

The COVID-19 Pandemic

Public Transportation Responds: Safeguarding Riders and Employees

Strategies and tactical guidance for public transportation agencies during the COVID-19 pandemic and to inform future pandemic preparedness

April 13, 2020

FOREWORD FROM APTA

The American Public Transportation Association (APTA) is proud to partner with WSP USA, Inc. and the Johns Hopkins Bloomberg School of Public Health in creating “The COVID-19 Pandemic: *Public Transportation Responds: Safeguarding Riders and Employees*”

As the only non-profit association in North America that represents all modes of public transit, our more than 1,500 member organizations are involved in every element of our industry. We are leading public transportation in the midst of seminal change and helping to create a new landscape of innovative, integrated mobility services and solutions. The unprecedented challenges created by the COVID-19 pandemic are now bringing about more change, today and perhaps for years to come. APTA’s responsibility is to help public transit agencies and business members recover, reinvent, and re-boot for a future that is safer and more resilient.

Toward that goal, this guide is more than a resource tool of best practices and policies; it represents who we are as public transportation leaders, not just what we do. Keeping our riders and employees safe has always been a core value for every APTA member. By providing vital answers to some of the most vexing questions regarding COVID-19, this guide will help transit agencies to continue delivering essential services safely and to emerge from the pandemic stronger.

We remain resolute and optimistic, as an industry and an association, about public transportation’s indispensable role in a new, more mobile and safer future.

PREFACE

This guidebook is intended for senior transit and rail operations leaders. It is based on input from public health, medical, and transit experts, as well as best practices shared by agencies nationally. Readers should bear in mind that COVID-19 presents a new risk environment for transit and rail agencies. Safety Management System (SMS) implementation requires: 1) Evaluating hazards and system changes for risk; 2) Keeping up with the pandemic’s impacts on the transit and rail environment; and 3) Making changes that may bring risk tradeoffs.

Throughout this document, there are suggestions for reducing the risks related to COVID-19 to passengers and employees. Before implementing any of these suggestions, agencies should assess whether such a change can be scaled to its size and mode of agency in a manner that does not add unacceptable risk. Agencies are also encouraged to consult their local health officials in this process.

APTA may revise this guide to stay consistent with emerging medical and public health information about COVID-19.

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APTA also extends its thanks to Keshia M. Pollack Porter, PhD, MPH; and the numerous faculty from the Johns Hopkins Education and Research Center for Occupational Safety and Health at the Johns Hopkins Bloomberg School of Public Health that helped the authors of this document identify relevant and credible sources for public health and medical information related to COVID-19, and also provided responses to APTA’s transit-specific questions regarding COVID-19.

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INTRODUCTION

Public transportation agencies are playing a critical role during the COVID-19 pandemic response, and they will continue to do so as we navigate the road to economic and social recovery throughout our nation. Public transit agencies have worked tirelessly to provide bus and rail service so that essential workers can get to hospitals, pharmacies, and grocery stores during the COVID-19 emergency, underscoring how essential it is to keep public transit running.

Additionally, individuals must have access to food, pharmacies, and other essential medical services such as kidney dialysis and cancer treatments during periods of social distancing and shelter-in-place orders across the country. The American Public Transportation Association (APTA) estimates that public transit will provide at least 880 million trips from April through June of 2020. Providing continuity of transit service is an imperative. Therefore, agencies must maximize their efforts to protect the safety of riders and staff.



Hillsborough Area Regional Transit Authority (HART)
advertisement (April 2020)

Despite the contagious nature of COVID-19, public transportation can be safely used if all those involved – the transit agency, staff, and riders – take the necessary steps and precautions. This guide was rapidly developed to share best practices in a time of public need, as the number of people testing positive for COVID-19 continues to sharply rise. These best practices may also inform future pandemic emergency preparation strategies.

On April 6, 2020, the Centers for Disease and Control and Prevention (CDC) provided broad guidelines for slowing/preventing the spread of this virus, including in the public transit industry. Based on inputs and advice from our nation's preeminent public health experts at the Johns Hopkins University, APTA is providing this guide to translate the CDC guidelines into a set of tactical recommendations for agencies to consider in their efforts to reduce the greatest areas of COVID-19-related risk.

WHAT EVERYONE NEEDS TO KNOW

Understanding the following concepts will equip agency leaders to best understand the recommendations in this guide and, ultimately, make more informed decisions related to COVID-19. Transit agencies can consider developing their communications to staff and riders around these concepts. Federal funding can flexibly support implementation of these concepts during the pandemic, as described in the recent [FTA Coronavirus Announcement and Emergency Docket](#).

CDC guidelines for combating the spread of the COVID-19 virus

According to the CDC, the COVID-19 virus is highly contagious, is transmitted person-to-person via contact with body fluids (e.g. blood, sputum, respiratory droplets), and via contact with contaminated surfaces or objectsⁱ.

CDC guidelines for preventing spread of infectionⁱⁱ are summarized below in a simplified list:

- Know how it spreads
- Wash hands for at least 20 seconds, vigorously scrubbing with soap and water

- Practice social distancing by maintaining a six-foot distance from other people
- Disinfect surfaces and materials
- Use Personal Protective Equipment (PPE) where appropriate
- Self-quarantine after potential exposure and/or symptoms

These guidelines served as the basis for [four new fact sheets for public transit](#) recently released by the CDC, which provide high-level information on protecting transit staff.

