TECHNICAL MEMORANDUM #4

Service and Technology Implementation Plan

October 30, 2023

RICHLAND COUNTY REGIONAL PLANNING

RICHLAND COUNTY TRANSIT
RCT
"City Bus Service at Its Best"

Contents

IMPLEMENTATION PLAN

This report is the fourth technical memorandum for the ten-year Transportation Development Plan (TDP) that is overseen by the Richland County Regional Planning Commission (RCRPC) and the Richland County Transit Board (RCTB). This report includes an implementation plan for service and technology strategies that were identified in the third TDP technical memorandum, which detailed service and technology changes for Richland County Transit (RCT) to consider for implementation in the near term (one to three years), mid-term (four to six years) and long term (seven to ten years).

RCT will phase in near-term and mid-term recommendations over the near and mid-terms as funding levels and staff capacity permit, with regular performance monitoring to guide decisions about implementation. Following a five-year update of the TDP in 2029, including a comprehensive evaluation of all near-term and mid-term strategies, RCT will select its approach to long-term changes; this process, and the potential long-term strategies, is described in the last section of this report.

STRATEGY OVERVIEW

This section provides an overview of how the TDP strategies are structured for implementation. Implementation will occur over three timeframes: the near term (Years 1 through 3, or 2024 through 2026), the mid-term (Years 4 through 6, or 2027 through 2029) and the long term (Years 7 through 10, or 2030 through 2033). The recommended strategies involve six types of changes and improvements, outlined in Table 1. Throughout this report, a numbering system is used to identify strategies. Each strategy has a numerical code, beginning with a letter that indicates the strategy's type.

Table 1: Strategy Types

Type	Description	Code Prefix
Fixed Route Strategies	Changes to fixed route bus service. For example, changing the hours or schedule of a route, or adding a new route.	F
Demand Response Strategies	Changes to demand response services. For example, adding evening on-demand service or expanding contracted transportation for local organizations.	D
Technology Strategies	Enhancements to technology. For example, upgrading real-time bus tracking or adding electronic fare payment options.	T
Marketing and Outreach Strategies	Tactics to increase community awareness of RCT services. For example, creating a new RCT logo and changing the design of bus stop signs.	M
Revenue Strategies	Efforts to maintain and increase funding for RCT, such as forming partnerships with community organizations or applying for grants.	R

Type	Description	Code Prefix
Organizational Strategies	Activities that increase the administrative capacity of RCT to implement the TDP, such as funding a temporary part-time planning position or hiring a change management consultant.	O
Long-Term Alternatives	Four alternatives are provided for RCT's long-term operating model, each representing an approach to fixed route and demand response services for RCT to implement beginning in 2030 following an evaluation of the near- and mid-term strategies implemented by RCT.	A

Color Coding

For easier navigation within this document, the three phases of strategies are coded with the following color schemes.

Near-Term Strategies (2024-2026)	Mid-Term Strategies (2027-2029)	Long-Term Strategies (2030-2033)
Near-term strategies are shown in red	Mid-term strategies are shown in green	Long-term strategies are shown in blue

NEAR-TERM STRATEGIES

The near-term phase of the TDP is 2024 through 2026, although some near-term strategies are being piloted as of mid- to late 2023. The near-term strategies are listed in Table 2 with their planned years of implementation. Short descriptions of the strategies follow the table.

Table 2: Near-Term Implementation Timeline

Code	Near-Term Strategies	2023	2024	2025	2026
	Fixed Route				
F1	Adjust routes and schedules for improved access to destinations and efficiency	X	X	X	X
F2	Add the Ontario Circulator	X	X	X	X
F3	Discontinue Route 13-Shelby	X			
F4	Add Route 15-Industrial Park schedules		X	X	X
F5	Transition from Flag Stop to Bus Stop System		X		
	Demand Response				
D1	Add Same-Day Service to Dial A Ride	X	X	X	X
D2	Expand Contracted Transportation Service for Local Organizations	X	X	X	X

Code	Near-Term Strategies	2023	2024	2025	2026
D3	Provide Early Morning and Evening On-Demand Service			X	X
D4	Provide Final Friday On-Demand Service		X	X	X
	Technology				
T1	Replace Computer-Aided Dispatch/Automatic Vehicle Locator (CAD/AVL) System	X			
T2	Publish Google Transit Feed Specification (GTFS) Data and Integrate in Google Maps		X	X	X
T3	Add the Balance Payment Feature in Dispatch and Scheduling Software (Ecolane)		X	X	X
T4	Add Center View Portal for Online Trip Scheduling in Ecolane		X	X	X
T5	Add Self Service Portal for Online Trip Scheduling in Ecolane		X	X	X
T6	Adopt On-Demand Trip Scheduling in Ecolane			X	X
T7	Adopt Electronic Fare Payment for Fixed Routes			X	X
T8	Add Electronic Daily Vehicle Inspection Report for Demand Response Vehicles in Ecolane			X	X
	Marketing and Outreach				
M1	Re-brand RCT Vehicles, Website, Bus Schedules and Promotional Materials		X		
M2	Re-brand and Replace Bus Stop Signs		X		
	Revenue				
R1	Develop Funding Partnerships and Secure New Local Government Support		X	X	X
R2	Apply for Section 5311 Rural Transit Funding			X	X
R3	Pursue a Local Special Purpose Economic Development District				X
	Organizational				
O1	Engage Additional Support for Planning and Change Management		X	X	X

STRATEGY DESCRIPTIONS

Near-Term Fixed Route Strategies

The first group of near-term strategies includes changes to RCT fixed routes to improve route efficiency, ridership, and access to employment. In-depth descriptions of planned changes to all fixed routes were provided in the third TDP technical memorandum. The changes include the addition of a new route, the Ontario Circulator, and the discontinuation of Route 13 to Shelby. The efficiency route changes (Strategy F1) and Ontario Circulator (Strategy F2) are being piloted beginning September 4, 2023. These changes are being piloted to understand their impacts on ridership, and will be evaluated in early 2024 before being made permanent, potentially with adjustments based on the evaluation's findings. Route 13 was discontinued on July 28, 2023 (Strategy F3).

In 2024, depending on available funding, RCT will extend the hours of Route 15 to the Airport Industrial Park, adding two schedules in the afternoon to enhance access to first and second shift employment; in 2025, two late evening schedules will be added for second and third shifts (Strategy F4). In 2024, RCT will transition from a flag stop system to a designated bus stop system (Strategy F5). Additional information to guide this transition is provided in Appendix A.

Near-Term Demand Response Strategies

RCT will expand Dial A Ride service to allow same-day trip reservations, based on available capacity (Strategy D1). Same-day service is above and beyond the paratransit requirements of the Americans with Disabilities Act, which mandates rides for pre-qualified customers with disabilities on a next-day reservation basis. RCT began to accommodate same-day requests as daily ride schedules allow, effective September 5, 2023.

Also in 2023, RCT will expand contracted human service transportation to local community agencies (Strategy D2). Contract service allows RCT to provide demand response trips to human service agency clients under contract to agencies for a negotiated price. This type of service will be provided as RCT's staffing capacity allows, and will be expanded over time following the acquisition of additional vehicles. RCT's current policy on offering contract service to community organizations is provided in Appendix B.

In 2024 and 2025, RCT will add new demand response services, dependent on available funding. In 2024, RCT will work with community organizations to offer an on-demand ride service for Final Friday attendees (Strategy D4). In 2025, early morning and evening on-demand service for the general public will be piloted as a means of access to employment and other trip purposes during hours that fixed route service is not cost-effective to operate (Strategy D3). These new demand response services will initially require reservations at least one day in advance. However, once RCT has successfully tested new technology for on-demand trip requests (as described in the following paragraphs on technology strategies), the services will be available for on-demand scheduling. Under an on-demand model, customers will be able to request a ride through an app or the telephone, and a vehicle will be dispatched within a defined timeframe (for example, 20 minutes) to pick them up and take them to their destination.

Near-Term Technology Strategies

RCT will implement technology upgrades during the near term for improved efficiency and customer service. As of August 2023, RCT is procuring a replacement Computer-Aided Dispatch/Automatic Vehicle Location (CAD/AVL) system for its fixed route vehicles (Strategy T1). This technology will allow RCT to offer an improved real-time bus tracking app, bus location data for dispatching purposes, and operational data for performance tracking and reporting. The CAD/AVL system will support RCT in publishing its General Transit Feed Specification (GTFS) data and integrating it into Google Maps, which will allow the public to plan their RCT fixed route trips in Google Maps (Strategy T2).

In 2024, RCT will offer new payment and ride scheduling technologies to Dial A Ride customers through functionality that is available in Ecolane, RCT's existing Dial A Ride scheduling and dispatching platform. The Balance Payment feature will allow customers or their sponsors to pay for rides electronically

(Strategy T3). The Center View Portal will permit human service agencies, such as group homes, to schedule rides for clients online rather than calling RCT on the phone (Strategy T4). Following the implementation of the Center View Portal, RCT will launch the Self Service Portal for individuals to schedule Dial A Ride trips for themselves (Strategy T5).

In 2025, using functionality available in Ecolane, RCT will begin to offer on-demand trip scheduling capabilities to customers using demand response services (Strategy T6). Also, during 2025, RCT will procure technology for electronic fare payment for fixed route service (Strategy T7), and will pilot the use of Ecolane's electronic daily vehicle inspection report system (Strategy T8).

More information about the benefits of the identified technology strategies for all three phases of the TDP is provided in Appendix C.

Near-Term Marketing and Outreach, Revenue, and Organizational Strategies

During the near-term timeframe, RCT will contract for branding and marketing services to support a refresh of the RCT brand and the re-branding of vehicles, the website, bus schedules and promotional materials (Strategy M1). RCT will also redesign its bus stop signs to reflect the new branding (Strategy M2).

New sources of revenue will be critical for the implementation of all TDP strategies. Therefore, RCT will also invest time in developing potential new funding partnerships with local employers, governments and non-profit organizations to support the new routes and services for long-term sustainability (Strategy R1). For rural services planned for mid-term implementation (2027 through 2029), RCT will apply for FTA Section 5311 rural transit funding through ODOT, a process that would be initiated as early as 2025 (Strategy R2). RCT will also explore the feasibility of working with local government authorities to establish a local special purpose economic development district to fund local services (Strategy R3). A guide that describes these districts is provided in Appendix D.

The final strategy provided for near-term implementation is to engage additional support for planning and change management as RCT enters a period of intensive activity and change. Beginning in 2024, RCT will seek additional staffing or contractual support to assist with the implementation of the TDP's near-term strategies (Strategy O1), due to the workload required.

ESTIMATED COSTS OF NEAR-TERM STRATEGIES

The following tables provide estimated costs to implement the near-term strategies beginning in 2024. The costs of some strategies listed in Table 2 are not included for these reasons:

- Costs are not listed for expenses occurring during 2023 (CAD/AVL procurement and pilot route changes).
- Costs are not listed for strategies that do not reflect the addition of a new service, or the preservation of an existing service (e.g., discontinuation of Route 13).

- Costs are not included for contract human service transportation, because this service will depend on agency interest and will typically be provided to agencies able to pay the fully allocated cost of service, making it cost-neutral for RCT.
- Cost estimates are not provided for the revenue strategies because these strategies would be implemented with current staffing, potentially with assistance from additional staff or consultants that are engaged to expand organizational capacity.
- Separate tables are provided for costs to operate service (Table 3); costs to implement new technologies, marketing efforts and organizational support (Table 4); and capital costs that were already programmed into the Transportation Improvement Program (TIP) (Table 5), such as vehicle replacements and facility repairs.

Table 3 provides estimates of operating costs for the fixed route network, incorporating the route changes described in the third technical memorandum, and the demand response strategies. The cost estimates are based on the projected fully allocated per-hour costs of $112.05 for fixed route and $109.81 for demand response in 2024, with a three percent inflation rate applied for the following years. This inflation rate is also applied to cost estimates for the mid-term and long-term strategies. To provide total estimated operating costs by year, Table 3 also includes cost estimates for Dial A Ride and RCT's existing contract service for the Area Agency on Aging.

Table 3: Estimated Operating Costs by Year, Near-Term Strategies

Code	Near-Term Strategies	2024	2025	2026
	Operating Costs			
F1	Adjust routes and schedules for improved access to destinations and efficiency	$1,657,220	$1,706,936	$1,758,144
F2	Add the Ontario Circulator	$314,300	$323,729	$333,441
F4	Add Route 15-Industrial Park Schedules	$57,146	$117,720	$121,251
D1	Add Same-Day Service to Dial A Ride	$0	$0	$0
D3	Provide Early Morning and Evening On-Demand Service	N/A	$403,782	$698,111
D4	Provide Final Friday On-Demand Service	$10,981	$11,310	$11,650
N/A	ADA Paratransit and Existing Contract Service	$475,993	$503,245	$518,343
	Total Operating* Costs	**$2,515,639**	**$3,066,723**	**$3,440,940**

**Operating Costs represent the fully allocated costs to operate RCT, including planning and preventive maintenance costs, which are built into the estimated cost per hour.*

Table 4 provides estimates of costs associated with new technologies, marketing efforts, and organizational support. These costs are labeled as capital/planning costs and are generally eligible for 80 percent funding from FTA. The cost estimates for the technology strategies involving Ecolane are current as of mid-2023. For GTFS feed development and Google Maps integration, the cost is based on a peer transit system's use of a consultant for this task.

The fixed route electronic fare payment cost estimate is based on the pricing structure offered by Token Transit, a lower-cost smartphone-based fare payment system, which charges transit agencies a set percentage of collected fares (e.g., 10%) to use the system. While this technology is utilized by many small transit agencies in the U.S., more complex systems offering features such as on-board credit card payments and fare capping are available at higher costs, including EZFare, an offering of NEORide.

The cost estimates provided for the marketing and organizational support strategies are planning-level estimates that would be refined following the development of specifications for these strategies, and the solicitation of pricing.

Table 4: Estimated Capital/Planning Costs by Year, Near-Term Strategies

Code	Near-Term Strategies	2024	2025	2026
	TDP Capital/Planning Costs			
T2	Publish Google Transit Feed Specification (GTFS) Data; Integrate in Google Maps	$2,750	$2,750	$2,750
T3	Add the Balance Payment Feature in Ecolane	$0	$0	$0
T4	Add Center View Portal for Online Trip Scheduling in Ecolane	$55,200	$9,200	$9,200
T5	Add Self Service Portal for Online Trip Scheduling in Ecolane	Incl w/Ctr View	Incl w/Ctr View	Incl w/Ctr View
T6	Adopt On-Demand Trip Scheduling in Ecolane	N/A	$0	$0
T7	Adopt Electronic Fare Payment for Fixed Routes	N/A	$3,000	$3,000
T8	Add Electronic Vehicle Inspection Report in Ecolane	N/A	$6,300	$6,300
M1	Re-brand RCT Vehicles, Website, Bus Schedules and Promotional Materials	$30,000	N/A	N/A
M2	Re-brand and Replace Bus Stop Signs	$25,000	N/A	N/A
O1	Engage Additional Support for Planning and Change Management	$30,000	$20,000	$20,000
	Total TDP Capital/Planning Costs	**$142,950**	**$46,650**	**$46,650**

Table 5 provides the planned capital vehicle and facility costs that are currently programmed in the TIP during the near-term phase. These represent capital costs for Richland County Transit; for the purposes of this report, all other costs are classified as operating costs, even though the TIP classifies some of these operating costs as other types of costs (planning, ADA paratransit, or maintenance.) Programmed TIP projects are subject to change based on available funding, the agency's Transit Asset Management Plan, and unforeseen needs.

Table 5: Planned Capital Vehicle and Facility Expenditures Included in TIP during Near Term

Near-Term Strategies	2024	2025	2026
TIP Projects			
Bus Replacement	$1,500,000	N/A	N/A

Near-Term Strategies	2024	2025	2026
Cutaway Replacement	$600,000	$600,000	N/A
Facility and Equipment Repairs	$65,000	$180,000	$65,000
Service Vehicle Replacement	N/A	N/A	$52,000
Total TIP Capital Vehicle and Equipment Expenditures	**$2,165,000**	**$780,000**	**$117,000**

Lastly, Table 6 provides the estimated numbers and costs of additional vehicles that would be necessary to operate expanded demand response services (night/early morning and new contracted service). The numbers of vehicles correspond to the levels of service projected in this plan. RCT also has the option to use its existing cutaway buses for these services. However, acquiring new vehicles in the near term will extend the life of the existing vehicles and prepare RCT for the mid-term strategies that involve new demand response services.

Table 6: Estimated Expansion Vehicle Costs during Near Term

Near-Term Strategies	2024	2025	2026
Expansion Vehicle Costs			
Small (non-CDL) cutaway vehicles*	$320,000 (2 @ $160,000)	$329,600 (2 @ $164,800)	$339,488 (2 @ $169,744)

**Results in total expanded fleet of 6 small cutaways by 2026; estimated fleet need for night/early morning service in 2027 is 5 active vehicles and 1 spare*

PERFORMANCE

While implementing all TDP strategies, RCT will monitor performance at regular intervals. Performance can be monitored on a monthly or quarterly basis using data that is tracked in Ecolane for demand response services and the new CAD/AVL software for fixed routes. Suggested performance measures are provided in Table 7. This table is provided as an overview of potential performance metrics for the ten-year TDP horizon. Peer agency performance data are included in the table for comparison. RLS & Associates obtained National Transit Database data for five peer transit systems in Ohio and West Virginia:

- Allen County Regional Transit Authority (ACRTA) – Lima, OH
- Licking County Transit – Newark, OH
- Springfield City Area Transit (SCAT) – Springfield, OH
- Sandusky Transit System – Sandusky, OH
- Mid-Ohio Valley Transit Authority (MOVTA) – Parkersburg, OH

The communities served by these systems are similar in population size and density to the Mansfield urbanized area. All systems but Licking County Transit operate fixed route service. Data for two years (pre- and post-COVID) are provided in the table. Data for 2017 through 2021 for each agency is provided in Appendix E.

Table 7: Suggested Performance Measures for Regular Monitoring of TDP Strategies[1]

Performance Measure	Description	Calculation	Potential Targets/Discussion	Peer Agency Performance for Comparison
Passenger Trips per Revenue Vehicle Hour (Product-ivity)	The number of passenger boardings per hour of transit service. For demand response, captures the ability of the shared-ride demand response system to schedule and serve passenger trips with similar origins, destinations, and time parameters, using the least number of in-service vehicles and hours.	Total passenger trips ÷ total revenue vehicle hours	**Demand response**: 3 trips/revenue hour (2033 goal) Ridership and productivity will build as awareness and trust in the service develops over time. In 2022, Dial A Ride productivity was 1.7 trips/hour. **Fixed route**: 7.8 trips per revenue hour (2033 goal) Fixed route productivity in small urban areas often ranges from five to 15 trips per hour; in 2022, RCT route productivity ranged from 3.8 (Route 7-Wayne/E. Mansfield) to 11.0 (Route 1-Park Avenue). 2023 average productivity (all routes) is projected at 6.8; 7.8 represents conservative growth over time.	**Demand response – range for 5 peer agencies** 2019: 1.9 to 4.0 2021: 1.5 to 3.7 **Fixed route – range for 5 peer agencies** 2019: 5.2 to 12.6 2021: 4.6 to 6.2
Operating Cost per Revenue Vehicle Hour	The financial resources needed to produce a unit of service, defined for this measure as an hour of service.	Total operating cost ÷ total revenue vehicle hours	The financial projections for the TDP are based on the cost-per-hour rates provided in Table 8. In 2024, the projected cost per hour for demand response is $109.81; for fixed route, it is $112.05.	**Demand response – range for 5 peer agencies** 2019: $54.59 to $107.49 2021: $54.62 to $98.84 **Fixed route – range for 5 peer agencies** 2019: $78.58 to $104.10 2021: $53.71 to $108.35

[1] Definitions are provided in Transit Cooperative Research Program (TCRP) Report 136 (2009), "Guidebook for Rural Demand-Response Transportation: Measuring, Assessing, and Improving Performance," National Academy of Sciences.

Performance Measure	Description	Calculation	Potential Targets/Discussion	Peer Agency Performance for Comparison
Operating Cost per Revenue Vehicle Mile	The financial resources needed to produce a unit of service, defined for this measure as a mile of service.	Total operating cost ÷ total revenue vehicle miles	Based on the projected cost-per-hour rates (Table 8) and the estimated annual revenue miles, the fixed route cost per mile is projected to be $7.79 in 2024; the demand response cost per mile is projected to be $12.71. *Demand response costs per mile are higher than fixed route due to wait time during revenue service, resulting in lower miles travelled.*	**Demand response – range for 5 peer agencies** 2019: $2.47 to $6.80 2021: $3.50 to $7.81 **Fixed route – range for 5 peer agencies** 2019: $4.74 to $7.33 2021: $4.17 to $8.29
Operating Cost per Passenger Trip	Combines elements of operating cost per revenue vehicle hour and passenger trips per revenue vehicle hour, relating productivity to hourly operating cost.	Total operating cost ÷ total passenger trips	Cost per trip varies with service type; will be highest for services with lowest productivity (i.e., demand response). The projected 2024 cost per trip for fixed route service is $16.48; the demand response cost per trip is projected to be $54.91.	**Demand response – range for 5 peer agencies** 2019: $17.82 to $29.03 2021: $26.98 to $47.44 **Fixed route – range for 5 peer agencies** 2019: $4.81 to $10.76 2021: $10.33 to $17.53
On-Time Performance (OTP)	Measures the reliability of the system: does the vehicle arrive for the demand response pick-up, or at the fixed route stop, when it was promised?	**Demand response**: Total on-time trips (provided within the advertised pick-up window), including no-shows ÷ total completed trips + no-shows + missed trips **Fixed route**: Total departures departing scheduled timepoints between 0 and 5 minutes after the scheduled departing time ÷ Total departures from scheduled timepoints	Standards for OTP vary, but 90% or better is recommended as a starting point. RCT has not had reliable technology in the past to evaluate fixed route OTP. OTP can be tracked for demand response in Ecolane, and will be trackable through the new CAD/AVL system for fixed route.	OTP data is not included in publicly available National Transit Database data, so peer ranges are not provided. The Federal Transit Cooperative Research Program Transit Capacity and Quality of Service Manual (TCQSM) provides that 80%-89% OTP is "achievable" by bus services in small- to-midsized cities.

