

# COVID-19 Recovery Practices in Transit

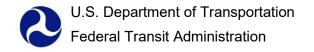
March 2021

Version 3

**Updated Monthly** 

DISCLAIMER: To assist public transportation agencies, FTA has collected information on practices used by transit agencies worldwide. FTA has not assessed the efficacy of any of the practices listed. This list is provided for technical assistance only. Inclusion on this list does not imply endorsement by FTA of any of these practices, tools, or other information. Some transit agency websites may not be up to date. In addition, some transit agency websites may not reflect current CDC guidance or include specific information about their COVID-19 recovery efforts. News articles are used in this document only for informational purposes.

The contents of this document do not have the force and effect of law and are not meant to bind the public in any way. This document is intended only to provide clarity to the public regarding existing requirements under the law or agency policies. Grantees and subgrantees should refer to FTA's statutes and regulations for applicable requirements.



#### Overview

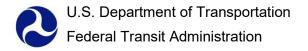
The Coronavirus Disease 2019 (COVID-19) public health emergency has had a significant impact on public transportation operations throughout the Nation. As communities recover from COVID-19, transit agencies are implementing new and enhanced measures to ensure the safety of their employees and passengers, and increase public confidence in transit, including enhanced cleaning and disinfection, personal protective equipment (PPE) and face coverings, and social distancing.

The Federal Transit Administration (FTA) is committed to helping the U.S. public transportation industry recover. This resource provides web links to practices implemented by transit systems worldwide to recover from the COVID-19 public health emergency. This list is non-exhaustive and is provided for technical assistance only. Practices are organized under the following categories:

- Protecting Workers
  - Face Coverings and PPE
  - In-vehicle Protections
  - <u>Infrastructure (Non-vehicle Protections)</u>
  - Return to Work Policies and Health Screening
  - Sick Leave Policies
- Protecting Passengers
  - Face Coverings and PPE
  - <u>In-vehicle Protections</u>
  - Infrastructure (Non-vehicle) Protections
- <u>Cleaning</u>, <u>Disinfecting</u>, and <u>Ventilating Vehicles and</u>
   Infrastructure
  - o Vehicles
  - o <u>Infrastructure</u>

- Operational Considerations
  - o Planning for Recovery
  - Service Changes to Support Opening, Restoration or Expansion of Transit Service
  - o Service Adjustments to Manage Crowding
  - o <u>Building for the Future</u>
- Passenger Communications
- Technology and Innovation
  - o Detecting Crowding
  - Passenger Monitoring
  - Passenger Engagement
  - o Cleaning, Sanitizing, and PPE
  - o <u>Payment Options</u>
  - o <u>Micromobility</u>

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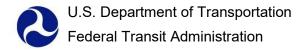
#### **Broken Links**

The COVID-19 Recovery Practices in Transit tool will be updated monthly. In between updates, links identified in this tool may become inoperative as transit agencies or news organizations update their websites with new information. In the event you find a broken link, please send an email to <a href="https://example.com/frases-send-news/">FTASystemSafety@dot.gov</a>.

#### To Recommend a Practice

If you are a transit agency or State with a recommended practice you would like added to this tool, please send an email to <a href="mailto:FTASystemSafety@dot.gov">FTASystemSafety@dot.gov</a>. Be sure to include a brief description of the practice and an active weblink to information on the practice. To the extent feasible, new practices will be included in the next monthly update.

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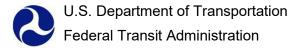


# Acronyms and Abbreviations

Abbreviation	Full Term	
AC Transit	Alameda-Contra Costa Transit District	
Al	Artificial Intelligence	
BART	Bay Area Rapid Transit	
BYD	Build Your Dreams, North America	
CapMetro	Capital Metro Transportation Authority	
САТА	Capital Area Transportation Authority	
CARTA	Charleston Area Regional Transportation Authority	
СНТ	Chapel Hill Transit	
СОТА	Central Ohio Transit Authority	

Abbreviation	Full Term		
COVID-19	Coronavirus Disease 2019		
СТА	Chicago Transit Authority		
DART	Dallas Area Rapid Transit		
FEMA	Federal Emergency Management Agency		
FTA	Federal Transit Administration		
GCRTA	Greater Cleveland Regional Transit Authority		
GDRTA	Greater Dayton Regional Transit Authority		
GETD	Golden Empire Transit District		
Houston Metro	Metropolitan Transit Authority of Harris County		

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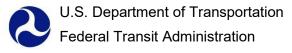


## **COVID-19 Recovery Practices in Transit**

Abbreviation	Full Term	
King County	King County Metro Transit District	
LACMTA	Los Angeles County Metropolitan Transportation Authority	
LIRR	Long Island Rail Road	
MARTA	Metropolitan Atlanta Rapid Transit Authority	
МВТА	Massachusetts Bay Transit Authority	
Metro Transit	Metropolitan Transit, Service of Metropolitan Council	
Miami-Dade	Miami-Dade Transit, County of Miami-Dade	
MTA	Metropolitan Transportation Authority	
MTC	Metropolitan Transportation Commission	
MTD	Champaign-Urbana Mass Transit District	

Abbreviation	Full Term	
MUNI	San Francisco Municipal Transportation Agency	
NACTO	National Association of City Transportation Officials	
NJT	New Jersey Transit	
NYCT	New York City Transit	
NYPTA	New York Public Transit Association	
ОСТА	Orange County Transportation Authority	
PAAC	Port Authority of Allegheny County	
PPE	Personal Protective Equipment	
PSTA	Pinellas Suncoast Transit Authority	
RTD	Regional Transportation District	

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## **COVID-19 Recovery Practices in Transit**

Abbreviation	Full Term	
RideKC	Kansas City Regional Transit	
SEPTA	Southeastern Pennsylvania Transportation Authority	
TriMet	Tri-County Metropolitan Transportation District of Oregon	
USDOT	United States Department of Transportation	
UTA	Utah Transit Authority	

Abbreviation	Full Term	
Valley Metro	Valley Metro Regional Transportation Authority	
VIA	Via Metropolitan Transit	
VTA	Santa Clara Valley Transportation Authority	
WMATA	Washington Metropolitan Area Transit Authority	
WTA	Whatcom Transportation Authority	