How the virus is inactivated

The CDC recommends three methods for inactivating the virus:

- **Soap/Detergent** – for hands, scrubbing with soap and water for 20 seconds or more; for soft (porous) surfaces, detergent and the warmest water possible.ⁱⁱⁱ
- **Alcohol** – hand sanitizer that is at least 60% alcohol^{iv} and any mixture with at least 70% alcohol for disinfecting surfaces.^v
- **Disinfectant** – products on [EPA List N: Disinfectants for Use Against SARS-CoV-2](#), when used according to instructions, are designed to break down the viral envelope; this list includes sodium hypochlorite (bleach), which is widely available. As a backup, other products with an EPA registration number and manufacturer claim that human coronavirus is listed as a target pathogen have a high likelihood of being effective at inactivating the virus.^{vi}

While researchers have found the virus's protein and lipids structure decays over time, there is still much we do not know. The CDC advises that "coronaviruses survive for shorter periods at higher temperatures and higher humidity than in cooler or dryer environments. However, we don't have direct data for this virus, nor do we have direct data for a temperature-based cutoff for inactivation at this point."^{vii}

Until more information is available on virus decay over time and use of other technologies, agencies should depend on the three techniques described above for inactivating the virus.

According to Johns Hopkins University, "What's getting a lot of press and is presented out of context is that the virus can last on plastic for 72 hours—which sounds really scary. But what's more important is the amount of the virus that remains. It's less than 0.1% of the starting virus material. Infection is theoretically possible but unlikely at the levels remaining after a few days."¹

Additional Guidance from Johns Hopkins to Protect Transit Staff and Riders

To develop more specific guidance for transit agencies, APTA submitted a list of core questions to the Johns Hopkins Bloomberg School of Public Health.^{viii} Faculty from the Johns Hopkins Education and Research Center for Occupational Safety and Health at the Johns Hopkins Bloomberg School of Public Health provided response to these questions. The information is based on guidance from the CDC^{ix} and is for general purposes only. The responses have not been subjected to robust peer review or consensus development.

Employee PPE

Q. What is the recommended PPE for transit operations staff?

A. For transit operators, potential sources of exposure include close contact with a passenger with COVID-19 or contacting surfaces touched or handled by a person with COVID-19. According to the CDC, workers should protect themselves by: limiting close contact with others by maintaining a distance of at least six feet, when possible; avoiding touching surfaces often touched by transit passengers; practicing routine cleaning and disinfection of frequently touched surfaces, including those in the operator area commonly touched by the operator, following the directions on the cleaning product's label; and using gloves if required to touch surfaces contaminated by body fluids.

It is important to remember that proper hand hygiene is an important infection- control measure. Regularly wash your hands with soap and water for at least 20 seconds or use an alcohol-based hand sanitizer containing at least 60% alcohol, and avoid touching your eyes, nose, or mouth. Workplace-specific times for hand washing include before and after work shifts; before and after work breaks; and after touching frequently touched surfaces, such as fareboxes and handrails. In addition, hands should be washed before, during, and after preparing food; before eating food; after using the toilet; and after blowing your nose, coughing, or sneezing.

Passenger PPE

Q: What is the recommended PPE for passengers to wear if they are or suspect they are infected? What additional safeguards to be considered?

A: Passengers (and operators) with known or suspected COVID-19 should not ride public transit. Based on recent studies, a significant portion of individuals with coronavirus lack symptoms (“asymptomatic”) and those who eventually develop symptoms (“pre-symptomatic”) can transmit the virus to others before showing symptoms. This means that the virus can spread between people interacting in close proximity—for example, speaking, coughing, or sneezing—even if those people are not exhibiting symptoms. Thus, CDC recommends wearing cloth face coverings in public settings where other social distancing measures are difficult to maintain especially in areas of significant community-based transmission. CDC is additionally advising the use of simple cloth face coverings to slow the spread of the virus and help people who may have the virus and do not know it.

Operators, Vehicles, and Facilities

Q: Should operators be carrying any additional supplies, such as sanitizer or wipes?

A: Operators should have access to disposable sanitizing wipes to use on any surface with which they have regular contact. Surfaces should be wiped regularly, after each stop if possible. If disposable wipes are scarce, another option is to have a bottle with disinfectant spray (Lysol, etc.) and dry paper towels.

Q: Should HVAC be running at any point in the transit vehicle or facility?

A: HVAC should be on if it is using fresh air, at the highest setting possible, and filters should be changed regularly.

Q: What changes should be made to operations/dispatch facilities, restrooms, locker room, and ready rooms?

A: Drivers should change clothes and shower if possible before going home.

Q: Does sweeping a transit vehicle increase risk of making the virus airborne?

A: Always use wet methods to clean vehicles; avoid dry sweeping. Everyone should assume that the virus survives on surfaces for up to 72 hours and MAY become airborne if on dust. (<https://www.nejm.org/doi/10.1056/NEJMc2004973>)

Q: What should agency staff use to clean with?

A. A list of products with EPA-approved emerging viral pathogens claims is available at: <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>.

In addition, diluted household bleach solutions prepared according to the manufacturers label for disinfection can be used if appropriate for the surface. Follow manufacturer's instructions for application and proper ventilation, and confirm the product is not past its expiration date. Never mix household bleach with ammonia or any other cleanser. Also, alcohol solutions with at least 70% alcohol is an effective disinfection product.

When cleaning, wear the PPE required for using the cleaning and disinfection products according to the product manufacturer's instructions. After removing PPE, wash your hands with soap and water for at least 20 seconds. Work uniforms worn during cleaning and disinfecting should be laundered afterwards. Clean your hands after handling laundry by washing your hands with soap and water or using an alcohol-based hand sanitizer with at least 60% alcohol if soap and water are not available.

Q: How does this guidance apply to paratransit operations?

A. The issues with paratransit are more complex and may vary based on the use of paratransit in your area. Each transit agency should establish medical guidelines for paratransit that specifically address policies and procedures related to COVID-19.



Dallas Area Rapid Transit (DART) using an EPA-approved fogging technology to disinfect a Light Rail Vehicle.

STRATEGIES AND TACTICAL GUIDANCE

The following guidance adapts CDC guidelines to the public transit environment. **The applicability of these recommendations will depend on an agency's size, modes of operation, geography, and available resources.** Implementing *any* of these recommendations will help reduce the risk of COVID-19 spreading among agency staff and riders, and can be used in the development/enhancement of agency Emergency Management Plans, Continuity of Operations Plans (COOP), and [Contagious Virus Response Plans](#).

