMATES

$163m in total estimated revenue

Sales Tax
$135.5M in estimated revenue
1% increase over 2019 actual revenue

Ridership / Passenger Fares
$19.3M in projected revenue
19,469,348 total passengers projected (target)

Other
$6.1M estimated

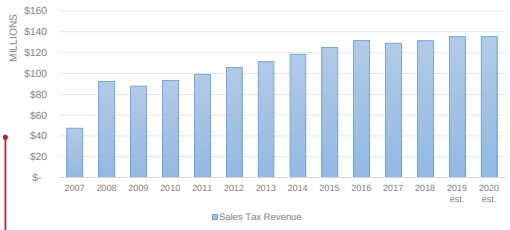
Grant Revenue
$1.6M estimated

State and Local Revenue
$675k in fuel tax reimbursement

COTA

SALES TAX REVENUE

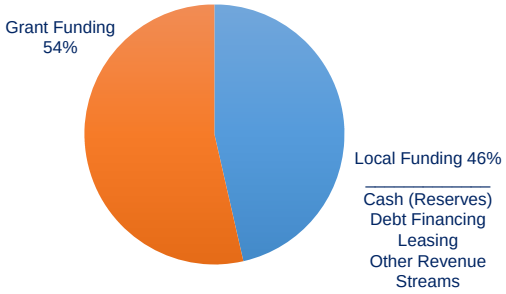
- Permanent .25% sales tax levy approved by voters in 1999
- Temporary .25% sales tax levy renewed by voters in November 2016
  - Duration: 10 years
  - First approved in November 2006



COTA

CAPITAL PROJECTS

2020 Capital and Non-Operating Funds $99M



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PASSENGER REVENUE

Full Fare
- $2.75 Express
- $2.00 Local
- $1.00 Senior, Key and Child (one-way)

Discount
- Period passes (1-day, 7-day, 31-day)

Partnerships
- C-pass
- Colleges/Universities

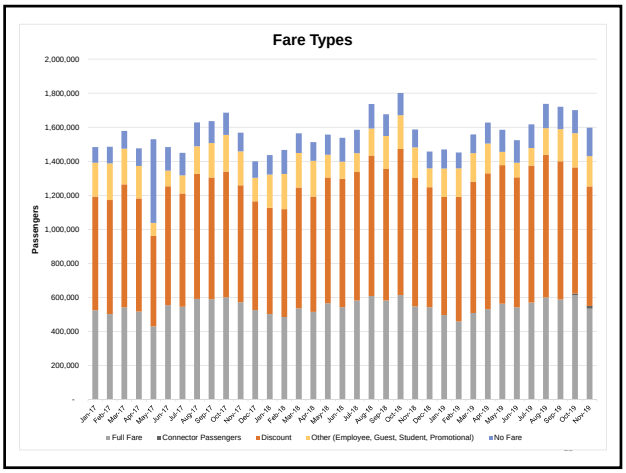
No Fare
- Veteran's Day
- Election Day
- Level 2 snow emergencies
- CBUS

COTA

PLAN DOCUMENT

COTA

MOVING EVERY LIFE FORWARD



REGIONAL POPULATION GROWTH

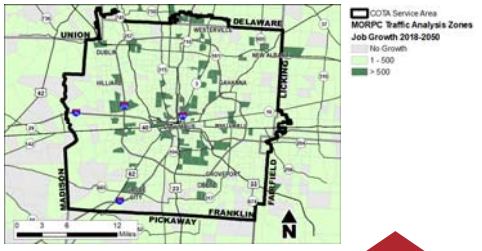
+250,000
ADDITIONAL RESIDENTS PREDICTED WITHIN ¼ MILE OF FIXED ROUTE SERVICE BY 2050

32%
POPULATION GROWTH PROJECTED 2018-2050

Source: MORPC

COTA

REGIONAL JOB GROWTH



65%
JOBS CURRENTLY WITHIN A ¼ MILE OF FIXED ROUTE SERVICE

30%
JOBS PROJECTED TO BE ADDED WITHIN SERVICE AREA BY 2050

Source: MORPC

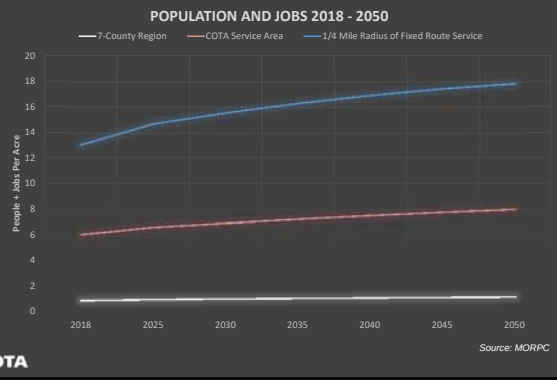
COTA

EXISTING SYSTEM

- Redesigned in **2017**
- Emphasis on **frequent service** along key corridors
- **100,000 more jobs** and **100,000 more residents** within ¼ mile (5-minute walk)
- **Increasing** ridership (1 of only 3 nationally)

COTA

REGIONAL GROWTH



Source: MORPC

COTA

HIGH CAPACITY TRANSIT

NEXTGEN

- ✓ MOVES MORE PEOPLE
- ✓ FASTER
- ✓ LESS PHYSICAL SPACE
- ✓ ATTRACTS NEW DEVELOPMENT
- ✓ FOCUSES GROWTH

14 corridors selected
from evaluation criteria

COTA

ZERO CAR HOUSEHOLDS

7.4%
OF HOUSEHOLDS IN FRANKLIN COUNTY
HAVE NO CAR

46%
OF HOUSEHOLDS IN FRANKLIN COUNTY
HAVE <2 VEHICLES

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Source: 2013-2017 American Community Survey

FREQUENT & STANDARD LINES

NEXTGEN

- Approximately **800,000 additional** fixed route service hours
- New **suburban job circulators**
- Additional **crosstown connections**
- Runs **more frequently** to **more places**
- **Increased service on Sundays**

COTA

RUSH HOUR COMMUTER LINES

NEXTGEN

- Helps ensure **residents can access jobs** and **employers can attract employees**
- New **suburb to suburb connections**
- New **connections to Rickenbacker area**

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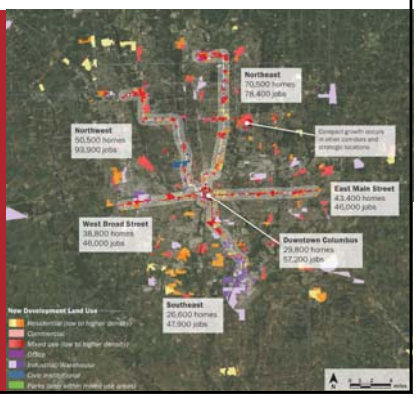
STRATEGIC PLAN GUIDING PRINCIPLES

Moving Every Life Forward

COTA

INSIGHT 2050 CORRIDOR CONCEPTS

- Five corridors studied
- Robust stakeholder engagement



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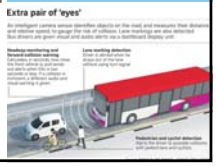
GROUP EXERCISE

COTA

TECHNOLOGY & INNOVATION

- COTA Plus / Mobility on Demand
- Mobility Innovation Tests
- Electric Buses
- Smart Columbus coordination
- Waycare AI / Predicative Analytics

pivot



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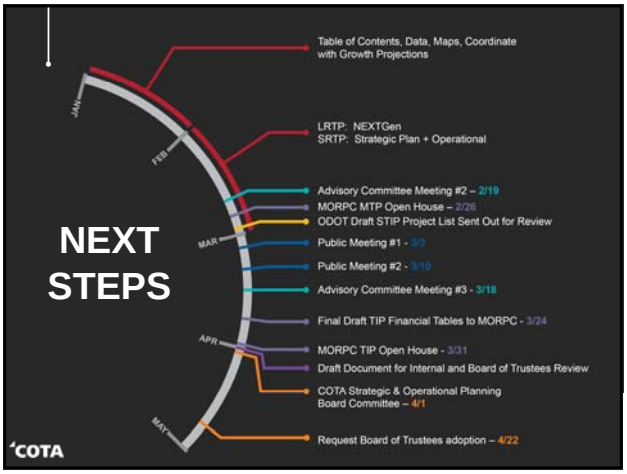
NEXT STEPS



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FOLLOW
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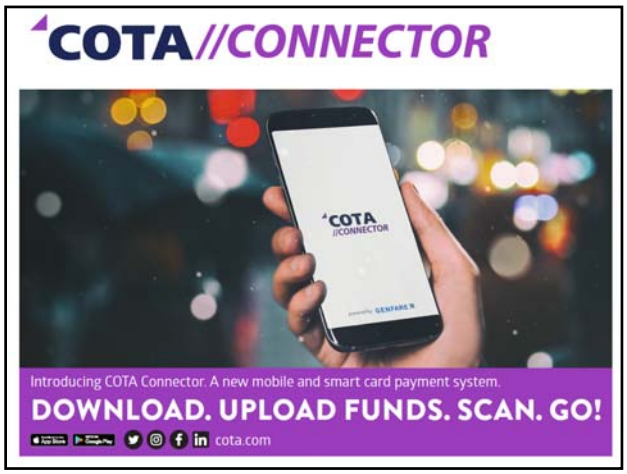
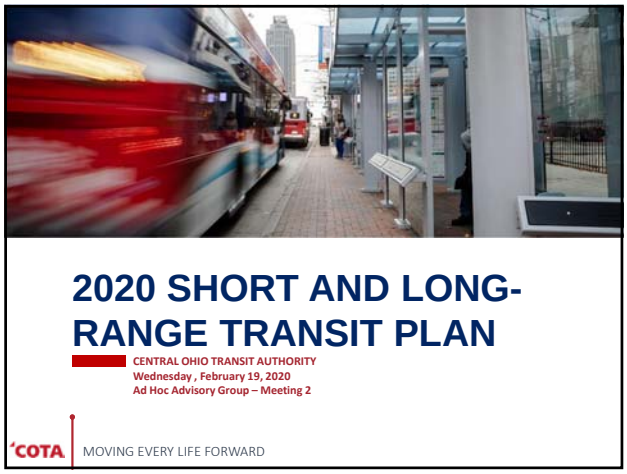
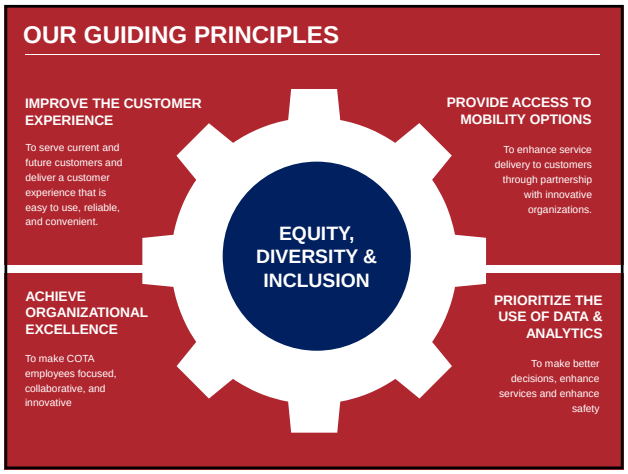
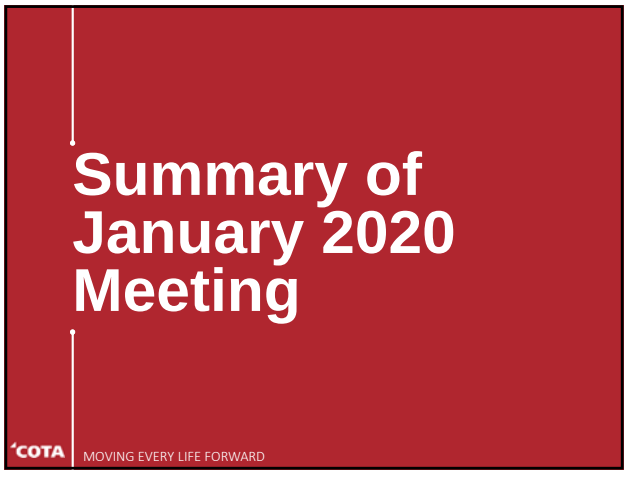
MOVING EVERY LIFE FORWARD

Ad Hoc Meeting 2 (February 19, 2020)









SUMMARY

Agenda Items

- 35 Attendees
- Overview of Financing
- Today and Future Challenges

Group Exercise

- Long Term Initiative Suggestions
- Implementation Suggestions

COTA

GROUP EXERCISE FINDINGS

Prioritize the Use of Data and Analytics

IDEAS	ACTIONS
• Public dashboard • Public private partnerships • Understand current state of data • Connected vehicles • More signal priority and preemption	• Cross-sharing data (Uber, Lyft, delivery services) • Using data to gain customer feedback, support transit initiatives, and understand rider behavior to identify the opportunities and shortcomings • AI for modeling behavior

COTA

GROUP EXERCISE FINDINGS

Improve the Customer Experience

IDEAS	ACTIONS
• Partnerships with employers, public agencies, and institutions • Improvements to the bus system (shelter amenities, less stops, color bus lane) • Negotiate with City for event management • Improvements to buses • Targeted marking program for use	• Bus stop standardization through cost sharing • More rider amenities at bus stops, on buses, and on mobile devices • Travel training for users • Infrastructure improvements (pedestrian) • Ambassador program • Multi-modal bike share/ scooter share • Branding/ Marketing • Partner with City and ODOT • Placemaking

COTA

GROUP EXERCISE FINDINGS

Achieve Organizational Excellence

IDEAS	ACTIONS
• Swift-like data repository • Invest around regional priorities, rather than COTA operations • Mobility Centers/ TOD led by COTA • Link outcomes to regional/ external goals • Board member listening tours • Private investment in electric infrastructure	• Coordinate with County Engineer, city engineers, and ODOT • Diversity • Benchmarking • Electrification • Highlight Money Saving Programs/ Impacts/ Efficiencies • Mindset of mobility integration • Across-the-Line approach (beyond Franklin County) • Indices and Best Practices

COTA

GROUP EXERCISE FINDINGS

Provide Access to Mobility Options

IDEAS	ACTIONS
• Invest in priority, high capacity, and density corridors • Develop regional funding programs • More internal and external policy involvement • Service expansion • Microtransit pilots and expansion • Transit center and mobility hub expansion	• Cooperation with regional transportation providers and jurisdictions • Accessibility and reliability (disabled, parental/ childcare, and daily needs) • COTA involvement in planning & policy decisions • Infrastructure improvements • Open data/sharing • Boost permanent revenues • Bus system efficiencies • Coordinate MAAS program • Upfront community planning involvement