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# **Protecting Workers**

## Face Coverings, PPE, and Vaccinations

Topic	Description	Examples
· · · · · · · · · · · · · · · · · · ·	Recommend or require face coverings for employees and	DART: Face coverings required for employees and passengers
	passengers	MBTA: Face coverings required for employees and passengers
		NYCT: Face coverings required for employees and passengers
		WMATA: Face coverings required for employees and passengers
		Vermont Department of Health: COVID-19 Personal Protective Equipment (PPE) guidance for public transit operators
Provide face coverings to employees	NEW Jacksonville Transportation Authority: 3D-printed face shields for front-line employees	
		MARTA: Provides face masks to employees*
	NJT: Provides face masks to employees*	

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То	pic	Description	Examples
		Provide N95 and surgical masks for employees based on results of safety assessment	NYCT: Distributed N95 and surgical masks to employees and published video on how to use masks appropriately
2.	2. Hand sanitizer, gloves, or other hand -hygiene items	Provide hand hygiene items for employees	CTA: Gloves and hand sanitizer provided to employees
			Greater Attleboro Taunton Regional Transit Authority: Hand sanitizer units installed in all vehicles
			NJT: Gloves provided to employees*
			San Diego Trolley: Hand sanitizer and gloves available for employees

#### **In-Vehicle Protections**

Topic	Description	Examples
1. Compartment shields	Install shields around operator compartments, such as rigid	CTA: Bus operators only assigned to buses with driver shields
	playiglace or polycarbonata	DART: Operator shields installed on all buses

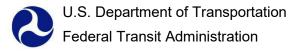
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Topic	Description	Examples
	structures or flexible vinyl "curtains"	Delaware Transit Corporation: Recipient of a competitive grant from the Public Transportation COVID-19 Research Demonstration program to install barrier shields and evaluate the efficacy of the shields*
		GCRTA: Operator curtains installed on all buses and paratransit vehicles
		NEW Gold Coast Transit: Installed plexiglass shields around bus operator compartments
		NEW MARTA: Outfitted bus fleet with polycarbonate shields*
		NEW Metropolitan Transit System: Installed barriers for operators
		Palmetto Breeze Transit: Installed plexiglass operator shields
		NEW Pelivan Transit: Installed protective barriers in vehicles
		NEW Tri-Valley Transit: Installed plastic barriers between operators and passengers

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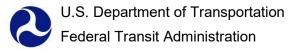
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Topic	Description	Examples
		NEW Valley Transit: Installed protective barriers in vehicles
		NYCT: Installing vinyl shields on buses
Safe area behind bus operator	Create a driver safe area by removing or taping off rows of	Denver RTD: COVID-19 plan creates driver safe area
operato.	passenger seating behind the driver's operating console or compartment	London [Ontario] Transit: Front section of buses roped off to distance other passengers from the operator
		NJT: Removing rider seats near bus operators
		NEW Valley Metro: Seats near the operator are blocked off
		NEW VIA: Removed or restricted access to the seats nearest the operator
		NEW Yuba-Sutter Transit: Passengers not permitted in the first row of seats on commuter and Dia-A-Ride buses
3. Safe area behind rail transit operator	Create safe area for rail operators by closing railcar closest to operator compartment	WMATA: Closes first and last rail cars on trains to protect workers

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Topic	Description	Examples
4. Visual cues for physical distancing	Install visual cues, such as stickers or tape, to remind passengers to distance themselves from the driver	San Diego Metropolitan Transit System: Moved "stand behind" line back to provide additional space between operator and passengers  The Bus of the City and County of Honolulu: Installed tape six feet behind the bus operator
5. Vehicle boarding	Change boarding procedure to reduce contact between operators and riders	ART: Rear-door boarding for all passengers not requiring special assistance  NJT: Rear-door boarding for all routes where rear-boarding is available

## Infrastructure (Non-vehicle Protections)

Topic	Description	Examples
Shields or other physical barriers	Install shields or other physical barriers around work locations to minimize contact among workers and/or the public	

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Topic	Description	Examples
		NYCT: Installing plexiglass barriers in subway work locations, bus depots, and central maintenance facilities
2. Service changes	Change services provided to reduce or eliminate worker and public direct interaction	NEW San Diego Metropolitan Transit System: Fares checked at station platforms instead of on vehicles
3. Visual cues	Install visual cues, such as stickers or tape, to remind workers and/or the public to maintain physical separation	CTA: Installing floor decals on platforms to encourage physical distancing  Miami-Dade: Installed floor decals on platforms to encourage physical distancing  Transport for London: Instituted one-way pedestrian flow measures in depots and control centers to support physical distancing*
4. Scheduling	Set schedules that reduce the number of workers in a space at one time	MBTA: Divided operating teams in two and rotating staff between its main and backup Rail Operations Control Center to allow each facility to be cleaned and disinfected when not in use*  NYCT: Construction crew work is staggered to reduce the number of workers in a specific location at one time* and Staggered work hours

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Topic	Description	Examples
		to ensure that no more than 15-percent of office workers are in the offices at any one time
5. Access to shared spaces	Reduce or eliminate access to non-critical shared spaces	NYCT: Reduced capacity in breakrooms and meeting rooms
		Regional Transportation Commission Washoe: Construction workers  eat meals separately, avoid common-use water coolers, and have access to portable bathroom units with wash basins and soap
	Reduce or eliminate in-person meetings	NEW DART: No longer holding in-person meetings
6. Teleworking	Permit or require workers to work from home as appropriate	NEW  Heart of Iowa Regional Transit Agency: All office employees, including dispatch, work remotely
		Metro Bus: All administrative staff work remotely
		NYCT: Construction crews using an internal phone application to track progress and using a GoPro camera to monitor progress and inspect work remotely* and Non-essential personnel work from home

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## Worker Communications, Return to Work Policies, and Health Screening