Protecting Continuity of Operations

Most transit agencies around the nation have already directed capital and administrative staff to telework. Accordingly, the following actions are recommended to protect the agency's operations and maintenance staff and help preserve overall continuity of operations.

General Workforce Resiliency Considerations

- Continually educate staff and riders on how to manage and mitigate risks associated with COVID-19. Additionally, agencies must communicate and reinforce new policies and procedures as they are developed and updated.
- Work proactively and transparently with labor leadership to build trust and coordination as policies or procedures are developed/modified, and as safety messaging and training is delivered.
- Instruct agency employees to stay home if they were directly exposed to the virus and/or have symptoms (fever, difficulty breathing, dry cough).
- Screen employees, contractors, and visitors for symptoms, maintaining six-foot distancing, through interview/questionnaire and infrared thermometer readings prior to a shift.
 - Adapt screening criteria from CDC recommendations in the aviation industry: <https://www.cdc.gov/quarantine/air/managing-sick-travelers/ncov-airlines.html>
 - Consider giving employees a wristband (or other distinctive item) when they have cleared daily screening process and only allow them in facilities if wearing a wristband.
 - Coordinate with your human resources department to implement procedures that align with the Health Insurance Portability and Accountability Act of 1996 (HIPAA) Privacy Rule.
- Break the workforce into “A” and “B” teams by shift, thus isolating/limiting employees’ daily interaction with the same population.
- Provide tissues and no-touch, lined, disposal receptacles for use by employees.
- Encourage employees to frequently wash their hands and use hand sanitizer (at least 60% alcohol).
- In the absence of regulation PPE, encourage employees to use alternative, reusable PPE and associated disinfection protocols between uses (see PPE section below).
- Per CDC guidance, it is important “to perform hand hygiene after removing PPE.”
 - Hand hygiene should be performed by using an alcohol-based hand sanitizer that contains 60-95% alcohol or washing hands with soap and water for at least 20 seconds.”^x
 - “CDC does not have a recommended alternative to hand rub products with greater than 60% ethanol or 70% isopropanol as active ingredients.”^{xi} Accordingly, **benzalkonium chloride-based sanitizers are not recommended.**
- Equip employees, vehicles, and workspaces with gloves, alcohol-based wipes or spray (at least 70% alcohol), and dry paper towels for spot-disinfection, as described throughout this document.
- Encourage staff at desks and stations to wipe down (at least 70% alcohol) desk, keyboard, mouse, telephone, microphone, etc., at the beginning and end of each shift.

- Avoid dry sweeping and other mechanical actions with potentially contaminated surfaces to minimize the possibility of dispersing virus; use wet cleaning methods instead. This is consistent with CDC guidance to “not shake dirty laundry.”^{xii} Amend standard operating procedures (SOPs) accordingly for the duration of the pandemic.
- All cleaning, sanitizing, and disinfecting should follow manufacturers’ instructions, including required PPE and contact time, to ensure efficacy against the virus.
- Shut-off/tape-off drinking fountains; encourage use of bottle filling stations, sinks, or employees bringing water from home.
- Manage limited supply of cleaning resources by closing low ridership stations or stops. The FTA states that Title VI equity analyses are not required for emergency service cuts and changes during COVID-19, but reasonable measures must be taken to prevent unintentional discrimination.^{xiii}
- The CDC suggests that transit agencies “Designate someone to be responsible for responding to COVID-19 concerns. Employees should know who this person is and how to contact them.”

Staff, Vehicle, and Facility Quarantine Considerations

- If a known exposure to the virus occurs, agency staff are encouraged to use data) to inform the managerial reaction; this can help agency leaders take deliberate action without inciting unnecessary panic among staff and/or riders.
- Require **staff** to follow CDC guidance and self-quarantine after a known exposure to the virus.
 - Align staff quarantine policies with CDC guidance (test-based and non-test-based): <https://www.cdc.gov/coronavirus/2019-ncov/hcp/disposition-in-home-patients.html>
 - If appropriate, refer to vehicle and facility quarantine recommendations below.
- Develop protocol for cleaning and disinfecting a **vehicle** after a person with COVID-19 was known to be in the space:
 - Designate special “quarantine” parking zones for any vehicles that have had suspected or known exposure to the virus.
 - If operator is still in a vehicle immediately after known exposure, ask the operator to perform the following steps, which allow for sufficient air changes to remove potentially infectious particles:
 - Park the vehicle in designated area.
 - Leave the engine running and turn on HVAC to maximum fan speed.
 - Open windows (if possible) and vehicle door(s).
 - Use lockdown procedures to ensure nobody can enter/exit vehicle while quarantined; this could include additional steps such as license plate removal and placing caution/warning signs on the vehicle.
 - Based on CDC guidance for cleaning/disinfecting EMS transport vehicles,^{xiv} as long as air changes are occurring in vehicle as described above (or via continuous running of HVAC and/or opened windows while vehicle is in use), personnel can enter the vehicle for cleaning/disinfection after approximately 30 minutes.

- Clean and disinfect vehicle using the appropriate [disinfectants approved by the EPA for effectiveness against SARS-CoV-2](#), appropriate PPE, and other instructions required by the manufacturer of the disinfectant.
 - Replace vehicle filter(s).
 - See Alternative PPE section below if required PPE is unavailable.
- Develop protocol for cleaning and disinfecting **part of a facility/building** after a person with COVID-19 was known to be in the space:
 - Open windows and turn on HVAC to maximum fan speed to allow for sufficient air changes to remove potentially infectious particles.
 - Use normal lockdown procedures to ensure nobody can enter/exit the space while quarantined; this may include additional steps, such as placing caution/warning signs on the building/space.
 - According to the CDC, it is unknown how long the air inside a room occupied by someone with COVID-19 remains potentially infectious. Facilities will need to consider factors such as the size of the room and the ventilation system design (including flowrate [air changes per hour] and location of supply and exhaust vents) when deciding how long to close off rooms or areas before beginning disinfection.”^{xv} Accordingly, agencies are encouraged to engage their local health authorities to determine how much time should elapse before a cleaning/disinfecting crew is sent into the space.
 - If the person with COVID-19 has not been in the space for more than a day and the HVAC has been running, it is likely OK for cleaning/disinfection crews to immediately begin work.
 - Create new SOP for cleaning/disinfecting quarantined space, including appropriate [disinfectants approved by the EPA for effectiveness against SARS-CoV-2](#), appropriate PPE, and other instructions required by the manufacturer of the disinfectant.
 - Include replacement of HVAC filter(s).
 - See Alternative PPE section below if required PPE is unavailable.