COTA

EXAMPLE PERFORMANCE MEASURES

COTA MOVING EVERY LIFE FORWARD

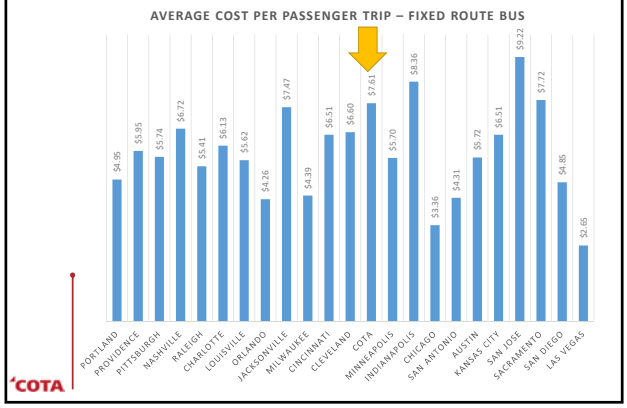
PERFORMANCE MEASURES

2019 Report Card

METRIC	TARGET	GOAL	ACTUAL	2018 - 19
On-Time Performance	72.5%	75%	**75.46%**	**+0.67%**
Customer Satisfaction *Complaints per 100,000 passengers*	4,184	4,100	**4,180**	**-23**
Service Reliability *Miles Between Service Interrupting Road Calls*	5,500	6,000	**4,962**	**+835**
Safe Operations (Accidents) *# of Preventable Accidents per 100,000 miles*	1.45	1.25	**1.23**	**+0.05**
Safe Operations (Injuries) *Reported Injuries per 200,000 Hours Worked*	4.0	3.5	**3.57**	**+1.09**
Ridership (Productivity) *Passengers per hour*	15.73	15.91	**15.55**	**+0.18**

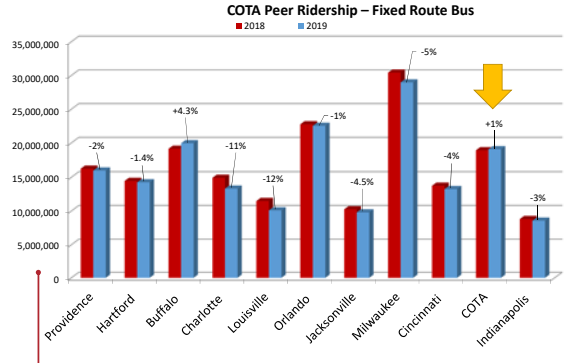
COTA

PERFORMANCE MEASURES



COTA

PERFORMANCE MEASURES



COTA

SERVICE OFFERINGS

Average Cost Per Passenger Trip (2018)

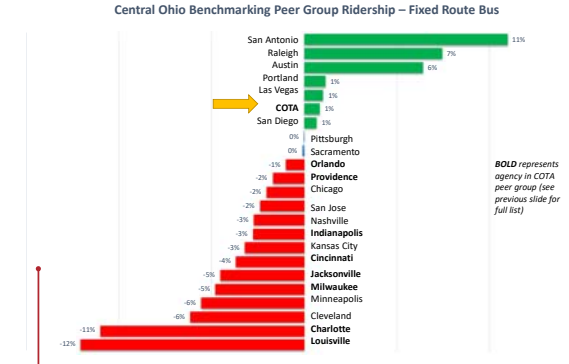
COTA services have different costs and different purposes

COTA FIXED ROUTE BUS
$7.61

COTA PARATRANSIT
$34.96

COTA

PERFORMANCE MEASURES



COTA

FIXED ROUTE COST

Fixed Route Bus Cost Per Passenger Trip (2018)

URBAN VERSUS SUBURBAN CONTEXT

COTA Line 2 N High/E Main
$4.57

COTA Line 21 Hilliard Rome
$18.88

COTA

TIP FINANCIAL ANALYSIS

COTA MOVING EVERY LIFE FORWARD

TIP FINANCIAL ANALYSIS

Five-Year Plan 2020-2024

Revenue Estimates – Conservative Approach

- Passenger Revenues
  - No change in fare structure
  - 1% growth in passenger revenue annually
- Sales Tax
  - 2.75% annual growth
    - Previous 10 year annual growth 4.4% (average)
- Average $171.7 million in operating revenue annually between 2020 and 2024

COTA

TIP FINANCIAL ANALYSIS

- Five-Year Plan 2020 – 2024
  - Revenue
  - Expenditures
  - Capital
- Priority Projects
- Discussion on other funding sources

COTA

TIP FINANCIAL ANALYSIS

Five-Year Plan 2020-2024

Expense Estimates

- 2.5% growth annually in all aspects
- Adjusted for known expenses in 2020 budget that aren't likely to be recurring
- Incorporated expenses associated with provision of additional services

Operating Revenues vs. Expenses

Reflects that from an operating standpoint, we are spending more than the revenue we are bringing in

- Healthy levels of reserve allow this to occur in the short-term

COTA

TIP FINANCIAL ANALYSIS

FIVE-YEAR PLAN
2020-2024

- **Revenue**
- **Expenses**

	Budget 2020	Projected 2021	Projected 2022	Projected 2023	Projected 2024
Fixed Route Service Hours	1,244,509	1,244,509	1,244,509	1,244,509	1,244,509
Passengers	19,469,348	19,566,695	19,664,528	19,762,851	19,861,665
Sources					
Sales Tax	$ 135,478,503	$ 139,204,162	$ 143,032,276	$ 146,965,664	$ 151,007,220
Passenger Revenue	$ 19,296,566	$ 19,489,532	$ 19,684,427	$ 19,881,271	$ 20,080,084
Non-Operating Revenue	$ 2,530,868	$ 2,600,467	$ 2,671,980	$ 2,745,459	$ 2,820,959
Federal Assistance	$ 1,574,404	$ 1,617,700	$ 1,662,187	$ 1,707,897	$ 1,754,864
State & Local Assistance	$ 674,633	$ 693,185	$ 712,248	$ 731,835	$ 751,960
Investment Income	$ 3,600,000	$ 3,699,000	$ 3,800,723	$ 3,905,242	$ 4,012,637
TOTAL SOURCES	$ 163,154,974	$ 167,304,046	$ 171,563,840	$ 175,937,368	$ 180,427,724
Uses					
Labor	$ 78,076,191	$ 80,028,096	$ 82,028,798	$ 84,079,518	$ 86,181,506
Fringe Benefits	$ 29,210,185	$ 29,940,440	$ 30,688,951	$ 31,456,174	$ 32,242,579
Materials & Supplies	$ 14,964,541	$ 15,338,655	$ 15,722,121	$ 16,115,174	$ 16,518,053
Fuel	$ 5,563,903	$ 5,703,001	$ 5,845,576	$ 5,991,715	$ 6,141,508
Purchased Transportation (Paratransit)	$ 10,090,900	$ 10,343,173	$ 10,601,752	$ 10,866,796	$ 11,138,465
Services	$ 25,250,005	$ 25,881,255	$ 23,528,287	$ 24,116,494	$ 24,719,406
Utilities, Taxes, Leases & Rents	$ 4,285,440	$ 4,392,576	$ 4,502,390	$ 4,614,950	$ 4,730,324
Miscellaneous	$ 2,618,811	$ 2,684,281	$ 2,751,388	$ 2,820,173	$ 2,890,677
Debt Service	$ 800,000	$ 2,060,000	$ 3,360,000	$ 3,360,000	$ 3,360,000
TOTAL USES	$ 170,859,976	$ 176,371,475	$ 179,029,262	$ 183,420,994	$ 187,922,519
NET (OPERATIONS)	$ (7,705,002)	$ (9,067,430)	$ (7,465,422)	$ (7,483,625)	$ (7,494,795)
Local Capital Requirement	$ (35,916,850)	$ (15,012,240)	$ (11,773,380)	$ (10,381,600)	$ (11,126,800)
ENDING CASH BALANCE	$ 135,173,156	$ 111,093,486	$ 91,854,685	$ 73,989,459	$ 55,367,864

COTA

TIP FINANCIAL ANALYSIS

Five-Year Plan 2020-2024

Capital

- COTA team evaluated comprehensive listing of capital projects; prioritized projects
- Likely sources of revenue (i.e. grant funding) to offset expenses were identified, including debt financing
- Determined likely local funds needed for projects
- Incorporated highest priority projects into financial model
  - Total cost over five-years $266.5 million
  - Total local fund needed $84.2 million (average of 32% of projects funded by COTA)
  - Healthy levels of reserve allow this to occur in the short-term

COTA

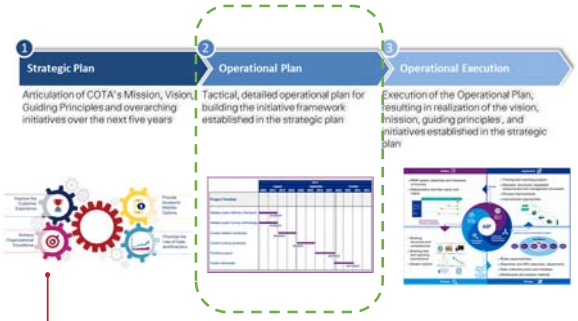
TIP FINANCIAL ANALYSIS

FIVE-YEAR PLAN
2020-2024
Capital Projects

Uses
Fixed Route & Paratransit Vehicles
COTA//Plus Expansion (incl. Vehicles)
Non-Revenue Support Vehicles
IT Hardware/Software
Facility & Equipment Replacements & Upgrades
Land Acquisition
COTA Facility Renovations/Improvements
Rickenbacker Transit Center
Bus Rapid Transit (Corridor Developments & Improvement
Transit Center & Shelter Improvements
Electric Charging Stations
Park & Ride Construction & Improvements

COTA

OPERATIONALIZING THE STRATEGIC PLAN



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STRATEGIC PLAN INITIATIVES

COTA MOVING EVERY LIFE FORWARD

OPERATIONAL EXECUTION & SHORT RANGE PLAN

2020 SHORT AND LONG-RANGE TRANSIT PLAN

COTA

STRATEGIC PLAN GUIDING PRINCIPLES

COTA

PRIORITIZED ROADMAP

		Starting Soon	Up Next	Revisit Later	Guiding Principles	SRP	LRP
People + Culture First	System Integration					✓	
	Customer Accessibility						✓
	Customer Communication					✓	
	Transit Safety					✓	
	Leverage Assets						
Mobility as a Benefit	Employee Benefits						
	Corporate Communication						
	Operator Scheduling					✓	
	Employee Training						
Diversify Service Portfolio	Fleet Conversion						
	Fleet Optimization						✓
	Fleet Supply Chain						
Demystify Transit	Mobility App						
	Strategic Plan Fundamentals					✓	
	Sustainability						
	Data Governance						
	Partnerships						
Expand Capacity of Mass Transit	Dedicated Bus Lanes						✓
	Long Range Planning						

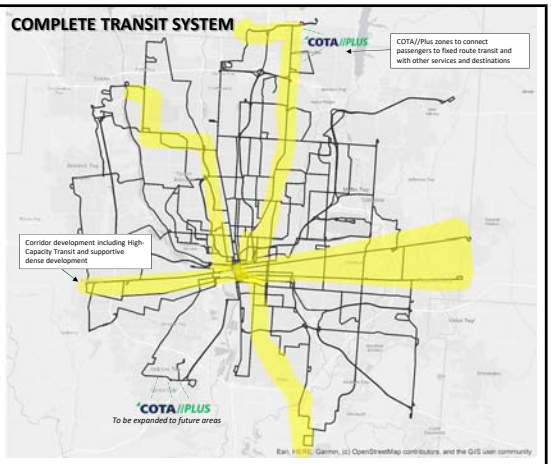
Illustrative

COTA

CORRIDOR STUDIES

COTA

COMPLETE TRANSIT SYSTEM



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HIGH CAPACITY TRANSIT NEXTGEN

- ✓ MOVES MORE PEOPLE
- ✓ FASTER
- ✓ LESS PHYSICAL SPACE
- ✓ ATTRACTS NEW DEVELOPMENT
- ✓ FOCUSES GROWTH

14 corridors selected
from evaluation criteria

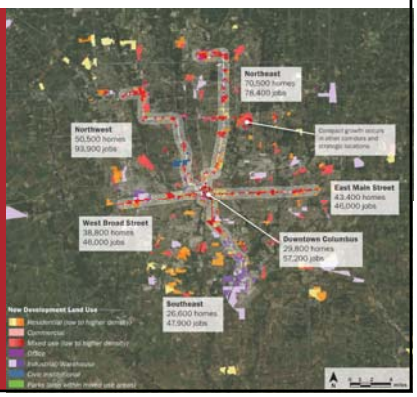
COTA

CURRENT EFFORTS

- **Led by City of Columbus**
- **Partnering with COTA, OSU, and MORPC**

INSIGHT 2050 CORRIDOR CONCEPTS

- Five corridors studied
- Robust stakeholder engagement



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UPCOMING EFFORTS

COTA is heading up the East/West Corridor Initiative with the help of several partners (i.e. City of Columbus, MORPC, Franklin County)

COTA

Discussion on Corridor Framework Strategy

Join the conversation on **Mentimeter** using your smart phone.

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COTA MOVING EVERY LIFE FORWARD

COMPREHENSIVE BRANDING

Many Partnerships Involved

WE'RE A TEAM

COTA

1

What is the right language to communicate with our community about density and the potential of these corridors?

COTA

NEXT STEPS

- Table of Contents, Data, Maps, Coordinate with Growth Projections
- LRTP: NEXTGen
  SRTP: Strategic Plan + Operational
- Advisory Committee Meeting #2 – 2/19
- MORPC MTP Open House – 2/26
- ODOT Draft STIP Project List Sent Out for Review
- Public Meeting #1 - 3/3
- Public Meeting #2 - 3/10
- Advisory Committee Meeting #3 - 3/18
- Final Draft TIP Financial Tables to MORPC - 3/24
- MORPC TIP Open House - 3/31
- Draft Document for Internal and Board of Trustees Review
- COTA Strategic & Operational Planning Board Committee – 4/1
- Request Board of Trustees adoption – 4/22

COTA

2

What is the value proposition that corridor development brings to the Columbus Region? What are the key benefits?

COTA

Public Meetings (March 3 & 10, 2020)

SHORT & LONG-RANGE TRANSIT PLAN

CENTRAL OHIO TRANSIT AUTHORITY
March 3 & 10, 2020
Public Comment Meeting

COTA MOVING EVERY LIFE FORWARD

OUR MISSION

WE PROVIDE SOLUTIONS
that connect people to PROSPERITY
THROUGH INNOVATION, DEDICATION AND TEAMWORK

MEETING PURPOSE AND AGENDA

Thank you for joining us and participating in this community discussion.

The purpose of this meeting is to provide information about COTA's Combined 2020-2024 Short-Range Transit Plan (SRTP) & 2050-Long Range Transit Plan (LRTP).

Meeting Agenda

1. Brief Presentation
2. Open House – Poster Boards and access to COTA staff for questions and comments.

COTA

OUR GUIDING PRINCIPLES

IMPROVE THE CUSTOMER EXPERIENCE
To serve current and future customers and deliver a customer experience that is easy to use, reliable, and convenient.

PROVIDE ACCESS TO MOBILITY OPTIONS
To enhance service delivery to customers through partnership with innovative organizations.