Table 8: Projected Cost per Revenue Hour by Year

Year	Demand Response	Fixed Route
2024	$109.81	$112.05
2025	$113.10	$115.41
2026	$116.50	$118.87
2027	$119.99	$122.44
2028	$123.59	$126.11
2029	$127.30	$129.90
2030	$131.12	$133.79
2031	$135.05	$137.81
2032	$139.10	$141.94
2033	$143.28	$146.20

Table 9: Performance Goals for Near-Term Fixed Route and Demand Response Strategies

Near-Term Strategies	Performance Measure	2024	2025	2026
Fixed Route Strategies (F1 – Route changes, F2 – Ontario Circulator, F3 – Route 15 schedules)	Productivity (average for all routes)	6.8	6.9	7.0
[redacted]	Operating Cost per Revenue Vehicle Hour	$112.05	$115.41	$118.87
	Operating Cost per Revenue Vehicle Mile	$7.79	$8.02	$8.26
	Operating Cost per Passenger Trip	$16.48	$16.70	$16.93
	On-Time Performance (OTP)	90%	92%	94%
Demand Response Strategies (D1 - Same-Day Service, D3 – Morning/Evening On-Demand, D4 – Final Friday)	Productivity (average for all demand response services)	2.0	2.1	2.2
[redacted]	Operating Cost per Revenue Vehicle Hour	112.05	$115.41	$118.87
	Operating Cost per Revenue Vehicle Mile	$12.71	$13.09	$13.48
	Operating Cost per Passenger Trip (decreases year-over-year due to projected improvements in productivity)	$54.91	$53.60	$52.48
	On-Time Performance (OTP)	87%	89%	91%

MID-TERM STRATEGIES

The mid-term phase of the TDP is 2027 through 2029. The mid-term strategies are listed in Table 2 with their planned years of implementation. Short descriptions of the strategies follow the table. All of the service strategies (fixed route and demand response) are contingent on the availability of the sources of revenue that will be pursued during the near-term: local funding partnership and government support (Strategy R1), Section 5311 rural transit funding (Strategy R2), and/or a local special purpose economic development district (Strategy R3).

Table 10: Mid-Term Implementation Timeline

Code	Mid-Term Strategies	2027	2028	2029
	Fixed Route			
F6	Restore Shelby Route	X	X	X
	Demand Response			
D5	Add E. Mansfield/Madison Township On-Demand Zone	X	X	X
D6	Add Saturday On-Demand Service	X	X	X
D7	Add Lexington On-Demand Zone		X	X
D8	Add Bellville On-Demand Zone		X	X
D9	Add Rural Richland County Demand Response Service		X	X
	Technology			
T9	Adopt Microtransit or Mobility-as-a-Service Technology			X*
T10	Adopt Fixed Route Scheduling Software			X*
T11	ADA Enhancements and Technology Improvements to Facilities and Shelters			X*
	Marketing and Outreach			
M3	Expand Marketing and Travel Training for Demand Response Services in New Areas	X	X	X
	Revenue			
R4	Investigate the Feasibility of a Tax Levy	X	X	X
R5	Continue Efforts to Maintain and Expand Funding Partnerships, Local Government Support, Grants, and/or Special Purpose Economic Development District	X	X	X
	Organizational Support			
O2	Conduct an Evaluation and 5-Year TDP Update			X

**Contingent on outcome of 2029 Evaluation and 5-Year TDP Update*

STRATEGY DESCRIPTIONS

Mid-Term Fixed Route Strategy

The mid-term period includes one fixed route strategy, the restoration of the Shelby route using FTA Section 5311 funding. This strategy would be contingent on a successful application for this funding (Strategy R2), including a commitment for local matching funds.

Mid-Term Demand Response Strategies

In 2024, RCT will add new demand response services as funding allows. These additions are dependent on the outcomes of the near-term revenue strategies: local funding partnership and government support (Strategy R1), Section 5311 rural transit funding (Strategy R2), and/or a local special purpose economic development district (Strategy R3).

The services are intended to serve as pilot projects to test the demand for service expansion to unserved, or underserved, areas of the county. They include:

- Suburban On-Demand services East Mansfield/Madison Township, Lexington, and Bellville;
- On-Demand service on Saturdays; and,
- General Public Demand Response service for rural areas of Richland County.

With the exception of rural Richland County service, these services are intended to be offered as on-demand services, which involve the implementation of the Center View and Self-Service portals in Ecolane (near-term Strategies T4/T5).

Mid-Term Technology Strategies

One of the two mid-term technology strategies would be implemented following the five-year TDP update, which would include a comprehensive evaluation of all of the near- and mid-term TDP strategies implemented through 2028. This evaluation will support RCT's decision about whether to maintain a primarily fixed route service model or transition to a model that is primarily on-demand. The evaluation should include an examination of peer transit system experiences with shifting significant resources from fixed routes to on-demand service.

If RCT opts to transition to a primarily on-demand model, the agency should consider whether Ecolane software is sufficient for an operation that is larger in scale then the services described previously in the near- and mid-term strategies. Potentially, it would be advantageous for the agency to adopt one of two technology models (Strategy T9), Software as a Service (SaaS) or Transportation as a Service (TaaS). Under the SaaS model, the agency would secure new on-demand software but continue to operate the service with the existing model (contracting to a separate third-party organization that employs the drivers). Under a Transportation as a Service (TaaS) model, the agency would contract with a third-party vendor to both provide the software and operate the services.

If RCT chooses to continue to operate as a primarily fixed route service, the agency would benefit from adopting fixed route driver management software (Strategy T10) and adding modern wayfinding technology to the Stanton Transit Center and key bus stops (Strategy T11). Adoption of a software system for preparing driver rosters will result in administration and operational efficiencies and a potential reduction in overtime costs as a result. At the transfer hub and key shelters, digital signage with technology for those with visual and hearing impairments would enhance the customer experience through increased access to travel information, vehicle and route locations, and service alerts.

Mid-Term Marketing and Outreach, Revenue, and Organizational Strategies

The introduction of on-demand services in places historically unserved by RCT such as Lexington or Bellville will require RCT to invest resources in educating the community about how to use these services. Strategy M3 is to expand marketing and travel training for these services. This can be achieved through adding staff who dedicate the majority of their time to outreach and education.

During the mid-term period, RCT would investigate the feasibility of a tax levy to fund the transit system (Strategy R4). For RCT to maintain all of the services added in the near- and mid-terms, an ongoing, dedicated source of local funding will be necessary. Efforts to investigate the feasibility of a levy would be in addition to continuing the near-term strategies for new revenue, which will require ongoing effort for them to be sustainable (Strategy R5).

The final strategy for mid-term implementation is the 5-Year TDP Update (Strategy O2), which would include an evaluation of all strategies implemented between 2023 and 2028.

ESTIMATED COSTS OF MID-TERM STRATEGIES

The following tables provide estimated costs to implement the mid-term strategies beginning in 2027. In Table 11, to provide complete projections of annual operating costs, the near-term strategies are included. The mid-term strategies are provided in bold font.

Table 11: Estimated Operating Costs by Year, Mid-Term Strategies

Code	Mid-Term Strategies	2027	2028	2029
	Operating Costs			
F1	Adjust routes and schedules for improved access to destinations and efficiency	$1,810,888	$1,865,215	$1,921,172
F2	Add the Ontario Circulator	$343,444	$353,748	$364,360
F4	Add Route 15-Industrial Park Schedules	$124,889	$128,636	$132,495
F6	**Restore Shelby Route**	**$249,778**	**$257,271**	**$264,989**
D3	Provide Early Morning and Evening On-Demand Service	$917,941	$945,480	$973,844
D4	Provide Final Friday On-Demand Service	$11,999	$12,359	$12,730
D5	**Add E. Mansfield/Madison Township On-Demand Zone**	**$244,784**	**$378,192**	**$389,538**

Code	Mid-Term Strategies	2027	2028	2029
D6	**Add Saturday On-Demand Service**	**$102,829**	**$154,243**	**$158,870**
D7	**Add Lexington On-Demand Zone**	**N/A**	**$252,128**	**$389,538**
D8	**Add Bellville On-Demand Zone**	**N/A**	**$189,096**	**$259,692**
D9	**Add Rural Richland County Demand Response Service**	**N/A**	**$504,256**	**$779,075**
N/A	ADA Paratransit and Existing Contract Service	$533,893	$549,910	$566,407
	Total Operating* Costs	**$4,340,446**	**$5,590,533**	**$6,212,709**

**Operating Costs represent the fully allocated costs to operate RCT, including planning and preventive maintenance costs, which are built into the estimated cost per hour.*

Table 12 provides estimates of some costs associated with mid-term technology strategies, marketing efforts, and organizational strategies. These are planning-level estimates that would be refined following the development of specifications for these strategies, and the solicitation of pricing. As with the near-term strategies, cost estimates are not provided for the revenue strategies because these strategies would be implemented with existing staffing. Outside partners and funding typically play significant roles in pursuing tax levies.

Ongoing near-term strategy costs represented in Table 4 are not included in Table 12, but some of the costs could occur in the mid-term, including GTFS data management, Ecolane modules (Center View/Self Service Portals and Vehicle Inspection Report) and Electronic Fare Payment. Also, RCT may wish to continue to fund additional planning and change management support into the mid-term.

Table 12: Estimated Capital/Planning Costs by Year, Mid-Term Strategies

Code	Mid-Term Strategies	2027	2028	2029
	TDP Capital/Planning Costs			
T9	Adopt Microtransit and/or Mobility-as-a-Service Technology*	N/A	N/A	Costs to be determined through competitive procurement
T10	Adopt Fixed Route Scheduling Software*	N/A	N/A	Costs to be determined through competitive procurement
T11	ADA Enhancements and Technology Improvements to Facilities and Shelters*	N/A	N/A	Costs to be determined through competitive procurement

Code	Mid-Term Strategies	2027	2028	2029
M3	Expand Marketing and Travel Training for Demand Response Services in New Areas	$70,000 to $90,000	$70,000 to $90,000	$70,000 to $90,000
O2	Conduct an Evaluation and 5-Year TDP Update	N/A	N/A	$50,000 to $100,000

**Selection of Strategy T9 or T10/T11 is contingent on the 5-Year TDP Update*

Table 13 provides the planned capital vehicle and facility expenses that are currently programmed in 2027, the final year of the existing TIP.

Table 13: Planned Capital Vehicle and Facility Expenditures Included in TIP, 2027

Mid-Term Strategies	2027
TIP Projects	
Bus Replacement	$0
Cutaway Replacement	$0
Facility and Equipment Repairs	$95,000
Service Vehicle Replacement	$0
Total TIP Capital Vehicle and Facility Expenditures	**$95,000**

Table 14: Estimated Expansion Vehicle Costs during Mid Term

Mid-Term Strategies	2027	2028	2029
Expansion Vehicle Costs			
Small (non-CDL) cutaway vehicles*	$349,673 (2 @ $174,836)	$360,163 (2 @ $180,081)	$370,968 (2 @ $185,484)

**With near-term acquisitions (Table 6), results in total expanded fleet of 10 small cutaways as of 2028 for all near-term and mid-term demand response strategies. The two vehicles planned for purchase in 2029 would replace the vehicles purchased in 2024. However, RCT may wish to invest in additional small vehicles if the 2029 TDP Update results in a recommendation to transition some or all fixed route service to demand response.*

PERFORMANCE

Suggested performance measures for the mid-term strategies are provided in Table 15.

Table 15: Performance Goals for Mid-Term Fixed Route and Demand Response Strategies

Mid-Term Strategies	Performance Measure	2027	2028	2029
Continue Near-Term Fixed Route Strategies (F1 – Route changes, F2 – Ontario Circulator, F3 – Route 15 schedules) and add F4 – Shelby Route	Productivity (average for all routes)	7.1	7.2	7.4
[redacted]	Operating Cost per Revenue Vehicle Hour	$122.44	$126.11	$129.90
	Operating Cost per Revenue Vehicle Mile	$8.51	$8.76	$9.03
	Operating Cost per Passenger Trip	$17.17	$17.42	$17.67
	On-Time Performance (OTP)	96%	96%	96%
Continue Demand Response Strategies (D1 - Same-Day Service, D3 – Morning/Evening On-Demand, D4 – Final Friday) and add Mid-Term Demand Response Strategies (D5 - E. Mansfield/Madison Township, D6 – Saturday, D7 – Lexington, D8 – Bellville, D9 - Rural Richland County)	Productivity (average for all services)	2.3	2.4	2.6
[redacted]	Operating Cost per Revenue Vehicle Hour	$119.99	$123.59	$127.30
	Operating Cost per Revenue Vehicle Mile	$13.89	$14.30	$14.73
	Operating Cost per Passenger Trip	$51.50	$50.65	$49.92
	On-Time Performance (OTP)	93%	93%	93%

LONG-TERM STRATEGIES

RCT's options for long-term strategies were presented in the third technical memorandum in the form of four service alternatives that (1) institutionalize the applicable near-term and mid-term

recommendations and (2) take one of three approaches to the core Mansfield urban area service: increase fixed route frequency, permanently transition some fixed routes to on-demand service, or move to a 100% on-demand model. Implementing the full extent of any of these alternatives can only occur if RCT secures an ongoing, dedicated source of local transit funding.

In the TDP final report, potential costs and timeframes will be provided for each long-term service alternative, similar to the information provided in the third technical memorandum. The alternatives provided for the TDP's long-term strategies are summarized in Table 16.

Table 16: Service Details, Long-Term Strategies

Alternative	Fixed Route	Demand Response
Status Quo: Existing Network (No New On-Demand/ Demand Response)	• Pre-TDP Fixed Route Network • Shelby Fixed Route	• No New On-Demand or Demand Response Services
Alternative 1: Existing Network with New On-Demand Services	• Preserves Existing Fixed Route Network • Ontario Circulator • Shelby Fixed Route	• Final Fridays • Morning/Evening On-Demand • Saturday On-Demand • East Mansfield/Madison Township On-Demand • Lexington On-Demand • Bellville On-Demand • Rural Demand Response
Alternative 2: Increased Frequency with New On-Demand Services	• Preserves Existing Fixed Route Network, with Exception of Route 7 • Increases Frequency from 60 minutes to 30 minutes on Most Routes • Ontario Circulator • Shelby Fixed Route	• Final Fridays • Morning/Evening On-Demand • Saturday On-Demand • Expands East Mansfield/Madison Township On-Demand to Include Area Served by Route 7 • Lexington On-Demand • Bellville On-Demand • Rural Demand Response
Alternative 3: "Spine" Network with New On-Demand Services	• Retains Routes 1 and 15 • Ontario Circulator • Shelby Fixed Route	• Adds Daytime On-Demand to Areas Formerly Served by Fixed Routes • Final Fridays • Morning/Evening On-Demand • Saturday On-Demand • East Mansfield/Madison Township On-Demand • Lexington On-Demand • Bellville On-Demand

Alternative	Fixed Route	Demand Response
		• Rural Demand Response
Alternative 4: 100% On-Demand and Demand Response	• No Fixed Route Service	• Adds Daytime On-Demand to Areas Formerly Served by Fixed Routes • Final Fridays • Morning/Evening On-Demand • Saturday On-Demand • East Mansfield/Madison Township On-Demand • Lexington On-Demand • Bellville On-Demand • Rural Demand Response

Table 17 provides projections for the costs and performance of each alternative in the final year of the ten-year planning horizon, 2033.

Table 17: Projected 2033 Operating Costs and Key Performance Measures, Long-Term Alternatives

2033 Estimated Annual Hours, Costs and Ridership	Status Quo: Existing Network (No New On-Demand/ Demand Response)	Alternative 1: Existing Network with New On-Demand Services	Alternative 2: Increased Frequency with New On-Demand Services	Alternative 3: "Spine" Network with New On-Demand Services	Alternative 4: 100% On-Demand and Demand Response
Fixed Route Projections					
Fixed Route Hours	17,595	20,655	32,130	9,435	0
Fixed Route Cost	$2,572,386	$3,019,758	$4,697,401	$1,379,395	$0
Fixed Route Ridership	129,897	151,317	240,822	63,801	0
Fixed Route Cost per Trip	$19.80	$19.96	$19.51	$21.62	$0
On-Demand and Demand Response Projections					
On-Demand and Demand Response Hours	4,220	27,727	31,838	37,954	43,176
On-Demand and Demand Response Cost	$604,630	$3,972,701	$4,561,664	$5,437,953	$6,186,134
On-Demand and Demand	10,550	69,318	79,595	113,862	129,528

2033 Estimated Annual Hours, Costs and Ridership	Status Quo: Existing Network (No New On-Demand/ Demand Response)	Alternative 1: Existing Network with New On-Demand Services	Alternative 2: Increased Frequency with New On-Demand Services	Alternative 3: "Spine" Network with New On-Demand Services	Alternative 4: 100% On-Demand and Demand Response
Response Ridership					
On-Demand and Demand Response Cost per Trip	$57.31	$57.31	$57.31	$47.76	$47.76
Projections for Total System (Both Modes)					
Total Hours	21,815	48,382	63,968	47,389	43,176
Total Cost	$3,177,016	$6,992,459	$9,259,065	$6,817,349	$6,186,134
Total Ridership	140,447	220,635	320,417	177,663	129,528
Average Cost per Trip	$22.62	$31.69	$28.90	$38.37	$47.76

APPENDIX A: BUS STOP GUIDANCE

BUS STOP GUIDANCE

Bus stops should be easily identifiable, safe, accessible, clean and comfortable for current and prospective transit customers. Bus stop design must account for several factors including customer accessibility and convenience, timeliness of the route, and the natural and built environments. The spacing, location, design, and usage of bus stops influences the transit system's performance and public image.

This section illustrates industry standards and offers recommendations for bus stops. The principles offered will ensure consistency in the placement and design of bus stops throughout the route network; encourage the local community to utilize public transit; and enhance/reinforce the RCT brand. The design standards presented herein were developed in accordance with the ADA Accessibility Guidelines (ADAAG) FTA Circular 4710.1; ADA Standards for Transportation Facilities (ADASTF) 49 CFR Part 38, and Public Right-of-way Accessibility Guidelines (PROWAG). The location of bus stops and signage must also conform to state and city standards, policies, and guidelines. Guidance on bus stops can also be found in the Ohio Department of Transportation (ODOT) Multimodal Design Guide.

ADA LANDING PAD

Bus stop boarding and alighting areas must be constructed on a firm stable surface as required by the ADA. Many transit agencies construct a concrete "landing pad" to ensure compliance. A bus stop that includes a pole and sign does not automatically require an ADA landing pad unless passenger infrastructure (amenities, such as benches or shelters) is constructed. In order to enhance access to transit services to all, stops should be assessed on a case-by-case basis to determine the need for and feasibility of construction of an ADA landing pad.

BUS STOP LOCATION RELATIVE TO INTERSECTION

Bus stop locations are generally described by their proximity to an intersection or location within a block. The three industry standards include, bus stops located just prior to an intersection (near-side stop), stops located just past an intersection (far-side stop), and stops located away from an intersection (mid-block). Stop locations can be determined by a variety of factors, such as:

- ADA considerations
- Customer safety
- Pedestrian access
- Location of driveways
- Presence of buildings
- Sightline restrictions
- Traffic signals
- Location of bus stops on connecting streets
- Stop spacing

Bus stops should be located within public right-of-way; however, easements should be considered on a case-by-case basis. Stops should not be placed in front of curb cuts or storm drains and at locations free

of above grade obstacles such as utility boxes, power poles, etc. The three standard stop locations and associated advantages and disadvantages are detailed below.

Near-Side Stops

Near-side stops provide close proximity to intersections for passengers. Vehicles stopped at traffic signals may prevent the bus/shuttle from getting too near-side stops on-time. This may result in delays as an operator must wait for vehicles to clear before they are able to access the stop. Near-side stops encourage pedestrians to cross in front of the vehicle, sometimes causing safety concerns because the operator's sight distance for pedestrians is obstructed by front of the bus. However, the bus exit door is traditionally in close proximity to the crosswalk, increasing access and reducing walk time for passengers. Near-side stops decrease the potential for double-stopping (first at the signalized intersection and then at the bus stop), and provide operators with the width of the intersection to pull away from the curb. Although there are some advantages, this option is not preferred, and should be selected only when conditions warrant.

Mid-Block Stops

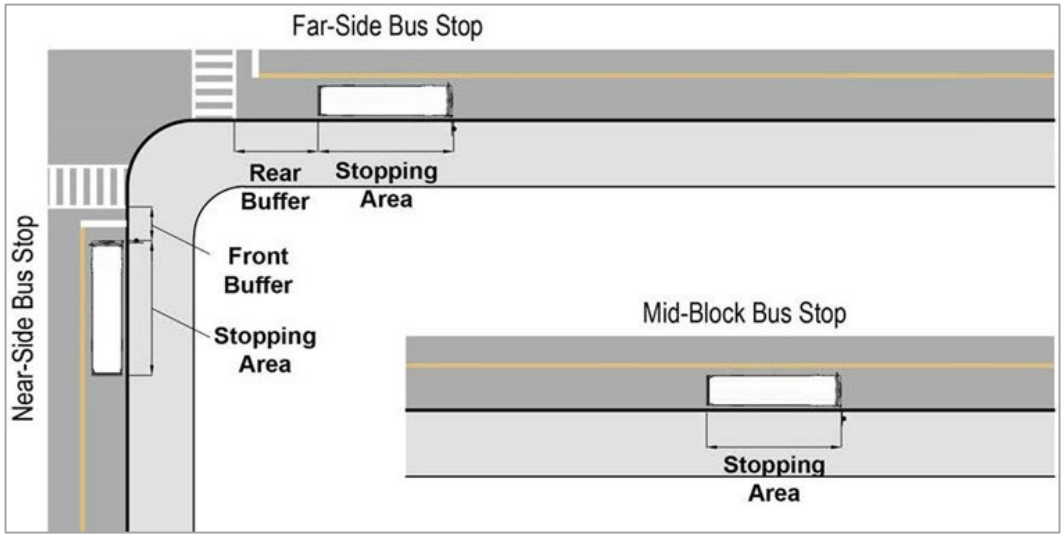
These stops are not located close to intersections. They are generally located in areas where there are long stretches between intersections. Mid-block stops are common practice to accommodate land uses that serve as origins/destinations for passengers (e.g., employment and educational centers). However, they are not the preferred standard and should only be selected as circumstances warrant. Mid-block stops should be located adjacent to marked pedestrian crossings if/as feasible to prevent jaywalking. Additionally, passengers may have to travel further when connecting to other routes after alighting at mid-block stops. However, these stops do not obstruct operator sight distances at intersections and provide greater access to major trip generators. Mid-block stops are not preferred due to inherent challenges and should only be considered in limited applications.

Far-Side Stops (Preferred)

Far-side stops are located after an intersection. These types of stops are often preferred because they reduce conflicts between right-turning vehicles and stopped transit vehicles and encourage pedestrian crossing at the rear of the bus. Far-side stops create shorter deceleration distances for buses since the bus can use the intersection to decelerate. Additionally, buses can re-enter traffic via gaps in flow at signalized intersections. Although the advantages are greater, the disadvantages to this stop type should be noted. Far-side stops can result in the queuing of traffic into the intersection when a vehicle is loading/unloading passengers. Increased potential for dual stops, one at the signalized intersection and the second at the bus stop, may have a negative impact on schedule adherence. Finally, they may result in rear-end collisions if motor vehicles do not anticipate the bus stop after the intersection. Far-side stops are the preferred and should be the standard, provided that safety or operational concerns are not present.

The above referenced stop types are depicted in Figure 1.

Figure 1: Illustration of Bus Stop Types



Source: Ohio Department of Transportation (ODOT) Multimodal Design Guide

BUS STOP SPACING

Bus stop spacing is an important tool in achieving performance and service coverage goals. The objective is an optimal balance between access to the route, customer convenience, and route timing. While close stop-spacing increases access and reduces walking times, it can result in increased travel times and decrease the reliability of service. Stops that are spaced further apart result in longer walking distances; however, fewer stops along a route result in faster speeds and shorter travel times.