General Facility/Station Considerations

- Where possible, make hallways “one-way” to minimize people meeting in halls.
- Consider marking-out six-foot increments on the floor where employees may queue or wait to encourage proper social distancing.
- Prop open doors wherever possible to reduce touching of common surfaces.
- Place alcohol-based hand sanitizer (ABHS) units at the entrance of frequently used rooms, especially near security doors that cannot be propped open.
 - At least 60% alcohol
 - Ideally touchless units
- Regularly clean/disinfect facilities and stations; clean/disinfect daily for high traffic areas if resources permit.

- Clean/disinfect frequently touched surfaces throughout daily operations, such as:
 - Elevator and exit buttons
 - Handrails
 - Grab bars
 - Seats/benches
 - Garbage cans
 - Doorknobs
 - Call boxes
 - Ticket Vending Machines

- Increase ventilation rates and install high-efficiency air filters on HVAC system that are MERV 13 or MERV 16 rated (consult with original equipment manufacturer [OEM]).

General Restroom Considerations

- Prop bathroom door open if possible and/or install hand sanitizer dispenser outside of bathroom to allow for hand hygiene after touching doorknob.

- Clean/disinfect toilets, sinks, and floors as frequently as practical, especially for restrooms used by a larger population.

- If time and resources permit, consider installing:
 - Touchless or pedal-control faucets
 - Touchless soap dispensers
 - Touchless paper towel dispensers or hand dryers

Control Center/Dispatch Considerations

- Set up small trailer or booth outside of the main operations building to distribute daily bus/rail manifests from a window to reduce gatherings in the main facility.
 - Set up a drive-thru where operators can receive assignments before exiting their personal vehicle.

- Include materials and instructions to wipe down (at least 70% alcohol) desk, keyboard, mouse, telephone, microphone, and other frequently touched surfaces at the beginning and end of each shift.

- Provide each person their own keyboard, mouse, and/or telephone headset to use, stored separately.

- Create and/or use backup facilities (e.g., Operations Control Center, crew room) and divide crews for each shift into “A” and “B” teams; assign the “A” team to use the main facility and the “B” team to use the backup facility.
 - This keeps the same staff together in the same space for the duration of the pandemic.
 - This helps insulate against losing an entire crew on a single shift to quarantine in the instance of a known exposure of staff to the virus.

- Proactive succession plans can help an agency pivot if controllers or depot clerks need to self-quarantine unexpectedly.

Operations and Maintenance Facility Considerations

- Close staff gathering spaces, such as lounges, gyms, locker rooms, and hangout areas, and/or block off non-essential equipment and couches to promote social distancing between staff and minimize opportunities to gather.
- Create two break rooms in each building and divide staff for each shift into “A” and “B” teams; assign the “A” team to use the main break room and the “B” team to use the backup breakroom.
 - This keeps the same staff together in the same space for the duration of the pandemic.
 - This helps insulate against losing all operators/mechanics on a single shift to quarantine in the instance of a known exposure to the virus.
- Transition operators to call-in and/or check online for their daily assignments, if feasible. Operators can sign in/report for duty by radio from their assigned vehicle before they begin their pre-trip inspection.
- Transition operators to relieve each other on the route instead of reporting to the depot to the greatest extent possible.
- Prohibit use of kiosks and shared computer equipment for completing accident reports and other forms/reports. Use individually assigned tablets, paper forms, etc.
- Postpone any regularly scheduled staff activities that would require gathering, such as operator /sign-up/bid picks and/or conduct virtually (call in or online).
- Transition operators to electronic and/or virtual bulletin boards via intranet to disseminate detours, alerts, route instruction sheets, and/or paddles.
- Transition staff to email and/or text communications to reduce the amount of face-to-face communications.
- Transition operators to direct deposit instead of paper payroll checks, reducing the need for operators to pick up their checks. Provide direct deposit confirmation electronically or mail to their home.
- Provide oversight and supervision for any pandemic policies to confirm appropriate application, including:
 - Validate that operators/engineers have the required PPE available before beginning trip and that they are using it in service.
 - Wipe down vehicles/tools/equipment before and after use.
- Provide for operator reporting of any known or suspected passengers with symptoms of the virus; refer to the quarantine recommendations above for further advice.
- Encourage staff to shower and change clothes before going home.

Stations Considerations

- Require station attendants to wipe down (at least 70% alcohol) desk, telephone, and other frequently touched surfaces at the beginning and end of each shift.
- Allow station attendant to stay in kiosk to avoid interacting with riders unless needed for critical/emergency purposes.
- Disinfect frequently touched surfaces often, such as:
 - Escalator handrails
 - Elevator buttons
 - Stairwell handrails
 - Water fountains
 - Fare collection touchscreens and buttons
 - Turnstiles/gates
 - Doorknobs
 - Fare equipment
 - Food/drink vending machines



Massachusetts Bay Transportation Authority (MBTA) disinfecting ticket vending machines.