EQUITY, DIVERSITY & INCLUSION

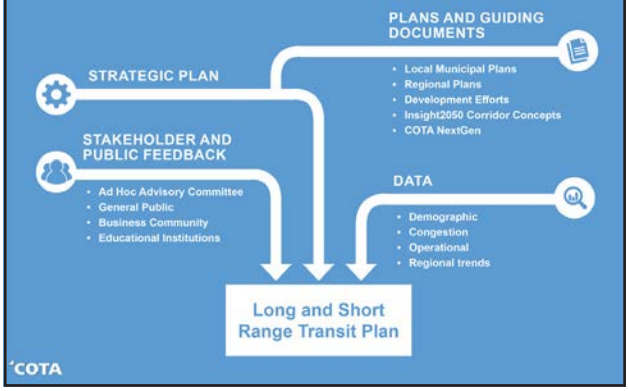
ACHIEVE ORGANIZATIONAL EXCELLENCE
To make COTA employees focused, collaborative, and innovative

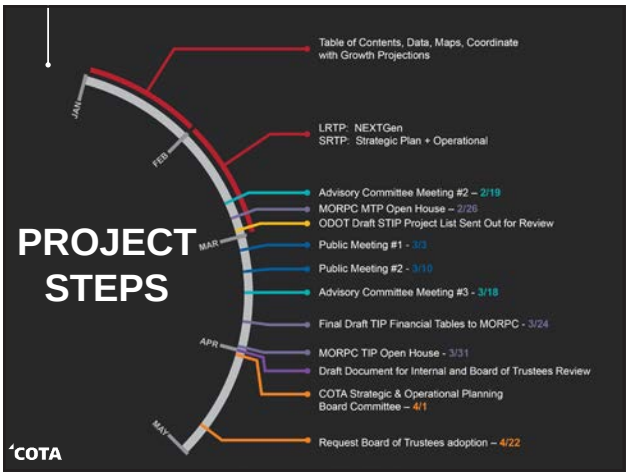
PRIORITIZE THE USE OF DATA & ANALYTICS
To make better decisions, enhance services and enhance safety

OUR VISION

TO MOVE
EVERY LIFE FORWARD

PLAN PROCESS





INITIATIVES

FIVE-YEAR PLAN
2020-2024

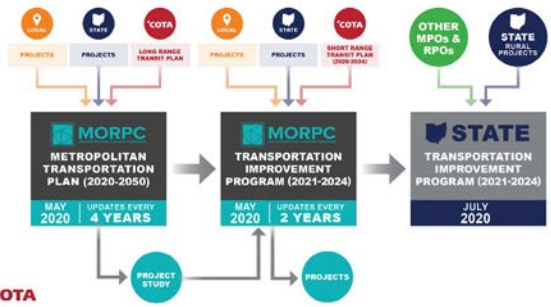
Capital Projects

- Fixed-Route & Paratransit Vehicles
- COTA//Plus Expansion (including vehicles)
- Non-Revenue Support Vehicles
- Hardware/Software Upgrades
- Equipment Replacement & Upgrades
- Land Acquisition
- COTA Transit Depot Renovations & Improvements
- Bus Rapid Transit Corridor Development & Implementation
- Transit & Mobility Center Improvements
- Transit Stop Improvements (Shelters, benches, etc.)
- Electric Charging Stations
- Park & Ride Construction & Improvements

COTA

MTP & TIP PROCESS

COTA IS NOT PLANNING IN A VACUUM



COTA

TRANSIT STOP IMPROVEMENTS

Transit Stop Shelter

Semme-Seat Bench

COTA

PLANNED COTA FACILITIES

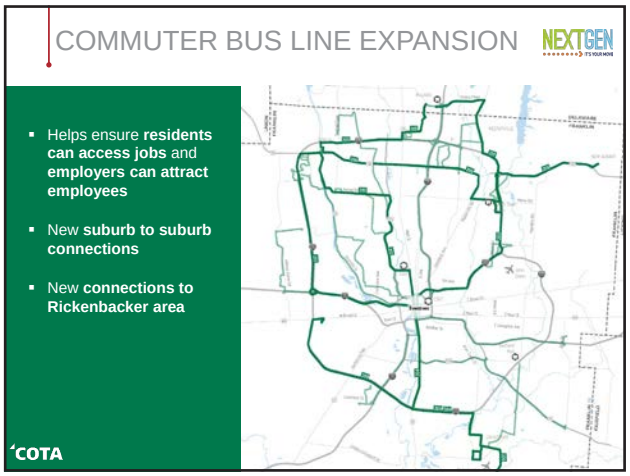
CNG Fueling at Fields Transit Garage

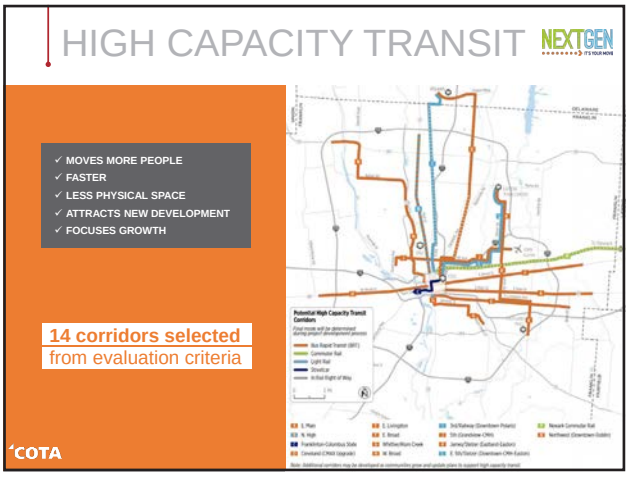
Bus Operator Restrooms at Reynoldsburg Park & Ride

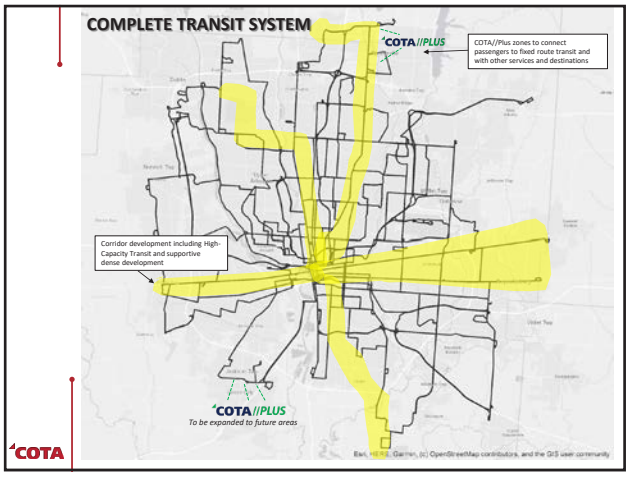
McKinley Garage & Office Modernization

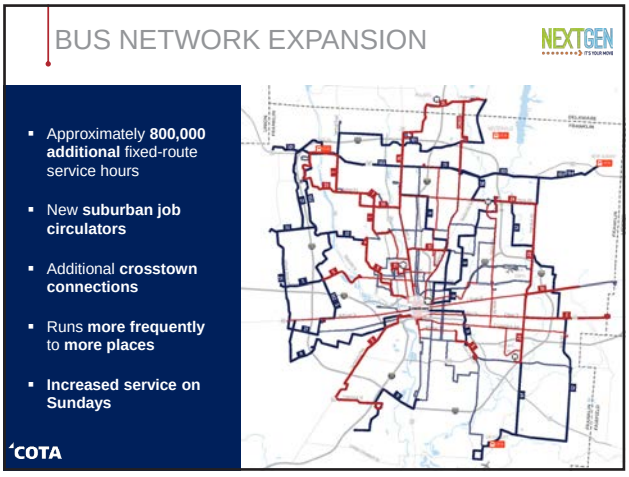
COTA

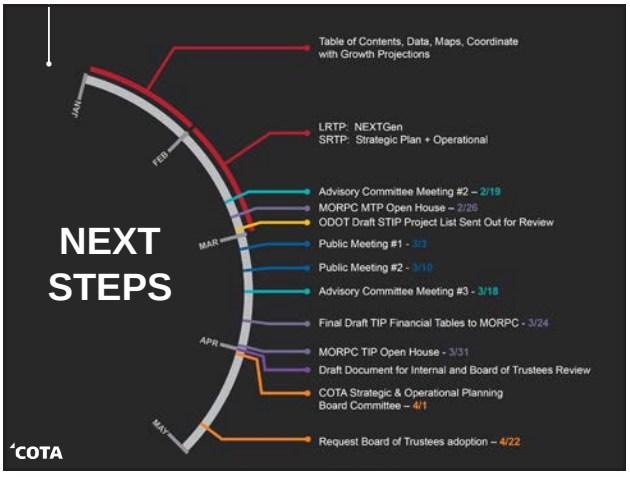

LONG-RANGE
TRANSIT PLAN
INITIATIVES
COTA


COMMUTER BUS LINE EXPANSION
NEXTGEN
Helps ensure residents can access jobs and employers can attract employees
New suburb to suburb connections
New connections to Rickenbacker area
COTA


HIGH CAPACITY TRANSIT
NEXTGEN
✓ MOVES MORE PEOPLE
✓ FASTER
✓ LESS PHYSICAL SPACE
✓ ATTRACTS NEW DEVELOPMENT
✓ FOCUSES GROWTH
14 corridors selected
from evaluation criteria
COTA


COMPLETE TRANSIT SYSTEM
COTA//PLUS
COTA//Plus zones to connect passengers to fixed route transit and with other services and destinations
Corridor development including High-Capacity Transit and supportive dense development
COTA//PLUS
To be expanded to future areas
COTA


BUS NETWORK EXPANSION
NEXTGEN
Approximately 800,000 additional fixed-route service hours
New suburban job circulators
Additional crosstown connections
Runs more frequently to more places
Increased service on Sundays
COTA


NEXT
STEPS
JAN
FEB
MAR
APR
MAY
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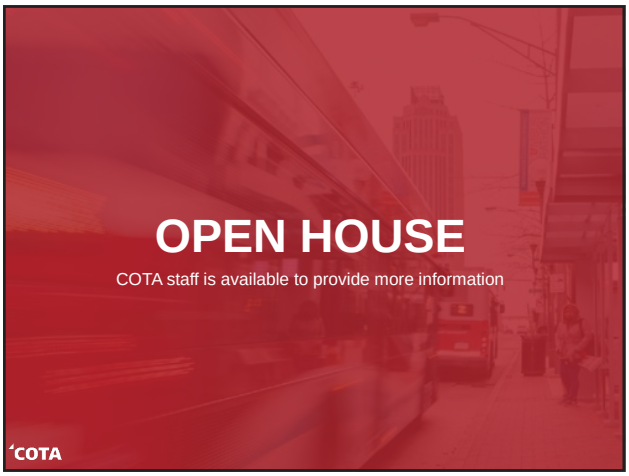
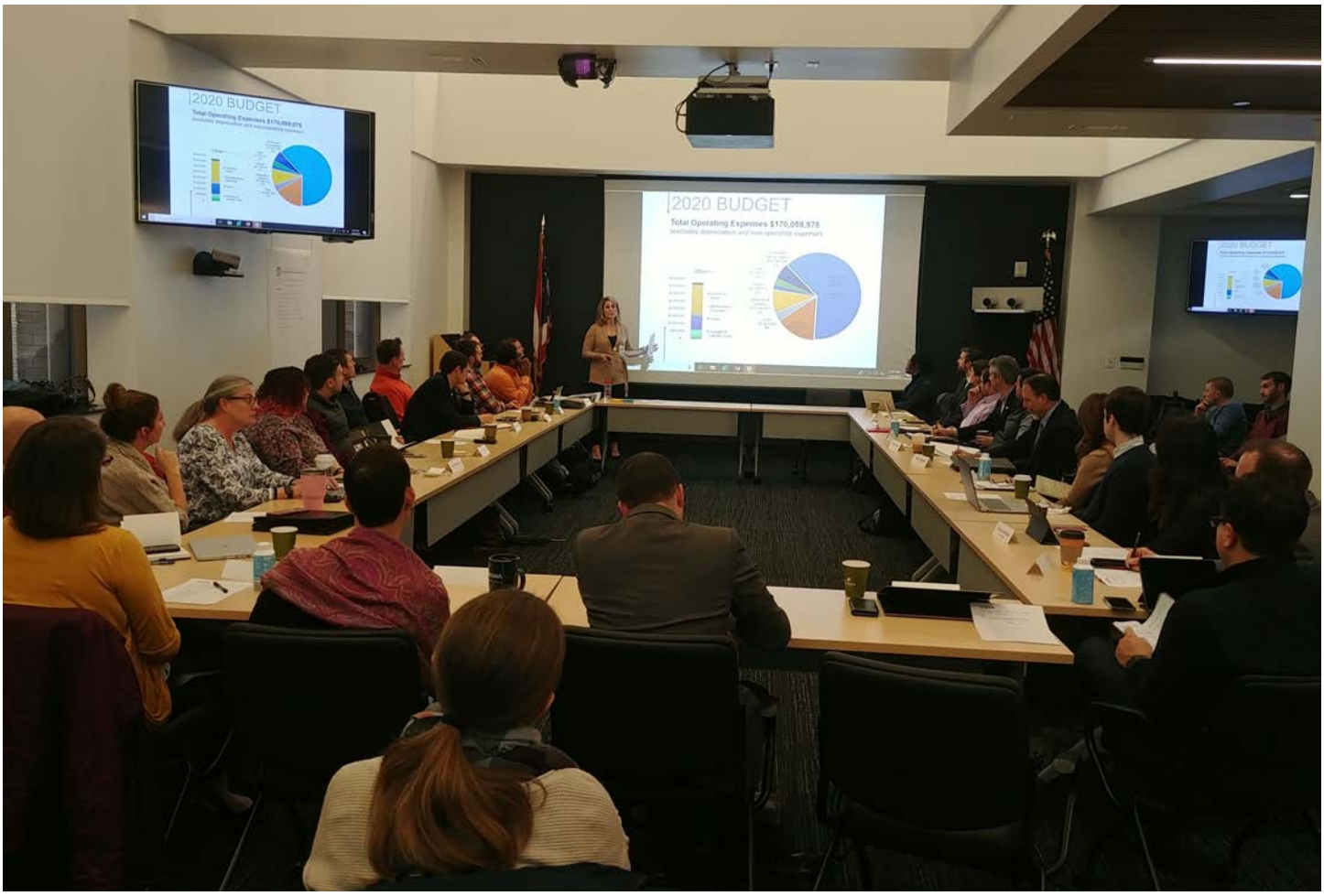
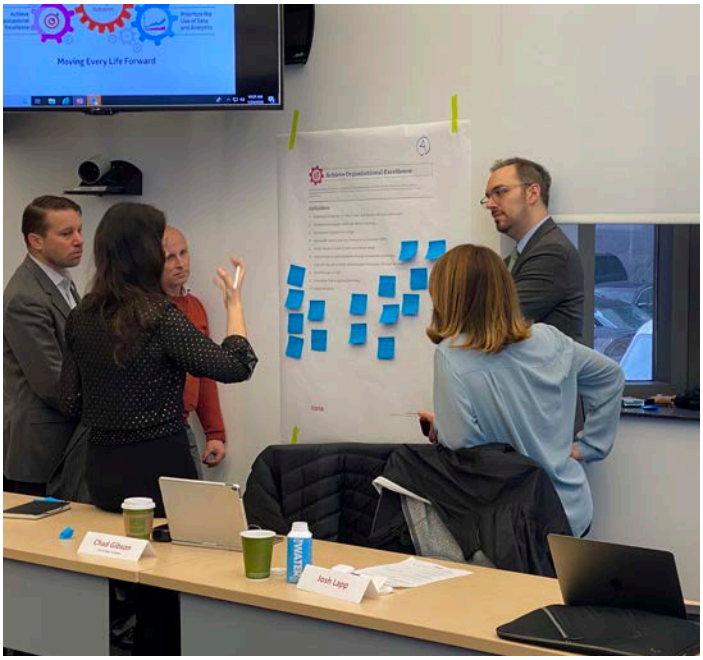
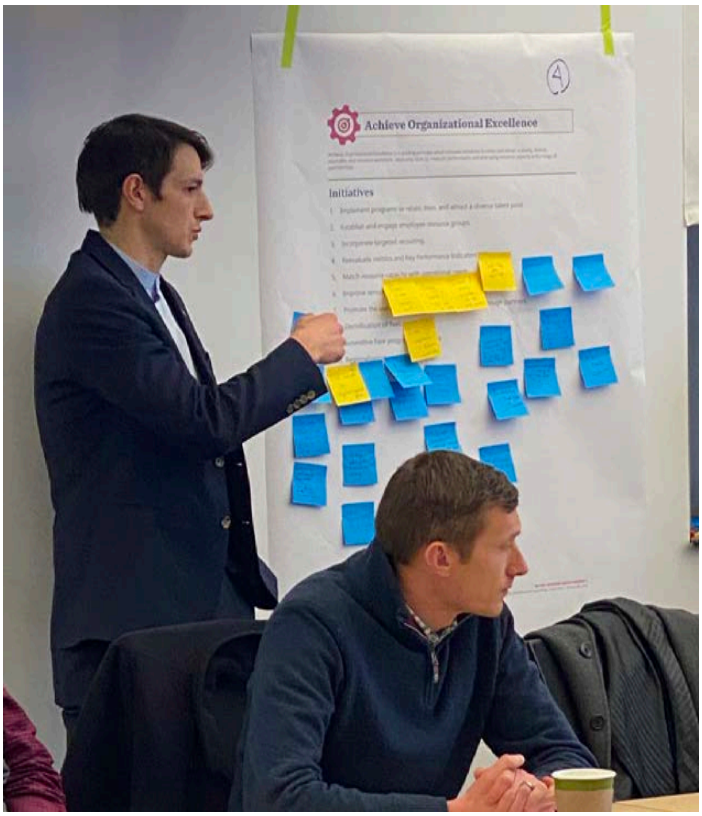