Land use and transit propensity are factors that must be considered when planning bus stop locations. In central business districts and downtown areas where population density is greater, bus stops are spaced closer together. Distant spacing is more common in rural and suburban areas where land use is less dense and trip generators are less concentrated. Additionally, the general lack of overhead lighting and pedestrian infrastructure in rural areas present challenges and limit opportunities for bus stop locations that are safe and accessible. Land use, major trip generators, pedestrian facilities, as well as the geography and topography around the stop all influence bus stop spacing. Options for safe and accessible bus stop locations in rural areas are limited due to the low density of destinations, distances of destinations from roadways, and general lack of sidewalks.

Table 1 identifies stop spacing guidelines for removing, relocating, and installing new bus stops in the RCT fixed route network.

Table 1: Bus Stop Spacing

Density	Average Stop Spacing	Maximum Number of Stops Per Mile
Moderate Density Areas (e.g., West Park Avenue between downtown Mansfield and Trimble Rd.)	1/4 mile (1,320 ft or 5 blocks)	4 - 5
Low Density Areas (e.g., Main Street south of Elmridge Rd.)	1/2 mile (2,600 ft or 10 blocks)	2 - 3

It is important to note that these are general guidelines and that the actual placement of bus stops is influenced by more than these factors. Table 2 provides the mileages of RCT routes effective September 4, 2023. Additional factors include ridership, accessibility, special populations, nearby destinations, costs, and transfer opportunities. A map of population density in Richland County is available at https://storymaps.arcgis.com/stories/050401309bcb4d58883aabfc152c9ab4 (scroll to TAZ data and click on Population Density; dark blue areas indicate moderate densities).

A **timepoint** is a point on a route for which the time that buses are scheduled to pass is specified; usually, the bus's leaving time is used. A route schedule lists the times that buses are due to stop at timepoints. Passengers use timepoint schedules to estimate arrival/departure times at bus stops located between timepoints. Timepoints help keep buses on a schedule, and they help customers predict when the bus should depart or arrive. Bus operators can be flexible about when to leave the stops that are not timepoints. This flexibility helps operators stay on schedule, because traffic along bus routes can be unpredictable. There is no industry standard for the distance between timepoints. For an example of a route schedule that lists timepoints, see https://www.richmondindiana.gov/resources/city-route-map.

The mileage figures in Table 2 are provided for purposes of estimating the number of stops per route as a baseline for planning bus stop locations during RCT's transition from a flag-stop service model to a bus stop model. While maximum numbers of stops per mile are provided in Table 1, these should only be used as suggestions for planning purposes. The appropriate distancing of stops will be largely determined by the nature of each route's location.

Table 2: Mileage for Routes Effective September 4, 2023

Route	Route Mileage (round trip)
1 - Park Ave. West	10.3
2 - Lexington Ave./West Cook	8.25
3 - South Main St./Southside	14.14
5 - Springmill/Bowman	8.15
7 - Wayne St./Ashland Rd.	7.98
8 - Glessner/Marion	6.37
9 - West Fourth St.	12.91
15 - Airport Industrial Park	8.4
Ontario Circulator	17.73

BUS STOP SIGNAGE

Signage must be included at each designated bus stop. Bus stop signs indicate where buses are recommended to stop. RCT can maximize system usability and enhance the customer experience through planned improvements to bus stop signage and associated hardware within the fixed route network. A more comprehensive campaign for bus stop improvements is recommended; however, the following provides a foundation for short-term enhancements. Bus stop standards must be established in accordance with ADA requirements and local right-of-way regulations.

Installation Factors

As illustrated, information contained on current RCT bus stop signage is minimal and traditionally affixed to a galvanized post. Signs are installed in the ground, bolted to the concrete, or installed in a small concrete foundation. In some instances, signage is affixed to utility poles or other pre-existing vertical elements. This is common practice within the transit industry and unavoidable in certain circumstances. Agencies should allow for seven feet of clearance below the bottom of the sign. Stops should be placed a sufficient distance from the curb (recommended at two feet but no further than four feet) as ensure visibility while avoiding interference with bus mirrors or obstructing the path of travel for pedestrians.

Design Factors

For quality customer service, the following design factors should be included, at minimum, on all RCT bus stop signs:

- RCT name, logo, and branding
- Route number(s) and name(s)
- Customer service number
- Website address
- A unique identifier

RCT stops do not currently have unique identifiers (e.g., a unique number). However, the implementation of a numbering convention for all bus stops in the RCT network is recommended. Stop numbers help to mitigate confusion among customers and agency staff if assistance is needed at the stop, including during an emergency. The bus stop names and numbers should be provided to Richland County's emergency operations department and other relevant agencies.

Accessibility Factors

Bus stop signs must adhere to ADA Accessibility Guidelines (ADAAG) and comply with ADA Standards for Transportation Facilities (ADASTF) (Sections 703.5.1 through 703.5.4; 703.5.7 and 703.5.8; 703.5) for finish and contrast, case, style, character proportions, stroke thickness, character spacing and height, width, and visibility. The bottom edge of the sign should be positioned at a height of at least 84 inches above the ground.

BUS STOP ENHANCEMENTS

This section overviews existing conditions at bus stops and includes a baseline for a long-term initiative to upgrade existing passenger amenities, improving pedestrian access and enhancing the customer experience at identified bus stops. The built environment at and around the bus stop provides access for passengers. The passenger infrastructure at the bus stop provides a safe and conformable place to wait. This section includes existing conditions of passenger amenities within the RCT network while offering guidelines for future enhancements to passenger infrastructure. Although it would be ideal for every RCT bus stop to be equipped with passenger infrastructure, this is not feasible do to budgetary and the capacity of staff to maintain amenities in good state of good repair. RCT will establish goals at the route and system level to target investment and prioritize capital improvements.

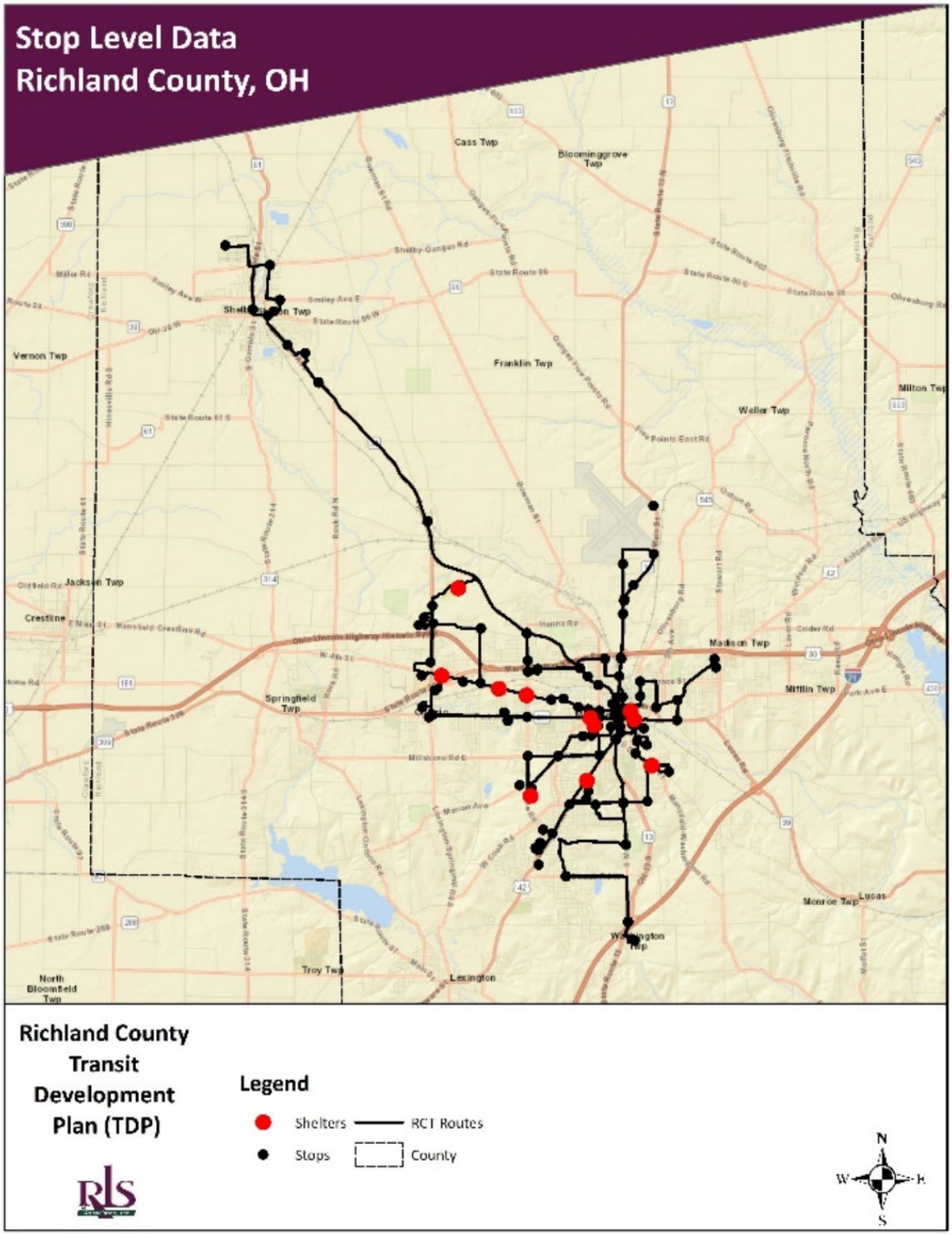
Existing Conditions

The RCT fixed route network consists of ten passenger amenities in the form of covered shelters, benches, and in some instances, trash receptacles. Upgrades to the existing sheltered bus stops will bring the passenger infrastructure into compliance with ADA standards while increasing the safety and comfort of waiting passengers. Existing amenities are outlined in Table 3. A map of the amenities is provided in Figure 2.

Table 3: Inventory of Passenger Amenities

Bus Route	Address	Location/Reference Point	Total	Percent
1 - Park Ave. West	171 Park Ave. East	Richland County Job and Family Services	2	20%
	295 Park Ave. West	Drive Thru Store		
2 - Lexington Ave./West Cook	555 Lexington Ave.	Richland County Health Department	1	10%
3 - South Main St./Southside	660 South Diamond St.	Family Dollar	1	10%
8 - Glessner/Marion	N/A	Corner of Blymer and First St.	1	10%
9 - West Fourth St.	1049 West Fourth St.	CVS	5	50%
	1345 West Fourth St.	Corner of Brookwood Way and West Fourth St.		
	2003 West Fourth St.	Nationwide Children's (Home Center)		
	150 E. Fourth St.	Richland Newhope Industries		
Total			10	100%

Figure 2: Map of Bus Shelter and Stop Locations



Comprehensive Enhancement Plan (Future Phase, Dependent on Available Funding)

A comprehensive planning effort is required to address current amenities and plan for future enhancements. This will allow for agency goal-setting at the route and system level, data analysis and plan development, programming and securement of funds, formal solicitations required for equipment, engineering services and construction, and the mobilization and completion of enhancements. A *Bus Stop Enhancement Plan* may include a planning horizon of five or ten years; the former is recommended for RCT to perform upgrades to existing amenities and enhancements to new stops. Transit agencies traditionally adopt a bus stop hierarchy consistent with the following:

- Basic Stop
- Enhanced Stop
- Transit Center
- Rail, Bus Rapid Transit (PRT), Park and Ride, etc.

Each stop type has clearly defined elements associated with each. These include a combination of equipment types such as, bus stop pole and signage, landing pad, trash receptacle, bench, covered shelter, bike rack, lighting, wayfinding information.

Bus stops should include passenger infrastructure that is appropriate for the level of passenger activity that occurs at each stop. As with bus stops, industry standards related to the referenced have been established to ensure amenities are distributed in an equitable manner. Table 4 includes recommendations on thresholds for identifying RCT bus stop locations that warrant upgrades. Guidelines presented are consistent with industry standards.

Passenger boardings are one metric and should considered in consultation with land use and other evaluative criteria including, the number of routes that serve the stop, high percentage of elderly or disabled individuals in the area, proximity to major activity centers and the availability of space to install passenger amenities. Stops are often classified into tiers (Tier I, II, II) with defined features/amenities associated with each classification.

Table 4: Recommended Daily Boardings for Passenger Infrastructure

Daily Boardings				
Feature	**<25**	**25-49**	**50-100**	**>200**
Bus Stop Sign and Pole	X	X	X	
Unobstructed 5’ x 8’ (minimum) Passenger Boarding Area	X	X	X	X
ADA Landing Pad		X	X	X
Bench/Seating/Lean Bar(s)		X	X	X
Trash/Recycling Receptacle		X	X	X
Bike Racks	Site Specific			
Covered Shelter			X	X
Lighting			X	X
Electronic Sign				X

ADA Guidelines

Passenger infrastructure and associated amenities must adhere to ADA guidelines. Covered shelters must comply, at minimum, with the following ADA standards:

1. Clear path of 3’ minimum in front or behind shelter for sidewalk.
2. Entrance must be 2’8” wide at minimum.
3. Minimum clear floor area of 30 inches wide by four feet deep.
4. Not placed on the ADA landing pad.
5. Minimum height of 6’8”.
6. If it abuts a building, there must be 12” between the shelter and building at minimum.
7. Connected to route to the landing pad.
8. Accessible connections to a street, sidewalk, path etc.

The design of passenger amenities for the RCT network should be universal; however, opportunities to incorporate art into the design are often present in certain neighborhoods or districts within a city. Agencies may leverage talent form the local arts community or local colleges and universities in the design, construction, or sponsorship of passenger amenities. However, design restrictions for amenities installed in state and local rights-of-way may apply. RCT must work in consultation with and adhere to state and local regulations and ordinances in the design and permitting process.

APPENDIX B: DRAFT POLICY ON CONTRACTED TRANSPORTATION SERVICE

Service to K-12 Schools

Per FTA requirements, RCT is prohibited from providing exclusive school bus service. RCT is permitted to operate Tripper service as defined by FTA to accommodate the needs of school students and personnel.

Tripper Service

FTA rules require that Tripper service be open to the public, stop only at the operator's regular service stops with only de minimis route alterations, operate with regular route service, and not carry designations such as “school bus” or “school special.”

FTA defines Tripper service as regularly scheduled mass transportation service that is open to the public and is designed or modified to accommodate the needs of school students and personnel. The vehicles must stop at regular bus stops with only de minimis route alterations from route paths in the immediate vicinity of schools to stops located at or in close proximity to the schools.

Tripper service should operate and look like all other regular service. All routes traveled by Tripper buses must be within the regular route service as indicated in the published route schedules. Schedules listing Tripper routes must appear on RCT’s regular published schedules or on separately published schedules that are available to the public with all other schedules, including on the website.

Demand response service does not qualify for the Tripper service exception. Demand response service provided for purposes outside of general public transit and ADA complementary paratransit is subject to RCT’s Contract Service policy.

Contract Service

Overview

Per FTA requirements, RCT is prohibited from using FTA-funded equipment and facilities to provide charter service that unfairly competes with private charter bus operators. RCT may offer contracted transportation service in instances where the service meets a specified exception defined in the charter rule. Services for clients of Qualified Human Service Organizations fall under one of these exceptions.

RCT must maintain a charter service log, and maintain documentation of each instance of charter service that includes a clear indication of which FTA charter rule exception it relied upon to perform the charter service.

Definition of Charter Service

FTA defines charter service as follows:

1. Transportation provided at the request of a third party for the exclusive use of a bus or van for a negotiated price. The following features may be characteristics of charter service:

    - A third party pays a negotiated price for the group
    - Any fares charged to individual members of the group are collected by a third party
    - The service is not part of the regularly scheduled service or is offered for a limited period of time
    - A third party determines the origin and destination of the trip as well as scheduling

2. Transportation provided to the public for events or functions that occur on an irregular basis or for a limited duration and:

    - A premium fare is charged that is greater than the usual or customary fixed-route fare, or
    - The service is paid for in whole or in part by a third party

Requirement for Notice
RCT must notify registered charter providers through the FTA-defined notification process when providing charter service, and maintain the required documentation.

Exemptions
Some types of services qualify as exemptions and do not require notification or documentation. RCT, at its discretion, can provide the following exempted services:

- **Transportation of Employees, Contractors, and Government Officials:** RCT is allowed to transport its employees, other transit systems' employees, transit management officials, transit contractors and bidders, government officials and their contractors, and official guests to or from transit facilities or projects within its geographic service area or proposed geographic service area for the purpose of conducting oversight functions such as inspection, evaluation, or review.
- **Emergency Preparedness Planning and Operation:** RCT is allowed to transport its employees, other transit systems' employees, transit management officials, transit contractors and bidders, government officials and their contractors, and official guests for emergency preparedness planning and operations.
- **Emergency Response:** RCT is allowed to provide service for up to 45 days for actions directly responding to an emergency declared by the president, governor, or mayor or in an emergency requiring immediate action prior to a formal declaration.
- **Section 5310/5311-Funded Activities:** FTA's charter prohibitions do not apply when RCT is using FTA Section 5310 or 5311 funds for program purposes, that is, transportation that serves the needs of either human service agencies or targeted populations (older adults, individuals with disabilities, and people with low incomes). "Program purposes" does not include exclusive service for other groups formed for purposes unrelated to the special needs of the identified targeted populations.

Exceptions
RCT may provide the following two types of community-based charter services, which FTA considers as exceptions to the rule. These services are considered charter service and have administrative, record-keeping, and reporting requirements. RCT must retain records of each charter service provided for at least three years. Charter service hours include time spent transporting passengers, time spent waiting for passengers, and "deadhead" hours (time spent getting from the garage to the origin of the trip and then the time spent from trip's ending destination back to the garage).

(1) QHSO Service
Qualified Human Service Organization (QHSO) service: RCT may provide service to QHSOs, which are agencies that receive funding, directly or indirectly, from the programs listed in Appendix A of the charter regulation or were registered with FTA at least 60 days before the date of the first request. The

service must be for people:

- With mobility limitations related to advanced age;
- With disabilities; or
- With low income.

If a QHSO serving persons described in these categories does not receive funding from any of the programs listed in Appendix A of this part, the QHSO must register on the FTA charter registration web site.

When providing charter service under this exception, whether or not the QHSO receives funding from Appendix A programs, and after providing such charter service, RCT records:

- The QHSO's name, address, phone number, and e-mail address;
- The date and time of service;
- The number of passengers;
- The origin, destination, and trip length (miles and hours);
- The fee collected, if any; and
- The vehicle number for the vehicle used to provide the service.

Demand Response Services Scheduled or Funded by Third Parties

"Special transportation" means demand response or paratransit service that is regular and continuous and is a type of public transportation. Special transportation vehicle runs may be scheduled and funded by a third party, but must be open to anyone from the general public who may request a ride, if seats are available. Unlike charter service for QHSOs, special transportation does not need to be reported to FTA.

(2) Requests In Which RCT Issued Notification and Received No Response

When no registered charter provider responds to notice of an intention to provide charter service, RCT may provide service after issuing notification to registered charter providers. RCT must record the same charter service data as described above for QHSOs

Payment for Contracted Service

For any contacted service (charter or non-charter), RCT records contract revenue so that it is easily identifiable in its financial records. RCT negotiates rates for services that are considered to be contracted or charter services because they involve payment by third parties.

RCT Reporting Requirements for Charter Service

For any charter service provided, RCT must maintain the required notice and records in an electronic format for a period of at least three years from the date of the service. The records must include a clear statement identifying which exception it relied upon when it provided the charter service.

RCT must post the records on the FTA charter registration website 30 days after the end of each calendar quarter. A single document or charter log may include all charter service trips provided during the quarter. RCT may exclude some charter trip information for safety and security reasons. When excluding information, RCT must describe the reason why such information was excluded and provide generalized information instead of providing specific origin and destination information.

Reports are only required for quarters during which charter service was provided. An FTA Charter Service Quarterly Exceptions Reporting Form and instructions are available for downloading from the

FTA website. www.transit.dot.gov/regulations-and-guidance/access/charter-bus-service/charter-bus-service-quarterly-reports

APPENDIX C: TECHNOLOGY STRATEGIES DETAIL

TECHNOLOGY STRATEGIES

Technical Memorandum #3 offered a detailed overview of RCT's current technology systems including onboard equipment and backend software supporting the agency's fixed route and demand response services. The current solutions employed for the management of assets including vehicles and facilities were included in the description. Alternatives for building a technology landscape that will mitigate immediate, short-term challenges and offer a solid foundation for integration of enhancements over the ten-year horizon were outlined. The solutions presented are most appropriate for small urban transit systems including RCT. Potential sources of funding for recommended enhancements and upgrades from current conditions were presented in *Technical Memorandum #3.*

Technical Memorandum #4 includes an implementation plan for recommended technology solutions to increase efficiencies in agency processes and operations and offer an enhanced customer experience for RCT. A top priority for RCT is to increase the availability and reliability of data and information for internal and external use and smarter travel tools for customers. Key objectives are to increase operational efficiencies and reduce administrative time for data collection and reporting associated with requirements for Federal and State funding sources.

This appendix is organized into a description of existing conditions and a set of recommendations for the immediate, near-term, and mid-term timeframes. Needs identified as highest priority are classified as immediate, and other solutions are presented as near-term and mid-term recommendations, dependent on the availability of funding.

EXISTING TECHNOLOGY CONDITIONS

The existing landscape for Richland County Transit's technology solutions were presented in Technical *Memorandum #3*. For ease of reference, this section lists the current solutions in place at RCT. These services are the foundation from which future recommendations can be planned and implemented. A matrix of RCT's current onboard technology equipment and backend software for fixed route service is provided in **Table C.1** and **Table C.2**.