Торіс	Description	Examples
1. Worker guide	Provide guidance on staying safe for workers that are returning to work	Santa Clara VTA Return to Work Playbook to help employees stay healthy at work
2. Worker communication	Communicate with workers about COVID-19 and its impact on the agency	NEW Spokane Transit: Providing text and email updates through safety notices and situation updates and operating a COVID-19 Employee Message Line
3. Health screening	Check temperatures of workers as they report to work	COTA: Mandatory temperature checks for all workers entering agency facilities
		Lane Transit: Worker temperatures checked before every shift
		MBTA: Worker temperatures checked before every shift*
		NEW Metropolitan Transit System: Participating in Scripps Health Detect Study
		NYCT: Temperature Brigade testing workers at strategic locations

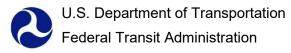
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Topic	Description	Examples
		Oahu Transit Services: Testing employee temperatures daily and occasional COVID-19 tests*
		NEW RTC of Southern Nevada: Thermal analysis units installed in employee facilities*
		NEW San Diego Metropolitan Transit System: Bus operators temperature tested prior to shift
		NEW VIA: Daily employee temperature testing
4. COVID-19 testing	Provide free COVID-19 testing for workers	NJT: Testing program for employees
		NYCT: COVID-19 antibody testing for employees
		Oahu Transit Services: Testing employee temperatures daily and occasional COVID-19 tests*
		SEPTA: Testing program for employees
		NEW Santa Clara Valley Transportation Authority: Offering COVID-19 testing for employees*

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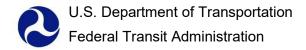
Topic	Description	Examples
5. COVID-19-related healthcare	Provide access to healthcare	CTA: Expanded access to health care services for employees without CTA healthcare coverage for COVID-19-related illnesses and expanded access to telehealth services
6. Vulnerable workers	Provide protections for vulnerable workers	SunLine Transit: Vulnerable workers may use sick or other available time off and unpaid time off will be approved

#### **Sick Leave Policies**

Topic	Description	Examples
1. Sick leave	Establish policies that promote employee sick leave	SunLine Transit: Workers do not need to provide a doctor's note before or during an illness
2. Quarantine protocols	Establish protocols for responding to COVID-19 cases among employees	CTA: Workers testing positive and any other workers who came into close contact with the patient directed to remain at home with pay for 14 days since their last contact

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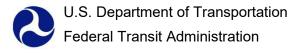


# **Recruiting and Training**

Topic	Description	Examples
Interviews and     Recruitment	Establish process for conducting virtual employment interviews	MARTA: Conducting employment interviews using video conferencing
	Work with community colleges, non-profit agencies, and technical education to develop	LACMTA: Partnering with community colleges to establish a transit workforce development program
	and recruit employees	Denver RTD: Partnering with local community colleges and non- profits to recruit and train transit employees
2. Testing and training	Establish a process for conducting pre-employment testing virtually	WMATA: Register and conduct testing for job applicants virtually
	Provide online resources to support employees preparing for transit careers	UTA: Place pre-test study guides and resources online to support employees in preparing for tests
	Provide online training	NEW DART: Creating virtual training opportunities
		NEW RideKC: Employee training provided using an e-learning platform

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Торіс	Description	Examples
3. COVID-19 safety training	Develop online training to support employee awareness	New Mexico DOT: Developing and streaming COVID-19 safety training
	Provide training to employees as they return to work	Transit Authority of River City: Operators will undergo training on safety protocols, CDC guidelines, and measures to protect themselves and their passengers*

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# **Protecting Passengers**

## Face Coverings and PPE

Topic	Description	Examples
1. Face coverings	Recommend or require face coverings for passengers	Green Mountain Transit: All passengers above the age of two must wear a face covering
		NYCT: Face coverings required
		Shoshone-Bannock Tribes Public Transit: Face coverings required
	Distribute face coverings to passengers	NEW AC Transit: Installed face mask dispensers on vehicle fleet
	pussengers	CARTA: Distributing masks to passengers without them
		NEW CTA: Piloting mask dispensers on buses*
		NEW King County: Installing mask dispensers*
		NEW MARTA: Installed onboard mask dispensers*
		NYCT: Installation of mask dispensers on buses

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Topic	Description	Examples
		TriMet: Mask dispensers on vehicles
		UTA: Providing free face masks to returning college students*
	Sell face coverings to passengers	NEW CTA: PPE vending machines installed in select stations*
		NEW NIT: PPE vending machines installed in select stations and terminals*
		NYCT: Deploying vending machines with face masks, gloves, hand sanitizer, and sanitizing wipes at 10 subway stations
2. Hand sanitizer, gloves, or other hand	Provide hand hygiene items	NEW AC Transit: Installed hand sanitizer dispensers on fleet
protection		NEW Athens Transit: Installed hand sanitizer dispensers on fleet
		BART: Giving out and selling personal hand straps to riders
		Kigali Bus: Passengers required to wash hands before boarding*
		NEW Monterey-Salinas Transit: Installed hand sanitizer dispensers on fleet

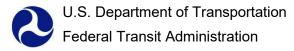
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Тор	ic	Description	Examples
			Metro Transit: Handwashing stations installed at rail transit stops
			Nashua Public Transit: Hand sanitizer available on all vehicles for passenger use
			NEW San Diego Metropolitan Transit System: Handwashing stations available at all trolley stops
			Société de Transport de Montréal: Installing touch-free hand sanitizers at station entrances*
			The Comet: Hand sanitizer available on all vehicles for passenger use
			NEW Tri-Valley Transit: Hand sanitizer available on vehicles
1	Passenger coaches for new COVID-19 rules	Use coaches to help passengers navigate social distancing and face mask requirements	SEPTA: Coaches used to help passengers with new COVID-19 rules*
	COVID-19 testing for passengers	Offer COVID-19 testing to passengers	The COMET: Partnership with the Department of Health and Environmental Control to offer testing at the transit hub*

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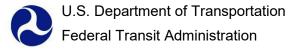
Topic	Description	Examples
		MARTA: Partnership with COVID Care Georgia, LabCorp, and the city of Brookhaven to make COVID-19 testing available via transit*

#### **In-Vehicle Protections**

Topic	Description	Examples
1. Vehicle occupancy	Establish policies or procedures to limit the number of passengers on any one transit vehicle	AC Transit: No more than 6 passengers on 30-foot vehicles,  10 on 40-foot, 16 on 60-foot, and 24 on 44-foot decker  coaches
		NEW Anchorage People Mover: No more than 6 passengers on 22-foot buses and 14 on 40-foot buses
		CATA: No standing passengers permitted
		CTA: Bus operators authorized to bypass certain bus stops or only permit passengers to exit the vehicle depending on the number of passengers onboard and the size of the vehicle