OPEN HOUSE
COTA staff is available to provide more information
COTA


FOLLOW COTA
COTA.com
COTA
MOVING EVERY LIFE FORWARD


2020 BUDGET
2020 BUDGET
Total Operating Expenses $170,059,975

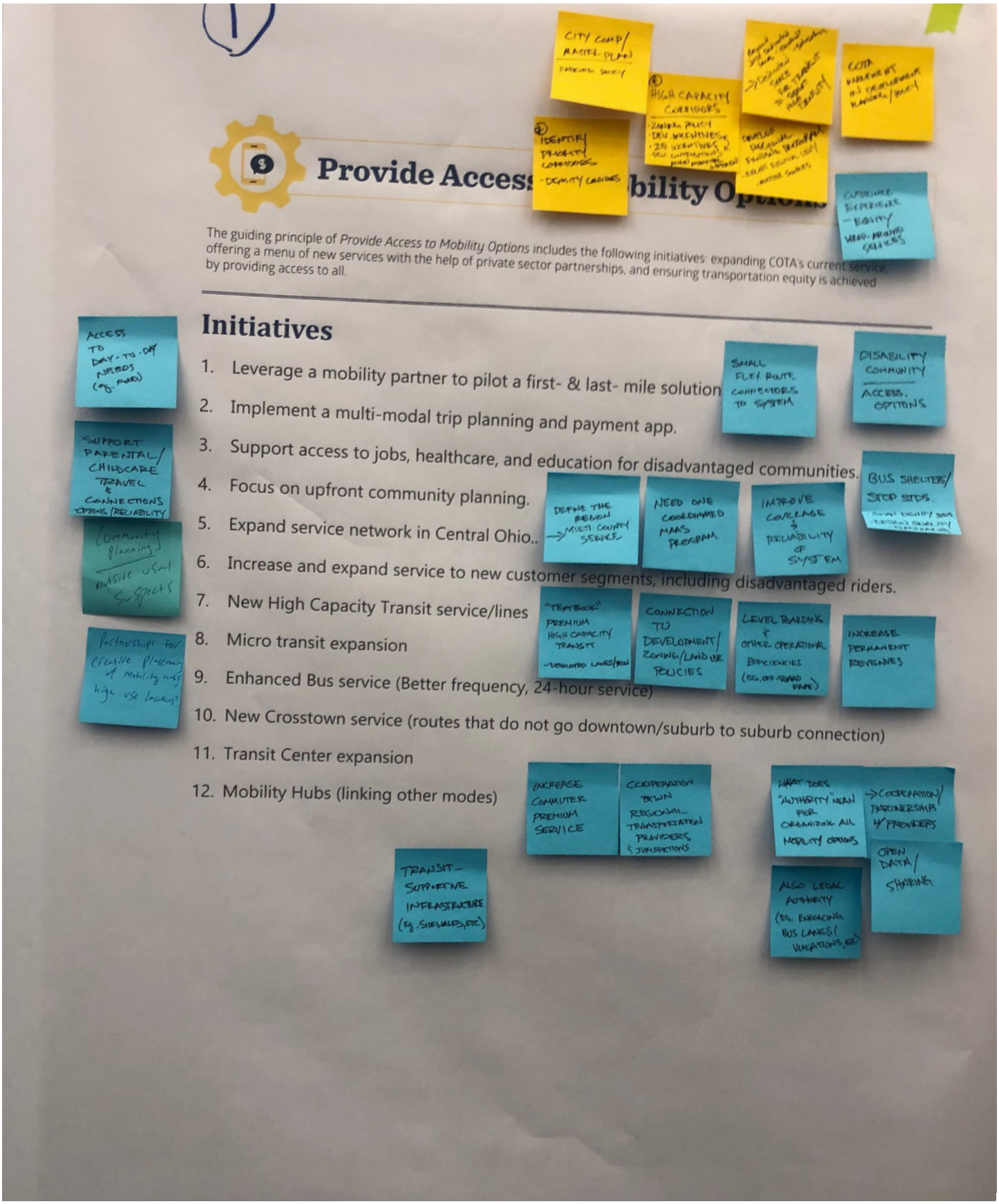

Moving Every Life Forward
Chad Gibson
Josh Lapp


EXIT


Achieve Organizational Excellence
Initiatives


EXIT
EXIT


Provide Access to Mobility Options
Initiatives
COTA

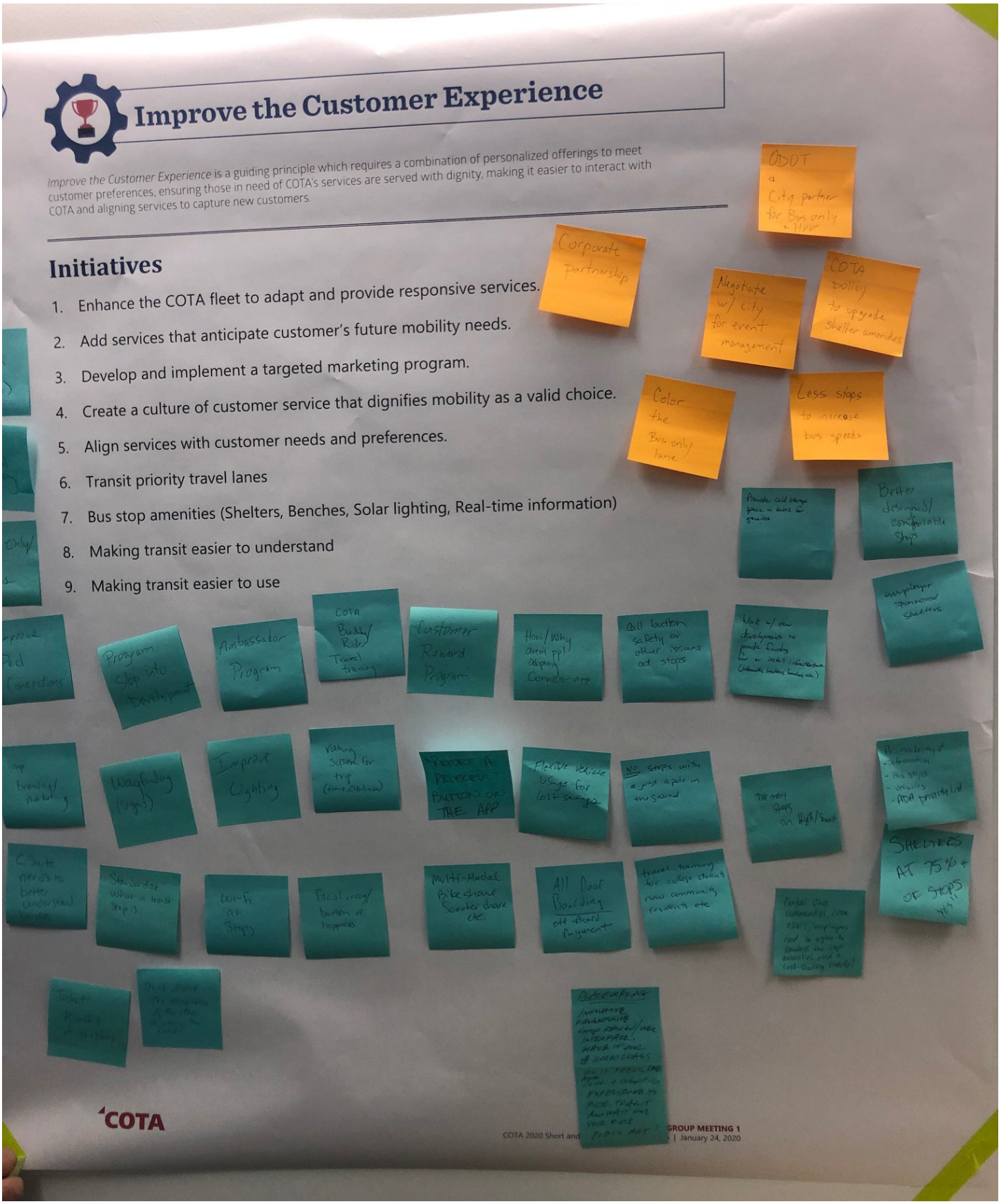


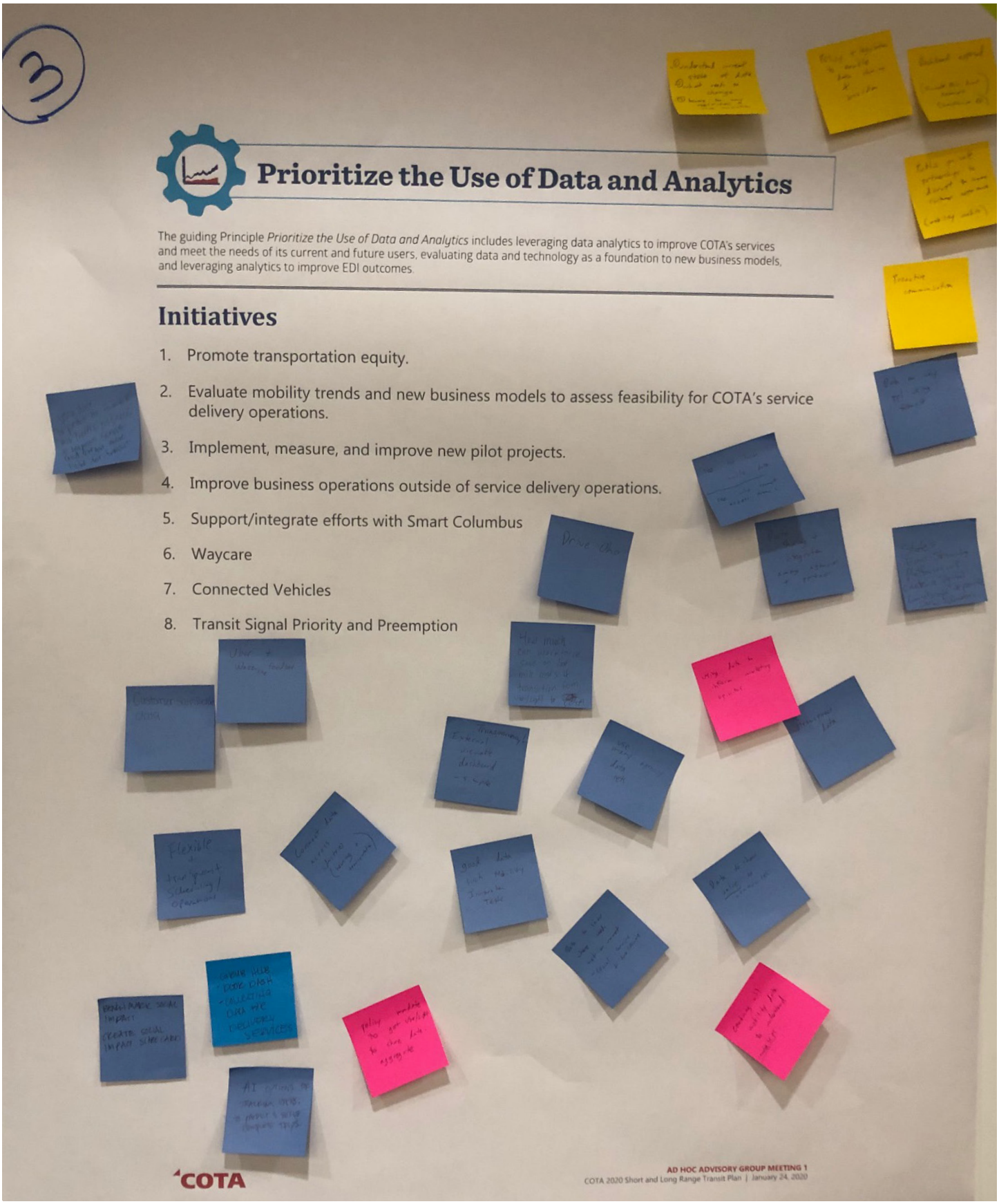
Provide Access ... bility Options

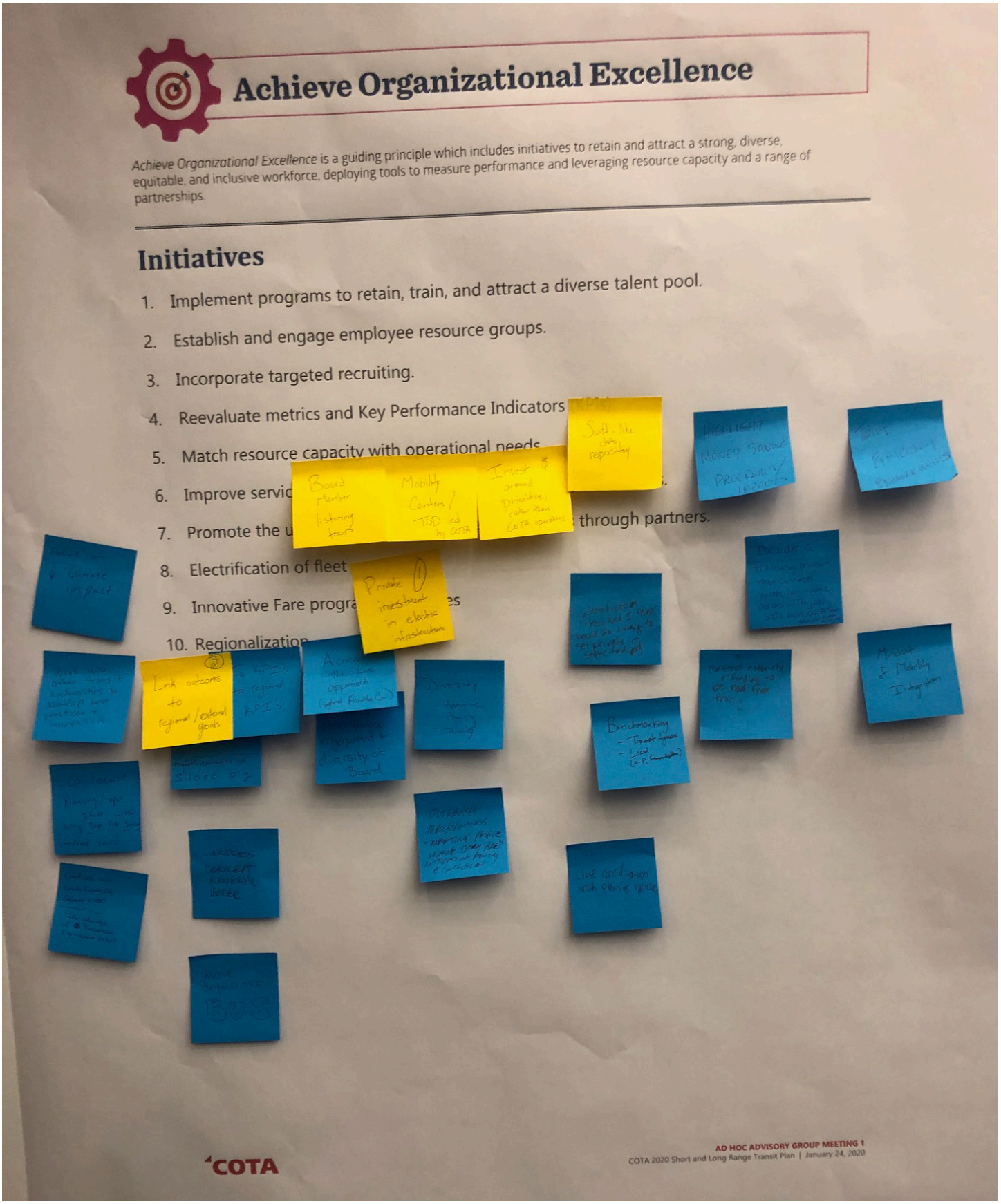
The guiding principle of *Provide Access to Mobility Options* includes the following initiatives: expanding COTA's current service, offering a menu of new services with the help of private sector partnerships, and ensuring transportation equity is achieved by providing access to all.

Initiatives

1. Leverage a mobility partner to pilot a first- & last- mile solution
2. Implement a multi-modal trip planning and payment app.
3. Support access to jobs, healthcare, and education for disadvantaged communities.
4. Focus on upfront community planning.
5. Expand service network in Central Ohio..
6. Increase and expand service to new customer segments, including disadvantaged riders.
7. New High Capacity Transit service/lines
8. Micro transit expansion
9. Enhanced Bus service (Better frequency, 24-hour service)
10. New Crosstown service (routes that do not go downtown/suburb to suburb connection)
11. Transit Center expansion
12. Mobility Hubs (linking other modes)


Improve the Customer Experience
Improve the Customer Experience is a guiding principle which requires a combination of personalized offerings to meet customer preferences, ensuring those in need of COTA's services are served with dignity, making it easier to interact with COTA and aligning services to capture new customers.
Initiatives
1. Enhance the COTA fleet to adapt and provide responsive services.
2. Add services that anticipate customer's future mobility needs.
3. Develop and implement a targeted marketing program.
4. Create a culture of customer service that dignifies mobility as a valid choice.
5. Align services with customer needs and preferences.
6. Transit priority travel lanes
7. Bus stop amenities (Shelters, Benches, Solar lighting, Real-time information)
8. Making transit easier to understand
9. Making transit easier to use
ODOT a City partner for Bus only lane HOV
Corporate Partnership
Negotiate w/ city for event management
COTA policy to upgrade shelter amenities
Color the Bus only lane
Less stops to increase bus speeds
Better designed/ comfortable Stops
Ambassador Program
COTA Buddy/ Rider Travel training
Customer Reward Program
Improve Lighting
Flexible Vehicle Usage for cost savings
No stops with a post a pole in the ground
Shelters at 75% of stops
COTA
GROUP MEETING 1
January 24, 2020


3
Prioritize the Use of Data and Analytics
The guiding Principle *Prioritize the Use of Data and Analytics* includes leveraging data analytics to improve COTA's services and meet the needs of its current and future users, evaluating data and technology as a foundation to new business models, and leveraging analytics to improve EDI outcomes.
Initiatives
1. Promote transportation equity.
2. Evaluate mobility trends and new business models to assess feasibility for COTA's service delivery operations.
3. Implement, measure, and improve new pilot projects.
4. Improve business operations outside of service delivery operations.
5. Support/integrate efforts with Smart Columbus
6. Waycare
7. Connected Vehicles
8. Transit Signal Priority and Preemption
COTA
AD HOC ADVISORY GROUP MEETING 1
COTA 2020 Short and Long Range Transit Plan | January 24, 2020


Achieve Organizational Excellence
Achieve Organizational Excellence is a guiding principle which includes initiatives to retain and attract a strong, diverse, equitable, and inclusive workforce, deploying tools to measure performance and leveraging resource capacity and a range of partnerships.
Initiatives
1. Implement programs to retain, train, and attract a diverse talent pool.
2. Establish and engage employee resource groups.
3. Incorporate targeted recruiting.
4. Reevaluate metrics and Key Performance Indicators
5. Match resource capacity with operational needs
6. Improve servic
7. Promote the u through partners.
8. Electrification of fleet
9. Innovative Fare progra es
10. Regionalizatio
Board member listening tours
Mobility Centers / TOD led by COTA
Invest $ around Priorities, rather than COTA spending
Private investment in electric infrastructure
Link outcomes to regional / external goals
Benchmarking
– Transit Agencies
– Local
COTA
AD HOC ADVISORY GROUP MEETING 1
COTA 2020 Short and Long Range Transit Plan | January 24, 2020

AD HOC ADVISORY GROUP MEETING 1 (1.24.2020)

HIGHLIGHTS