Table C.1 Inventory of Onboard Technology Equipment for Fixed Route Service

Solution	Description	Benefits	Manufacturer	Date Employed
Automated Voice Annunciation System (AVAS)	The AVAS consists of speakers inside the vehicle that provide audio messages, integrated with the CAD/AVL system, which convey real-time service updates including next stop information and other pre-recorded, public service announcements.	This system is implemented fleet-wide to satisfy a requirement under the Americans with Disabilities Act and improve the customer experience. RCT's fixed route fleet is equipped with this technology providing an improved customer experience and increased accessibility.	Adaptive Ride Systems	Audio system included in vehicle procurement; integration with Doublemap CAD/AVL System occurred October 2019.
Mobile Data Terminal	MDTs are in-vehicle hardware and software with which fixed route operators can log in and input passenger boarding information, communicate with dispatch, and interact with the Computer-Aided Dispatch (CAD). The MDT serves as the data processing and transporting technology that feeds information to the other systems.	Facilitates quick and reliable communications between fixed-route operators and the central dispatch office. The central office and supervisors are able to track the location of each vehicle resulting in increased safety and operational efficiencies. Equipment captures data required to fulfill Federal and State reporting requirements.	Samsung Tablet	October 2019; contract for hardware and support expires January 2024
Exterior Destination Sign; Interior Passenger Advisory Sign	Variable displays are installed on the outside of the vehicles, integrated with the CAD/AVL system, that display the name and number of the RCT fixed route. RCT's buses and shuttles each have a head sign located above the operator compartment and side signage adjacent to the passenger entry door. Variable displays are located on the interior of each fixed route vehicle to illustrate information about the route and upcoming stops.	Ensures compliance with Americans with Disabilities Act (ADA) requirements and provides customers with route information and data required for efficient and effective travel.	Luminator Technology Group	Included with vehicle procurement

Solution	Description	Benefits	Manufacturer	Date Employed
Farebox	Enables the collection of various fare media upon boarding a RCT fixed route vehicle.	RCT maintains manual equipment; however, electronic fare boxes increase operational efficiencies and reliability of data and reporting.	Diamond - Manual Drop-box	Post-delivery installation prior to the deployment of vehicle into revenue service
Two-way Radio	RCT buses and shuttles utilized in the delivery of fixed-route services are equipped with two-way radio equipment; provides a dedicated line for communications between operators and the dispatch office.	Supports quick and reliable communications resulting in safety and operational efficiencies.	Kenwood	New equipment installed March 2023
Video Surveillance System	RCT buses and shuttles are equipped with surveillance systems that capture footage onboard the vehicle (inside and outside). Data captured can be reviewed and stored through support software.	Provides for effective monitoring of activity and increases safety for revenue vehicles and RCT facilities. Provides documentation supporting determinations of fault in accidents.	247 Surveillance	Each vehicle is equipped with 6 camera units; equipment upgraded 2017

Table C.2 Inventory of In-Office Software for Fixed Route Service

Solution	Description	Benefits	Manufacturer	Date Employed
Computer-Aided Dispatch/ Automatic Vehicle Location (CAD/AVL) System	A system that tracks the locations of vehicles in service and communicates their locations to customers for trip planning purposes. This technology supports the overall operations and management of RCT fixed route service and vehicles. It allows for direct communications between dispatchers (central office) and vehicles through the mobile data terminal (MDT), a tablet located on the vehicle.	CAD/AVL is an integral component of the agency's "Intelligence System." It results in improved safety for customers and operators, increases operational efficiencies, enhances the customers' experience and provides reliable data for monitoring system performance, including reports.	Doublemap	October 2019; contract for hardware and support expires January 2024

Solution	Description	Benefits	Manufacturer	Date Employed
Asset Management Platform (Maintenance Department)	Support the management of assets (e.g., fleet and maintenance equipment) by storing a database of information (e.g., age, purchase price, stocking levels, etc.).	Electronic processes in managing vehicles, facilities, and facility components provides increased operational efficiencies and improved data and reporting.	Ron Turley Associates (RTA)	Software has been in place since 2000
Video Surveillance Viewing Software	Support software for viewing and storing footage captured through the on-board surveillance system.	Provides for effective monitoring of activity and increases safety for revenue vehicles and RCT facilities. Provides documentation supporting determinations of fault in accidents.	247 Surveillance Live	Software update occurred in 2017 during the equipment upgrade
General Transit Feed Specification (GTFS)	The standard format for uploading schedule and geographic data to trip planning platforms including Google Transit, Apple Maps, Transit App, etc. GTFS data for RCT was created by Richland County Regional Planning Commission (RCRPC) staff. However, a strategy addressing ongoing maintenance and publication of this data is required.	Data is needed to fulfill NTD reporting requirements. Publication of GTFS data provides an opportunity for RCT schedules and bus stops to be included on publicly available trip planning platforms including Google Transit and Apple Maps.	N/A	N/A

A matrix of RCT's current technology applications for demand response service including onboard equipment and in-office software is presented in **Table C.3** and **Table C.4**.

Table C.3 Inventory of Onboard Technology Equipment for Demand Response Service

Technology Solution	Description	Benefit	Manufacturer	Date Employed
Mobile Data Terminal (MDT)	MDTs are in-vehicle hardware and software with which dial-a-ride, demand response operators can log in and input passenger boarding information, communicate with dispatch, and interact with the Computer-Aided Dispatch (CAD). The MDT serves as the data processing and transporting technology that feeds information to the other systems.	Facilitates quick and reliable communications between demand response operators and the central dispatch office. The central office and supervisors are able to track the location of each vehicle resulting in increased safety and operational efficiencies. Equipment captures data required to fulfill Federal and State reporting requirements.	Samsung Tablet	November 2015; Equipment upgraded 2021
Farebox	Enables the collection of various fare media upon boarding a RCT fixed route vehicle.	RCT maintains manual equipment; however, electronic fare boxes increase operational efficiencies and reliability of data and reporting.	Diamond - Manual Drop-box	Installation occurs post-delivery, prior to the release of bus into service
Two-Way Radio	RCT buses and shuttles utilized in the delivery of Dial A Ride, demand response services are equipped with two-way radio equipment; provides a dedicated line for communications between operators and the dispatch office.	Supports quick and reliable communications resulting in safety and operational efficiencies.	Kenwood	New equipment installed March 2023
Video Surveillance System	RCT buses and shuttles are equipped with surveillance systems that capture footage onboard the vehicle (inside and outside). Data captured is reviewed and stored through support software.	Provides for effective monitoring of activity and increases safety for revenue vehicles and RCT facilities. Provides documentation supporting determinations of fault in accidents.	247 Surveillance	Each vehicle is equipped with 6 camera units; equipment upgraded 2017

Table C.4 Inventory of In-Office Software for Demand Response Service

Technology Solution	Description	Benefit	Manufacturer	Date Employed
Dispatch and Scheduling Software	Transportation reservations and operator schedules for RCT's Dial A Ride and contracted demand response services, are managed through the Ecolane Evolution scheduling and dispatching platform. This solution allows for schedule optimization, allowing trips to be rescheduled between drivers in real time depending on unexpected delays, traffic conditions, trip changes and other situations.	The software supports scheduling in advance, subscription trips (standing reservations), and hosts a suite of management reports for monitoring service performance and utilization.	Ecolane Evolution	November 2015
Video Surveillance Viewing Software	Support software for viewing and storing footage captured through the on-board surveillance system.	Provides for effective monitoring of activity and increases safety for revenue vehicles and RCT facilities. Provides documentation supporting determinations of fault in accidents.	247 Surveillance Live	Software update occurred 2017 in consultation with equipment upgrade

Strategies for a revised technology suite include upgrades to existing technology solutions and inclusion of new tools to expand the agency's portfolio of offerings over the planning horizon. Strategies include onboard equipment and in-office, backend software, but not vehicle propulsion technology (alternative fuels).

- **Immediate needs** are considered high-priority strategies; they are time-sensitive and are recommended for implementation as soon as is practicable. These strategies offer continued support and enhancements to existing solutions classified as integral to the delivery of revenue services and ensure continued compliance with Federal and State regulations. These technology enhancements will ensure customers receive data and information necessary to effectively utilize RCT services and programs. They include:
    - Revised CAD/AVL Platform for Fixed Route
    - Publication of Google Transit Feed Specification (GTFS) Data
    - Real-Time Vehicle Tracking and Trip Planning Tools
- **Near-term strategies** can be implemented within three years (2026). Near-term strategies will require projects to be programmed into future years' grants. These strategies reflect upgrades that are not included in the agency's current technology landscape.
- **Mid-term strategies** would be selected following the evaluation of the TDP's near- and mid-term service strategies. These include options for enhanced on-demand or fixed route technologies, depending on the direction RCT selects following the Evaluation and 5-Year TDP Update.

A comprehensive listing of technology applications illustrated by priority is presented herein.

IMMEDIATE NEEDS

Immediate needs are given high priority due to the time sensitivity associated with current agreements, are revenue neutral options, or are identified to have the greatest return on investment. Upgrades and address of technology applications identified under this category will result in increased administrative efficiencies, offer an elevated degree of customer service through increased access to travel data and trip planning tools, and ensure continued compliance with federal requirements.

Strategies to address immediate needs are presented in **Table C.5**.

Table C.5 Immediate Fixed Route Technology Needs (2023-2024)

Solution	Condition/Need for Address	Timeframe	Traditional Lifespan (Years)	Cost Range
Replacement CAD/AVL for Fixed Route	RCT's agreement with the current CAD/AVL vendor is slated to expire at the end of the agency's fiscal year (December 2023). RCT will need to secure a replacement CAD/AVL product that more appropriately aligns with the needs and goals of the agency.	• Request for Proposals process: Q3 (July) 2023 • Vendor selection and contract award: Q3 (September) 2023 • Installation of onboard equipment and system training: Late 2023 • Implementation of CAD/AVL system: Q1 (January) 2024	8 - 12	$175,000 to $300,000; includes securement and installation of onboard equipment and back-end software
Publication of Google Transit Feed Specification (GTFS) Data	RCT fixed route bus stops are not included on common mapping platforms available to the general public. Publication of RCT schedules and bus stops will allow developers including but not limited to, Google Maps, Apple Maps and the Transit App to display RCT fixed route data on their respective mapping and travel planning platforms.	• Updated GTFS data published to RCT website: Q1 (January through March) 2024	0 - 1	Costs include the update and maintenance of GTFS data, which can be performed in-house or through a third-party. Projected cost for maintenance of GTFS data from a third party is $2,500 to $2,750 annually.
Real Time Vehicle Tracking and Trip Planning Tools	Customers have the ability to track their vehicle in real time utilizing the Doublemap/Transloc	• Customer tools promoting smarter travel published to	2 - 5	A web-based, real-time tracking solution is included in the procurement of the

Solution	Condition/Need for Address	Timeframe	Traditional Lifespan (Years)	Cost Range
	app. Tools to help customers travel smarter including real-time vehicle tracking and trip planning are not currently available through the RCT website. A revised CAD/AVL system should provide real time tracking tools through a smartphone app and a web-based solution that integrates with the RCT website.	RCT website: Q1 (January through March) 2024		CAD/AVL system. Integration with RTC website is at no cost to the agency. Trip planning tools such as Google Transit are available at no cost to agencies who publish their GTFS data. Labor costs might be incurred with initial publication of the tool to the RCT website.

Benefits of Immediate Technology Enhancements

CAD/AVL for Fixed Route

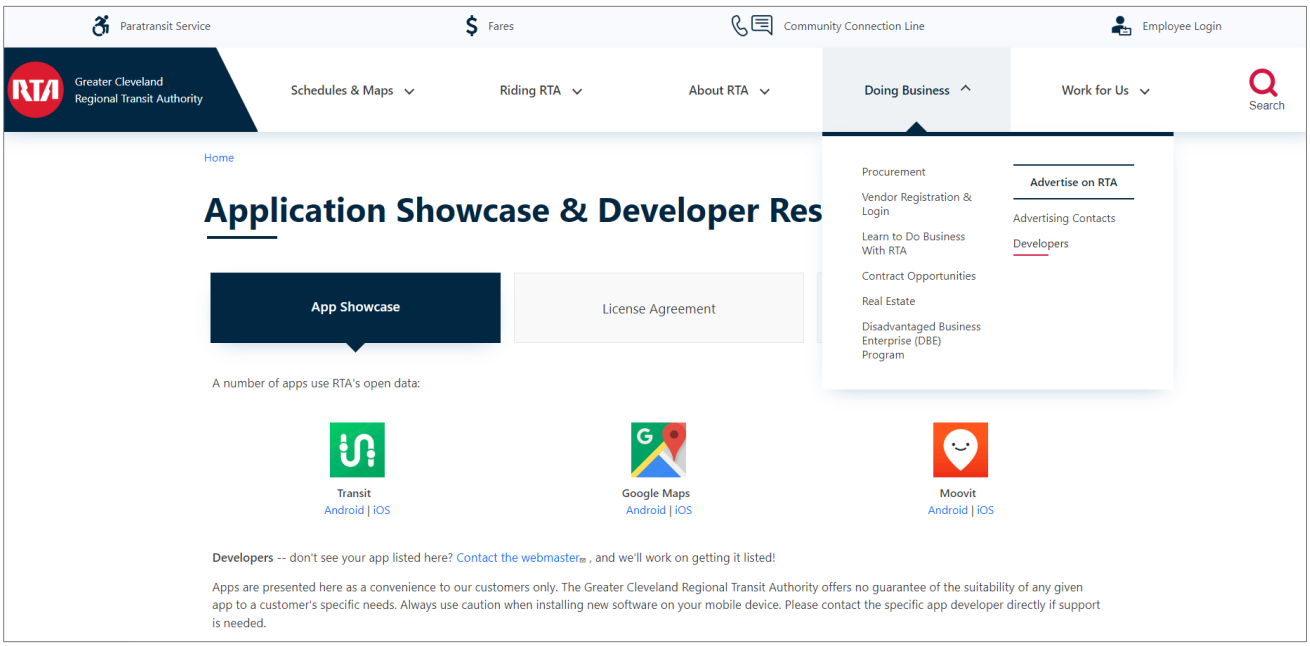
CAD/AVL is an integral component of RCT's "Intelligence System." It results in improved safety for customers and operators, increases operational efficiencies, enhances the customers' experience and increases the reliability of data required for monitoring system performance and reporting. The identified technology will include an annunciator system and integrate with exterior and interior signage. Vehicles will be outfitted with new Mobile Data Terminal (MDT) units. Additionally, the system should have the functionality of capturing ridership data based upon categories established by the agency (e.g., youth, elders, adults, etc.). A function to perform Daily Vehicle Inspection Reports electronically could be considered as part of the CAD/AVL System for implementation at a later date. The CAD/AVL system is a longer-term investment that is anticipated to be able to accommodate the new functions and systems in the future.

Publication of Google Transit Feed Specification (GTFS) Data

Updates to GTFS will be dependent upon system changes including schedule and route modifications. The current GTFS file was created in-house; however, a solution for routine maintenance and management of the data will need to be identified. Data can be managed in-house if capacity permits or by a third-party contractor at cost. Costs for outsourcing the management of GTFS data are estimated at $2,500 to $2,750 annually.

Although services are free, Google Inc. requires that RCT agree to the terms of its License Agreement in order for fixed route schedules and bus stop locations to be available on Google Maps (Sample Agreement). It is industry standard for agencies to reserve a space on their website for developers, current and prospective. The space includes license agreements as well as a static GTFS feed. An example from Greater Cleveland Regional Transit Authority (RTA) is depicted in **Figure C.1**.

Figure C.1 Developer Resource Platform on Greater Cleveland Regional Transit Authority (RTA) Website



National Rural Transit Assistance Program (RTAP) offers GTFS tools and resources at https://www.nationalrtap.org/Technology-Tools/GTFS-Builder#Introduction. Examples of published data from Ohio transit agencies are listed below.

- Southwest Ohio Regional Transit Authority (SORTA/Go Metro) (Cincinnati, OH)
- Laketran (Lake County, OH)
- Greater Cleveland Regional Transit Authority (RTA) (Cleveland, OH)

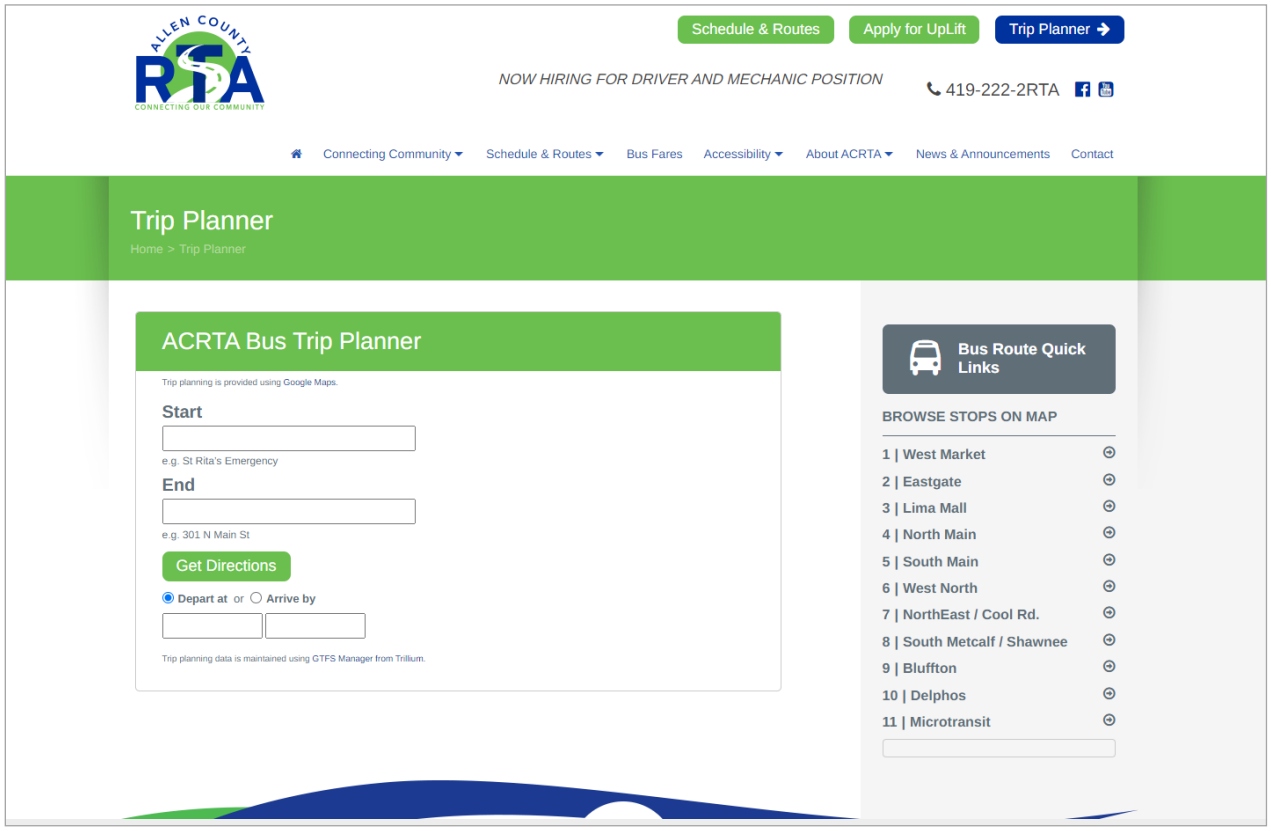
Federal Reporting Requirements for Google Transit Feed Specification (GTFS) Data

The Bipartisan Infrastructure Law amended 49 U.S.C. 5335(a) to require FTA to collect "geographic service area coverage" data through the National Transit Database (NTD); the nation's primary database for statistics on the transit industry. To implement this data collection requirement, and in light of the existing widespread GTFS adoption, FTA now requires annual submissions of static GTFS data to the NTD.

Real-Time Vehicle Tracking and Trip Planning Tools

Resources and tools providing up-to-date information about bus routes and opportunities for smarter travel are standard fixed route system offerings and are typically available on the agency's website and/or smartphone app. Usually provided through the CAD/AVL system, real-time tracking solutions allow customers to view their vehicle in real time and receive predictions when it will arrive at a bus stop. Service interruptions and other pertinent travel information are posted to real-time tracking platforms, offering customers information required for more efficient travel. Transit agencies can publish their CAD/AVL data to public-facing trip planning platforms at no cost. Google Maps is a common platform whose tools are free to the agency. Integration of these tools to the agency's website can be performed in-house by designated personnel or can be outsourced to a third party. An example from Allen County RTA is depicted in Figure C.2 below.

Figure C.2 Allen County RTA Trip Planner



NEAR-TERM TECHNOLOGY STRATEGIES

Near-term strategies are considered moderate priorities as they do not carry the same time sensitivity as the immediate needs, are less impactful to the delivery of services, and are not required to ensure compliance with Federal or State regulations. Near-term strategies for the fixed route and demand response services are presented in Table C.6.

The near-term technology strategies include the following:

- Add the Balance Payment Feature in Ecolane
- Add Center View Portal for Online Trip Scheduling in Ecolane
- Add Self Service Portal for Online Trip Scheduling in Ecolane
- Allow On-Demand Trips based on Self-Service Portal Requests in Ecolane
- Adopt Electronic Fare Payment for Fixed Routes
- Add Electronic Vehicle Inspection Report in Ecolane

Balance Payment Feature in Ecolane

The balance payment feature for clients/customers is currently available through the Ecolane Evolution platform. Customers can add money to their accounts to cover future transportation costs via this “virtual wallet” feature. The cost of the trip can be deducted from their account, mitigating the need for cash or passes. Monies can be applied to client accounts by the central dispatch office or authorized personnel with

access to the software platform. Operators have the capacity to view the balance on a customer account through the MDT.

Center View Portal in Ecolane

RCT's Ecolane Evolution software has a function in which "centers" (e.g., medical office, senior center, etc.) or service contract partners can manage trips on behalf of their clients. This function allows agency partners to review client accounts and submit trip requests and cancellations for clients. The function includes account-based limitations and permissions controlled by RCT. Access to the portal is granted by RCT. Additionally, the system has limits on how far in advance agencies can book a trip; booking rules vary and can be applied on an account basis.

The portal supports an invoice function in which agency partners can be invoiced, over a period of time defined by RCT, for trips taken by clients under their account. Client accounts can be billed by funding source or across multiple funding sources (e.g., primary funding source – state grant and secondary sponsor – local match). The invoicing feature mitigates the need for agencies to procure and issue passes to clients. The invoicing method offers a greater level of monitoring and control over resources (passes) and provides an electronic audit trail for transportation administered by RCT to each service contract partner.

The portal function is web-based with an add-on smartphone app. The app can bear the Ecolane brand or be branded with the RCT logo.

Self Service Portal in Ecolane

The Self-Service Portal is available through the Ecolane Evolution platform allowing clients to manage transportation requests, view reservation history and future trips, view their account balance, and pay for transportation through a website and mobile app. The Self-Service portal is free if acquired with the Center View Portal.

The Self-Service Portal would enable dynamic booking and scheduling of demand responsive (e.g., Dial A Ride) transportation services through real-time optimization of operator manifests to accommodate same-day trip requests. The app allows customers to pay electronically for their trips. This would not require RCT to engage a third-party credit card company; however, transaction fees for this option would apply. Transaction fees are not included in the costs presented in Table C.6.

Electronic Fare Payment for Fixed Routes

The current, manual process for collecting fares and monies for services results in a significant workload to capture, track, and report the data. Errors that are unavoidable in a manual process erode the reliability of data. An electronic mechanism for the sale and collection of fares would improve data reliability and access to reporting while offering the customer an easier option to pay for transportation services. Several functions are available to enhance or replace current fare collection practices.

Mobile ticketing allows customers to purchase and manage fare payments electronically through a web-based or smartphone app. An option for agencies to authorize or arrange for bus passes for their clients might be available on some platforms. Smart cards and automated fare collection systems offer enhanced fare payment through card-based and account-based systems while electronic fare boxes enable the collection of various fare payment media (e.g., cash, bus passes) upon boarding.

In 2023, RCT became a member of NEORide; a council of governments formed in 2014 to coordinate efforts between small and medium transit agencies in Ohio. NEORide received Federal and State grants to launch EZfare, an account-based platform where customers from member agencies can purchase and redeem fares from their mobile device. EZfare consists of three core components including the EZfare app, fare validators, and partnerships with retail vendors to accept cash payments. Customers who are unbanked or underbanked can pre-load their accounts with cash at transit centers and participating retail vendors in their communities. RCT can retain the gravity fare-box located on each fixed route vehicle allowing customers to pay cash upon boarding. RCT can leverage its partnership with NEORide for participation in the EZFare program.