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Topic	Description	Examples
		Govia Thameslink Railway: Using train weight to determine whether a train has sufficient space to let on additional passengers*
		King County: Creates passenger limits to support social distancing
		OC Transpo: One passenger per paratransit vehicle, as available
		NEW Pelivan Transit: One passenger or party per paratransit vehicle
		The Comet: Bus seating limited to one passenger per row
		NEW The Rapid: Limit of 15 passengers on 40' buses and four passengers on paratransit vehicles
		Transit Windsor: Buses limited to a maximum of 10 passengers
		<u>Valley Regional Transit: No standing passengers permitted</u>
		VIA: Link vans limited to two passengers

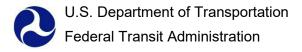
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Topic	Description	Examples
		Vonlane: Aisle seats and certain conference table seats blocked to ensure physical distancing*
		NEW  Yuba Sutter Transit: No more than 12 passengers per bus and no more than two unrelated passengers on Dial-A-Ride
		NEW City of Harrisonburg Public Transportation: No more than 18 passengers on each vehicle
		Redding Area Bus Authority: Standing prohibited on buses
	Increase vehicles in service to decrease the number of passengers per vehicle	BART: Running long trains throughout hours of service and adding additional trains during commute hours in 15-minute slots once trains consistently reach greater than 30 people on board
		King County: Adding additional buses to high-demand routes
		MBTA: Increasing frequency on bus routes with high ridership
		MUNI: Adding more frequent service to lines that service neighborhoods that rely on transit service the most

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Topic	Description	Examples
		Metrolink: Tracking ridership and adding additional passenger cars or train service when ridership is consistently 30-percent or higher*
2. Passenger boarding	Rear door boarding and exiting	Lawrence Transit: Rear door boarding for all passengers not needing mobility assistance
		NEW RideKC: Rear door boarding for all passengers not needing mobility assistance
		NEW  SunLine Transit: Rear door boarding for all passengers not needing mobility assistance
	Wheelchair boarding and securement	NEW GoRaleigh: Installed fully automatic securement system that allows mobility passengers to secure themselves without direct physical assistance*
		TransLink: Some buses will not pick up passengers using mobility devices, but will call taxis to provide service*
		Beijing: Rider temperatures screened prior to boarding*

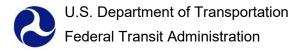
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Topic	Description	Examples
	Test passenger temperatures prior to boarding	Guam Regional Transit Authority: Passenger temperatures tested prior to boarding
		Rapid Kuala Lumpur: Rider temperatures screened prior to boarding*
		Singapore Land Transit Authority: Thermal cameras screen passengers in select stations*
		Vonlane: Passenger temperatures tested prior to boarding*
	Automatically opening doors to reduce touch points	NEW TriMet: Installed sensor-operated rear doors on vehicles
3. Quiet transit service	Ask passengers to refrain from talking on vehicles	East Japan Railway: Asking passengers to refrain from talking while onboard
4. Payment options	Encourage alternate methods of payment or suspend fares	CATA: Suspending fares
		CTA: Passengers must use farecard readers when boarding from the rear doors and buses not equipped with rear door farecard readers do not collect fares

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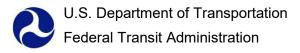
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Topic	Description	Examples
		NEW Gold Coast Transit: Suspending fares to facilitate rear door boarding
		Sound Transit: Suspending fares
		TriMet: Eliminating cash transactions to minimize contact with the driver
		Valley Regional Transit: Suspending fares for fixed route and demand response services
		Roaring Fork Transportation Authority will no longer accept cash payments from bus passengers
		NEW Sunline Transit: Bus and paratransit service provided free of charge
		NEW TriDelta Transit: Offering free Clipper cards to promote contactless fare payment
		NEW TriMet: Encouraging passengers to use contactless payment options and providing contactless cards via mail

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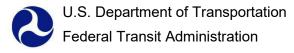
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Topic	Description	Examples
		NEW VIA: Providing Workforce Assistance Passes to provide free rides for unemployed passengers
5. Visual cues for physical distancing	Install visual cues, such as stickers or tape, to remind	CATA: Signage on buses to remind passengers to stay six feet apart
priystear distanting	passengers to distance themselves from the driver and other passengers	NEW  City of Harrisonburg Public Transportation: Passengers corded off from operator and seats marked to space passengers appropriately
		LYNX: Seats marked to space passengers appropriately
		NEW MARTA: Installed seat markers
		Nashua Transit System: Signage on seats to space passengers appropriately
		New Orleans Regional Transit Authority: Seats blocked off to space passengers appropriately
		NEW Sacramento Regional Transit: Seats blocked off to space passengers appropriately

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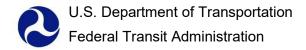
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Topic	Description	Examples
		NEW Tri-Valley Transit: Posted signs blocking off aisle seats
6. Vehicle configuration	Change the physical layout of the vehicle to promote physical distancing	BART: Piloting new configurations for some trains to create additional space between riders
		NEW Tri-Valley Transit: Installed plastic barriers between rows of seats
7. Vehicle materials	Change materials within the vehicle to improve cleaning	Maryland Transit Authority: Retrofitting buses with plastic seats*
	·	NEW Metro Transit Authority of Harris County: Installing fiberglass seat inserts on light rail vehicles*
	Install antimicrobial materials	NEW Edmonton Transit Service: Installing anti-microbial push-plates on swing doors in transit centers and stations*
		NEW TransLink BC: Piloting copper-plated surfaces on buses and trains*

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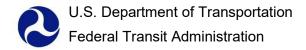