SHORT (2024) AND LONG-RANGE (2050) TRANSIT PLAN

CENTRAL OHIO TRANSIT AUTHORITY

35 ATTENDEES REPRESENTING

Municipalities and Counties
Real Estate Development
Professional Engineering and Planning
Economic Development
Business Investment
City and Regional Councils
Educational Institutions
Smart Mobility

A DIFFERENT LOOK AT FINANCING

DIVERSIFY
FUNDING STREAMS

PARTNERSHIPS ARE VITAL

DASHBOARD
OF BEST PRACTICES
+
METRICS
TO MEASURE COTA'S SUCCESS

TODAY'S AND TOMORROW'S CHALLENGES

ELEVATING
+
EXPANDING
THE MOBILITY
CONVERSATION

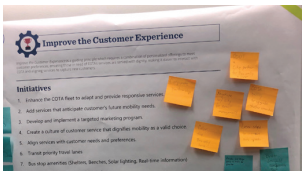
SUSTAINABILITY
OF NEW PROGRAMS

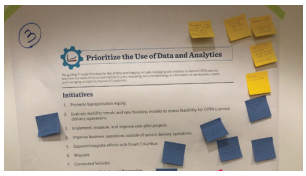
DENSER + AFFORDABLE
HOUSING IS NEEDED

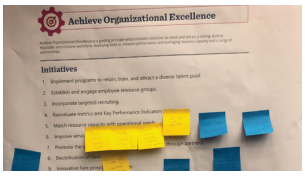
COTA

February 2020

GROUP EXERCISE FINDINGS







Improve the Customer Experience

IDEAS

- Partnerships with employers, public agencies, and institutions
- Improvements to the bus system (shelter amenities, less stops, color bus lane)
- Negotiate with City for event management
- Improvements to buses
- Targeted marking program for use

ACTIONS

- Bus stop standardization through cost sharing
- More rider amenities at bus stops, on buses, and on mobile devices
- Travel training for users
- Infrastructure improvements (pedestrian)
- Ambassador program
- Multi-modal bike share/ scooter share
- Branding/ Marketing
- Partner with City and ODOT
- Placemaking

Provide Access to Mobility Options

IDEAS

- Invest in priority, high capacity, and density corridors
- Develop regional funding programs
- More internal and external policy involvement
- Service expansion
- Microtransit pilots and expansion
- Transit center and mobility hub expansion

ACTIONS

- Cooperation with regional transportation providers and jurisdictions
- Accessibility and reliability (disabled, parental/ childcare, and daily needs)
- COTA involvement in planning & policy decisions
- Infrastructure improvements
- Open data/sharing
- Boost permanent revenues
- Bus system efficiencies
- Coordinate MAAS program
- Upfront community planning involvement

Prioritize the Use of Data and Analytics

IDEAS

- Public dashboard
- Public private partnerships
- Understand current state of data
- Connected vehicles
- More signal priority and preemption

ACTIONS

- Cross-sharing data (Uber, Lyft, delivery services)
- Using data to gain customer feedback, support transit initiatives, and understand rider behavior to identify the opportunities and shortcomings
- AI for modeling behavior

Achieve Organizational Excellence

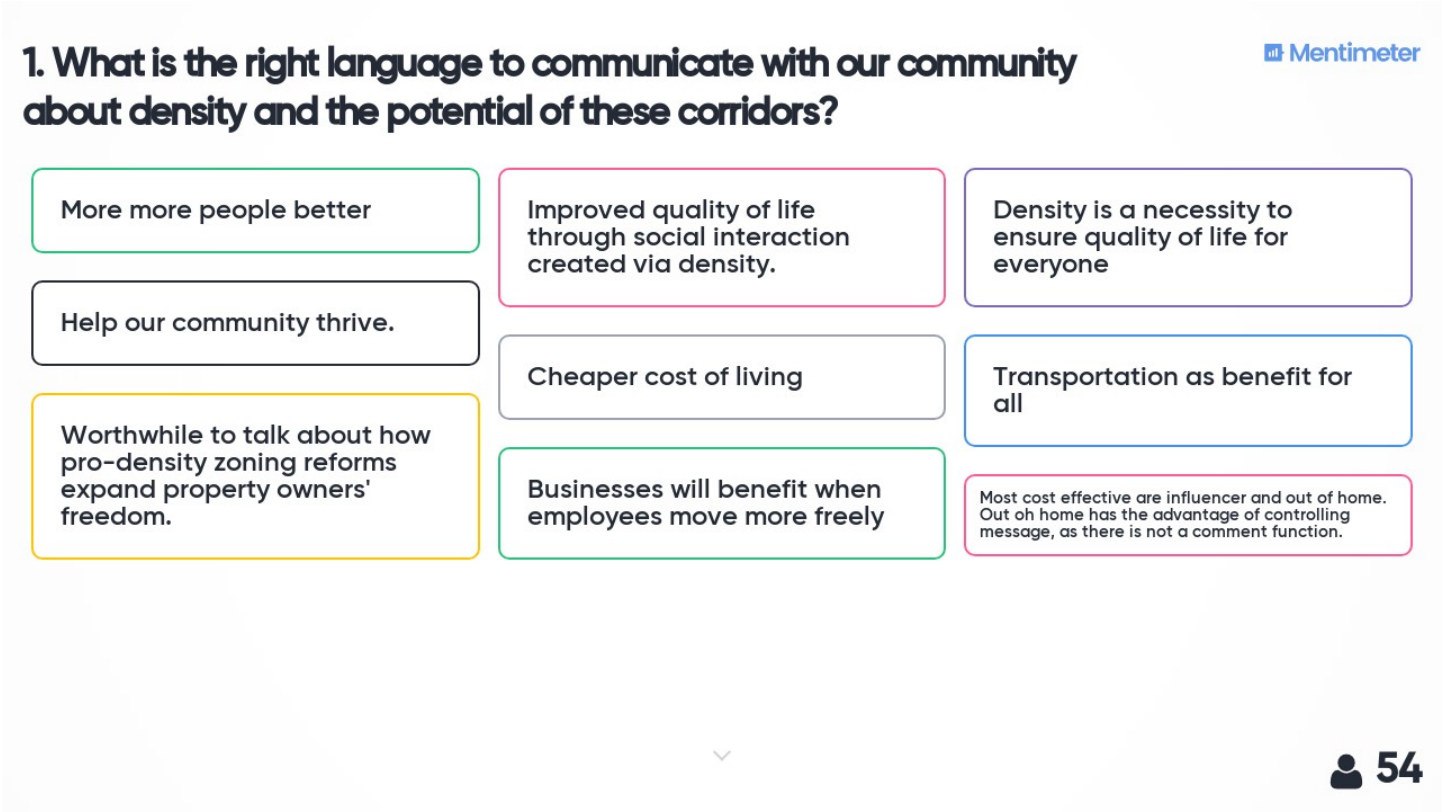
IDEAS

- Swift-like data repository
- Invest around regional priorities, rather than COTA operations
- Mobility Centers/ TOD led by COTA
- Link outcomes to regional/ external goals
- Board member listening tours
- Private investment in electric infrastructure

ACTIONS

- Coordinate with County Engineer, city engineers, and ODOT
- Diversity
- Benchmarking
- Electrification
- Highlight Money Saving Programs/ Impacts/ Efficiencies
- Mindset of mobility integration
- Across-the-Line approach (beyond Franklin County)
- Indices and Best Practices


1. What is the right language to communicate with our community about density and the potential of these corridors?
Mentimeter
Improve quality of life
Scenarios and tradeoffs
Density done right is positive for the community and facilitates better transit.
Connections with a range of employment opportunities
Hi level of service...dont need a schedule
Scenarios, how this will personally impact them, pros and cons.
Quality of life, access to jobs and opportunity, impact to income tax (for city council), value to community
Opportunity to connect to the city
Quality of life
54


1. What is the right language to communicate with our community about density and the potential of these corridors?
Mentimeter
More more people better
Improved quality of life through social interaction created via density.
Density is a necessity to ensure quality of life for everyone
Help our community thrive.
Cheaper cost of living
Transportation as benefit for all
Worthwhile to talk about how pro-density zoning reforms expand property owners' freedom.
Businesses will benefit when employees move more freely
Most cost effective are influencer and out of home. Out oh home has the advantage of controlling message, as there is not a comment function.
54

1. What is the right language to communicate with our community about density and the potential of these corridors?

Mentimeter

- Allows unlimited mobility for all.
- environmental sustainability
- Help future proof your community
- More than just about connecting to jobs
- Talk about additional options
- Start at commercial areas, leave residencies intact for first phases implementation
- Won't change...permanent
- Emphasis on economic and environmental benefits
- Access to jobs.