A lower-cost alternative used by many midwestern small transit systems is Token Transit. Token Transit allows public transit agencies to distribute transit passes through a smartphone app, so riders are able to purchase single-trip fares and monthly passes using a credit or debit card from a smartphone. The software does not provide as many features as full fare payment technology packages, such as those offered through NEORide. However, it is low-cost and fast to implement.

Electronic Vehicle Inspection Technology for Demand Response

The Ecolane Evolution platform has the functionality for operators to perform vehicle inspections electronically via MDTs located on the vehicles. Data captured from the MDTs is communicated to the central office through the back-end software. The transition from a manual to an electronic practice would streamline communications between operators, supervisors/managers and maintenance. A modernized process will provide the platform could improve the efficiency the repair process.

Low-Priority/Optional Strategy: Interactive Voice Reponses (IVR) Response System for Demand Response

Interactive Voice Response technology is not included as a near-term TDP strategy, but information about this technology is provided for reference. With IVR, RCT would realize operational and administrative efficiencies through reduced call volume from demand response customers inquiring about scheduled transportation. Increased communications and access to information will enhance the customer experience. Additionally, it would reduce the number of no-shows allowing for more efficient scheduling and service delivery. This function is available through RCT's current dispatching and scheduling software, Ecolane Evolution. There are two options for an IVR system available through the software; the first is notifications provided via phone call and the second via SMS text messaging notifications. Either or both options could be adopted as part of the agency's IVR system.

Although two options are available through the current platform, SMS text was identified as the most cost--effective option. Phone call notifications are widely adopted as this form of communication is universal among all customer bases. It is recommended that RCT conduct a brief survey of Dial A Ride customers to confirm participation in the notification system and the preferred communication. The benefits of an IVR system are recognized; however, input from system users would confirm utilization and help RCT calculate the return on investment.

Table C.6: Near Term Technology Strategies (2024-2026)

Solution	Description	Timeframe	Technology Lifespan (Years)	Cost Range
Balance Payment Feature in Ecolane	The Ecolane Evolution platform includes a "balance" feature that allows customers to place money on their account and deduct the cost of trips from an account balance. Balance can be viewed by customer, central dispatch office, and by operators through the onboard MTD units. Cost of rides can be deducted from account balance.	2024	5 - 10	N/A; function currently available
Center View Portal for Online Trip Scheduling in Ecolane	A Center View Portal is available through the Ecolane Evolution platform allowing agency partners to manage trips on behalf of their clients. Portal can generate invoices, by account, for client transportation.	2024	5 - 10	Option A: Website only, $17,600 one-time cost; annual maintenance fee, 20% of the one-time purchase fee, beginning year two Option B: Website and smartphone app, $46,000; annual maintenance fee, 20% of the one-time purchase fee, beginning year two
Self Service Portal for Online Trip Scheduling in Ecolane	The Self-Service Portal is available through the Ecolane Evolution platform allowing clients to manage transportation request, view reservation history and future trips, view their account balance, and pay for transportation through a website ***and/or*** mobile app. If procured with the Center View Portal, the smartphone app will support the Self-	2024	5 - 10	Option A: Website only, $17,600 one-time cost; annual maintenance fee, 20% of the one-time purchase fee, beginning year two Option B: Website and smartphone app, $46,000; annual maintenance fee, 20% of the one-time purchase fee, beginning year two

Solution	Description	Timeframe	Technology Lifespan (Years)	Cost Range
	Service function within the app at no additional cost. Enables dynamic booking and scheduling of demand responsive (e.g., Dial A Ride) transportation services through real-time optimization of operator manifests to accommodate same-day trip requests.			
Electronic Fare Payment for Fixed Routes	Customers pay for fixed route and demand response transportation services through tickets procured from the RCT administrative facility via cash, check, or card. Cash payments are accepted on every vehicle through a manual/gravity fare box. Agencies may contact Regional Planning via a dedicated e-mail account to procure passes for customers. Passes procured are released to agencies on a monthly basis. An alternative, contactless solution collecting fares for both fixed route is recommended. Components may include Mobile Ticketing, Smart/Bank Card, OnBoard Validation, and Back-office Functionality.	2025	5-8	Pricing will vary based upon the type of components included as part of the fare collection/payment system. A low-cost option for fixed route systems, Token Transit, is included in the near-term technology strategies. The cost is estimated at $3,000 per year and requires no new equipment. For a more robust fare collection system, pricing ranges from $20,000 to $50,000 for smartphone app, $50,000 to $100,000 for backend solution, and $3,000 to $5,000 per onboard validator for smartcards or contactless-enabled bank cards; pricing does not include annual maintenance fees.

Solution	Description	Timeframe	Technology Lifespan (Years)	Cost Range
Daily Vehicle Inspection Report (DVIR) in Ecolane	Operators are required to perform pre- and post- trip inspections on their vehicle at the start and conclusion of each shift. Inspections are currently performed and recorded manually via pen and paper. Efficiencies in the inspection of vehicles and communications of needed repairs will be realized under an electronic process.	2025	10 - 15	$6,000 to $6,300 annual subscription fee
Interactive Voice Response (IVR) System ***(Not Included in TDP Strategies Due to Cost, but Recommended for Further Exploration Depending on Available Resources)***	RCT's demand response scheduling and dispatch software, Ecolane Evolution, has the capability of providing automatic trip notifications to customers the night before their scheduled trip and/or when their vehicle/driver is in route. Notifications are provided via phone call or SMS text messaging.	N/A	5 - 10	Option A: SMS Text Messaging IVR System - $21,500; includes 10k SMS text message credits to start that never expire; annual maintenance fee, 20% of the one-time purchase fee, beginning year two Option B: Call Based IVR System • One-time cost for portal $43,000 • One-time set-up of the call flow $12,500 to $20,000 • Charges to cover monthly IVR costs are dependent on call volume, anticipated at $7,500/annually based upon number of weekly demands response trips Annual maintenance fee, 20% of the one-time purchase fee, beginning year two

MID-TERM STRATEGIES

As described in *Technical Memorandum #4*, RCT would select an approach to technology based on its long-term plans to either retain a primarily fixed operating model, or move to a primarily on-demand model. This decision would be based on a comprehensive evaluation of the first five years of the TDP. This section includes key technologies that would improve operational efficiencies and the customer experience under either model. Cost estimates are not provided since purchasing would occur in 2029 or later, and both technology and costs will evolve in the meantime.

On-Demand Options

If RCT moves toward a service model that relies heavily on on-demand service, the agency may benefit from a more robust technology package for that type of service. The agency could continue to use Ecolane, or issue a competitive solicitation for upgraded software that is designed to support microtransit.

Microtransit

Microtransit is a shared-ride, on-demand service delivery model. This solution, similar to an Uber or Lyft ride-hailing service, has grown in popularity within the transit industry over the past ten years. The COVID-19 health crisis required agencies to rethink service delivery and adopt revised methods in addressing revised travel patterns, shifts in demand, and the need and expectation for a more "convenient" and smarter way to travel. Two microtransit models are Software as a Service (SaaS) and Transportation (TaaS). Under the Software as a Service (SaaS) model, the agency secures the on-demand, back-end software and service delivery is performed with in-house drivers. Under a Transportation as a Service (TaaS) model, the agency contracts with a third-party vendor to both provide the technology and to operate the service.

The near-term TDP strategies to offer on-demand service through Ecolane scheduling and dispatching technology is microtransit in essence. However, other software products are available that have been built from the ground for microtransit purposes. In 2029, when RCT will decide whether to move toward a primarily on-demand operating mode, it is possible that new or upgraded technologies will be available on the market that would be better suited to RCT's needs at the time.

Mobility as a Service (MaaS)

MaaS is an integrated mobility concept in which travelers can access their transportation modes from a single interface. MaaS primarily focuses on passenger mobility allowing travelers to seamlessly plan, book, and pay for travel on a pay-as-you-go and/or subscription basis. MaaS combines multi-modal trip planning and integrated mobility services. An RCT MaaS offering could incorporate services offered by outside transportation providers such as taxis, Uber/Lyft, or non-profit providers. In some areas, MaaS apps incorporate bikeshare, scooters, or short-term car rentals. A related concept is known as a mobility wallet. A mobility wallet is an electronic or card-based payment tool/system, potentially applicable to both public and private shared transportation services, that helps to facilitate multimodal mobility. A mobility wallet provides users with access to rides, passes, best fares, discounts and/or personalized credits that makes trip payment easier and more seamless across a range of mobility options, modes, and carriers.

Helpful resources for microtransit, MaaS and related technologies include Intelligent Transportation Society (ITS) America (https://itsa.org/advocacy-material/mobility-wallet-primer/) and National Center on Applied Transit Technology - NCATT (https://n-catt.org/).

Fixed Route Options

Scheduling Software

RCT utilizes a manual process to design its fixed route schedules and create driver rosters. Adopting an electronic solution could result in administration and operational efficiencies, potentially resulting in a reduction in overtime costs. CAD/AVL software does not usually automatically generate optimized weekly driver schedules meeting specified criteria. RCT, like many small agencies, manages driver schedules and information about drivers in Excel spreadsheets. Using Excel for these purposes is appropriate for agencies with fewer than 20-25 drivers. Scheduling software would be beneficial if RCT grows its fixed route operation beyond this size, particularly if funding levels permit moving from 60-minute to 30-minute headways.

ADA Enhancements and Capital Improvements to RCT Facilities and Shelters

RCT does not have digital signage with real-time bus tracking on the exterior or interior of the main transfer hub or at bus stops, including those with passenger amenities in the form of a covered shelter. Real-time updates, service alerts, and pertinent information is not readily available through visual display or audio. ADA upgrades would include signage and audio notifications for customers with hearing or visual impairments. Digital signage at the transfer hub and key shelters would enhance the customer experience through increased access to travel information, vehicle and route locations, and service alerts. Recommended technologies include digital screens, audible devices and push buttons providing real time tracking information, next bus arrival times, and announcements for all fixed customers, including those with audio-visual disabilities, at the Stanton Transit Center. Smaller-scale versions of these same technologies are recommended for sheltered bus stops in high-ridership areas.

SUMMARY

Technology upgrades will enhance RCT's existing operations and allow for increased efficiency through the reduction of manual practices. The recommended solutions will enhance the customer experience and modernize services and amenities, attracting new riders, the next generation of public transit users. The recommendations presented will help RCT to remain compliant with reporting requirements at the Federal and State level through the reporting of reliable data. Additionally, these solutions are essential for analyzing performance at the system, mode, route, and stop level. A performance-based reporting system increases agency accountability to funding partners, the RCT Board, customers, and the public. Sound and reliable data is required for leadership to evaluate current conditions and make informed decisions to address inefficiencies in operations and prioritize investments in both service and capital.

Performance of systems will need to be monitored, documented, and re-evaluated as part of the planning process and as solutions begin to approach the end of their life-cycle. Replacement of adopted solutions will need to be identified and programmed in the mid and long-term planning cycles based. The projected lifespans included in the tables provide guidance for the planning and programming of replacement of/ upgrades to employed technology solutions.

APPENDIX D: SPECIAL PURPOSE DISTRICTS

The following pages are excerpted from *DevelopOhio Economic Incentives Toolkit: An Effective Economic Development Toolkit for Growth and Job Creation*, a copyrighted publication of Bricker Graydon LLP (July 1, 2023). The full document can be accessed at https://www.bricker.com/resource-center/develop-ohio/key-resources/resource/economic-incentives-toolkit-747#:~:text=The%20DevelopOhio%20Economic%20Incentives%20Toolkit,stimulate%20growth%20and%20job%20creation.

economic development settings, like new community authorities, development charges become covenants running with the land, and are enforceable against subsequent property owners.

Regional Transportation Improvement Projects

During the 135th General Assembly's state budget bill process, Ohio's Regional Transportation Improvement Projects (RTIPs) were changed to authorize their governing boards to create county-wide transportation financing districts that allow up to 100%, 30-year real property tax exemptions related to transportation improvements and "opportunity corridor improvements".[144] Such districts exclude residential and already-TIF'ed parcels.

LOCAL SPECIAL PURPOSE ECONOMIC DEVELOPMENT DISTRICTS/ENTITIES

Programs Discussed:

- Joint Economic Development Districts
- New Community Authorities
- Transportation Improvement Districts
- Special Improvement Districts
- Property Assessed Clean Energy Bonds
- Community Improvement Corporations
- County Land Reutilization Corporations
- Port Authorities
- Downtown Redevelopment Districts

Much of the work of economic development in Ohio is performed locally by municipalities, townships, and counties. Many of these political subdivisions have dedicated staff and resources devoted to business development in their jurisdictions. These local economic development organizations, or *LEDOs*, may be further supported by stand-alone "helper" economic development entities operating in furtherance of limited purposes and/or to serve specific geographical areas. These supporting entities authorized under Ohio law are described below.

Joint Economic Development Districts

Joint Economic Development Districts[145] (JEDDs) are special-purpose districts created by contract among a combination of municipal corporations and townships. These Districts allow for the

[144] See R.C. 5709.48 and R.C. 5595.01 *et seq*., as amended by Am. Sub. H.B. 33, 135th Ohio General Assembly; Opportunity Corridor Improvements are those transportation improvements within 2,500 ft. of rights-of-way to make for economic development opportunities.

[145] The creation of a JEDD may occur according to alternate means set forth in Sections 715.691 through 715.72 of the Ohio Revised Code. Joint Economic Development Districts generally are governed under Sections 715.69 through 715.82 of the Revised Code, with a significant rewrite of these provisions having occurred in Sub. HB 182 adopted by the 131st Ohio General Assembly.

levying of an area-wide income tax and the provision of municipal services in unincorporated township land. Put another way, JEDDs are a way to impose an income tax collection mechanism on employees, residents, and businesses located within, and provide municipal services to, areas in unincorporated townships; townships otherwise are prohibited under Ohio law from levying income taxes.

Under Ohio law, one or more municipal corporations and one or more townships may enter into a contract to create a JEDD for the purpose of facilitating economic development. Except in limited circumstances, each contracting party must be contiguous to at least one other contracting party. In addition, the territory included in the JEDD must meet several additional requirements to qualify.[146] Once the JEDD has been created, any county within which the JEDD is located may enter into an agreement with the contracting parties regarding the provision of services within the JEDD.

To create a JEDD, there must first be a newspaper notice published, a petition drive seeking signed consent from property and business owners in the proposed area, and an opportunity for the public to inspect the contract and the economic development plan for the JEDD.[147] As to such an economic development plan, this is a brief summary document consisting of a schedule of the new, expanded or additional services, facilities or improvements to be provided, and a schedule for the collection of any income tax to be levied within the JEDD. The public must also be able to inspect a detailed description of the area to be included within the JEDD, including a map. Next, a public hearing must be held by each political jurisdiction's legislative authority to promote public discussion of the contract and the JEDD. Each contracting party must then adopt legislation (i.e., a resolution or ordinance) approving the contract. Finally, the contract must be executed and any local referendum periods must expire before the JEDD is effective.

In 2021, the Ohio General Assembly inserted into the state's biennial budget bill a change to the JEDD law to require the partnering jurisdictions to issue new notices and employ new JEDD agreement terms.[148] Districts must exclude land that is in close proximity to, or subject to water/sanitary sewer service agreements by, a municipality which is not party to the JEDD

[146] To qualify, the territory included in the JEDD must meet these additional requirements: (a) the JEDD must be located within the territory of one or more of the contracting parties and may consist of *all* of that territory; (b) the territory may not include existing residential areas or areas zoned for residential use; provided, however, that it may include areas zoned for mixed-use; and (c) the area may not include any land owned by or leased to a municipal corporation or township, unless such municipal corporation or township is a contracting party or has consented to the inclusion of that land within the JEDD.
[147] See R.C. 715.72(I), (J), and (K).
[148] Am. Sub. H.B. 110, 134th Ohio General Assembly.

agreement.[149] Specifically, new R.C. 715.72(E)(1)(d) and (J)(2) require excluding from a district any land within one-half mile of a municipality (which is not part of the JEDD agreement), or is subject to a water/sanitary sewer agreement under which such non-party municipality will be the future provider of water or sewer services to all or part of the proposed JEDD. The only exception to this new requirement is if the subject property owner signs the circulated JEDD petition. A JEDD is governed by a board of directors. The contract sets the method for appointing board members. The powers of JEDDs are not clearly defined by Ohio law, but include:

- The power to levy an income tax within the JEDD at a rate not higher than the highest rate being levied by a municipality that is a contracting party, with an amount being set aside for the long-term maintenance of the JEDD.

- The power to determine the substance and administration of zoning and other land-use regulations, building codes, permanent public improvements, and other regulatory and proprietary matters determined to be for a public purpose.

- The power to limit and control annexation of unincorporated territory within the JEDD. Note here that JEDD contracts therefore can serve as annexation agreements under Ohio law[150] and often prohibit annexation of township territory during, and sometimes after, the term of the JEDD.

- The power to limit the granting of property tax abatements and other tax incentives within the JEDD.

- The power to create a JEDD in a mixed-use area where both residents and businesses are located.

- The power to create a community entertainment district within the JEDD.

In addition, JEDDs have all other powers that are described in the contract. But a JEDD is a creature of statute, and as such it can have only such powers as are specifically granted by statute. In this way, a JEDD can have no more power than an individual municipality or township. Ohio law specifically provides that the powers granted to a JEDD "are in addition to and not in

[149] See R.C. 715.72(A)(10) and (11).
[150] See R.C. 709.192.

derogation of all other powers granted to municipal corporations and townships pursuant to law."[151] Thus, creating a JEDD cannot cause a contracting party to lose other powers.

Business owners located in a proposed JEDD area may "opt out" of the JEDD by filing an action in a court of common pleas on or before six months of the effective date of the JEDD contract. The business owner must show: (1) that it operated within the JEDD area before the effective date of the JEDD contract; (2) that it did not sign a petition in support of the JEDD; and (3) that neither the business nor its employees has derived or will derive any material benefit from the JEDD's new, expanded, or additional services, facilities, or improvements, or the material benefit is negligible in comparison to the income tax revenue generated from the net profits of the business and the income of employees of the business. The court of common pleas must render a decision within 60 days of receiving the complaint, unless the parties agree to a longer period of time.[152]

Note that in the context of related types of entities – Joint Economic Development Zones[153] and Joint Economic Development Review Councils[154] – the General Assembly authorized in 2023 these particular types of joint economic development organizations to meet remotely via interactive videos or teleconferences, a form of meeting which is otherwise prohibited under Ohio's Sunshine Laws.[155]

New Community Authorities

The creation and governance of New Community Authorities arises under Chapter 349 of the Ohio Revised Code. The economic development value of a New Community Authority (NCA), sometimes called a Community Development Authority (CDA), is in making available *new taxing authority* as well as serving as a *stand-alone entity which may issue bonds* to support development.

The enabling statutes date back to the early 1970s. The use of NCAs is to encourage the orderly development of well-planned communities and to encourage participation by private enterprise in such undertakings.[156] Contemporary case law from that era noted the state's encouragement of developing communities "by private efforts through a mild form of a public community authority, with power limited… by its purpose."[157] Put another way, NCAs are public-private partnerships

[151] See R.C. 715.72(T).
[152] See R.C. 715.72(Q).
[153] R.C. 715.691.
[154] R.C. 715.692.
[155] See R.C. 715.693, as enacted by Am. Sub. H.B. 33, 135th Ohio General Assembly.
[156] See R.C. 349.02.
[157] *Perkins et al. v. Stockert et al.*, 45 Ohio App. 2d 211, 216 (March 26, 1975).

that allow local governments and private developers to work together to achieve development or redevelopment goals.

The concept has been used across Ohio to help pay for and manage infrastructure, such as roads and schools. Authorities, once created, are vehicles for financing the construction and ongoing maintenance of community assets like swimming pools, recreation centers, and outdoor plazas and buildings; the facilities themselves are exempt from real property taxes under Ohio law.[158]

A new community, or property developed as part of an existing community, is one planned to include facilities for industrial, commercial, residential, educational and recreational pursuits, designed in accord with planning concepts for the placement of open spaces and utilities.[159]

A new community's facilities are all the real property and related furniture, fixtures, and equipment owned, operated, financed, constructed, and maintained by an NCA or in furtherance of community activities, whether located within or outside the new community's boundaries. The list of NCA-financed and operated community facilities is quite broad, and includes public, neighborhood or town buildings and plazas, auditoriums, daycare centers, recreation halls and educational facilities, hospital and telecommunications facilities, cultural facilities, parks and open space land, lakes and streams, community streets, off-street parking, bikeways, lighting facilities, water and wastewater, and energy facilities including gas or electric lines or installation.[160]

A new community district is the area of land described by the developer in his or her petition to create an authority; the district area may grow or recede by subsequent petition or resolution passed after the NCA has been established.[161]

NCA Powers

A new community authority is a body corporate and politic under state law, governed by a board of trustees.[162] Once created, an authority operates with a wide array of powers, to include: acquiring property, within or without the new community district, and maintaining or disposing of

[158] *Newfields New Community Authority* v. *Kinney*, 1978 Ohio Tax LEXIS 516 (April 4, 1978).
[159] See R.C. 349.01(A).
[160] See R.C. 349.01(I), as amended by Am. Sub. HB 166 of the 133rd Ohio General Assembly.
[161] See R.C.s 349.01(C), 349.03(A) and 349.03(B). Effective in early 2019, HB 500 was enacted by the 132nd Ohio General Assembly to remove the previous requirement that the proposed district must be at least 1,000 acres. And HB 166 of the 133rd Ohio General Assembly removed references to a district located wholly within a municipal corporation or for a district in which more than half of the area is within a JEDD. Thus, as it stands currently, there are no minimum acreage requirements for a new community district.
[162] See R.C. 349.01(D).

property,[163] providing recreational and amusement activities for district residents,[164] collecting charges to cover the costs of the new community development,[165] enforcing covenants running with land that benefit the authority,[166] and employing staff.[167] Authorities may sue and be sued and enter into contracts,[168] apply for grants and loans,[169] enter into any necessary agreements with political subdivisions (subject to prevailing wages but without competitive bidding),[170] and issue revenue bonds and notes payable from their pledged income (i.e., community development charges).[171] All bonds issued by the NCA become a debt of the NCA rather than of any political subdivision.

Note Authorities do not have power in such matters as zoning, fire or police protection, nor water and sewer service (unless such water or sewer service otherwise is unavailable from other subdivisions).[172]

Community Development Charges

Importantly, a new community authority may earn income from community development charges, of which the obligation to pay is recorded in covenants running with the land in the district.[173] Charges can be determined on the basis of assessed valuation of real property in the district, the income of residents in the district, the profits of businesses operating in the district (including property rental income),[174] a uniform fee on each parcel of property in the district, or a combination of these.[175] The NCA statutes allow the community development charges to be collected by the county treasurer in the same manner as real property taxes.[176]

[163] See R.C. 349.06(A) and (B). Note also that any governmental entity may convey to or receive from such an authority any property necessary for the new community development. See R.C. 349.13.
[164] See R.C. 349.06(D).
[165] See R.C. 349.06(E).
[166] See R.C. 349.06(Q).
[167] See R.C. 349.06(G).
[168] See R.C. 349.06(H) and (I).
[169] See R.C. 349.06(J).
[170] See R.C. 349.06(S).
[171] An NCA's bond-issuing powers are fully described within the enabling statutes at ORC sections 349.08 through 349.11.
[172] See R.C. 349.05.
[173] See R.C. 349.01(K) and (L) and R.C. 349.06(Q).
[174] If charges are levied on the basis of rental revenue from leased property in the district, improvements to such property in the district cannot be exempted from taxation under a TIF structure. See R.C. 349.01(L)(2).
[175] See R.C. 349.01(L)(1).
[176] See R.C. 349.07.