# Infrastructure (Non-vehicle) Protections

Торіс	Description	Examples
Visual cues for physical distancing	Install visual cues, such as stickers or tape, to remind riders to distance themselves from	TransLink BC: Installed stickers at stations to show passengers where to stand to remain six feet apart
	each other	NEW Sacramento Regional Transit: Spray painted sidewalks to remain passengers to remain six feet apart
2. Reduce exposure	Implement policies to reduce exposure in transit infrastructure	NEW Denver Regional Transportation District: Bus concourse prohibits eating and limits the number of people in restroom facilities at one time*
		NEW  Everett Transit: Limit of one customer permitted in Customer Service Center lobby at a time
		Regional Transportation Commission of Southern Nevada: Maximum of 10 passengers permitted in transit centers for a maximum of 10 minutes each
		Regional Transportation Commission Washoe: Customer Service center permits no more than six visitors at a time

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# Cleaning, Disinfecting, and Ventilating Vehicles and Infrastructure

#### **Vehicles**

Topic	Description	Examples
1. In-service cleaning	Clean vehicles in service	CATS: Buses and light rail vehicles cleaned during layovers
		CTA: Workers disinfect rail car high-touch surfaces at all terminals and workers disinfect bus high-touch surfaces at four bus terminals serving 30 routes
		C-TRAN: Additional workers on transit center platforms to clean and disinfect buses in between trips
		DART: Light rail vehicles cleaned at least every 90 minutes at terminal stations
		Metropolitan Transit System: Trolley doors and buttons cleaned at four stations*
		Milwaukee County Transit Systems: Bus operators given disinfectants to use throughout service*

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Topic	Description	Examples
		Sacramento Regional Transit Authority: Light rail fare inspectors sanitize tap payment device after each use
		NYCT: Testing new air filters on several car classes to determine whether they effectively kill microbes
		NEW The Rapid: Periodic disinfection of fixed-route and bus rapid transit buses throughout the day
2. Cleaning technologies	Use coatings or other mechanisms to decrease the likelihood of fomite transmission	CTA: Testing products on vehicle interiors to prevent pathogens from <u>"sticking" to treated surfaces</u>
		NJT: Contracted with Rutgers to study the effectiveness of UVC wavelength in killing viruses and mapping the interior of different bus models to identify the best placement for the UVC source*
		NYCT: Piloting antimicrobial biostats, materials that create a protective layer on surfaces and prevent microbes from growing, on surfaces in train cars and buses, stations, and crew quarters
		Valley Metro: Trains fogged with a "barrier" solution
	Use UV lights to disinfect vehicles	DART: UV system sanitizes air as it recirculates through buses

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Topic	Description	Examples
		NJT: Partnering with Rutgers to test UV disinfection*
		NYCT: Using UV lights in break rooms and operations centers, and working with university and startup to develop portable lights
		NEW  Vermont Agency of Transportation: Received funding from the Public Transportation COVID-19 Research Grant program to test the efficacy of two UV-C light products*
		Yanggao: Using UV light chambers to disinfect buses in five to seven minutes*
	Use foggers, misters, or sprayers to disinfect vehicles	NEW ABQ RIDE: Using electrostatic foggers on fleet*
		DART: Light rail vehicles sanitized with foggers
		Hong Kong Mass Transit Railway: Deployed vaporized hydrogen peroxide robot to clean and decontaminate trains and stations*
		MARTA: Delta Airlines provided MARTA with 50 electrostatic sprayers to help clean MARTA buses, trains, and rail stations*

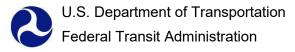
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Topic	Description	Examples
		NYCT: Testing electrostatic sprayers that positively charge a disinfecting solution, atomizes it, and disperses it, in subways and buses
		Valley Metro: Fogging buses three times per week and trains once per month
3. Daily cleaning	Clean vehicles prior to or after service	Long Beach Transit: Each bus is cleaned with freshly laundered towels and towels are not used on multiple buses before laundering
		MBTA: All vehicles disinfected daily
		NYCT: Subway closed from 1am to 5am every day for vehicle cleaning
		RideKC: Buses sanitized nightly
		Sunline Transit Agency: Buses fogged with disinfectant with the HVAC running
		Valley Regional Transit: Every in-service bus cleaned and disinfected each night

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Topic	Description	Examples
4. Ventilation	Use special air filters	NEW  BART: Installing MERV14 filters in vehicle HVAC systems and continuing testing ultraviolet bulbs in HVAC system*
		DART: Ultraviolet germicidal irradiation in bus air-conditioning ducts that clean the air automatically as it recirculates
		NEW King County: MERV8 HVAC filters used on Metro's buses
		MARTA: Installed antimicrobial air filters*
		MTA: Understanding subway ventilation and testing ultraviolet technology in railcar ventilation systems*
		NEW NJT: Partnering with Knorr Merak to test three-stage air filtration and purification*
		NEW Plymouth Metrolink: Installed air cleaning devices that filter more than 95-percent of airborne viruses*
	Open windows or use other means to draw outside air through vehicles	East Japan Railway: Automatic ventilation systems exchange air in six to eight minutes per vehicle and all windows open six to eight inches

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Topic	Description	Examples
		NEW Monterey-Salinas Transit: Leaving bus windows open to draw air through the vehicle
		NYCT: Bus windows and roof hatches opened to draw outside air into the vehicle*
	Sanitize HVAC elements	Rossiyskie Zheleznye Dorogi: Installed UV lamps in the duct works of trains*
		Shanghai Keolis: Adjusted streetcar HVAC to use all fresh air and equipped air conditioning units with UV lights*

#### Infrastructure

Торіс	Description	Examples
Stations, terminals, and other revenue	Clean, disinfect, and ventilate revenue facilities	NEW Athens Transit: Pressure washing bus stops daily
facilities		The Comet: Cleaning bus stop shelters, benches, and wall panels*
		<u>Transit Windsor: All hard surfaces in transit terminals sanitized daily</u>

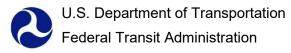
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То	pic	Description	Examples
2.	Cleaning technologies	Install air purifiers at transit facilities	MARTA: Implements project to install 209 air purifiers in air conditioning units found at 18 MARTA facilities*
		Use coatings or other mechanisms to decrease the likelihood of fomite transmission	SMART: Terminals, transit center, and downtown offices sprayed with electrostatic microbial spray treatments
		Use UV lights to disinfect infrastructure	NYCT: Using UV lights on vehicles and working with university and startup to develop portable lights
		Use robots to clean	Hong Kong Mass Transit Railway: Deployed vaporized hydrogen peroxide robot to clean and decontaminate trains and stations*
3.	Non-revenue facilities	Clean spaces as they are used	Long Beach Transit: Custodians service administrative buildings three times daily
			NYCT: Added daytime cleaning shifts to disinfect work areas
			SMART: Employees who use conference rooms are required to wipe down all shared equipment, furniture, and high-touch surfaces after use