Customer Service/Paratransit Reservation Call Center Considerations

- Transition call center employees to working from home/telework as possible.
- Separate call center employees in workstations at least six feet apart. Tape off and/or remove equipment from closed workstations.
- Consider if the facility can be split into multiple "work zones," where the unoccupied work zone is disinfected prior to the arrival of the subsequent shift.
- Assign the same workstation to the same employee(s).
- Require call center employees to wipe down (at least 70% alcohol) desk, keyboard, mouse, telephone, microphone, and other frequently touched surfaces at the beginning and end of each shift.
- Give call center employees their own keyboard, mouse, and/or telephone headset.
- Increase ventilation by opening windows if available.

Operator/Engineer Cabin Special Considerations

- All Revenue and Non-revenue Vehicles
 - Wipe-down steering wheel, seatbelt, console, and other frequent touchpoints before the operator/engineer boards the vehicle or as part of pre-trip routine (at least 70% alcohol wipes).
 - Handle lost and found items with gloves, limiting exposure to items.
 - Require operators to mist and/or wipe down (at least 70% alcohol) frequently touched surfaces in the passenger compartment at layovers.
 - Consider suspending fare collection and/or enforcement.

- Bus and Paratransit Vehicles
 - For vehicles with multiple doors, institute rear door boarding/exiting, persons requiring a wheelchair ramp exempted.
 - Block off or remove front seats in proximity to operator
 - Install a temporary standee line (chain or other barrier) allowing additional distance to operator but easily removable when access to/from wheelchair ramp is needed.
 - Use operator shields, if equipped.
 - Instruct operators to monitor passenger loads and advise of load capacity to allow passenger spacing.
 - Minimize or eliminate shared rides on paratransit/dial-a-ride vehicles, Personal Care Attendant (PCA) excluded.
 - Use gloves and cloth mask when strapping wheelchair passengers.

- Rail Vehicle
 - Limit operator/engineer exposure:
 - Run additional railcars to spread out crowds; if feasible, close off the lead and rear cars to passengers to protect the train operator/engineer from passenger interaction.
 - Have the operator/engineer walk outside, rather than through the car to their operating cab.



Capital Metro distancing passengers from the operator.

Field Supervision Considerations

- Eliminate overlapping shifts (keeping the same staff together – same logic as the “A and B Day” schedule noted above).
- Create mobile offices for supervisors and assign the same vehicle to the same supervisor. If shared, assign to the same two supervisors.
 - Vehicle should be disinfected before and after each shift.
 - Issue tablets or laptops for use in the field to complete accident/incident reports.
- Limit dispatching supervisors to incidents/accidents that involve gatherings of first responders.

Internal Communications

- Build education campaign for agency staff around the following topics:
 - Social distancing
 - Handwashing
 - Respiratory Hygiene (cough into elbow, use tissue, etc.)
 - PPE use (see PPE section below)
 - Disinfection of surfaces and materials
 - Any policies or procedures that are new/modified as a result of the pandemic

- Consider use of pre-made advertisements to support staff education (scroll to bottom): <https://www.who.int/emergencies/diseases/novel-coronavirus-2019/advice-for-public>

Protecting Riders

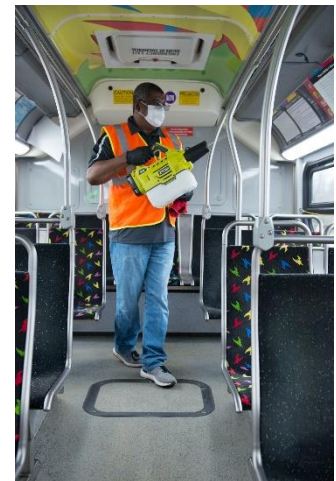
Protecting riders' health and safety throughout this pandemic is paramount. Accordingly, the following actions are recommended to keep critical services functioning and accessible in our communities.

General Rider Safety Considerations

- Maintain service levels as necessary, and to the degree workforce availability permits, to enable more effective social distancing on vehicles.
- Make sanitizer available to riders:
 - Place alcohol-based wipes (at least 70% alcohol) near the entrance of vehicles and stations; encourage riders to use a wipe to open doors, hold grab bars, etc.
 - Place alcohol-based hand sanitizer (ABHS) units at the entrance of vehicles and stations.
 - Based on at least 60% alcohol
 - Ideally touchless units
- Regularly clean/disinfect frequently touched surfaces such as fare payment terminals, including touch-screen surfaces and credit/debit card PIN keypads.
- Prominently post when the last cleaning was performed on vehicles and stations.

Revenue Vehicle Special Considerations

- Limit the number of riders per vehicle to maintain six-foot social distancing guidelines (PCA excluded).
- Maximize ventilation rates on HVAC system and crack open windows (when possible) while vehicle is in use.
- Increase frequency of cleaning and disinfecting of vehicle; consider adding a midday cleaning/disinfecting for paratransit vehicles.
- Limit passenger boarding/alighting to rear door if vehicle is equipped with two or more doors, persons requiring a wheelchair ramp exempted.
- Consider suspending fare collection and/or enforcement.



Cleaning and disinfecting a Central Midlands Regional Transit Authority (The Comet) vehicle.

External Communications

- Communicate boarding considerations such as “rear door boarding only” on buses with the destination sign and automatic voice announcements (AVA) inside/outside of vehicle at every stop.

- Frequent operator and station announcements (through the public address system) about:
 - Precautionary measures the agency is taking.
 - The value of passengers maintaining a log of their transit trips, including time of trip, vehicle number, route, seating position, number of riders, etc.; riders with smartphones can document with one or two photos when on the vehicle.
- Create a COVID-19 “Rider Responsibility” campaign, using all available media, centered on the following messages:
 - Do not ride if you have any indication that you might be ill or have been exposed to COVID-19; if riding transit is your only way to get help, wear a mask, cough into your elbow, and minimize touching surfaces with your hands.
 - During any local “stay-at-home” period, only use public transit for essential trips.
 - Wear a cloth mask
 - Social distance from other customers.
 - Avoid interactions with the operator/conductor/engineer and respect his/her need to distance from passengers.
 - If you feel uncomfortable on a specific vehicle for whatever reason, get off and take the next vehicle.