Petition to Organize an NCA

The process to organize a new community authority is developer-driven by filing a petition with the clerk of the relevant "organizational board of commissioners."[177] Under the NCA statutes, the organizational board of commissioners generally is the board of county commissioners,[178] or the village or city council if the district will be located (i) entirely within the boundaries of a municipality or (ii) more than half of which is within the most populous municipality in the county.[179] With a change authorized by the 135th General Assembly in the state budget bill, NCA law was expanded to include certain townships as organizational boards of commissioners.[180]

The petition may be required to be approved by the largest city of the county in which the new community authority is located. In some circumstances, approval is also required from the largest city of a neighboring county, even if no part of the proposed district is located within that city or county. If a district is to be located within one or more municipal corporations, each such municipal corporation must approve the petition. If more than half of a district is to be located within a JEDD, but not within a municipal corporation, the petition must be approved by the township containing the greatest portion of the territory of the JEDD.[181]

Depending on which surrounding cities to the proposed district have signed the petition, or which entity constitutes the organizational board of commissioners, a public hearing on the petition may be scheduled to occur as soon as 30 to 45 calendar days after the petition's filing date. Upon the public hearing, the organizational board of commissioners may declare the authority as duly organized with such district boundaries as proposed.[182]

NCA's Board of Trustees

The powers of a new community authority are exercised by its board of trustees. The board oversees, coordinates, constructs, and finances public infrastructure improvements and community facilities for the benefit of the community. Importantly, the NCA statutes specifically deem the

[177] See R.C. 349.03(A).
[178] See R.C. 349.01(F)(1) and (2).
[179] See R.C. 349.01(F)(3).
[180] See R.C. 349.01(F)(4), as added by Am. Sub. H.B. 33, 135th Ohio General Assembly, namely: a township with a population of at least 5,000, and located in a county with a population of between 200,000 and 400,000. Similarly, the list of statutory developers in R.C. 349.01 now includes municipalities, counties, and those certain townships. See R.C. 349.01(E).
[181] See R.C. 349.01(M).
[182] See R.C. 349.03(A).

method of selecting the board of trustees as a compelling state interest.[183] The statutes go into great detail as to the appointment to and replacement of members on the board of trustees; initial boards are sized between seven and 13 members.[184] When selecting successor trustees, new community authorities generally must adhere to the process set forth in the NCA statutes unless an alternative selection method is provided in the developer's petition or by the organizational board of commissioners.[185]

Dissolving the NCA

A new community authority generally may be dissolved only by a majority vote of the district's voters in a special election called by the board of trustees. Upon dissolution, the NCA's powers cease to exist and its property and funds vest to the respective municipality, county, or township or to the developer.[186]

In 2022, the Ohio General Assembly made a slight change to the New Community Authority law: namely, to change the deadline – from Dec. 31, 2021 to Dec. 31, 2024 – by which a NCA must have been established in order that a 99-year renewable lease satisfies the ownership or control requirement imposed under the definition of "developer."[187]

Transportation Improvement Districts

Transportation Improvement Districts[188] (TIDs) are multijurisdictional hybrid organizations that combine the powers of government entities with the flexibility of private corporations. The process of creating a TID is simple: the board of county commissioners passes a resolution establishing the TID and the structure of its board of trustees. The TID board of trustees, in turn, may hire an executive director as well as other employees and independent contractors to implement TID projects.

Once established, TIDs have wide latitude to enhance transportation infrastructure. If necessary, TIDs may purchase, lease, or appropriate land. They may drive and oversee every aspect of

[183] See R.C. 349.04 and *Perkins* at 221. The court cited the state's compelling interest in a NCA's board of trustees as one of the grounds for finding new community authorities constitutional and able to make contracts.
[184] See R.C. 349.04.
[185] Appointed-citizen members must be replaced by elected citizen members. The organizational board of commissioners establishes the schedule for such replacements. Developer-appointed members must be replaced by elected-citizen members. When electing citizen members to the board, a majority vote of residents of the district determines the outcome; appointed citizen members need not be residents of the district.
[186] See R.C. 349.14.
[187] R.C. 349.01(E), as enacted by Sub. S.B. 61, 134th Ohio General Assembly.
[188] See R.C. Chapter 5540.

improvements, including construction, repair, and maintenance of new and existing transportation infrastructure. In some cases, TIDs may even construct or improve streets connecting to the interstate highway system without first obtaining approval from political subdivisions where the work will take place.

To fund these projects, TIDs may draw financial support from varied sources. TIDs have authority to issue revenue bonds with a maturity of up to 30 years. They may establish and collect tolls or user charges. In addition, TIDs may accept grants from federal, state, and local government subdivisions, transit authorities and commissions, and port authorities. Private entities may support TIDs by making contributions to them. TIDs also may derive revenue from the purchase and sale of land, even if a TID purchases land for investment purposes rather than because it is necessary for a TID project.

TIDs may levy special assessments of up to 10 percent of the assessable value of a lot or parcel of land that a proposed improvement will benefit. These assessments may last as many years as necessary to satisfy any note, bond, instrument, or obligation issued to pay for the improvement. Before assessing property, however, TIDs must notify affected landowners and hold a hearing regarding the assessment. Owners of affected land who improve their property subject to an agreement with a TID may receive credit against the assessments for such improvements. In addition, TIDs must obtain consent of a political subdivision before assessing property in the political subdivision that falls outside the TID.

Special Improvement Districts

A Special Improvement District[189] (SID) may be created within the boundaries of any one municipal corporation, any one township, or any combination of contiguous municipal corporations and townships. The municipal corporations and townships in which a SID is created are referred to as "participating political subdivisions." To create a SID, property owners within the proposed SID area petition the participating political subdivisions for the creation of the SID and the development and implementation of plans for public improvements and public services that benefit the SID.

The petition must be signed by the owners of at least 60 percent of the front footage of all real property that abuts upon any street, alley, public road, place, boulevard, parkway, park entrance, easement, or other existing public improvement located in the proposed SID, *or* by the owners of

[189] See R.C. Chapter 1710. This section focuses on a traditional SID for public infrastructure or public services. For a discussion of energy special improvement districts, see "STATE OF OHIO LOAN/BOND PROGRAMS – Property Assessed Clean Energy Bonds" above.

at least 75 percent of the area of all real property located within the proposed SID. The SID area automatically excludes church property or property owned by the state, county, township, municipal, or federal government, unless a church, county, township, or municipal corporation has specifically requested in writing that its property be included in the SID.

The petition must include proposed articles of incorporation of a nonprofit corporation, the board of directors of which, if the SID is established, will govern the SID. The "petitioners" may propose an initial plan for public services or public improvements that benefit all or any part of the SID. Any initial plan is to be submitted as part of the petition proposing creation of the district.

Once submitted, each participating political subdivision has 60 days to approve or disapprove, by resolution, the petition including the articles of incorporation and any initial plan. A participating political subdivision may impose reasonable conditions in a resolution of approval. If the petition is approved, the SID is established, the nonprofit corporation—the board of directors of which governs the SID—is incorporated, and any initial plan becomes a plan for public improvements or public services for the SID. The owners of real property within the SID become the members of the SID and of the nonprofit corporation.

The board of directors of the nonprofit corporation established to govern the SID must consist of at least five directors. The directors must include a person appointed by the legislative body of the participating political subdivision and the executive of the participating political subdivision or the executive's designee. The other members of the board must be members or designees of members elected to the board at a meeting of the members. The 134th General Assembly, during its lame duck session, authorized the removal of meetings by SIDs and Energy SIDs from certain open meetings and public records requirements imposed under Ohio's Sunshine Laws and restrictions by the Ohio Ethics Commission.[190]

If an initial plan for the SID was not submitted and approved with the petition establishing the SID, the board of directors may adopt a plan for public improvements or public services for the SID. Whether a plan is an initial plan or a plan adopted after the SID's establishment, the plan may provide, among other things, for creating and operating the SID, including hiring employees, professional services, and contractors; planning, designing, and implementing public improvements and public services; and paying the costs of issuing, paying interest on, and redeeming notes or bonds issued for funding public improvements and public services.

[190] See R.C. 102.01(B)(3) and (C)(3)(c), R.C. 121.22(D)(20), and R.C. 1710.02(B)(4), as enacted by Am. Sub. H.B. 45.

As specified in a plan for public improvements or public services, each participating political subdivision is to levy a special assessment within the portion of the SID located within its boundaries to pay for the costs of the plan. The levy shall be for no more than 10 years from the date of the approval of the plan. For purposes of levying an assessment for the plan, the services or improvements included in the plan are deemed a special benefit to property owners within the SID.

Property Assessed Clean Energy Bonds

Property Assessed Clean Energy (PACE) Bonds are a financial tool used by property owners to finance energy efficiency and renewable energy improvements on their properties.[191] The proceeds from the sale of the bonds are loaned to commercial and residential property owners to pay for the project. Property owners in Ohio who take advantage of PACE funding opportunities may use the proceeds for a wide variety of energy-related improvements, including updating existing homes, multi-family residential buildings, office buildings, manufacturing facilities, and warehouses with energy-efficient technologies for existing facilities (i.e., weather sealing, insulation, high-efficiency lighting, energy-efficient boilers and cooling systems, and/or new windows) as well as renewable energy technologies like solar photovoltaic, solar thermal, geothermal, wind, biomass, and gasification. Bonds are repaid through an assessment on the owner's property taxes over a period of up to 30 years.

A key benefit of PACE is that it enables local governments, such as port authorities, to issue bonds to fund improvements without requiring the borrower or the sponsoring local government to pledge its credit. This structure also allows for the repayment obligation to transfer automatically to the next property owner if the property is sold. PACE also raises property values, by making buildings less expensive to heat and cool.

To utilize the PACE program, private property owners and/or governmental entities must create or join an energy special improvement district (Energy SID), which is necessary to implement PACE financing, levy assessments and structure the financing arrangements necessary to fund the improvements. [192] Additionally, PACE financing may be used for related costs like engineering, design, capitalized interest, reserve fund and other professional costs.

[191] R.C. 1710.06 and R.C. 1710.061.
[192] See R.C. Chapter 1710.

Like a traditional SID[193], an Energy SID is established by a petition to a municipal corporation or township, has a board of directors of a nonprofit corporation that governs the Energy SID, and has its main function—the execution of a plan for the development of alternative energy or energy efficiency improvements—capable of being funded by special assessments on real property within the Energy SID.

Distinct from traditional SID, an Energy SID is created for the specific purpose of financing discrete *energy-related improvements*, whereas a traditional SID is established to support plans for *public improvements* and *public services*. Second, an Energy SID may include noncontiguous property, whereas traditional SIDs require contiguity. Third, Energy SID plans are adopted and special assessments are requested by 100 percent of property owners within the Energy SID, whereas traditional SID plans can be adopted and special assessments can be assessed by as few as 60 percent of the front footage of the property owners located within the district.

PACE financing through Energy SIDs can be a powerful tool in a variety of scenarios. Properties with a significant amount of deferred maintenance can use PACE financing to generate energy savings which can be significant and can support rapid recovery of the upfront capital investment in the improvements. Large users of power often find significant energy savings through energy efficiency upgrades or retrofits, and they often need or desire supplemental energy from alternative energy improvements like solar panels, geothermal systems, and wind turbines. Public entities also can use PACE financing to get upfront capital for energy improvements to public buildings without impacting local debt limitations. PACE can be used by local governments and nonprofits. It is a useful tool for municipalities, school districts, counties, and townships as these types of governmental entities can use PACE funding for significant amounts of deferred maintenance or to update or supplement their power sources. A properly structured PACE financing transaction can provide capital to public entities without impacting certain local debt limitations.

Community Improvement Corporations

One particularly common example in Ohio of a limited-purpose entity that assists local economic development efforts is the community improvement corporation (CIC). This organizational form dates back to the early 1960s, with such entities established under Ohio's nonprofit corporation

[193] For a summary of special improvement districts generally, see "LOCAL SPECIAL PURPOSE ECONOMIC DEVELOPMENT DISTRICTS/ENTITIES – Special Improvement Districts" above.

law[194] on either a stand-alone basis or in agency with municipal corporations, townships, and counties. If a corporation is in agency with one or more political subdivisions, it functions under agreement to facilitate those jurisdictions' respective economic development activities (defined specifically for CICs as industrial, commercial, distribution, and research development).[195]

Generally, community improvement corporations enjoy a handful of powers not otherwise available to political subdivisions, several of which are discussed in further detail below. CICs have wide authority to borrow money, make loans, purchase or otherwise acquire, and to sell or otherwise dispose of, real property, and to enter into contracts with political subdivisions.[196] Additionally, CICs may take positions in matters that may be more challenging for the political subdivisions, or for which the local political environment makes it difficult for a municipality, township, or county to take direct action. CICs therefore offer a wide array of powers and increased flexibility to local economic developers, particularly those practitioners who are employed by municipalities, townships, or counties.[197] Importantly, in 2023 the General Assembly authorized changes to CIC law[198] allowing these entities to hold remote (i.e., interactive video or teleconference) meetings otherwise prohibited under Ohio's Sunshine Laws. Very often, these corporations, either in their stand-alone form (i.e., non-agency status) or as local government agents, are found throughout Ohio.

Note that a newer form of CIC was authorized under Ohio law in 2009: county land reutilization corporations (i.e., county land banks).[199] Although traditional CICs and county land banks both are formed under O.R.C. Chapter 1702 (nonprofit corporation law) and Chapter 1724 (community improvement corporation law), county land banks employ an even greater array of powers; one may say county land banks are CICs on caffeine. County land banks are discussed in greater detail in the following section.

CICs are not a "magic bullet" for challenging elements of economic development

Several notes of caution here as to relying exclusively on CICs to drive success in local economic development efforts.

[194] See R.C. Chapter 1702.
[195] See R.C. 1724.10(B)(1).
[196] See R.C. 1724.02.
[197] See R.C.s 1724.02 and 1724.11.
[198] See R.C. 1724.11(C) and (D), as added by Am. Sub. H.B. 33, 135th General Assembly.
[199] Sub. S.B. 353 enacted by the 127th Ohio General Assembly.

First, if a community is already struggling with a lack of development focus or an enthusiasm deficit among local leaders, a CIC will not necessarily drive new focus or hone energies. In fact, without a viable strategic framework to guide the efforts of a community improvement corporation, the CIC itself may fall victim to a similar milieu and further frustrate the viewing public and decision-makers.

Second… If a community improvement corporation is in agency with one or more political subdivisions, the organization and its governing board are considered under Ohio law as an "employee" of the political subdivision. A community improvement corporation formed under O.R.C. Chapter 1724, in and of itself, does not qualify as a public entity, and thus its board members are not public officials. But a CIC properly designated as the agent of one or more political subdivisions for economic development purposes "falls squarely and unequivocally within the statutory definition of a 'public body' set forth in R.C. 121.22(B)."[200] At the very least, treating CIC board members as public officials requires regular training and onboarding for new directors; at the most, an otherwise private individual board member may be subject to Ohio Ethics Laws and the state's restrictions on public contracts.

Third, one of the CIC's touted benefits is in serving as a political subdivision's arm to sell the subdivision's surplus property. But note that in such property disposal, the political subdivision sets the amount of consideration and other terms of the transaction.[201] Thus, in development projects involving a subdivision's own property, CICs may not be helpful in lowering risk associated with slowed decision-making or public outcry.

CIC in agency with political subdivisions

Any county, township, or municipal corporation, or any combination of these subdivisions, may designate a CIC as the agency of each subdivision for industrial, commercial, distribution, and research development efforts.[202] By adopting legislation, the political subdivision authorizes the execution of an agreement with the CIC to undertake various economic development activities. Specifically, a CIC can help facilitate economic development for the political subdivision primarily in the area of property acquisition, development, and disposal. Further, CICs in agency may sell political subdivision-owned surplus property, or surplus property conveyed to it by the municipality, without public bidding and may keep the sale proceeds as revenue.

[200] 1979 Ohio Op. Atty. Gen. 2-203.
[201] See R.C. 1724.10(B)(2) and (3).
[202] See R.C. 1724.10(A)(1) and (B).

Confidentiality of information held by CICs

CICs may wield two exemptions from public records when they are acting in agency with a political subdivision. First, if the CIC or the political subdivision receives financial and proprietary information, including trade secrets, in connection with a business' relocation or expansion, such information is confidential and is not a public record.[203] Second, any other information submitted to the CIC or the political subdivision in connection with the relocation, location, expansion, improvement, or preservation of a business is confidential information and not a public record *until* the business entity commits in writing to proceed with a given project.[204]

Disposing of political subdivisions' surplus property for limited purposes

CICs acting in agency with political subdivisions may sell or lease any surplus real property owned by such political subdivisions, or property may be conveyed outright to the CIC by the political subdivision, for purposes of promoting the public welfare, stabilizing the economy, providing employment, and assisting in the development of industrial, commercial, distribution, and research activities. Such conveyances are made without advertising or bidding[205] Excess sale proceeds received by the CIC, beyond that amount of consideration paid to the municipality for the property, are to be paid as contracted between the two parties.[206]

County Land Reutilization Corporations

A newer form of CIC is the county land reutilization corporation. More commonly known as county land banks, these organizations have become widespread throughout Ohio during the past 15 years.[207] Specifically, county land banks are CICs formed under O.R.C. Chapter 1724 and deemed "electing subdivisions" under Chapter 5722 to cleanse title and return to productive use real property that has languished into abandonment and tax delinquency. The value provided by county land banks to an economic development practitioner is in their broad powers to acquire and dispose of real property, free of the public bidding processes and minimum purchase price requirements otherwise imposed on political subdivisions.[208] Put simply, county land banks may serve as ideal vehicles to acquire, hold, and site-assemble real property for community and

[203] See R.C. 1724.11(A)(1).
[204] See R.C. 1724.11(A)(2).
[205] See R.C. 1724.10(B).
[206] See R.C. 1724.10(B)(3).
[207] As of the time of this updated Toolkit's publication in 2023, there were 66 county land banks established in the state. The Ohio Land Bank Association, the statewide organization for county land banks, maintains an online map at this link: https://ohiolandbanks.org/, last visited August 7, 2023.
[208] See R.C. 5722.07.

economic development purposes.[209] Added to this notion is the fact county land banks, as CICs, now are authorized to hold remote (i.e., interactive video or teleconference) meetings otherwise prohibited under Ohio's Sunshine Laws. [210]

County land reutilization programs

County land banks are charged with implementing land reutilization programs in their respective communities.[211] Under such authority, county land banks may acquire property in a variety of ways: through tax foreclosure, resulting in the direct transfer of property to a land bank; selecting from county auditors' lists of properties forfeited to the state (i.e., property not sold via two sheriff sales); receiving tax-delinquent properties from private individuals and entities no longer interested in owning worthless property (so-called deeds in lieu of foreclosure); from lending institutions and government agencies; and by donation or arm's length sale transactions involving non-delinquent properties. Real property acquired by county land banks is exempt from taxes as a matter of law; these exemptions do not need the formal approval of the Ohio Tax Commissioner (as is required to attain tax-exempt status under property tax abatement programs described in the previous section of this Toolkit).

Acquiring property from the County Auditor's Forfeited Lands list

County land banks may request title to real property that has been subject to tax foreclosure actions and forfeited to the state after exposure to two sheriff's sales. Specifically, upon request, a county auditor must transfer to the respective county land bank, via auditor's deed for no consideration, title to parcels on the list of forfeited lands. Once transferred to the county land bank, title in the property is cleansed of all taxes, assessments, and charges, and any subordinate liens are discharged.[212]

---

[209] Although not yet subjected to a large volume of case law in Ohio, certain of the foregoing powers of county land banks were discussed favorably by the Eleventh District Court of Appeals as recently as December 2018. In a matter having to do with public bidding requirements for selecting vendors, the appeals court described county land banks as "clothed… with certain attributes of a governmental entity, in other respects they act as non-profit corporation[s]". The court went on to note a county land bank "has authority, as a non-profit corporation, to hold and dispose of land it owns pursuant to *its own demolition policies and procedures*…. [R.C. 5722.06] does not require county land reutilization corporations to comply with competitive bidding requirements" [emphasis added]. *Triple Diamond Trucking & Excavating LLC v. Trumbull County Land Reutilization Corporation*, 2018 WL 6723341, 11th Dist.
[210] See R.C. 1724.11(C) and (D), as added by Am. Sub. H.B. 33, 135th General Assembly.
[211] See R.C. 5722.02.
[212] See R.C. 5723.04(B).

Acquiring abandoned land

Since 2006, county land banks have been bestowed unique authority under Ohio law to directly receive tax-delinquent and unoccupied real property via an expedited foreclosure process in their respective county boards of revision.[213] Many counties in Ohio now use their boards of revision to handle tax foreclosures of abandoned lands.[214]

Complaints in each county to foreclose the state's lien for real estate taxes upon abandoned land are filed in the board of revision by the prosecuting attorney, representing the county treasurer, or the county land bank itself.[215] The purpose of pursuing these limited foreclosures administratively in the boards of revision is to adjudicate the cases more quickly than the courts. By way of example, unlike a normal civil case in the courts, the issues are very limited in tax foreclosure cases, with time deadlines for hearing and adjudicating these cases prescribed by statute[216] rather than the Court Rules of Civil Procedure. Importantly, expedited tax foreclosures can be completely adjudicated within 180 days.[217] Once a case is adjudicated by the board of revision, and upon the expiration of a subsequent 28-day alternative redemption period, the delinquent property may be transferred to the county land bank, with title cleansed of any taxes, penalties, or subordinate liens.[218] In this way, the expedited foreclosure process promotes neighborhood stabilization and revitalization by getting abandoned, tax delinquent properties more quickly into productive hands.