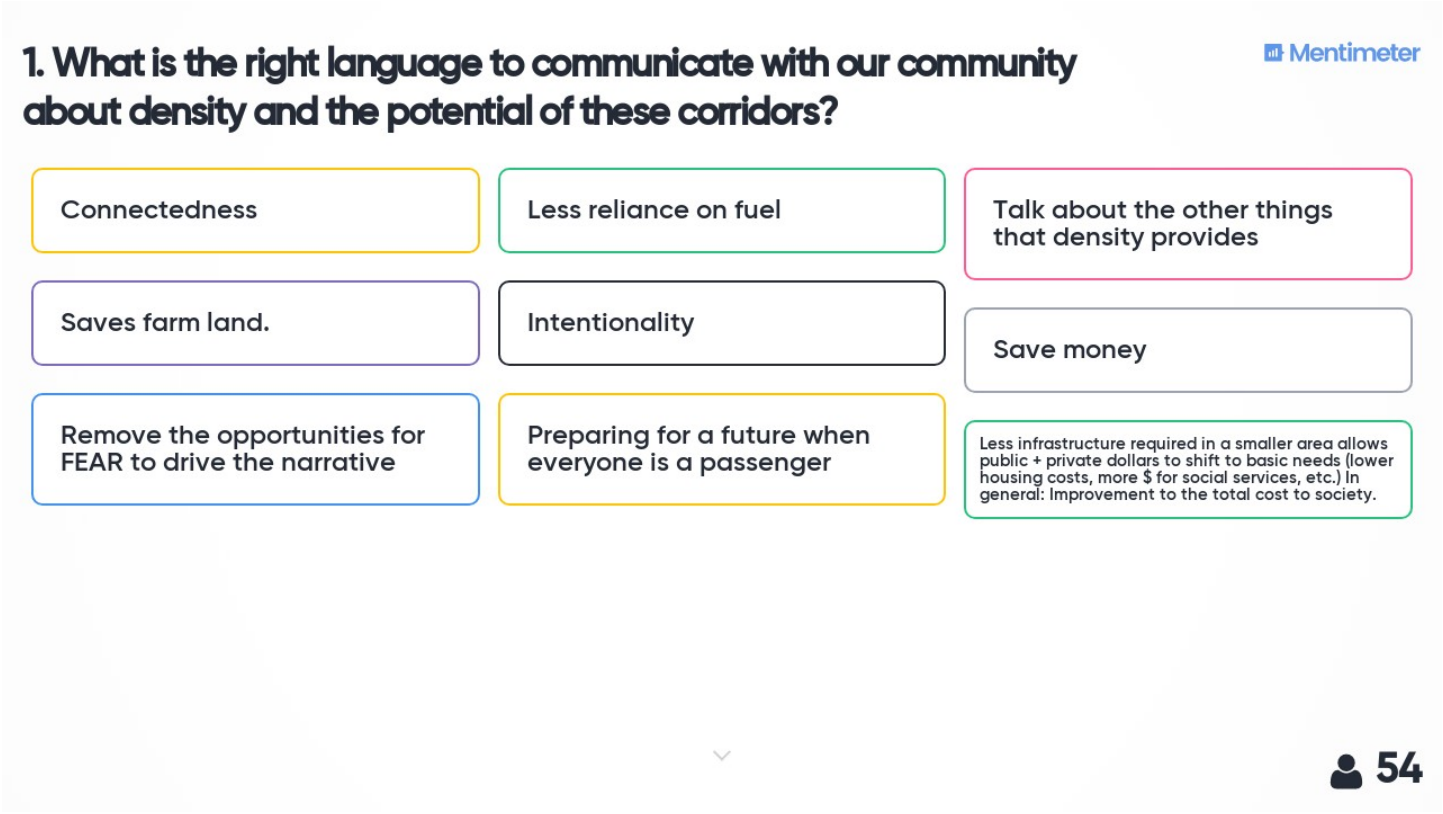
54

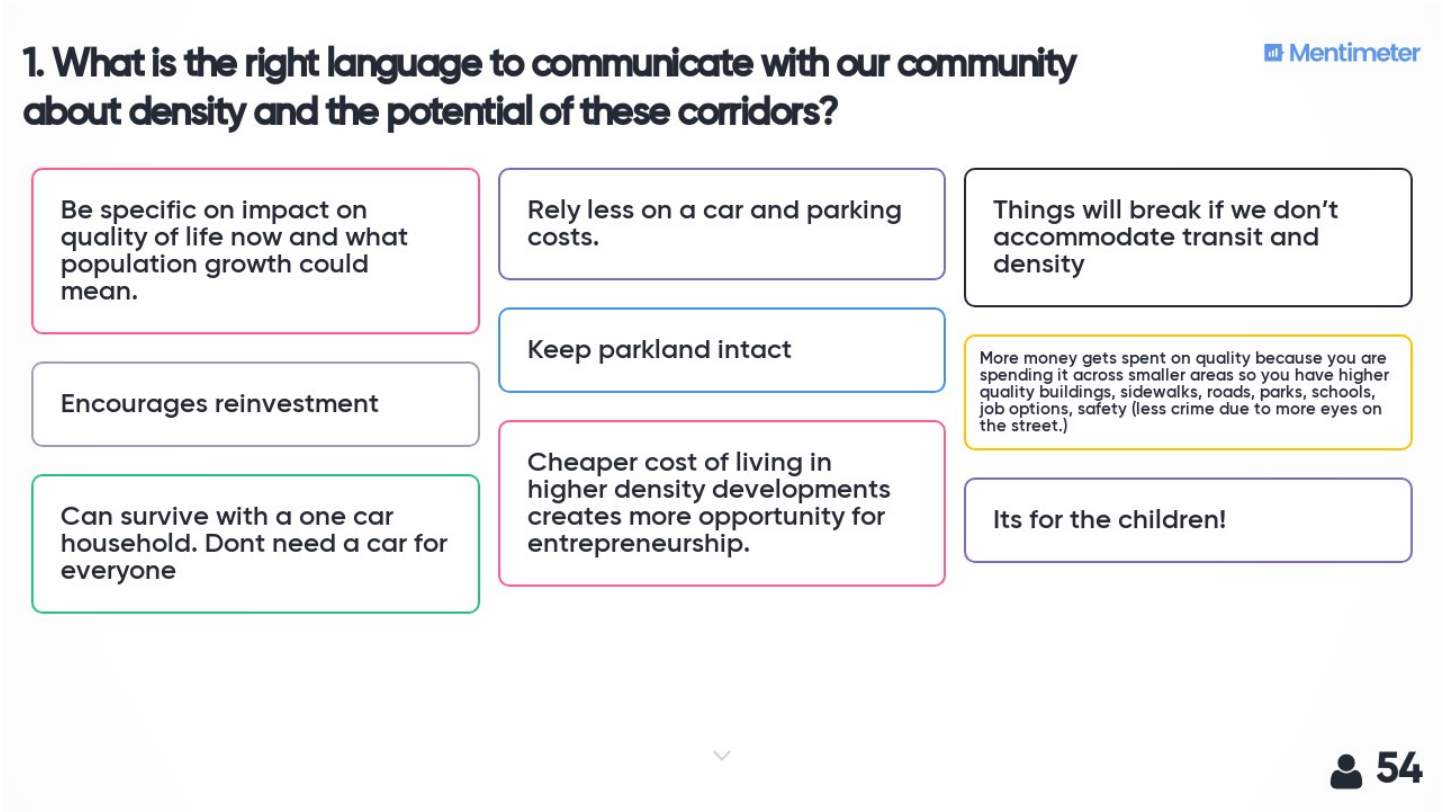
1. What is the right language to communicate with our community about density and the potential of these corridors?

Mentimeter

- Density and transit thrives along corridors
- Health benefits- more walking and using transit
- More services for more people = increased value
- Access to aminities
- The alternative to density brings many negative impacts
- Expanded housing options.
- Flexibility.
- Lower cost of living. Freedom of movement.
- Discuss reduction of environmental impact and shared prosperity - making jobs and healthcare accessible to all

54


1. What is the right language to communicate with our community about density and the potential of these corridors?
Mentimeter
Connectedness
Less reliance on fuel
Talk about the other things that density provides
Saves farm land.
Intentionality
Save money
Remove the opportunities for FEAR to drive the narrative
Preparing for a future when everyone is a passenger
Less infrastructure required in a smaller area allows public + private dollars to shift to basic needs (lower housing costs, more $ for social services, etc.) In general: Improvement to the total cost to society.
54


1. What is the right language to communicate with our community about density and the potential of these corridors?
Mentimeter
Be specific on impact on quality of life now and what population growth could mean.
Rely less on a car and parking costs.
Things will break if we don't accommodate transit and density
Keep parkland intact
Encourages reinvestment
More money gets spent on quality because you are spending it across smaller areas so you have higher quality buildings, sidewalks, roads, parks, schools, job options, safety (less crime due to more eyes on the street.)
Cheaper cost of living in higher density developments creates more opportunity for entrepreneurship.
Can survive with a one car household. Dont need a car for everyone
Its for the children!
54

2. What is the value proposition that corridor development brings to the Columbus Region? What are the key benefits?

Mentimeter

- Lower household costs
- Spending less on new stuff: roads, highways, sewers
- Increased property values with less government spending.
- Neighborhoods you can get around several ways
- Reducing infrastructure costs (roads, utilities, public transportation) of low dense development
- Economic development
- Revitalized corridors.
- Affordable housing
- Keep parks intact

30

2. What is the value proposition that corridor development brings to the Columbus Region? What are the key benefits?

Mentimeter

- Parking is never free!
- No added costs for new infrastructure: water, sewer, power, etc.
- Will address inequities of access to jobs and healthcare while truly addressing environmental impact
- Make Columbus more like a city
- Keep more cars off the highway (impacting your commute)
- More jobs for more people
- Easy access. Easy to use = better quality of life
- "Real" cities have real transit
- Quicker, less stressful commutes

30

2. What is the value proposition that corridor development brings to the Columbus Region? What are the key benefits?

Mentimeter

- Access for more people
- Keeps us competitive
- We don't want to be Austin
- We're already losing out on tax revenues and funds to pay for services. We have to keep up or fall behind
- Enhanced life style
- Parking is never ever ever free
- You can't build your way out of congestion (with expanded roadways)
- Population growth doesn't have to mean congestion and difficulty getting where you need to go if we plan for it.
- Clear mental map of the city

30

2. What is the value proposition that corridor development brings to the Columbus Region? What are the key benefits?

Mentimeter

- Expanding mobility options leads to expanded opportunity for the our workforce
- Ask people, "What do you think this city should look like in 50 years? "
- Better quality sense of place - beautification, human dignity, happiness,

30

COTA Facilities

A. Bus Storage, Maintenance, and Administrative Office Facilities

Administrative Offices and Customer Experience Center

COTA Administrative Offices and Pass Sales Center

The COTA owned William J. Lhota Building serves as the administrative offices and is located at 33 North High Street. COTA moved into this facility in order to assume greater presence at Broad and High streets in the downtown area, a major hub of the bus network and customer boarding activity. Purchased in 2008 and relocated to in 2010, COTA's administrative office, pass sales center, and an operator relief station are located just north of the intersection of Broad Street and High Street. Within the first floor lobby area, customers have convenient access to the pass sales and customer information center. This location serves as the main pass sales outlet for COTA passes, as well as the location where customers can be photographed in order to obtain a senior or Key Discount ID Card. Customers have access to free information about COTA services including route timetables, system maps, service change guides, and rider handbooks as well as 24-hour access to a ticket vending machine located at the front of the building. This location also hosts monthly COTA Board meetings and other public outreach meetings, greatly improving accessibility via public transit. The upper floors house COTA's administrative operations. As the building has no parking area, employees are encouraged to ride COTA to and from work. Most employees have opted for the convenience of COTA service and are now daily users of the very service they plan, schedule, and manage each day. By encouraging transit professionals to ride the bus daily, the community realizes an environmental benefit by having fewer single occupancy vehicles on the road each day. Employees provide input and ideas about COTA service through an interactive feature called "My Ride" available on the company's intranet website. Built in 1905, this 78,240 square foot, ten-story building was renovated and designed to meet Leadership in Energy & Environmental Design (LEED) green building certification requirements. In 2012, the US Green Building Council (USGBC) awarded the building a "Silver" certification. This certification further demonstrates COTA's commitment to improving the environment through sustainable site development, water savings, and improved energy efficiency. Currently COTA occupies nine floors, including the lower level that contains a driver report center, an employee wellness center, and a print services office. Of the approximately 24,000 square

feet of the space available for lease on the remaining three floors, 16,000 square feet is occupied by tenants. The remaining 8,000 square feet is expected to be available for lease during the latter half of 2017.

McKinley Avenue – Bus Storage, Maintenance, and Customer Service Call Center Facility

Located at 1600 McKinley Avenue, this 400,000 square foot bus storage and maintenance facility was completed in 1980. It has indoor storage capacity for 275 large 40-foot buses. This maintenance facility can perform all services required for the bus fleet. It contains both heavy and light maintenance areas, a body shop, paint shop, and where the cleaning of the buses is performed by including two- automated bus washers. As of March 2017, forty lines operate out of the McKinley Avenue facility. This facility also houses COTA's customer call center as well as several state of the art training rooms. Housed next to COTA's radio communications and dispatch operations, this location is adjacent to COTA's operational hub. Following several years of numerous mechanical, electrical, and equipment failures, in 2010, COTA initiated a multi-phased, multi-year renovation and construction project estimated at $99.5 million. The renovations were completed by 2019.

New McKinley Ave. Transprotation Entrance

The following is a summary of project improvements completed by phase:

Phase 1 was completed in 2010 at a cost of $7.3 million. During this phase, COTA upgraded various safety related features, including the replacement of aging vehicle lifts and critical support equipment in heavy maintenance.

Phase 2 of the capital project was completed in 2013 at a cost of $32.5 million. This phase consisted primarily of two specific components:

- Construction of a Compressed Natural Gas (CNG) fueling station. The commitment to CNG powered vehicles will result in air quality improvement and substantial reduction in operating fuel costs.
- Recommendations necessary to meet CNG compliance standards.
- Interior renovations including upgrades of the HVAC and electrical systems and lighting improvements.

McKinley CNG Bus Fueling Station

Phase3A/3B construction began in 2014 with an estimated cost of $32 million. This phase includes several major elements:

- A satellite CNG fueling station
- CNG compliant bus operations and maintenance
- New bus wash equipment
- A 30,000 square foot addition housing a new operator dayroom and training areas
- Renovation of the second floor administrative areas
- HVAC, plumbing and electrical upgrades

The renovation also included:

- Improved energy efficiency;
- Reduced greenhouse gas emissions;
- Meeting all code requirements for CNG operations and ADA accessibility;
- Improved operational flow efficiencies and best practices;
- Expanded fleet storage capacity from 240 to 275 buses; and
- Accommodating current and long-term facility administration programming needs.

The remaining $27.7 million is designated for Phase 3C which includes:

- New exterior façade
- Test track
- Expand fleet storage capacity to 275 buses; and

- Accommodate current and long-term facility administration programming needs;
- Miscellaneous interior concrete repairs.