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Topic	Description	Examples
	Clean and disinfect tools or shared use items	NYCT: Construction tools disinfected daily*
4. Post-exposure	Clean or disinfect spaces after exposure	Transdev (transit contractor): Deep cleaning vehicles, offices, maintenance shops, and facilities after exposure

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# **Operational Considerations**

### Planning for Recovery

Topic	Description	Examples
Recovery task force	Establish a work group or task force to guide public transit recovery from the COVID-19 pandemic	LACMTA: Recovery Task Force releases recommendations to improve mobility
		UTA: COVID-19 Work Group
		WMATA: Pandemic Task Force issues recommendations
	Include labor and members of the business community in recovery planning	MTC: Created Transit Recovery Task Force for Bay Area*
2. Recovery plan	Establish a decision support system and playbook of recommended operations	NEW East Texas Council of Governments: GoBus Pandemic Response Plan
	options for various service scenarios	NEW Laredo Transit: Pandemic Response Plan
		NEW Monterey-Salinas Transit: COVID-19 Recovery Plan

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NACTO: Playbook guidance for managing street design and movement, including transit lanes*
NYPTA: COVID-19 Recovery & Restoration Plan
SMART: COVID-19 Safety Playbook
NEW South Plans Community Action Association: SPARTAN Public Transportation Pandemic Response Plan
WMATA: COVID-19 Recovery Plan

### Service Changes to Support Opening, Restoration or Expansion of Transit Service

Topic	Description	Examples
Transit services for essential workers	When opening, restoring, or expanding transit service, focus service on key routes for essential workers	Houston Metro: Adding a Texas Medical Center shuttle to move essential employees to the medical center  Maryland Transit Administration: Enhanced service on routes that service healthcare facilities, food distribution sites, and designated supply chain employers

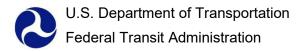
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То	pic	Description	Examples
		Provide essential employees with rides to or from work curb-to-curb on paratransit service	Maryland Transit Administration: Cooperative agreement with  Transdev, First Transit, and MV to provide "park-and-ride" service for essential hospital workers*
			MTA NYCT: Essential Services Plan*
2.	Adjusting transit service to support schedules of essential services	Adjust schedules and add trips to address essential workers' schedules	NYCT: Adjusts service to meet needs of essential workers
3.	Supporting transit- reliant communities	When opening, restoring, or expanding transit service, focus	CATA: Announces Diversity, Equity, and Inclusion Task Force
		on those in the community that need it the most	Greensboro Transit Agency: Providing service to city's free shelter-in-place option for residents experiencing homelessness*
			Jacksonville Transit: Launching new line to improve connectivity to critical resources for areas with known mobility challenges*
			LACMTA: Recovery Task Force uses an equity framework to prioritize better mobility for those who rely on transit

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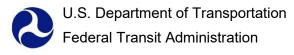
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Topic	Description	Examples
		Montgomery County Transit: Service focuses on Equity Emphasis  Areas
		MUNI: Core Plan focuses on most used routes and equity to ensure service for customers most reliant on transit
		NEW Orleans Regional Transit Authority: Prioritizes life- sustaining reservations for paratransit service
		TriMet: Focus on minority and low-income riders
	Provide alternate service in areas where regular service is not yet restored	COTA: Launching COTA//Plus pilot, an on-demand service that hails vehicles to the user's nearest transit stop, in service areas where fixed-route service has been suspended*
		Denton County Transportation Authority: Replacing fixed-route bus service with on-demand transit*
		NEW Monterey-Salinas Transit: Developed routes to replace temporarily suspended volunteer driver routes to veteran medical facilities

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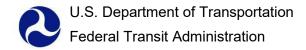
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То	pic	Description	Examples
			The Comet: Provides on-demand service for riders on routes that are not currently running*
4.	Expanding support for passengers with disabilities impacted	Expand paratransit service to customers with disabilities who can no longer reach their	King County: Expands eligibility for paratransit services to those impacted by COVID-19 service cuts
	by service cuts	essential destinations through traditional service	LACMTA: Expands service area and offers a safer travel option for essential workers and those with essential needs*
5.	Off-peak transit service	Incentivize passengers to travel during off-peak times	Sydney Public Transit Systems: Fares halved for off-peak travel*
		Expand off-peak service	MBTA: Increases service for off-peak hours*
6.	Expanding coordinated services	Bring on-demand services back to support enhanced transit service in a coordinated approach	King County: Resumes Via to Transit

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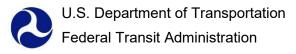


# Service Adjustments to Manage Crowding

То	pic	Description	Examples
1.	Staying ahead of demand	Restore more frequent transit service to stay ahead of demand	Miami-Dade: Increases frequency of service on key routes to reduce crowding
			Pasadena Transit: Increasing buses on its busiest route*
			Vista Transit: Added additional service to popular route to reduce the number of passengers on each vehicle
			WMATA: Outlines phased approach for restoring service
2.	Changing vehicle type to address	Place larger transit vehicles on agency's most crowded routes	NJT: Use articulated buses to support social distancing*
	service needs	agency 3 most crowaca routes	Port Authority: Move largest buses to new routes*
		Preferentially use vehicles that allow for social distancing	Regional Transportation Commission of Southern Nevada: Using double-decker buses or other high-capacity buses as available to increase space available for social distancing
3.	Ridesharing		Miami-Dade and other transit agencies: Ridesharing to supplement service*