New Jersey Transit advertisement to riders (April 2020)

- Create a COVID-19 “Rider Education” campaign including:
 - Precautionary measures the agency is taking
 - Encourage use of masks and gloves (see PPE section below)
 - Encourage passengers to carry alcohol-based hand sanitizer (at least 60% alcohol) and alcohol-based wipes (at least 70% alcohol) for disinfection of frequently touched surfaces
 - Expectations for social distancing/spacing
 - Fare expectations
 - Lost and Found information if regular protocols have been suspended

Safety Assurance Programs

A Safety Assurance Program allows agencies to monitor whether COVID-19 related strategies and actions are fully implemented as intended and provides data to measure how effective those strategies/actions are in fighting the spread of COVID-19. An assurance program can include the establishment of performance measures to track the number of staff and rider COVID-19 infections, and also includes audits to monitor compliance with the policies and procedures.

As with the other recommendations in this guide, the applicability of safety assurance recommendations will depend on an agency’s size, modes of operation, geography, and available resources. However, implementing any of these recommendations will help to reduce the risk of COVID-19 spreading among agency staff and riders:

- Refresher training for managers on the HIPAA Privacy Rule – especially the sections on “Protected Health Information” and “De-identified Health Information”:
<https://www.hhs.gov/hipaa/for-professionals/privacy/laws-regulations/index.html>

- COVID-19 Performance Measures
 - Count of known infected staff (and trend over time)
 - Count of known infected riders (and trend over time)

- Audits and Inspections (to be tracked with Maintenance Management System [MMS] or spreadsheet)
 - Safety Officers observe cleaning process/PPE usage
 - Develop disinfectant cleaning schedule
 - Assign checklists at each location for cleaning completion accountability and signature
 - Supervisors required to conduct two quality control inspections
 - Supervisor visually observe percentage of checklists throughout system
 - If possible:
 - Cross reference MMS work order materials used with checklists and supervisor audits
 - Cross reference tracked hours (labor) and equipment used in MMS
 - Track labor and materials (masks, gloves, bleach, etc.) in MMS
 - Daily calls/meetings with teams/assignments to report out on cleaning progress
 - Assign escorts to contractor cleaning teams
 - Escort takes photos of contractors in PPE as proof of compliance
 - Contractor supervision takes photos of PPE, work as proof to include a daily report/narrative

- Continually review data and information from:
 - Your municipal, state, and federal governments
 - The CDC and National Institute for Occupational Safety and Health (NIOSH)
 - Your local health officials

BUILDING SUPPLY CHAIN RESILIENCY

As public transit agencies work to procure accepted/standard PPE, cleaning products, and disinfectants, agencies should also develop a resiliency plan - including both a “Plan B” and “Plan C.” This can include procuring alternative products with associated protocols and/or working with other agencies and organizations (that may have a surplus) to enable resource sharing/rebalancing between entities until stock can be procured and replenished. It is also important to explore alternative levels of protection (reduced protection PPE and cleaning products) as a last resort.

Personal Protective Equipment (PPE)

According to the Occupational Safety and Health Administration (OSHA) guidance on preparing workplaces for COVID-19, “all types of PPE must be:

- Selected based upon the hazard to the worker.
- Properly fitted and periodically refitted, as applicable (e.g., respirators).
- Consistently and properly worn when required.
- Regularly inspected, maintained, and replaced, as necessary.
- Properly removed, cleaned, and stored or disposed of, as applicable, to avoid contamination of self, others, or the environment.”^{xvi}

Agency staff can be exposed to infected people and bodily fluids while conducting their job. If proper/standard PPE is unavailable, the next best strategy for transit agencies is to move away from the disposable mentality. Agencies and agency employees can take some of the recommendations in this guide to employ reusable PPE. Some of the items in this guide, such as reusable gloves, can be purchased at retailers. Others like masks/respirators can be home-made with available materials. All of this reusable PPE should be coupled with disinfecting and handwashing protocols before/after each use.

Proper/Standard PPE

- The CDC recommends that people wear cloth face coverings in public settings where other social distancing measures are difficult to maintain [and] especially in areas of significant community-based transmission.^{xvii}
 - Agencies should use this guideline to determine which staff should wear cloth masks during normal operations.
 - All riders should be encouraged to wear cloth masks.
- When cleaning and disinfecting any vehicles, stations, and facilities, follow the manufacturers' instructions for all required PPE, which may require a more efficient face mask, gloves, eye protection, etc.
- Gloves must be used if staff are required to touch surfaces contaminated by body fluids.
- Agencies are advised to calculate the number of disposable respirators and gloves they will need in normal operations and compare existing inventory with availability from vendors to determine if supply is sufficient.
 - If disposable PPE is in abundant supply, it can be offered to all operations staff to support the strategies and actions in this document.
 - If disposable PPE is not in abundant supply, it should be conserved as appropriate for staff who are cleaning/disinfecting vehicles and facilities after a person with COVID-19 was known/suspected to be in the space.
 - In its recommendations for healthcare workers, CDC states, "Standard specifications for nitrile gloves, natural rubber gloves, and polychloroprene gloves indicate higher minimum tensile strength and elongation requirements compared to vinyl gloves."^{xviii}
 - Transit agencies are also encouraged to set a threshold value for inventory of PPE to trigger the need to conserve disposable gloves as described above.
- Consider controlling inventory to prevent masks, gloves, sanitizer, and disinfectant from theft or use outside of any PPE conservation policies set by the agency.