The renovations are designed to meet LEED Silver certification. LEED design and construction will result in lower long-term operating costs.

In 2013, COTA purchased its first 30 CNG buses; the current CNG fleet totals 124. The useful life of a transit bus is 12 years, and as such, it is anticipated that COTA's entire fleet will be converted to CNG-powered buses by 2025. While fluctuations in fuel prices occur regularly, full conversion to a CNG-based fleet is projected to generate fuel savings of up to $5 million annually.

Public CNG Fueling Station Rendering

Fields Avenue Bus Storage and Maintenance Facility

Located at 1333 Fields Avenue, this site is one component that makes up what is referred to as COTA's Fields Avenue Campus. As described below, the Campus also includes the Mobility Services facility and the Street and Remote Maintenance facility. The 1333 Fields Avenue facility, constructed as a one-story 275,130 square foot building in 1984, was designed to accommodate 180 coaches. In 2009, COTA undertook a complete renovation of the Fields Avenue facility. The Fields Avenue renovation allows for the possible future operation of articulated buses from this facility. The $18 million Fields Avenue facility renovation design included innovative, energy-efficient, and environmentally responsible construction methods; the building was commissioned receiving a LEED "Gold" certification. At the time of its commissioning, it was one of only five LEED Gold buildings in central Ohio. As COTA expands its CNG fleet, this facility will be upgraded to accommodate CNG-fueled vehicles. The process to determine the feasibility and conversion of the facility for CNG compliance began in the first quarter 2017. Construction started in 2019 and is expected to be complete by the end of 2020. As of March 2017, 28 lines operate out of the Fields Avenue garage.

Fields Ave. COTA Fixed-Route Bus Storage and Maintenance Facility

Street and Remote Maintenance Facility

In 2008, COTA purchased a 2.23-acre site at 1325 Essex Avenue to house its Street & Remote department operations. In 2012, COTA performed a renovation and expansion of the Essex Avenue facility, which was completed in 2013 for $3.7 million dollars.

Street and Remote Maintenance Facility

The renovation of the existing facility and the addition of 8,000 square feet of maintenance/storage space, parking lot expansion construction of a salt dome, and installation of mechanical/electrical systems to meet current operational demands and future system growth.

The completed renovation project was awarded LEED “Silver” certification. This facility houses staff and equipment to support the maintenance of bus stops and shelters located throughout COTA’s approximately 560 square-mile service area. The Street & Remote department performs a variety of support functions for approximately 3,500 bus stops, including pavement repairs, concrete work, excavation, installation of sign poles, new passenger shelter installation, and special event support.

Mobility Services – Mainstream and Eligibility Assessment Facility

This 104,000 square-foot facility is located at 1330 Fields Avenue. The building houses operation, maintenance and administrative functions for Mainstream, COTA’s demand-

response service for persons with disabilities. In 2011, COTA relocated Mainstream operations into this newly constructed facility. Construction of the Mobility Services building was $21.5 million.

The facility includes:

- Storage and maintenance for up to 110 paratransit vehicles;
- Six vehicle maintenance bays;
- Mobility Service administrative offices;
- State-of-the-art eligibility assessment center;
- One vehicle wash; and
- Two fueling islands.

As of December 2016, the Mainstream fleet size consists of 74 total vehicles (see Section 7.4). The building was located as close as possible to the center of the Mainstream pick-up and drop-off locations so that deadheading costs are minimized. As COTA expands its CNG fleet, plans are to review the viability of CNG for this facility to accommodate CNG-fueled vehicles. As part of COTA's sustainability commitment, the facility was received "Silver" certification under the LEED program as defined by the USGBC. The building takes advantage of abundant natural lighting in the administrative offices and bus storage area, reducing the dependence on artificial lighting. Sustainability characteristics designed to reduce operational costs also include:

- Below floor HVAC systems providing both heat and air conditioning (as opposed to ceiling systems), reducing the heat and air conditioning lost when traveling through typical air ducts;
- Rainwater harvesting system consisting of three 15,000-gallon underground storage tanks which capture rainwater from the roof and store it for bus wash and toilet use;
- Irrigation-free landscaping
- White membrane roofing; and
- Roller compacted concrete (RCC) in the employee and visitor parking areas reduce the heat produced by typical oil-based products. With the volatility of oil prices, RCC has become an alternative that is less expensive and more durable.

Eligibility Assessment Center

The facility includes a state of the art “Eligibility Assessment” center, consisting of a half-bus with all the functionality of a larger, fixed-route vehicle. The modified testing bus is capable of kneeling, has functioning destination signs, and an automatic vehicle-annunciation system. Video recordings of five distinct COTA bus lines can be displayed on the bus window monitor providing paratransit applicants with real images of the bus traveling down the street. The center also has varying degrees of ramps and sidewalk configurations that test the physical abilities of transit users, and a mock-signalized intersection with walk/don’t walk signs that have ambient noise levels to mimic a real-life travel scenario.

COTA Mainstream and Eligibility Assessment Facility

B. Transit Centers

Northland Transit Center and Park and Ride

As part of the CMAX Cleveland Avenue BRT project, included in the 2017-2021 COTA TIP is continued development of a new transit center/park and ride facility on the west side of Cleveland Avenue just south of SR-161/Dublin Granville Road. With a target completion date of September 2017, the facility will serve as the termini for the high-frequency limited stop BRT service set to begin in January 2018, and for the underlying Cleveland Avenue standard bus service which will continue to serve all stops at 30-miute frequency of service between SR-161 and Downtown.

The #1 Cleveland is COTA’s second busiest line in the system. With the addition of BRT, ridership in the corridor is projected to grow 20% within the first five years of BRT operation.

Northland Transit Center/Park & Ride Rendering

CMAX branded BRT vehicles will run every 10 minutes during peak periods, and 15 minutes during off-peak periods on weekdays between downtown Columbus and this facility and 30 minutes on weekends/holidays. The 1,230 square foot building is being designed with six sawtooth bays and will accommodate 60' articulated buses should they be purchased in the future.

The transit center building will include a comfortable, climate controlled indoor waiting area with real-time next bus arrival information, ticket vending machine, and restroom facilities, the connecting park and ride lot will have approximately 60 parking spaces, pedestrian sidewalks and attractive landscaping.

As a part of the CMAX project, COTA received 77% federal funding through the FTA's Small Starts program. Construction commenced in 2016 and will be completed in 2017 with a construction cost of $3.3 million.

Linden Transit Center – 1394 Cleveland Avenue

Located at the intersection of Cleveland and 11th Avenues, COTA's inaugural urban transit center opened in October 1999. The 20,500 square-foot facility is part of COTA's Livable Communities Initiative (LCI) project for the Linden area, and includes such amenities as childcare and health care. Six bus lines currently serve the transit center. In January 2018, this facility will be also be served by the Cleveland Avenue CMAX BRT line.

Linden Transit Center

Since opening, Linden has also served as a successful community-based facility providing increased services for the surrounding neighborhood—for example, providing accessible and affordable meeting space for neighborhood civic groups, community meetings, election polling, and other gatherings. The FTA provided $2.1 million in funding for the Linden Transit Center, with an additional $268,000 from the Ohio Department of Transportation (ODOT). With revenue generated through tenant occupancy, the operating costs are fully recovered.

Located in the heart of Linden, this facility will be one focal point for the City of Columbus's Smart Columbus project. While no decisions have been finalized at this point in time, the transit center could serve as a potential "mobility hub" for the City's project, as the origin, destination, or transfer point for a significant portion of trips via various mobility options.

Easton Transit Center – 4260 Stelzer Road

Opened in May 2002, this facility is located on 2.76 acres of land that was generously donated by the Limited and Georgetown Companies. Serving commuters in northeastern Franklin County, the Easton Transit Center is located just north of Morse Road at the southeast corner of Transit Drive and Stelzer Road.

Easton Transit Center Renovation Rendering

As part of the TSR project, the number of lines serving this site will increase from seven to 11 lines (57% increase). During 2017, at a cost of $3.3 million, significant renovations are being completed to accommodate the increased bus service and customers that will utilize this facility. The number of bus bays have been increased from four to nine. In addition, three new layover bays have been constructed to accommodate the additional bus volumes. During the second half of 2017, the transit center building is being expanded to include restrooms for both operators and the public. New accommodations in the facility will include a security office, real-time information screens, and a ticket vending machine. The transit center also includes 33 park and ride and daycare parking spaces. Many of the bus lines provide direct connections to Easton's shopping, dining, and entertainment venues.

Easton Transit Center

Easton Daycare Facility – 4242 Stelzer Road

Constructed in 2005, the daycare is conveniently located on a contiguous parcel with the Easton Transit Center providing easy access for COTA passengers. The 9,948 square-foot facility consists of administrative offices, conference rooms, dedicated infant, toddler and pre-school rooms (with restroom facilities for each area), activity areas, a kitchen,

restrooms, and a fenced outside play area. This facility can accommodate up to 135 children. The lease payments cover the yearly maintenance costs for the transit center.

Easton Day Care Center

Near East Transit Center

Near East Transit Center

In 2005, COTA completed the construction of the 9,647 square-foot transit center, located on the southeast corner of East Main Street and Champion Avenue. Through a partnership with the Columbus Compact Corporation [a non-profit 501 (c) (3) organization charged with the administration of the Department of Housing and Urban Development (HUD) designated Empowerment Zone (EZ) for distressed communities], COTA obtained the 0.74-acre parcel. The building opened in September 2005 with a medical facility as the major tenant. With the addition of a cell phone service store, this facility serves to help attract COTA customers. COTA passengers are able to wait inside the facility, which is equipped with comfortable benches. Two bus lines currently serve the Near East Transit Center. The building's operating costs are recouped through lease payment revenues.

C. Transit Centers

Northern Lights Park & Ride

Included in the 2017-2021 COTA TIP is the development of a new, COTA owned park and ride facility in the Northern Lights area along Cleveland Avenue as part of the Cleveland

Avenue CMAX BRT Project. The facility will replace the existing leased park and ride location at Northern Lights Shopping Center, an urban strip mall development and primary destination within the Cleveland Avenue corridor. Development of a park & ride in this area has been under consideration for several years, and aligns with various area plans focused on improvements to the area, including Franklin County's Clinton-Mifflin Land Use Plan and City of Columbus Linden Area Traffic Management Plan. The current #1 Cleveland connects areas of lower income, minority populations to important employment centers such as downtown Columbus, St. Ann's Hospital, and Columbus State Community College. COTA's existing bus stop and layover location within the Northern Lights Shopping Center complex is one of the busiest passenger activity stop outside of the Downtown area, with a combined average of nearly 1,000 boardings and alightings occurring each weekday. The #1 Cleveland is COTA's second busiest line in the system. With the addition of BRT ridership in the corridor is projected to grow 20% within the first five years of BRT operation. The leased park and ride location is limited to 60 parking spaces, a passenger shelter on a concrete passenger platform, and a bus bay area that accommodates only two 40-feet, fixed-route vehicles. As part of the CMAX BRT project, the new park and ride to be constructed in 2017-2018 will have 129 parking spaces. Funding has been budgeted in the project costs for the proposed Cleveland Avenue BRT service (see Section 12.5.2). During 2017, COTA will purchase property that will meet the needs for expanded service along this area of Cleveland Avenue. It is anticipated construction will be completed in first quarter 2018. Real estate costs are estimated at $2 million and construction costs at $1.7 million. Development of this park and ride has include significant public involvement, including meetings with officials from Clinton Township, Franklin County, and City of Columbus, area commissions, civic associations and other community stakeholders, and meetings open to the general public.

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H. VEHICLE REPLACEMENT SCHEDULE

Bus Replacement

YEAR	MFG	POWER PLANT	LENGTH	SEATING	BUY QTY	Jan-19	May-19	Sep-19	Jan-20	May-20	Sep-20	Jan-21	May-21	Sep-21	Jan-22	May-22	Sep-22	Jan-23
2001	NEW FLYER	DIESEL	40'	39	62													
2003	NEW FLYER	DIESEL	40'	39	10													
2004	NEW FLYER	DIESEL	40'	39	5													
2005	GILLIG	DIESEL	35'	39	12													
2005	NEW FLYER	DIESEL	40'	39	5													
2007	GILLIG	DIESEL	35'	32	32													
2008	GILLIG	DIESEL	30'	23	10													
2008	GILLIG	DIESEL	40'	39	30	23												
2009	GILLIG	DIESEL	30'	23	10	10	5	4	4									
2009	GILLIG	DIESEL	40'	39	30	30	30	30	30	6	6	6						
2010	GILLIG	DIESEL	30'	23	3	3	3	3	3	3	3	3						
2010	GILLIG	DIESEL	40'	39	37	37	37	37	37	37	37	37	18	18	18			
2010	GILLIG	D / HYBRID	40'	39	6	6	6	6	6	6	6	6	6	6	6	4	4	4
2011	GILLIG	DIESEL	30'	23	3	3	3	3	3	3	3	3	3	3	3			
2011	GILLIG	DIESEL	40'	39	37	37	37	37	37	37	37	37	37	37	37	32	32	32
2012	GILLIG	DIESEL	40'	40	23	23	23	23	23	23	23	23	23	23	23	23	23	23
2013	GILLIG	CNG	40'	39	18	18	18	18	18	18	18	18	18	18	18	18	18	18
2013	GILLIG	CNG	35'	32	12	12	12	12	12	12	12	12	12	12	12	12	12	12
2014	GILLIG	CNG	40'	38	21	21	21	21	21	21	21	21	21	21	21	21	21	21
2014	GILLIG	CNG	35'	32	7	7	7	7	7	7	7	7	7	7	7	7	7	7
2014	GILLIG	CNG	30	24	8	8	8	8	8	8	8	8	8	8	8	8	8	8
2015	GILLIG	CNG	35'	32	5	5	5	5	5	5	5	5	5	5	5	5	5	5
2015	GILLIG	CNG	40'	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33
2016	GILLIG	CNG	40'	39	14	14	14	14	14	14	14	14	14	14	14	14	14	14
2016	GILLIG	CNG	35'	32	4	4	4	4	4	4	4	4	4	4	4	4	4	4
2016	GILLIG	CNG - BRT	40'	38	2	2	2	2	2	2	2	2	2	2	2	2	2	2
2017	GILLIG	CNG	35'	38	6	6	6	6	6	6	6	6	6	6	6	6	6	6
2017	GILLIG	CNG	40'	32	7	7	7	7	7	7	7	7	7	7	7	7	7	7
2017	GILLIG	CNG - BRT	40'	38	13	13	13	13	13	13	13	13	13	13	13	13	13	13
2018		CNG	?	?	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2019	New Flyer	CNG	40'	38	28		28	28	28	28	28	28	28	28	28	28	28	28
2020	New Flyer	CNG	40'	38	28					28	28	28	28	28	28	28	28	28
2021	New Flyer	CNG	40'	38	18								18	18	18	18	18	18
2021	UNDECIDED	ELECTRIC	-	-	10								10	10	10	10	10	10
2022	New Flyer	CNG	40'	38	28											28	28	28
2023	UNDECIDED	CNG	40'	38	28													
2024	UNDECIDED	CNG	40'	38	28													
2025	UNDECIDED	CNG	40'	38	28													
2026	UNDECIDED	CNG	40'	38	28													
2027	UNDECIDED	CNG	40'	38	28													
2028	UNDECIDED	CNG	40'	38	28													
2029	UNDECIDED	CNG	40'	38	28													
2030	UNDECIDED	CNG	40'	38	28													
2031	UNDECIDED	CNG	40'	38	28													
2032	UNDECIDED	CNG	40'	38	28													
2033	UNDECIDED	CNG	40'	38	28													
2034	UNDECIDED	CNG	40'	38	28													
2035	UNDECIDED	CNG	40'	38	28													
2036	UNDECIDED	CNG	40'	38	28													
2037	UNDECIDED	CNG	40'	38	28													
2038	UNDECIDED	CNG	40'	38	28													
2039	UNDECIDED	CNG	40'	38	28													
2040	UNDECIDED	CNG	40'	38	28													
2041	UNDECIDED	CNG	40'	38	28													
2042	UNDECIDED	CNG	40'	38	28													
2043	UNDECIDED	CNG	40'	38	28													
2044	UNDECIDED	CNG	40'	38	28													
2045	UNDECIDED	CNG	40'	38	28													
2046	UNDECIDED	CNG	40'	38	28													
2047	UNDECIDED	CNG	40'	38	28													
2048	UNDECIDED	CNG	40'	38	28													
2049	UNDECIDED	CNG	40'	38	28													
2050	UNDECIDED	CNG	40'	38	28													