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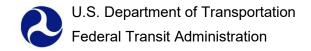
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То	pic	Description	Examples
		Use ridesharing to supplement fixed route transit service and reduce crowding	Cities across US: Supplementing service with rideshare*
4.	Monitoring and changing service requirements with expanded service	Reevaluate COVID-19 service levels and safety precautions as demand increases	WMATA: Surveying employers on their plans to bring their employees back into offices
5.	All-door boarding	Use all-door boarding as a strategy to reduce crowding at bus stops	WMATA: Evaluating accelerated installation of SmarTrip targets on rear doors to enable smooth transition to all-door boarding
6.	Expanding existing service zones	Use additional service capacity to support essential workers and those with special needs	LACMTA: Expands service area and offers a safer travel option for essential workers and those with essential needs*
			Pasadena Dial-a-Ride: Delivering food from the food bank to its members*
7.	On-demand services	Expand access to on-demand service	NEW MetroWest Regional Transit Authority: Providing essential trips to eligible individuals through taxi/livery services

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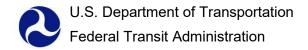


## Building for the Future

То	pic	Description	Examples
1.	New bus lanes, traffic signal priority and other measures	Partner with local jurisdictions to accelerate implementation of bus-only lanes and other speed and reliability measures	LACMTA: Announces new bus lanes*  MBTA partners with four cities to rapidly construct 14 miles of bus lanes*
2.	Accelerating maintenance, rehabilitation or expansion programs	Take advantage of lower ridership and less service to accelerate or expand maintenance and construction projects	LACMTA: Using reduced traffic to close Wilshire Boulevard to fast track Purple Line construction*  WMATA: Using upcoming low-ridership summer to maximum effect, expands Orange and Silver line shutdown
3.	Prioritizing projects based on post- COVID-19 criteria	Prioritize and re-examine major capital projects during recovery	LACMTA: Considering re-prioritizing capital projects  Paris: Creating 650 kilometers of post-lockdown cycleways*
4.	Working groups	Form working groups to explore ways the transit agency can expand mobility within their service area	LACMTA: Created the Office of Extraordinary Innovation to discover and develop ways to provide high quality mobility options

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# Passenger Communications

Topic	Description	Examples
Welcome back     campaign	To welcome riders back and restore confidence in the safety	BART: 15-step plan to welcome back riders
	of transit service, post plans on agency websites that outline	DATTCO: Clean Care Certified initiative
	steps the agency will take to ensure the safe restoration of	NJT: Your Ride to Recovery
	service, often focusing on cleaning and disinfecting, the use of face coverings, how social	NYCT: Action Plan for a Safe Return
	distance will be maintained, service changes, and the	NEW Ohio Public Transit Association: Ride Easy Ohio campaign
	exploration of new measures and technologies	NEW AC Transit: ReNEW plan
		SEPTA: Reopening Guide
		NEW SunLine: SunLine Refueled five-level alert system
		VTA: VTA's 10-Point Plan to Strengthen Trust in Transit
		TriMet: Here's what you need to know when you return

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То	pic	Description	Examples
			UTA: COVID-19 Recovery plan and Recovery Plan Summary
2.	Welcome back kits	Provide riders with what they need to safely use the system, including reusable face mask, hand sanitizer and safety guide	CTA: Giving away "Travel Healthy" kits
3.	Keeping riders informed in real-time	Use website banner, push notifications on transit app, text and email alerts and updates, social media, and other means to keep riders informed	DART: Coronavirus communication  NEW Valley Regional Transit: Weekly newsletter
		Provide real-time cleaning information	Ontario Northland: Web application allows passengers to enter a vehicle identifier into the website and see the cleaning history for the vehicle*
4.	Collecting information from riders on new travel patterns and needs	Survey customers on their current transportation patterns and modes, future transportation plans, COVID-19 concerns, and customer experience	NEW  Anchorage People Mover: People Mover and AnchorRIDES passenger survey  Denton County Transportation Authority: Survey of passenger experience during COVID-19 public health emergency*

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То	pic	Description	Examples
			LACMTA: Agency research efforts
			Miami-Dade: Issues survey as part of 10-year planning goal
			NEW RideKC: Customer survey on ridership during COVID-19 public health emergency
			TriMet: Agency research efforts
			UTA: COVID-19 General Rider Survey Report
			NEW Valley Metro: Customer survey on ridership during COVID- 19 public health emergency
5.	Collecting information from riders most reliant on transit	Survey different groups of riders on their transportation during the pandemic and how they plan to travel in the future	LACMTA: Promotes a rider-led recovery
6.	Shifting from print resources	Encourage customers to shift from print media to online	NYPTA: Recommends shifting to online media sources
		sources	NEW RideKC: Printed materials available by request only

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То	pic	Description	Examples
7.	Behavioral science tools	Approaches to communicating with passengers based in behavioral science	MTA: Enlisting the help of behavioral psychologists and crowding experts to plan for New York's reopening*
			Transit agencies: Use behavioral science techniques to attract riders and design passenger communication* and How behavioral science can help with 'normal' after coronavirus*
8.	Notifying passengers of potential exposure	Implement a process to notify passengers of potential exposure to workers or other passengers	Houston Metro: Publishing routes, days, and times operators who test positive worked*
		who test positive for COVID-19	Jacksonville Transportation Authority: Publishing routes, days and times operators who test positive worked and posting information on those routes*
9.	In- or on-vehicle safety messaging	Display safety tips in or on vehicles	RoadRUNNER Transit: Installing banners with COVID-19 health tips on fixed route buses in English and Spanish
			NEW Tri-Valley Transit: COVID-19 information posted in three languages on buses and at shelters
10	. Video campaigns and promotions	Encouraging mask wearing	Multiple agencies: Video encouraging riders to #MaskUpForTransit*

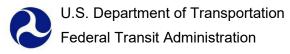
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Topic	Description	Examples
	Public demonstration of cleanliness of system	NYCT: A spot-check of the New York subway system by the television program Inside Edition revealed no trace of COVID-19 on any of the 32 surfaces swabbed and tested*
11. Access to vaccination sites	Provide access to vaccination sites via transit	NEW Chapel Hill Transit: Providing rides to vaccination sites
		NEW Charlottesville Area Transit System and JAUNT: Providing free rides to vaccination center
		NEW Jacksonville Transportation Authority: Providing vaccination transportation
		NEW North Carolina: Departments of Health and Human Services and Transportation funding rides to vaccination sites*
		NEW NYCT: Helping passengers access vaccination sites
		NEW Operating Above the Standard Transit: Providing free transportation to vaccination sites
		NEW San Diego Metropolitan Transit System: Providing free transit rides to COVID-19 vaccination appointments