Cases have abounded in federal and state courts during the past several years[219], in which activists, most notably the Pacific Legal Foundation, have alleged that direct transfers of propertyto land banks and local governments amount to "equity theft" in the context of tax foreclosures. In May 2023, the U.S. Supreme Court found such a government "taking" under the federal Constitution in a Minnesota case.[220]The Supreme Court, in its unanimous opinion written by Chief Justice Roberts, recognized Hennepin County's authority to sell the taxpayer's home to recover unpaid

[213] Sub. HB 294 enacted by the 126th Ohio General Assembly, as further amended by Sub. SB 353 during the 127th Ohio General Assembly, set forth statutory guidance in R.C.s 323.65 to 323.79 for county boards of revision to adjudicate certain tax foreclosures and order direct transfers of such foreclosed property to county land banks via sheriff's deeds.
[214] See R.C.s 323.25 and 323.65 to 323.79 for the statutory law framework undergirding expedited foreclosures.
[215] See R.C. 323.69.
[216] See R.C.s 323.65 to 323.79.
[217] Aggrieved parties may appeal to courts of common pleas pursuant to R.C. Chapters 2505 and 2506.
[218] See R.C.s 323.65(J) and 323.78.
[219] Locally, in the federal 6th Circuit, we witnessed sequential lower courts' holdings in an Ohio case, *Harrison v. Montgomery County, Ohio* (997 F.3d 643, decided May 11, 2021), and a Michigan case, *Hall v. Meisner* (51 F.4th 185, decided Oct. 13, 2022) that allowed an owner of abandoned land to raise a federal "takings" argument under the Fifth Amendment of the U.S. Constitution (once a property is deemed abandoned and titled to a county land bank) and declared aspects of another state's tax foreclosure process amounted to a "taking" under the federal Constitution, respectively.
[220] *Tyler v. Hennepin County, Minnesota, et al*., 598 U.S. 631, decided on May 25, 2023.

property taxes, but the County "could not use the toehold of the tax debt to confiscate more property than was due" and the taxpayer, therefore, was entitled to just compensation (here, the $25,000 in excess proceeds from the sale of her condominium).[221]

As to the impact of the U.S. Supreme Court decision on Ohio's tax foreclosure process that directly transfers nonproductive property to county land banks, we know county land banks have resumed pursuing direct transfers of abandoned lands in boards of revision, but only when the subject properties' market values are less than the impositions. And we also point to the Ohio Supreme Court's own upholding of this state's tax foreclosure process in the face of such a taking argument.[222] It appears Ohio's statutory tax foreclosure process – unlike Minnesota's – affords adequate remedies to avoid a takings claim, but this has not yet been tested in federal courts since the *Tyler* decision.[223]

Disposing of property

CICs deemed "electing subdivisions" under R.C. Chapter 5722 are empowered generally to acquire, handle, and dispose of nonproductive land and other acquired land. Put differently, county land banks operate according to even broader authority in maintaining, operating, holding, transacting, and disposing of land acquired pursuant to their respective land reutilization plans and purposes than do traditional CICs under R.C. Chapter 1724.[224]

Once real property is acquired by the county land reutilization corporation, according to whatever means, the county land reutilization corporation may sell such land without competitive bidding and at such times, to such persons, and upon such terms and conditions as deemed necessary, including selling lands for less than fair market value. Finally, all proceeds from the sale of land by a county land reutilization corporation are retained for the purposes for which it was organized.

[221] The Court held Hennepin County must return the excess value (i.e., "overplus") in the taxpayer's property after satisfaction of taxes and penalties due.
[222] *State ex rel. US Bank Trust, N.A. v. Cuyahoga County* (2023 WL 2762497, 2023-Ohio-1063, decided on April 4, 2023). The Court held that direct transfers of tax-foreclosed properties did not constitute takings without just compensation under the Fifth Amendment of the U.S. Constitution.
[223] Delinquent taxpayers and their creditors in Ohio's process must receive due notice of pending foreclosures, who then can redeem their properties by paying amounts due on tax liens, or transfer tax foreclosure cases to different venues, or timely appeal tax foreclosure adjudications.
[224] See R.C. 5722.06, R.C. 5722.07 and R.C. 5722.08.

Port Authorities

Many municipalities and counties around the state of Ohio have created port authorities,[225] and a few of them operate seaports and airports. But the majority of the state's port authorities were created as economic development tools to stimulate job growth and economic development in their communities. Port authorities possess a multitude of powers which enable them to fulfill their economic development and job creation missions. The name "port authority" therefore can sometimes be confusing.

Port authorities are political subdivisions whose jurisdictions include the territory of the political subdivision which created them. Each port authority is governed by a board of directors and the political subdivision (city or county) creating the port authority may determine the number of members on the board. The board members are appointed by the leadership of the political subdivision with the advice and consent of that political subdivision's legislative authority.[226] Except under very limited circumstances (typically by special legislation to authorize overlapping port authorities), a political subdivision may be a part of only one port authority, and the port authority has jurisdiction only within its boundaries. However, through the use of cooperative agreements with cities, counties or other port authorities, a port authority can undertake economic development projects outside of its boundaries.

Port authorities' broad powers make them very powerful economic development tools. Examples of a port authority's powers include, but are not limited to:

- Acquiring property
- Issuing revenue bonds
- Facilitating economic development transactions
- Exercising eminent domain power
- Acquiring property to facilitate economic development and housing
- Receiving state and federal grants and loans
- Exercising powers on behalf of another subdivision

[225] R.C. Chapter 4582 regulates port authorities.
[226] See R.C. Chapter 4582.03 for organization of board of directors.

- Issuing general obligation bonds (under very limited circumstances)
- Levying voted property tax
- Engaging in extraterritorial activities

Port authorities have several additional structural advantages (or benefits) to promote economic development. Those include the ability to create and operate a Bond Fund program, limited exceptions to the Sunshine and Public Records laws, exemptions from Prevailing Wage Requirements, as well as federal and state tax exemptions.

Bond Fund

Port authorities can issue taxable or tax-exempt bonds and have created so-called common bond funds, which are pooled security bond issuance programs. Through these bond funds, port authorities can finance a variety of economic development projects. However, in order to create and maintain a new bond fund, a port authority will need: (1) a source of capital or security for the additional reserves needed to make the bond fund creditworthy, and (2) professional administrative capabilities.

Exception to Sunshine Law and Public Records Law

Financial and proprietary information, including trade secrets, submitted to a port authority in connection with the relocation, location, expansion, improvement, or preservation of the business of that employer is not a public record and is therefore kept confidential. Thus, such information is not subject to the Sunshine Law or Public Records Law. This helps facilitate a port authority's ability to foster economic development efforts while working with private businesses. Additionally, port authority boards may now meet telephonically or by videoconference, subject to certain requirements.[227]

Exemption from the Requirement of the Use of Prevailing Wage

Under recent changes to Ohio law, port authorities are exempt from the prevailing wage requirements for public improvements[228] and port authority facilities[229] undertaken by, or under contract for, a port authority. Port authorities have provided assistance to economic development

[227] See R.C.s 4582.03(A) and 4582.60.
[228] See R.C. 4115.03 to 4115.16 (section 4115.04) for public improvements undertaken by, or under contract for, a port authority as defined in section 4582.01 or 4582.21 of the R.C.
[229] See R.C. 4582.12, which exempts a port authority from the prevailing wage requirements when the port authority elects to construct a port authority facility.

projects by offering sales-tax exemptions for building materials purchased for new construction projects without triggering the requirement to pay prevailing wages on the labor component of the building project.

Federal and State Tax Exemptions

A tax exemption for port authority property and securities is an advantage of creating such a structure over other entities, such as CICs or not-for-profit corporations. Port authority facilities are not subject to property, income, or sales and franchise taxes; *provided that such exemptions do not apply to any port authority property leased to a third party under a written lease with a term longer than one year*. The issuance of tax-exempt securities is generally limited by federal tax law to situations where there is a governmental purpose for assets financed with the securities.

Downtown Redevelopment Districts

Municipalities may create downtown redevelopment districts (DRDs) and innovation districts (IDs) for the purposes of rehabilitating historic buildings, creating jobs, encouraging economic development, and supporting technology-oriented businesses.[230] DRDs and IDs will enjoy dedicated financing streams and flexible powers to pay for, finance, and incentivize these projects.

Municipalities may create DRDs through a legislative process that involves notices to affected property owners and school districts, a public hearing, and the creation of an economic development plan outlining the objectives of the DRD. Depending on the financing plans of the DRD, consent may be required from affected property owners and school districts. The territory of the DRD can include up to 10 acres, which must be contiguous. The municipality additionally may designate certain territory within the DRD as an ID; any territory to be included in an ID, however, must be serviced by a high-speed broadband network capable of download speeds of at least 100 gigabits per second.

Similar to existing tax-increment financing (TIF) districts, DRDs enable municipalities to divert increases in property tax revenue relating to improvements to certain uses benefitting the DRD. With DRDs, the exemption may apply to up to 70 percent of increases in valuation, and it may last for up to 10 years (30 years with school district approval). In addition, DRDs can impose redevelopment charges that operate like special assessments levied within special improvement districts or community development charges levied by new community authorities. The charges require property owner approval and can be predetermined or calculated based on a formula

[230] R.C. 5709.45-.47

established by the municipality. They will apply to subsequent property owners and can be certified to, and collected by, the county auditor.

Service payments and redevelopment charges received by DRDs can be applied (i) to offer loans or grants to owners of historic buildings within DRD for rehabilitation efforts; (ii) to pay costs of operating expenses necessary to promote historic redevelopment efforts through contributions to community improvement corporations, special improvement districts, or certain nonprofits (up to 20 percent of DRD revenue); (iii) to make loans to owners of non-historic buildings within the DRD; and (iv) to finance certain public infrastructure improvements within the DRD that are necessitated by the redevelopment efforts.

DRDs that include an ID will have several additional powers designed to promote innovation-oriented businesses. For example, DRD revenues can be applied within an ID to finance or support loans, deferred loans, or grants to qualified businesses within the ID. Qualified businesses include trades or businesses that involve research and development, technology transfer, bio-technology, information technology, or the application of new technology developed through research and development or acquired through technology transfer. Additionally, DRD revenue can be contributed to business accelerators or incubators within the ID to assist businesses within the ID.

FEDERAL TAX CREDIT PROGRAMS

Programs Discussed:

- Historic Preservation Tax Credit Program
- New Market Tax Credit Program
- Opportunity Zones

Historic Preservation Tax Credit Program

The Federal Historic Preservation Tax Credit (HPTC) is a nonrefundable tax credit that encourages private sector investment in the rehabilitation and re-use of certified historic and older buildings by providing federal income tax incentives for the rehabilitation of historic income producing properties. The National Park Service (NPS) and the Internal Revenue Service (IRS) administer the program in partnership with state historic preservation offices around the country.

To qualify, one must have a certified historic structure. To be certified, the building must be listed individually on the National Register of Historic Places (National Register) *or* be a contributing part of a historic district that is either listed on the National Register or certified as eligible for the

National Register. Under the provisions of the Tax Reform Act of 1986,[231] the program provides a 20 percent and a 10 percent tax credit.

20 Percent Tax Credit

A 20 percent HPTC income tax credit is available for the rehabilitation of historic, income producing buildings that are determined by the Secretary of the Interior, through the NPS, to be "certified historic structures." The state historic preservation offices and the NPS review the rehabilitation work to ensure that it complies with the Secretary of the Interior's Standards for Rehabilitation prior to receiving the HPTC. The IRS defines qualified rehabilitation expenses on which the credit may be taken. Owner-occupied residential properties do not qualify for the HPTC.

10 Percent Tax Credit

The 10 percent HPTC tax credit is available for the rehabilitation of non-historic buildings placed in service before 1936. The building must be rehabilitated for nonresidential use. In order to qualify for the tax credit, the rehabilitation must meet three criteria: (1) at least 50 percent of the existing external walls must remain in place as external walls, (2) at least 75 percent of the existing external walls must remain in place as either external or internal walls, and (3) at least 75 percent of the internal structural framework must remain in place. There is no formal review process for rehabilitations of non-historic buildings.

In all cases, the rehabilitation must be a substantial one and must involve a depreciable building. The credit may be subtracted directly from federal income taxes owed by the owner.[232] Projects must meet the minimum expenditure test within a two-year measuring period, but applicants may take up to five years to complete a phased project if the plans and specifications are approved in advance of construction. Lastly, the applicant must pay a fee to the NPS; the fee shall be no less than $250 and no greater than $2,500, and shall be based on the qualifying rehabilitation expenditures.

New Market Tax Credit Program

The New Markets Tax Credit[233] (NMTC) is a nonrefundable tax credit established by Congress in 2000 to attract new or increased investments into existing companies and real estate projects located in low-income communities. The NMTC attracts investment capital by permitting

[231] See PL 99-514; Internal Revenue Code Section 47 [formerly Section 48(g)].
[232] The Internal Revenue Service is the final judge of economic matters relative to certified rehabilitations. Therefore, it is advisable that you consult with a tax accountant or lawyer before completing your tax return.
[233] See Section 305 of H.R. 8 of the American Taxpayer Relief Act of 2012.

individual and corporate investors to receive a tax credit against their federal income tax return in exchange for making equity investments in specialized financial institutions called Community Development Entities (CDEs).

CDEs apply to the Community Development Financial Institutions (CDFI) Fund through a competitive application process each year, not for tax credits directly, but for an award of "allocation authority" — that is, the authority to raise a certain amount of capital through qualified equity investments from investors. The CDFI Fund in the U.S. Department of the Treasury has been authorized to administer the program. The credit totals 39 percent of the original investment amount and is claimed over a period of seven years (five percent for each of the first three years, and six percent for each of the remaining four years). The investment in the CDE cannot be redeemed before the end of the seven-year period.

The NMTC is a nonpermanent program. It has required program renewal during each session of Congress. The most recent extension, enacted by the Taxpayer Certainty and Disaster Tax Relief Act of 2019, extended the NMTC through the end of 2020 and provided an increase in allocation authority from $3.5 billion to $5 billion in 2020.

Opportunity Zones

Opportunity Zones are the newest federal tax incentive for economic development purposes. They are designed to spur economic development in distressed communities through federal income tax incentives.

The Opportunity Zone[234] program, created by the Tax Cuts and Jobs Act of 2017[235], allows a taxpayer to reinvest proceeds from the sale of an eligible business or property into an Opportunity Fund. This Opportunity Fund, in turn, will invest in one or more businesses or properties located within qualified Opportunity Zones. Qualified Opportunity Zones are low-income areas that have been specifically designated by the state and federal government.

By investing in an Opportunity Zone through an Opportunity Fund, a taxpayer can take advantage of up to three benefits, depending on the length of the investment.

1. Temporary deferral

[234] Source: http://www.bricker.com/industries-practices/economic-development/insights-resources/publications/opportunity-zones, last visited August 7, 2023.
[235] Source: https://www.irs.gov/newsroom/opportunity-zones-frequently-asked-questions, last visited August 7, 2023.

- A taxpayer can defer any tax owed on capital gains by investing the realized gain in an Opportunity Zone. The tax liability is deferred until December 31, 2026, or at such earlier time that the taxpayer disposes of the Opportunity Zone investment.

2. Reduction in gain realized through basis adjustment

   - For capital gains that are reinvested into an Opportunity Zone, the basis of the investment will increase by 10 percent if the taxpayer holds the investment for at least five years and by an additional five percent if the investment is held by the taxpayer for at least seven years. Therefore, a taxpayer can raise the basis of an investment in an Opportunity Zone by 15 percent of the amount of the initial investment by holding the investment in the Opportunity Zone for at least seven years.

3. Exclusion for capital gains on the Opportunity Zone investment

   - If an investor holds the Opportunity Zone investment for at least 10 years, then the basis of the investment is its fair market value as of the date on which the investment is disposed. Therefore, a taxpayer will generally not be taxed on the gain realized from the disposition of the Opportunity Zone investment after 10 years.

A taxpayer must invest in an Opportunity Fund within 180 days of the disposition of the existing property to be eligible for the tax benefits under the program.

Nationwide, more than 8,000 Opportunity Zones have been qualified as being eligible to participate in the program, 320 of which are located in Ohio. Ohio's Development Services Agency and the economic development professions in communities with designated Opportunity Zones are poised to assist investors with identifying potential opportunities in these local Opportunity Zones. For a complete list and interactive map of the 320 qualified Ohio Opportunity Zone tracts please visit https://development.ohio.gov/business/state-incentives/ohio-opportunity-zones (last visited August 7, 2023).

To enjoy the tax benefits under the program, a taxpayer's investment in an Opportunity Zone must take place via an Opportunity Fund. An Opportunity Fund is an entity organized to acquire and hold for investment purposes equity interests in businesses or properties located in Opportunity Zones. While the IRS is expected to issue additional guidance regarding Opportunity Funds, it is anticipated that the regulations will be relatively limited. The IRS has indicated that any entity will be able to self-certify as being an Opportunity Fund without approval or action by the IRS and that

the self-certification process will merely involve a yet-to-be-released form attached to the taxpayer's tax return.

Unlike the types of institutional investors that typically invest in low-income or distressed communities (e.g., investors seeking tax credits through low-income housing tax credit projects or community reinvestment area tax credits), Opportunity Zone investors are most likely to be high-net-worth individuals and investment oriented companies, such as life insurance companies, managed investment funds and mutual funds, that regularly realize significant capital gains. Consequently, Opportunity Funds will seek to balance risk and return and to structure investments in ways that meet the goals of the original taxpayers invested in the Opportunity Fund (i.e., to achieve temporary deferral, step up in basis or the permanent exclusion with a longer term investment under the program). Many mission-driven institutions are taking a lead in establishing impact-oriented Opportunity Funds to attract investors with specific fields of interest, such as development of affordable housing, investment in small business ventures that align with the community's goals, renewable energy development, and health care delivery.

Since the law imposes no cap on the size of a given Opportunity Fund, it is expected that large-scale Opportunity Funds will be competing in the market for investors seeking to benefit from the program. However, the flexibility afforded by the self-certification process means that any taxpayer with appreciated assets can benefit by establishing an Opportunity Fund in order to invest in an Opportunity Zone. For example, local businesses may seek to redeploy equity in appreciated assets in order to reinvest in a local Opportunity Zone. Local economic development professionals and business advisors need to have the tools in place to help investors leverage such opportunities.

Attracting investments from Opportunity Funds will be critical for developers and economic development professionals looking to promote economic and community development in distressed Opportunity Zone communities. To date, many communities are working hard to make their Opportunity Zones attractive to investment. Strategies include aligning existing and proposed projects with other sources of capital to reduce potential risk profiles, pairing Opportunity Fund investment with other local and state incentives and programs, and deploying wrap-around resources such as workforce development to support projects and retain mission-driven goals for the community.

APPENDIX E: PEER TRANSIT AGENCY PERFORMANCE DATA

Table E.1: Peer Transit Agency Characteristics

	Richland County Transit (RCT)	Allen County Regional Transit Authority (ACRTA)	Licking County Transit	Springfield City Area Transit (SCAT)	Sandusky Transit System	Mid-Ohio Valley Transit Authority (MOVTA)
Urbanized Area	Mansfield, OH	Lima, OH	Newark, OH	Springfield, OH	Sandusky, OH (not a UZA, but rural)	Parkersburg, WV - OH
UZA Population (2010 Census)	75,250	78,852	76,068	85,256	N/A	67,229
UZA Square Miles (2010 Census)	50.32	52.00	42.12	49.00	N/A	42
Service Area Population	73,140	101,229	173,448	58,662	46,994*	39,587
Service Area Square Miles	72	407	683	25	60*	14

*Sandusky Transit System serves Sandusky, Perkins Township and Huron Township, square mileage and population are approximate

Table E.2: Annual Passenger Trips

Mode	Year	Richland County Transit (RC)	Allen County Regional Transit Authority (ACRTA)	Licking County Transit	Springfield City Area Transit (SCAT)	Sandusky Transit System	Mid-Ohio Valley Transit Authority (MOVTA)
Demand Response	2017	13,962	36,612	124,503	5,520	166,807	5,613
	2018	13,982	46,671	124,899	6,014	51,775	6,677
	2019	12,313	48,867	113,893	8,223	44,347	7,097
	2020	6,800	26,751	58,559	5,711	24,921	5,824
	2021	6,114	22,817	60,812	6,052	22,857	3,686

Mode	Year	Richland County Transit (RC)	Allen County Regional Transit Authority (ACRTA)	Licking County Transit	Springfield City Area Transit (SCAT)	Sandusky Transit System	Mid-Ohio Valley Transit Authority (MOVTA)
Fixed Route	2017	202,779	349,648	N/A	179,406	N/A	497,403
	2018	224,286	196,768		175,536	90,867	509,830
	2019	183,182	209,363		166,764	281,212	485,494
	2020	104,762	167,494		116,169	147,340	345,736
	2021	90,550	136,868		106,267	219,484	216,841

Figure E.1: Annual Passenger Trips

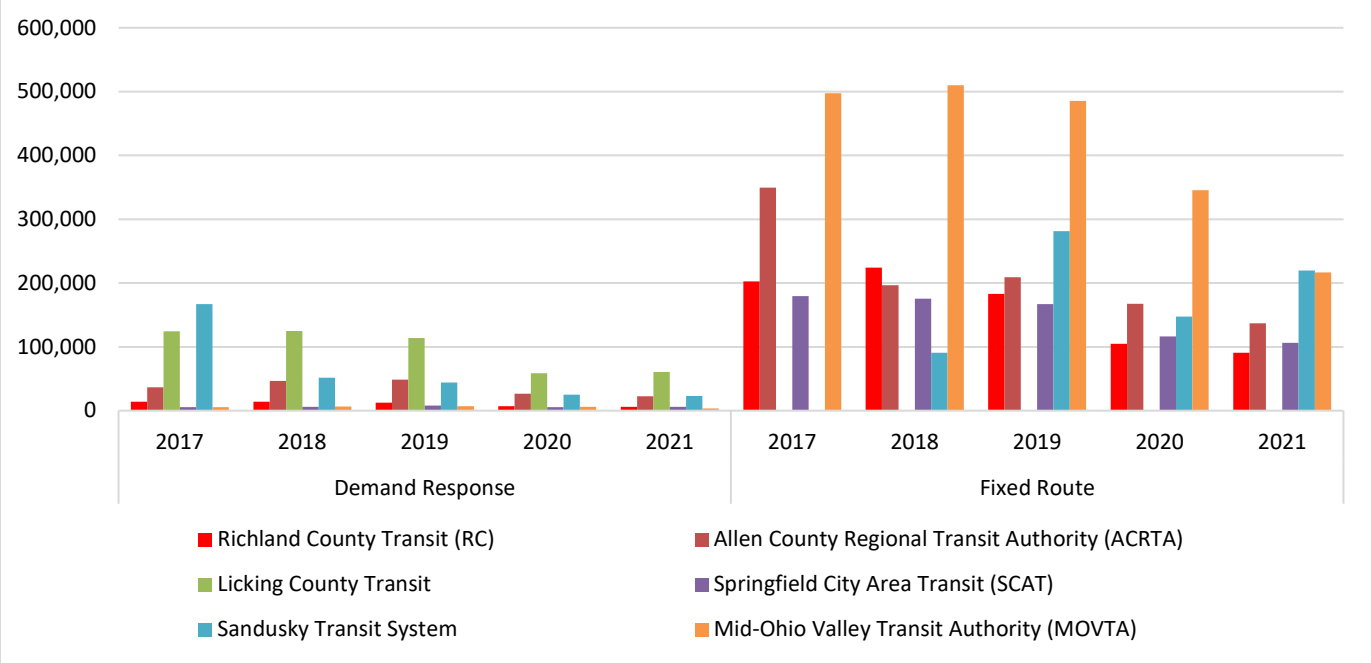


Table E.3: Vehicles Operating in Max Service (VOMS)