(entered by hand)	Total Active Fleet Size	322	322	321	321	321	321	321	321	321	321	321	321	321
	PEAK FLEET	268	268	268	268	268	268	268	268	268	268	268	268	268
Red Figures represent # of vehicles extended beyond their useful life of 12 years	Less than 20% Spare Ratio	54	54	54	54	54	54	54	54	54	54	54	54	54

May-23	Sep-23	Jan-24	May-24	Sep-24	Jan-25	May-25	Sep-25	Jan-26	May-26	Sep-26	Jan-27	May-27	Sep-27	Jan-28	May-28	Sep-28	Jan-29	May-29
8	8	8																
23	23	23	3	3	3													
18	18	18	18	18	18													
12	12	12	12	12	12	5	5	5										
21	21	21	21	21	21	21	21	21										
7	7	7	7	7	7	7	7	7	5	5	5							
8	8	8	8	8	8	8	8	8	8	8	8	4	4	4				
5	5	5	5	5	5	5	5	5	5	5	5	5	5	5				
33	33	33	33	33	33	33	33	33	33	33	33	14	14	14				
14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	9	9	9	
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	
13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
			28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
						28	28	28	28	28	28	28	28	28	28	28	28	28
									28	28	28	28	28	28	28	28	28	28
												28	28	28	28	28	28	28
															28	28	28	28
																		28

321	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**
268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268
54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54

Sep-29	Jan-30	May-30	Sep-30	Jan-31	May-31	Sep-31	Jan-32	May-32	Sep-32	Jan-33	May-33	Sep-33	Jan-34	May-34	Sep-34	Jan-35	May-35	Sep-35
13	13																	
0	0	0	0	0														
28	28	13	13	13														
28	28	28	28	28	13	13	13											
18	18	18	18	18	18	18	18	3	3	3								
10	10	10	10	10	10	10	10	10	10	10								
28	28	28	28	28	28	28	28	28	28	28	13	13	13					
28	28	28	28	28	28	28	28	28	28	28	28	28	28	13	13	13		
28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	13	13
28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
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28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
		28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
					28	28	28	28	28	28	28	28	28	28	28	28	28	28
								28	28	28	28	28	28	28	28	28	28	28
											28	28	28	28	28	28	28	28
														28	28	28	28	28
																	28	28

321	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**
268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268
54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54

Jan-36	May-36	Sep-36	Jan-37	May-37	Sep-37	Jan-38	May-38	Sep-38	Jan-39	May-39	Sep-39	Jan-40	May-40	Sep-40	Jan-41	May-41	Sep-41	Jan-42
13																		
28	13	13	13															
28	28	28	28	13	13	13												
28	28	28	28	28	28	28	13	13	13									
28	28	28	28	28	28	28	28	28	28	13	13	13						
28	28	28	28	28	28	28	28	28	28	28	28	28	13	13	13			
28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	13	13	13
28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
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	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
				28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
							28	28	28	28	28	28	28	28	28	28	28	28
										28	28	28	28	28	28	28	28	28
													28	28	28	28	28	28
																28	28	28

321	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**
268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268
54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54

May-42	Sep-42	Jan-43	May-43	Sep-43	Jan-44	May-44	Sep-44	Jan-45	May-45	Sep-45	Jan-46	May-46	Sep-46	Jan-47	May-47	Sep-47	Jan-48	May-48
13	13	13																
28	28	28	13	13	13													
28	28	28	28	28	28	13	13	13										
28	28	28	28	28	28	28	28	28	13	13	13							
28	28	28	28	28	28	28	28	28	28	28	28	13	13	13				
28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	13	13	13	
28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	13
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28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
			28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
						28	28	28	28	28	28	28	28	28	28	28	28	28
									28	28	28	28	28	28	28	28	28	28
												28	28	28	28	28	28	28
															28	28	28	28
																		28

321	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**	**321**
268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268	268
54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54

Sep-48	Jan-49	May-49	Sep-49	Jan-50	May-50	Sep-50
13	13					
28	28	13	13	13		
28	28	28	28	28	13	13
28	28	28	28	28	28	28
28	28	28	28	28	28	28
28	28	28	28	28	28	28
28	28	28	28	28	28	28
28	28	28	28	28	28	28
28	28	28	28	28	28	28
28	28	28	28	28	28	28
28	28	28	28	28	28	28
28	28	28	28	28	28	28
		28	28	28	28	28
					28	28

321	**321**	**321**	**321**	**321**	**321**	**321**
268	268	268	268	268	268	268
54	54	54	54	54	54	54

Active Fleet/May 2015

1-May-2015	Diesel	237	#REF!
	CNG	104	#REF!

COTA Plus Vehicles

2020-2050 LRTP MAINSTREAM VEHICLE REPLACEMENT SCHEDULE

YEAR	MFG	POWER	LENGTH	SEATING	LIFT ?	BUY QTY	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029
2018	Ford Transit	DIESEL		TBD	Y	5	5	5	5								
2019	Ford Transit	DIESEL		TBD	Y	5	5	5	5	5							
2020	TBD	DIESEL	TBD	TBD	Y	15		15	15	15	15						
2021	TBD	DIESEL	TBD	TBD	Y	15			15	15	15	15					
2022	TBD	TBD	TBD	TBD	Y	20				20	20	20	20				
2023	TBD	TBD	TBD	TBD	Y	20					20	20	20	20			
2024	TBD	TBD	TBD	TBD	Y	15						15	15	15	15		
2025	TBD	TBD	TBD	TBD	Y	15							15	15	15	15	
2026	TBD	TBD	TBD	TBD	Y	20								20	20	20	20
2027	TBD	TBD	TBD	TBD	Y	20									20	20	20
2028	TBD	TBD	TBD	TBD	Y	15										15	15
2029	TBD	TBD	TBD	TBD	Y	15											15
2030	TBD	TBD	TBD	TBD	Y	20											
2031	TBD	TBD	TBD	TBD	Y	20											
2032	TBD	TBD	TBD	TBD	Y	15											
2033	TBD	TBD	TBD	TBD	Y	15											
2034	TBD	TBD	TBD	TBD	Y	20											
2035	TBD	TBD	TBD	TBD	Y	20											
2036	TBD	TBD	TBD	TBD	Y	15											
2037	TBD	TBD	TBD	TBD	Y	15											
2038	TBD	TBD	TBD	TBD	Y	20											
2039	TBD	TBD	TBD	TBD	Y	20											
2040	TBD	TBD	TBD	TBD	Y	15											
2041	TBD	TBD	TBD	TBD	Y	15											
2042	TBD	TBD	TBD	TBD	Y	20											
2043	TBD	TBD	TBD	TBD	Y	20											
2044	TBD	TBD	TBD	TBD	Y	15											
2045	TBD	TBD	TBD	TBD	Y	15											
2046	TBD	TBD	TBD	TBD	Y	20											
2047	TBD	TBD	TBD	TBD	Y	20											
2048	TBD	TBD	TBD	TBD	Y	15											
2049	TBD	TBD	TBD	TBD	Y	15											
2050	TBD	TBD	TBD	TBD	Y	20											
Total Fleet Size							**10**	**25**	**40**	**55**	**70**	**70**	**70**	**70**	**70**	**70**	**70**
Red figures represent # of vehicles extended beyond their						**Peak Fleet**	10	25	40	55	70	70	70	70	70	70	70
useful life of 4 years; Orange for beyond 200,000 miles.									0	0	0	0	0	0	0	0	0
						Spare Ratio	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
TBD = To be determined						Fleet Replacement	0	0	0	5	5	15	15	20	20	15	15
						Fleet Expansion	0	15	15	15	15	0	0	0	0	0	0
						Active Fleet	**10**	**25**	**40**	**55**	**70**	**70**	**70**	**70**	**70**	**70**	**70**

Assumptions	
Yearly service growth:	1.20%
Vehicle miles per year:	65,000
Useful Life (years):	4
Useful Life (mileage):	200,000
New vehicle price (2019 dollars):	$85,000

2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
20																				
15	15																			
15	15	15																		
20	20	20	20																	
	20	20	20	20																
		15	15	15	15															
			15	15	15	15														
				20	20	20	20													
					20	20	20	20												
						15	15	15	15											
							15	15	15	15										
								20	20	20	20									
									20	20	20	20								
										15	15	15	15							
											15	15	15	15						
												20	20	20	20					
													20	20	20	20				
														15	15	15	15			
															15	15	15	15		
																20	20	20	20	
																	20	20	20	20
																		15	15	15
																			15	15
																				20
70	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**
70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
20	20	15	15	20	20	15	15	20	20	15	15	20	20	15	15	20	20	15	15	20
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
70	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**	**70**

COTA Paratransit Vehicles

2016-2040 LRTP MAINSTREAM VEHICLE REPLACEMENT SCHEDULE

YEAR	MFG	POWER	LENGTH	SEATING	LIFT ?	BUY QTY	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
2013	Champion Chevy	DIESEL	24'	TBD	Y	0	**0**													
2014	Champion Chevy	DIESEL	24'	TBD	Y	12	**12**													
2014	MV-1	GAS		TBD	Y	1	**1**													
2016	Champion Chevy	DIESEL	24'	TBD	Y	20	20	**9**												
2018	Ford Transit	DIESEL		TBD	Y	20	20	20	5											
2019	Ford Transit	DIESEL		TBD	Y	20	20	20	20	6										
2020	Cutaway	DIESEL	TBD	TBD	Y	25		25	25	25	11									
2021	Cutaway	DIESEL	TBD	TBD	Y	25			25	25	25	16								
2022	TBD	TBD	TBD	TBD	Y	20				20	20	20	15							
2023	TBD	TBD	TBD	TBD	Y	21					21	21	21	16						
2024	TBD	TBD	TBD	TBD	Y	21						21	21	21	16					
2025	TBD	TBD	TBD	TBD	Y	21							21	21	21	17				
2026	TBD	TBD	TBD	TBD	Y	21								21	21	21	17			
2027	TBD	TBD	TBD	TBD	Y	22									22	22	22	17		
2028	TBD	TBD	TBD	TBD	Y	22										22	22	22	17	
2029	TBD	TBD	TBD	TBD	Y	22											22	22	22	17
2030	TBD	TBD	TBD	TBD	Y	22												22	22	22
2031	TBD	TBD	TBD	TBD	Y	23													23	23
2032	TBD	TBD	TBD	TBD	Y	23														23
2033	TBD	TBD	TBD	TBD	Y	23														
2034	TBD	TBD	TBD	TBD	Y	24														
2035	TBD	TBD	TBD	TBD	Y	24														
2036	TBD	TBD	TBD	TBD	Y	24														
2037	TBD	TBD	TBD	TBD	Y	24														
2038	TBD	TBD	TBD	TBD	Y	25														
2039	TBD	TBD	TBD	TBD	Y	25														
2040	TBD	TBD	TBD	TBD	Y	25														
2041	TBD	TBD	TBD	TBD	Y	26														
2042	TBD	TBD	TBD	TBD	Y	26														
2043	TBD	TBD	TBD	TBD	Y	26														
2044	TBD	TBD	TBD	TBD	Y	27														
2045	TBD	TBD	TBD	TBD	Y	27														
2046	TBD	TBD	TBD	TBD	Y	27														
2047	TBD	TBD	TBD	TBD	Y	28														
2048	TBD	TBD	TBD	TBD	Y	28														
2049	TBD	TBD	TBD	TBD	Y	28														
2050	TBD	TBD	TBD	TBD	Y	29														
Total Fleet Size							**73**	**74**	**75**	**76**	**77**	**78**	**78**	**79**	**80**	**82**	**83**	**83**	**84**	**85**
Red figures represent # of vehicles extended beyond their						**Peak Fleet**	60	61	61	62	63	64	64	65	66	67	68	68	69	70
useful life of 4 years; Orange for beyond 200,000 miles.						Spares	13	13	14	14	14	14	14	14	14	15	15	15	15	15
						Spare Ratio	18%	18%	19%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%
TBD = To be determined						Fleet Replacement	20	24	24	19	20	20	21	20	21	20	21	22	22	22
						Fleet Expansion	0	1	1	1	1	1	0	1	1	2	1	0	1	1
						Active Fleet	**71**	**72**	**73**	**74**	**75**	**76**	**76**	**77**	**78**	**80**	**81**	**81**	**82**	**83**
						Training Buses	2	2	2	2	2	2	2	2	2	2	2	2	2	2

Assumptions	
Yearly service growth:	1.20%
Vehicle miles per year:	65,000
Useful Life (years):	4
Useful Life (mileage):	200,000
New vehicle price (2019 dollars):	$85,000

2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
18																	
23	18																
23	23	18															
23	23	23	18														
	24	24	24	18													
		24	24	24	18												
			24	24	24	19											
				24	24	24	19										
					25	25	25	19									
						25	25	25	19								
							25	25	25	19							
								26	26	26	20						
									26	26	26	20					
										26	26	26	20				
											27	27	27	20			
												27	27	27	21		
													27	27	27	21	
														28	28	28	21
															28	28	28
																28	29
																	29
87	**88**	**89**	**90**	**90**	**91**	**93**	**94**	**95**	**96**	**97**	**99**	**100**	**101**	**102**	**104**	**105**	**107**
71	72	73	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87
16	16	16	17	16	16	17	17	17	17	17	18	18	18	18	19	19	20
18%	18%	18%	19%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	18%	19%
21	23	23	23	24	24	23	24	25	25	25	25	26	26	27	26	27	27
2	1	1	1	0	1	2	1	1	1	1	2	1	1	1	2	1	2
85	**86**	**87**	**88**	**88**	**89**	**91**	**92**	**93**	**94**	**95**	**97**	**98**	**99**	**100**	**102**	**103**	**105**
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2