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Topic	Description	Examples
12. Federal mask requirement	Publicize information about the Federal mask requirement and your agency's process for adherence	NEW RTC Washoe: Public-facing website describes agency's process to comply with the Federal mask requirement

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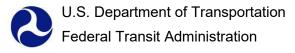
# Technology and Innovation

## **Detecting Crowding**

Topic	Description	Examples
Real-time tools to track crowding on transit vehicles	Provide real-time vehicle occupancy information to help passengers make informed decisions about riding	NEW Alameda-Contra Costa Transit District: Automated Passenger Counters update crowding information on transit website*
		Auckland Transit: Requiring passengers "tap" fare media when boarding and alighting allows their phone application to convey realtime passenger loads*
		CTA: Bus crowding report for passengers
		Danske Statsbaner (Danish State Railways): Advanced booking capabilities for light rail trips, including information on which services and vehicles are the least crowded*
		East Japan Railway: Rail-time information on vehicle occupancy and the availability of space for "reduced mobility passengers"
		LIRR: Real-time crowding information available to the public via a phone application

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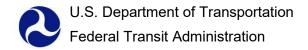
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То	pic	Description	Examples
			MBTA: Real-time crowding information on nine bus routes displayed on bus stop digital signs and in the MTBA transit phone application
			NEW RTC Southern Nevada: Transit app provides real-time crowding information*
2.	Monitoring crowding in transit service	Use artificial intelligence (AI) and CCTV to monitor crowding on transit platforms and vehicles	India: AI helps cities monitor and manage crowding*
3.	Apps to help riders make appointments for transit service	Provide apps that lets riders make appointments to enter subway stations during rush hours. Riders are given a QR code on their phones that will be valid for a half-hour window to better stagger ridership	Beijing Transit: Uses "subway by appointment" to reduce crowding*

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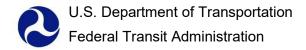


#### Passenger Monitoring

То	pic	Description	Examples
1.	Monitoring passenger temperatures in transit stations	Use thermal cameras to take riders' temperatures	Beijing Transit: Uses temperature monitoring in subway*  MTA: Recommends the use of thermal cameras to monitor riders' temperatures in subway stations*
2.	Monitoring passenger temperatures prior to boarding vehicles	Test passenger temperatures prior to boarding	Rapid Kuala Lumpur: Rider temperatures screened prior to boarding*
3.	Monitoring transit stations and vehicles for face mask use	Use AI technology and CCTV cameras to monitor face mask use	France: Uses AI technology to monitor whether passengers are wearing face masks*  NEW NJT: Testing cameras for face mask detection, heat mapping*
			NYCT: Recommends use of AI to assess mask wearing*

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#### Passenger Engagement

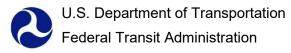
T	opic	Description	Examples
1	Passenger reporting of unclean surfaces	Use transit app to allow passengers to report concerns on the system, including cleanliness issues	DART: Say Something App for reporting surfaces that need to be cleaned  Mountain Line: See Say Now app for reporting safety and security concerns*

### Cleaning, Sanitizing, and PPE

Торіс	Description	Examples
1. UV robots	UV-cleaning robots to disinfect trains and stations	Pittsburgh: Airport is the first in the US to use UV-cleaning robots*
2. Chemical-dispensing robots	Robot technology to conduct deep cleaning and decontamination	Hong Kong Mass Transit Railways: Using an automated robot to clean hard to reach areas*

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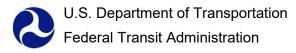
Topic	Description	Examples
3. Partnering with companies to design PPE	Work with vendors to re-tool or expand their capabilities to provide products and supplies	BYD for Toronto Transit Commission: Manufactures face masks for transit systems*

# **Payment Options**

То	pic	Description	Examples
1.	Phone and watch app to support contactless payment	Launch phone and watch app to support contactless fare payment	WMATA: Launches iPhone and Apple Watch app to allow riders to use their phone or watch to pay fare anywhere smart card readers are used
2.	Contactless fare payment and mobile ticketing	Accelerate or start the process of introducing contactless fare payment in response to COVID-	NEW DART: Soliciting riders to help test contactless payments by offering reduced fares
	<b>0</b>	19	GDRTA: Adopts "Transit" app
			NEW Gwinnett County Transit: Launching Token Transit app for contactless payment*
			LACMTA: Recommends rapid introduction of contactless, visual ticket purchase and payment option in Metro's new "Transit" app

<sup>\*</sup> In some cases, transit agency websites may not include specific information about their COVID-19 recovery efforts and news articles are used for informational purposes.

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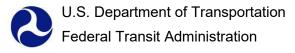
То	pic	Description	Examples
			NEW MetroLink: Launched mobile fare option
3.	Providing unbanked or underbanked transit riders with access to TouchPass system	Supplement Title VI inclusivity programs with broad, local, and convenient access for passengers to add value using cash to TouchPass accounts	COTA: Working with state government to load fares onto magnetic- strip EBT cards used for food benefits*
4.	Virtual enrollment in fare programs	Allow passengers to sign up for reduced fare programs online	NEW Pasadena Transit: Dial-A-Ride applications accepted only online
			TriMet: Temporarily opening a virtual application site

## Micromobility

Te	opic	Description	Examples
1.	Integrating micromobility providers into transit apps	Partner with micromobility providers to offer alternative transportation options	DART: On-demand microtransit service integrated into DART's GoPass mobile app*

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<sup>\*</sup> In some cases, transit agency websites may not include specific information about their COVID-19 recovery efforts and news articles are used for informational purposes.



Topic	Description	Examples
2. Expanding microtransit partnerships through technology and contracts	Pilot and expand alternative services following new models, such as MicroTransit and Mobility on Demand	Denton County Transportation Authority: Using the Spare Platform to replace fixed-route service with on-demand transit to manage the number of riders on a vehicle and trace riders*  LAMCTA: On-demand services adapted to accommodate essential trips to grocery stores, pharmacies, and medical centers*  SunLine Transit Agency: Offering a SunRide microtransit service*

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<sup>\*</sup> In some cases, transit agency websites may not include specific information about their COVID-19 recovery efforts and news articles are used for informational purposes.