Alternative PPE

- Respirators (masks)
 - These easy instructions are provided by the CDC for creating a cloth mask from common materials: <https://youtu.be/tPx1yqvJqf4>.
 - A home-made cloth mask can also be used as a pre-filter to extend the life of normal/standard masks.
 - It is important to remember:

- The more layers of material in your mask, the more effective it can protect against contracting COVID-19; however, too many layers of material may make breathing too restrictive.
 - The mask must also have a good “seal” around the nose and face to be effective.
 - The mask must be properly disposed or cleaned and disinfected after use to minimize the chances of cross-contamination.
- Gloves
 - Cloth gloves that are dipped/coated in nitrile, natural rubber, or polychloroprene offer breathability; the palm of your hand is generally protected but the back of your hand is exposed under a loose weave.
 - Reusable gloves made entirely of nitrile, natural rubber, or polychloroprene, or cloth gloves that are “full dipped” to coat both the entire glove offer more protection but little breathability and can be uncomfortable if used for extended periods.
 - Leather and cloth gloves that only have “dots” of nitrile, natural rubber, or polychloroprene on the palm for grip will not offer comparable protection.
 - Disinfection regime between uses
 - Cloth masks and gloves should be washed and dried as frequently as possible, with detergent and the warmest water possible, in accordance with CDC guidelines for cleaning and disinfecting soft (porous) surfaces.^{xix}
 - Other reusable PPE can be cleaned and then disinfected by saturating with alcohol (greater than 70% concentration) or diluted bleach (1/3 cup per gallon of water), with 60 seconds of contact time, and letting air dry.
 - Select a disinfection method that has the lowest chances of affecting structural integrity of the reusable PPE. Refer to manufacturer’s cleaning instructions and/or internet research to help ascertain best method.

Disinfectants

According to the CDC, “**Cleaning** refers to the removal of germs, dirt, and impurities from surfaces. It does not kill germs, but by removing them, it lowers their numbers and the risk of spreading infection. **Disinfecting** refers to using chemicals, for example, EPA-registered disinfectants, to kill germs on surfaces. This process does not necessarily clean dirty surfaces or remove germs, but by killing germs on a surface after cleaning, it can further lower the risk of spreading infection. If surfaces are dirty, they should be cleaned using a detergent or soap and water prior to disinfection.”^{xx}

Recommended Disinfectants

- The CDC recommends soap/detergent and alcohol (at least 70%) for inactivating the virus.
 - Soap/detergent is recommended for soft (porous) surfaces; the CDC states:
 - “For soft (porous) surfaces such as carpeted floor, rugs, and drapes, remove visible contamination if present and clean with appropriate cleaners indicated for use on these surfaces. After cleaning: launder items as appropriate in accordance with the manufacturer’s instructions. If possible, launder items using the warmest appropriate water setting for the items and dry items completely.”^{xxi}

- Alcohol is recommended for hard (non-porous) surfaces and “electronics such as cell phones, tablets, touch screens, remote controls, and keyboards, remove visible contamination if present.
 - Follow the manufacturer’s instructions for all cleaning and disinfection products.
 - If no manufacturer guidance is available, consider the use of alcohol-based wipes or sprays containing at least 70% alcohol to disinfect touch screens. Dry surfaces thoroughly to avoid pooling of liquids.”^{xxii}
 - Note that using alcohol as disinfectant is not cost-effective for treating large surface areas like the interior of a transit vehicle but can be very convenient for wiping down a desk or vehicle console.
- The EPA maintains a list of other [Disinfectants for Use Against SARS-CoV-2](#). All products on this list meet EPA’s criteria for use against SARS-CoV-2, the virus that causes COVID-19.^{xxiii}
 - This list is continually updated with additional products and can be sorted to see the date that new products were added.
 - The list indicates the required contact time, whether the product is dilutable liquid, ready-to-use liquid, solid, wipe, or a fog/mist.
 - Required contact time affects the speed of disinfection procedure.
 - Manufacturers’ directions must be followed for the virus specified on the EPA website to ensure efficacy.
 - This website lists several products with sodium hypochlorite (bleach) as the active ingredient; a name-brand of bleach is not necessary to effectively inactivate the COVID-19 virus and it is low cost, however at the time this paper was written, national supply of bleach was running low.
 - If bleach is available:
 - The CDC recommends “diluted household bleach solutions (at least 1000ppm sodium hypochlorite) can be used if appropriate for [hard] surface. Follow manufacturer’s instructions for application, ensuring a contact time of at least 1 minute, and allowing proper ventilation during and after application. Check to ensure the product is not past its expiration date. Never mix household bleach with ammonia or any other cleanser. Unexpired household bleach will be effective against coronaviruses when properly diluted.
 - **Prepare a bleach solution by mixing: 5 tablespoons (1/3rd cup) bleach per gallon of water or 4 teaspoons bleach per quart of water**”^{xxiv}
- Agencies should use the above COVID-19 disinfectants as an overlay to their existing cleaning regime. This includes continued use of products that **do not** inactivate the COVID-19 virus but are still geared toward controlling the growth of other microbes.
- Tradeoffs between methods of application and product availability of disinfectants on EPA List N: Disinfectants for Use Against SARS-CoV-2. This table was generated from a small sample of products known to be available for immediate purchase:

Type	Dilutable Liquid (Wipe-on)	Ready-to-use Liquid (Wipe-on)	Towelette/ Wipe	Solid (Mix with H ₂ O; wipe-on)	Fog
Surface Type	All Hard (Nonporous)	All Hard (Nonporous)	All Hard (Nonporous)	All Hard (Nonporous)	All Hard (Nonporous)
Products Researched	Ecolab Peroxide Multi Surface, Lysol Fresh & Clean, Diversey Phato 1:64	Lysol Bathroom Cleaner, Envirocleanse, Wex-Cide, Spray Nine, Mold Armor	Clorox and Lysol Residential Wipes; Caviwipes Bleach	Selectroicide	Halosil HaloMist and Tomi SteraMist
Contact Time	2-10 minutes	0.5-10 minutes	3-10 minutes	10 minutes	10-15 minutes
Availability of Alternative Products	Many Alternatives	Many Alternatives	Many Alternatives	Only 1 Alternative which is discontinued	Only 2 vendors; no EPA approved alternatives
Coverage when Ready to Use	~100 sq.ft. per gallon (only where directly applied)	~100 sq.ft. per gallon (only where directly applied)	~2 sq.ft. per wipe (only where directly applied)	~100 sq.ft. per gallon (only where directly applied)	~7,000 -11,500 cu.ft. per Gallon (Gets into all nooks and crannies)
Rough Cost When Ready for Use	~\$0.47 - \$2.62 per gallon	~\$13 - \$32 per gallon	~\$0.04 - \$0.14 per wipe	~\$1.62 - \$3.55 per gallon	~\$100 - \$150 per gallon
Rough Cost Per Unit of Coverage	\$0.0047 - \$0.03 per sq.ft. treated	\$0.13 - \$0.32 per sq.ft. treated	\$0.02 - \$0.07 per sq.ft. treated	\$0.0162 - \$0.04 per sq.ft. treated	~\$0.0087 - \$0.02 per cu.ft. treated
Current Availability with Vendors	Many Vendors; In-Stock	Many Vendors; In-Stock	Many Vendors; In-Stock	1+ Week Lead Time; Large supply surge in May 2020	Liquid In- Stock; Equipment Backordered

Note: this guide does not advise which of these products are best for transit agencies. Rather, it identifies the materials and methods still available at the time this guide's publication, which can be used until supply chain issues are resolved.

Cost Effectiveness

- Generally, residential products are both cost-effective and still available. Agencies must consider materials, PPE, and labor when considering all-inclusive costs of disinfecting products.
- Dilutable liquids and wipes/towelettes are likely the most cost-effective during the peak of the pandemic; note surfaces must be “wet” to allow required contact time.
- Fog application requires the least amount of labor but requires special equipment which is currently not easy to find.
 - It takes 1 worker an average of 10-15 minutes to fog a 40-foot bus; railcars are less than 30 minutes; this does not include set-up/break-down time.

- The disinfectant solution for these foggers only has a claim for effectiveness against COVID-19 when used with the manufacturer's equipment.

Procurement and where to buy:

- Agencies can check with their state government to see if they can “piggyback” on any existing vendor agreements to procure cleansers and disinfectants.
- **All transit agencies that receive federal funding are eligible to purchase supplies via the GSA schedule**, which can help avoid a separate procurement process.
 - Agencies are encouraged to ask all vendors if they will offer GSA or other discounted prices.
 - Federal GSA has additional [guidance on purchasing assistance](#) related to the pandemic.
- Agencies can make supply chain resiliency easier through peer-agency discussions to determine:
 - What products neighboring agencies and other organizations prefer using
 - Other agency's contingency plans
 - Backup vendors

Using the same cleaning and disinfectant products as neighboring agencies and organizations (who may have a surplus) can enable potential ‘borrowing’ of products in an urgent situation.

FINANCIAL DOCUMENTATION

FTA is frequently updating guidance on the use of CARES Act funding. Consult the [FTA Frequently Asked Questions page](#) or your Regional FTA office for additional guidance as necessary.

Tracking Expenses Associated with COVID-19

Agencies should consider setting-up one or more special charge codes in their accounting system to track COVID-19 related operating and capital expenses for:

- Reimbursement under CARES Act grants
 - Documenting where a waiver of FTA regulatory requirements may be required to ensure reimbursement of expended funds
- Documenting damages related to COVID-19 that may be eligible in the event that future FEMA grant opportunities become available.

RESOURCES

- [Johns Hopkins COVID-19 Map](#) (current statistics on COVID-19 cases)
- [APTA COVID-19 Homepage](#)
- [APTA COVID-19 Shared Practices/Documents](#)
- [CDC Guidance for Businesses and Employers](#)
- [FTA COVID-19 Resources and Frequently Asked Questions](#)
- [OSHA Guidance on Preparing Workplaces for COVID-19](#)
- [EPA List-N: Disinfectants for Use Against SARS-CoV-2](#)

PICTURES

All images in this document were sourced from the social media accounts of the public transit agencies depicted.

ENDNOTES

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- ⁱ <https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-law-enforcement.html>
- ⁱⁱ <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html>
- ⁱⁱⁱ <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cleaning-disinfection.html>
- ^{iv} <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/prevention.html>
- ^v <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cleaning-disinfection.html>
- ^{vi} <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cleaning-disinfection.html>
- ^{vii} <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cleaning-disinfection.html>
- ^{viii} <https://www.ihsph.edu/research/centers-and-institutes/johns-hopkins-education-and-research-center-for-occupational-safety-and-health/>
- ^{ix} <https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/bus-transit-operator.html>;
<https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/rail-transit-operator.html>;
<https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/transit-maintenance-worker.html>;
<https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/transit-station-workers.html>
- ^x <https://www.cdc.gov/coronavirus/2019-ncov/hcp/respirator-use-faq.html>
- ^{xi} https://www.cdc.gov/coronavirus/2019-ncov/hcp/hand-hygiene-faq.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Finfection-control%2Fhcp-hand-hygiene-faq.html
- ^{xii} <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/disinfecting-your-home.html>
- ^{xiii} <https://www.transit.dot.gov/frequently-asked-questions-fta-grantees-regarding-coronavirus-disease-2019-covid-19>
- ^{xiv} <https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-for-ems.html>
- ^{xv} <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cleaning-disinfection.html>
- ^{xvi} <https://www.osha.gov/Publications/OSHA3990.pdf>
- ^{xvii} <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cloth-face-cover.html>
- ^{xviii} <https://www.cdc.gov/coronavirus/2019-ncov/hcp/respirator-use-faq.html>
- ^{xix} <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cleaning-disinfection.html>
- ^{xx} <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cleaning-disinfection.html>
- ^{xxi} <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cleaning-disinfection.html>
- ^{xxii} <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cleaning-disinfection.html>
- ^{xxiii} <https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>
- ^{xxiv} <https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cleaning-disinfection.html>