Mode	Year	Richland County Transit (RCT)	Allen County Regional Transit Authority (ACRTA)	Licking County Transit	Springfield City Area Transit (SCAT)	Sandusky Transit System	Mid-Ohio Valley Transit Authority (MOVTA)
Demand Response	2017	6	15	36	3	21	1
	2018	6	13	34	4	22	1
	2019	6	10	27	4	21	1
	2020	5	8	24	5	20	1
	2021	5	8	15	5	18	1
Fixed Route	2017	10	9	N/A	9	N/A	18
	2018	10	6		9	6	19
	2019	10	6		9	6	17
	2020	7	7		9	7	17
	2021	7	10		8	7	16

Figure E.2: Vehicles Operating in Max Service (VOMS)

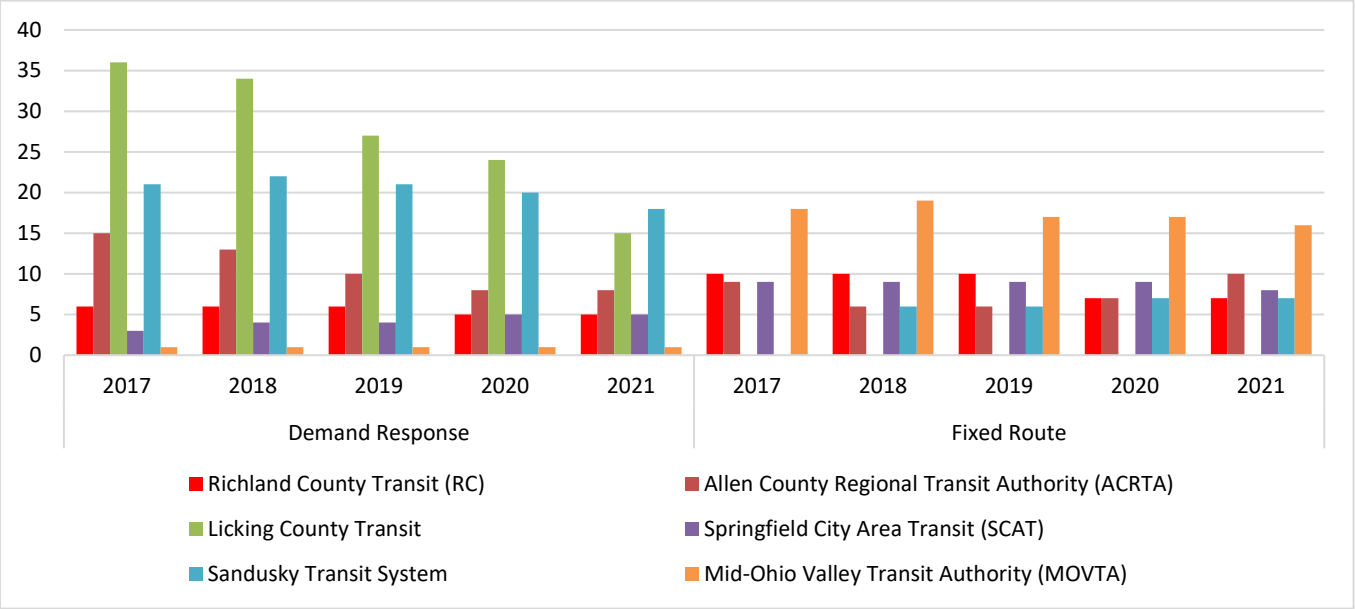


Table E.4: Annual Vehicle Revenue Hours

Mode	Year	Richland County Transit (RCT)	Allen County Regional Transit Authority (ACRTA)	Licking County Transit	Springfield City Area Transit (SCAT)	Sandusky Transit System	Mid-Ohio Valley Transit Authority (MOVTA)
Demand Response	2017	7,314	18,786	66,265	1,226	41,515	2,432
	2018	5,977	12,067	67,361	1,595	21,093	2,724
	2019	6,076	12,098	60,566	2,241	17,029	2,787
	2020	3,765	7,764	58,559	1,446	7,531	2,659
	2021	3,915	10,297	35,181	1,652	15,023	2,140
Fixed Route	2017	21,053	41,612	N/A	17,194	N/A	45,632
	2018	21,593	18,323		17,242	17,373	45,382
	2019	22,114	16,561		17,242	14,088	43,307
	2020	17,730	22,901		17,331	17,057	42,203
	2021	17,579	29,992		17,194	42,200	40,382

Figure E.3: Annual Vehicle Revenue Hours

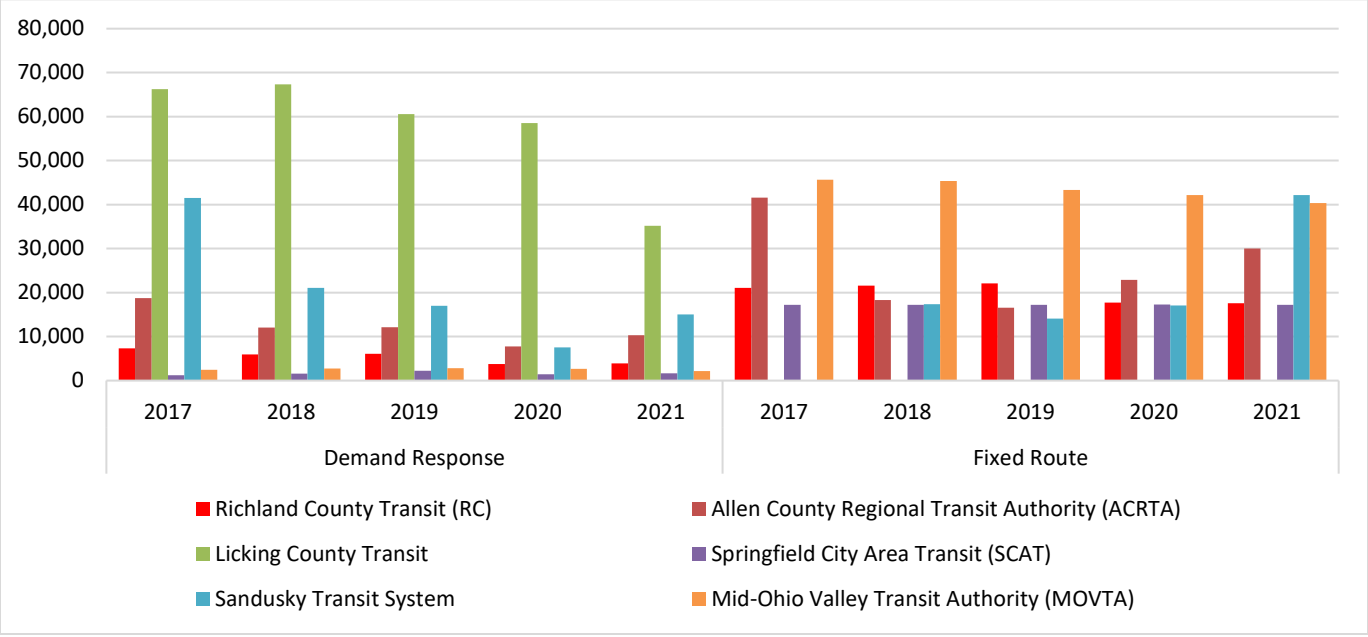


Table E.5: Productivity (Trips per Revenue Hour)

Mode	Year	Richland County Transit (RCT)	Allen County Regional Transit Authority (ACRTA)	Licking County Transit	Springfield City Area Transit (SCAT)	Sandusky Transit System	Mid-Ohio Valley Transit Authority (MOVTA)
Demand Response	2017	1.9	1.9	1.9	4.5	4	2.3
	2018	2.3	3.9	1.9	3.8	2.5	2.5
	2019	2	4	1.9	3.7	2.6	2.5
	2020	1.8	3.4	1.7	3.9	3.3	2.2
	2021	1.6	2.2	1.7	3.7	1.5	1.7
Fixed Route	2017	9.6	8.4	N/A	10.4	N/A	10.9
	2018	10.4	10.7		10.2	5.2	11.2
	2019	8.3	12.6		9.7	20	10.7
	2020	5.9	7.3		6.7	8.6	8.2
	2021	5.2	4.6		6.2	5.2	5.4

Figure E.4: Productivity (Trips per Revenue Hour)

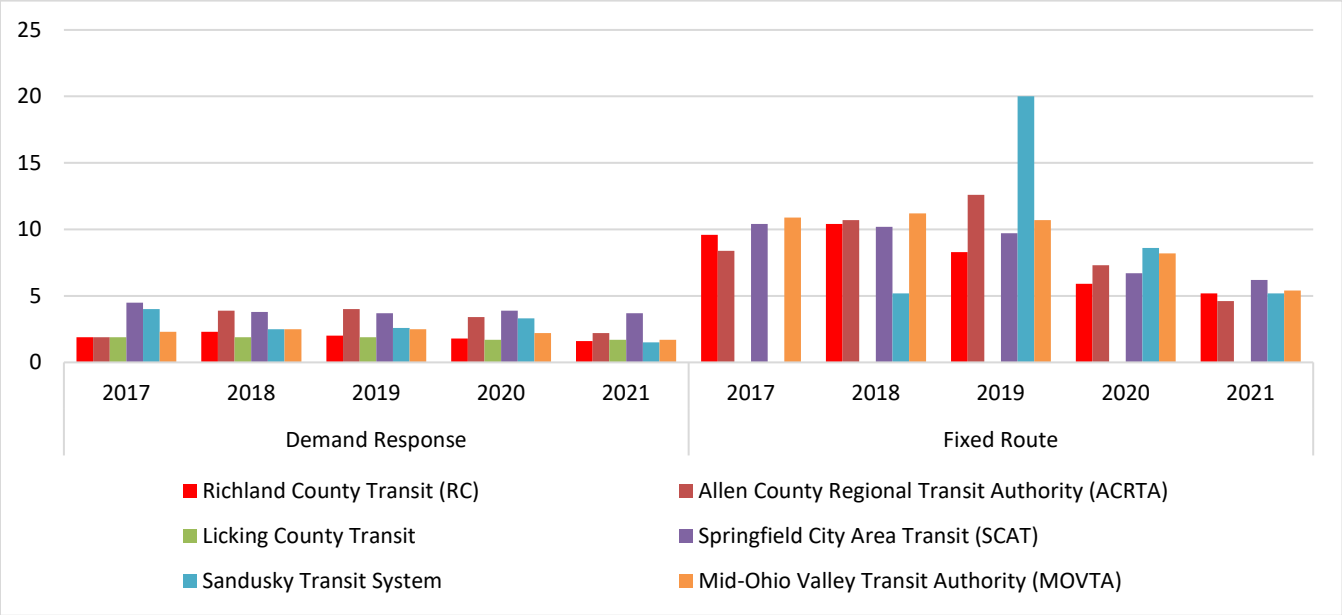


Table E.6: Operating Expenses

Mode	Year	Richland County Transit (RCT)	Allen County Regional Transit Authority (ACRTA)	Licking County Transit	Springfield City Area Transit (SCAT)	Sandusky Transit System	Mid-Ohio Valley Transit Authority (MOVTA)
Demand Response	2017	$468,266	$999,302	$3,632,232	$137,022	$2,089,317	$144,245
	2018	$488,838	$1,254,672	$3,926,057	$146,047	$1,247,219	$153,091
	2019	$463,728	$1,300,407	$3,306,323	$146,537	$1,200,177	$156,630
	2020	$424,319	$908,844	$2,907,662	$152,980	$900,620	$160,924
	2021	$394,425	$921,647	$2,884,687	$163,278	$820,586	$168,282
Fixed Route	2017	$1,471,341	$2,331,703	N/A	$1,647,549	N/A	$3,134,071
	2018	$1,651,307	$1,107,232		$1,733,363	$1,018,981	$3,440,468
	2019	$1,566,604	$1,360,522		$1,794,964	$1,352,305	$3,403,144
	2020	$1,409,911	$2,277,828		$1,786,373	$1,767,704	$3,415,158
	2021	$1,572,776	$1,985,903		$1,862,905	$2,266,603	$3,498,405

Figure E.5: Operating Expenses

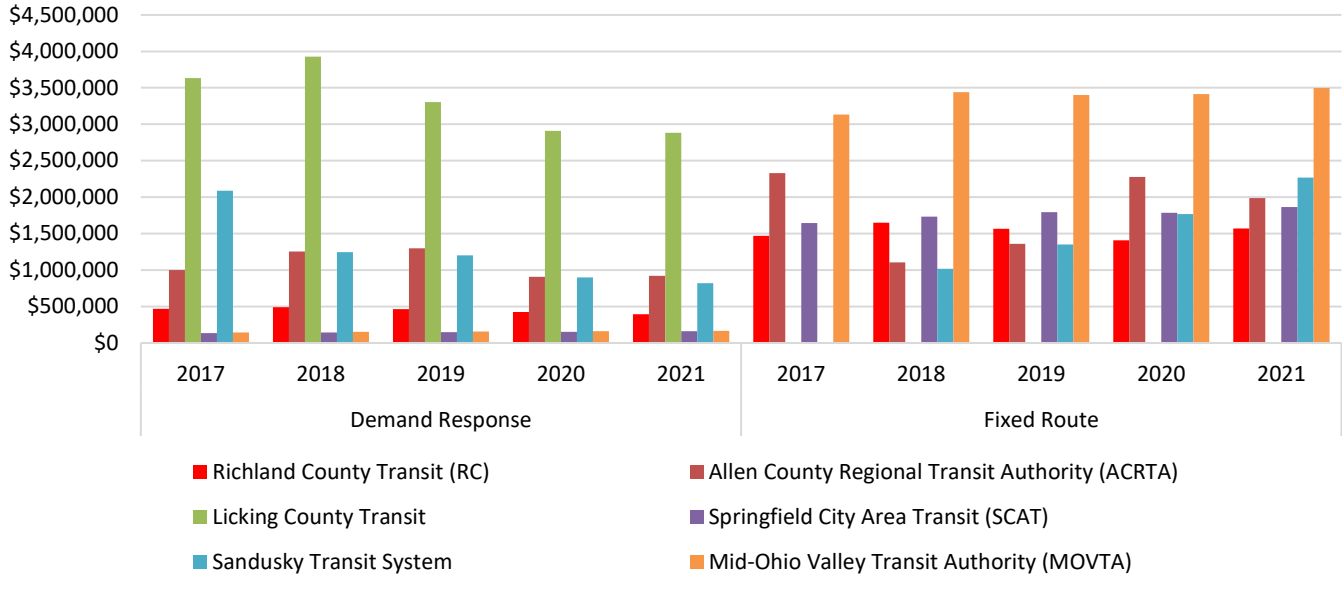


Table E.7: Cost per Vehicle Revenue Hour

Mode	Year	Richland County Transit (RCT)	Allen County Regional Transit Authority (ACRTA)	Licking County Transit	Springfield City Area Transit (SCAT)	Sandusky Transit System	Mid-Ohio Valley Transit Authority (MOVTA)
Demand Response	2017	$64.02	$53.19	$54.81	$111.76	$50.33	$59.31
	2018	$81.79	$103.98	$58.28	$91.39	$59.13	$56.20
	2019	$76.32	$107.49	$54.59	$65.39	$70.48	$56.20
	2020	$112.70	$117.06	$85.61	$105.80	$119.59	$60.52
	2021	$100.70	$89.51	$82.00	$98.84	$54.62	$78.64
Fixed Route	2017	$69.89	$56.03	N/A	$95.82	N/A	$68.68
	2018	$76.47	$60.43		$100.41	$58.65	$57.81
	2019	$70.84	$82.15		$104.10	$95.99	$78.58
	2020	$79.52	$99.46		$103.07	$103.64	$80.92
	2021	$89.47	$66.21		$108.35	$53.71	$86.63

Figure E.6: Cost per Vehicle Revenue Hour

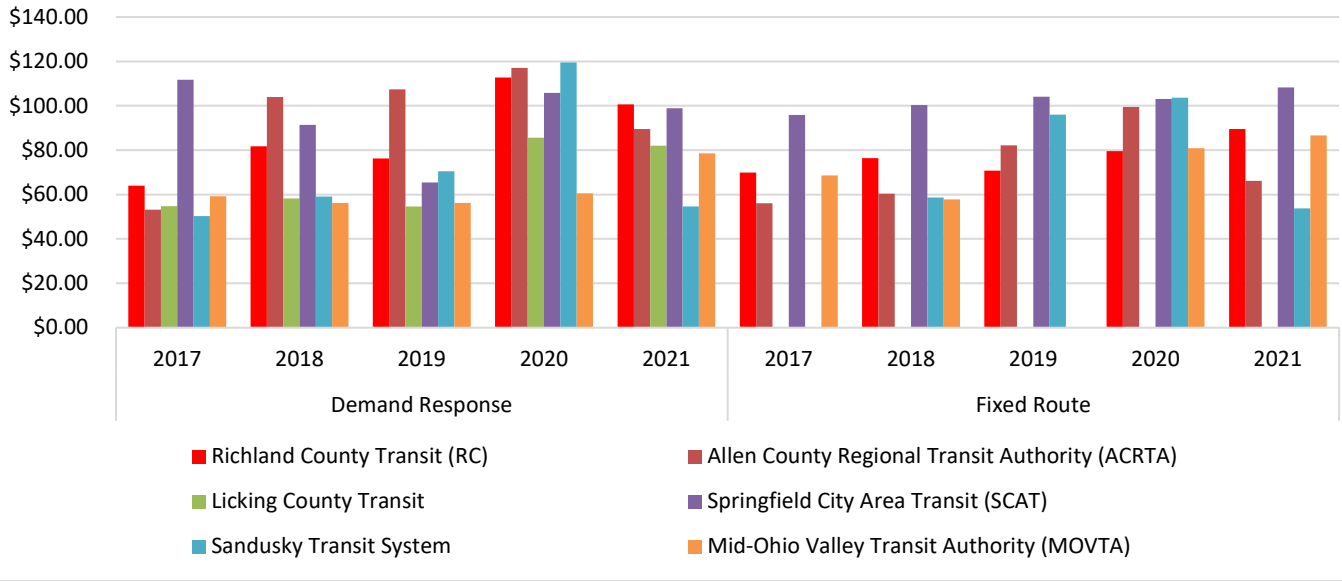


Table E.8: Cost per Passenger Mile

Mode	Year	Richland County Transit (RCT)	Allen County Regional Transit Authority (ACRTA)	Licking County Transit	Springfield City Area Transit (SCAT)	Sandusky Transit System	Mid-Ohio Valley Transit Authority (MOVTA)
Demand Response	2017	$7.05	$3.52	$2.50	$6.34	$3.61	$4.91
	2018	$7.29	$4.91	$2.75	$6.50	$3.01	$4.56
	2019	$7.16	$6.80	$2.47	$5.17	$3.20	$4.33
	2020	$12.26	$8.17	$3.85	$7.70	$7.81	$5.52
	2021	$12.34	$5.52	$3.77	$7.81	$3.50	$7.50
Fixed Route	2017	$4.64	$5.33	N/A	$7.33	N/A	$4.74
	2018	$5.31	$5.10		$7.68	$3.53	$5.16
	2019	$5.47	$5.99		$7.96	$3.70	$5.51
	2020	$5.85	$6.12		$7.89	$7.56	$5.82
	2021	$6.58	$4.17		$8.29	$3.76	$6.36

Figure E.7: Cost per Vehicle Mile

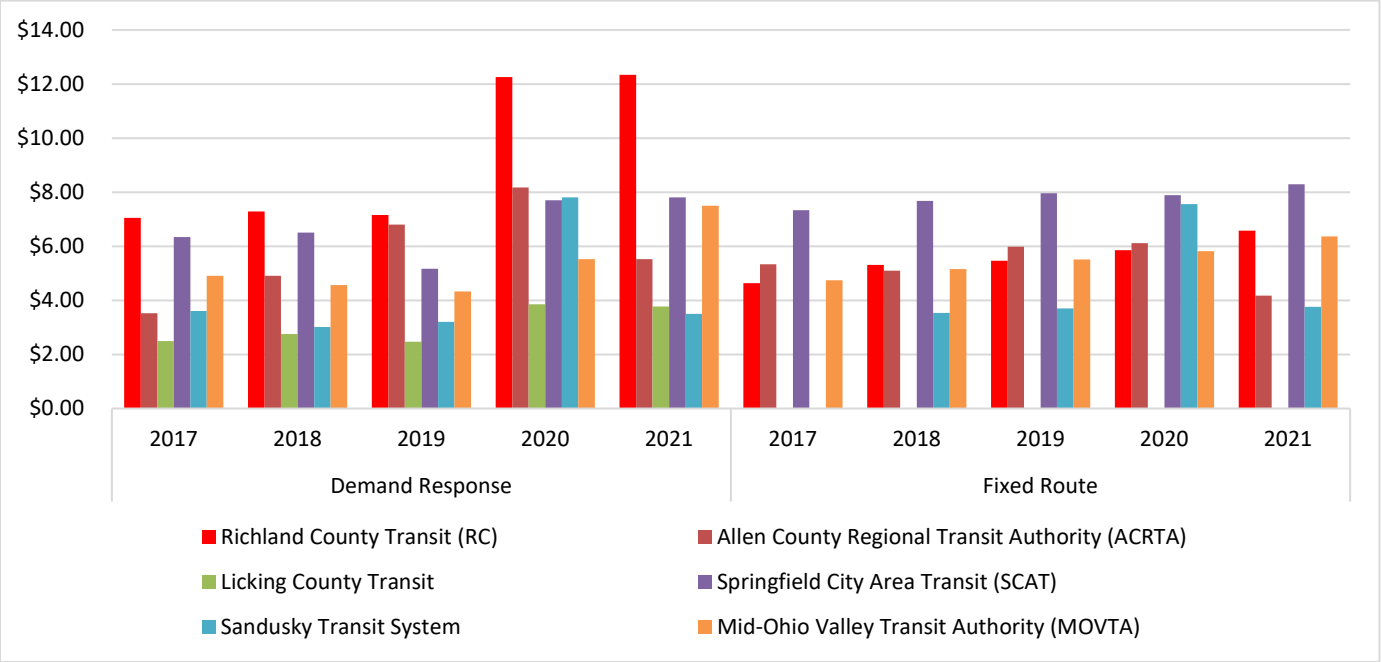


Table E.9: Cost per Passenger Trip

Mode	Year	Richland County Transit (RC)	Allen County Regional Transit Authority (ACRTA)	Licking County Transit	Springfield City Area Transit (SCAT)	Sandusky Transit System	Mid-Ohio Valley Transit Authority (MOVTA)
Demand Response	2017	$33.54	$27.29	$29.17	$24.82	$12.53	$25.70
	2018	$34.96	$26.88	$31.43	$24.28	$24.09	$22.93
	2019	$37.66	$26.61	$29.03	$17.82	$27.06	$22.07
	2020	$62.40	$33.97	$49.65	$26.79	$36.14	$27.63
	2021	$64.51	$40.39	$47.44	$26.98	$35.90	$45.65
Fixed Route	2017	$7.26	$6.62	N/A	$9.18	N/A	$6.30
	2018	$7.36	$5.63		$9.87	$11.21	$6.75
	2019	$8.55	$6.50		$10.76	$4.81	$7.01
	2020	$16.44	$13.60		$15.38	$12.00	$9.88
	2021	$17.37	$14.51		$17.53	$10.33	$16.13

Figure E.8: Cost per Passenger Trip