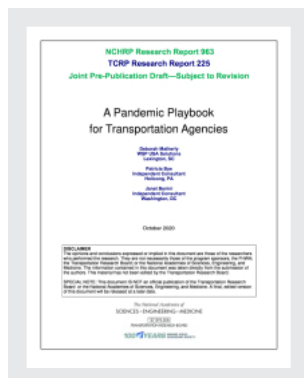


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SUMMARY

This **Transportation Pandemic Playbook (Playbook)** is a practical guide for managing a transportation agency's response to a pandemic, concentrating on WHAT needs to be done, WHEN, and by WHOM.

For those agencies starting or revising their pandemic plan, **Part 1** of the Playbook provides an overview of the characteristics of pandemics and their differences from other hazards, gives optional approaches to developing plans and programs, and identifies key questions to ask and decisions to make. It delineates the other organizations agencies are likely to encounter during a pandemic and approaches for working together.

Part 2 articulates the challenges agencies and their leaders are likely to experience during a pandemic:

- Lack of confidence by the traveling public
- Morale and trust issues with employees
- Possible loss of team bonds among staff
- Stress and psychological considerations for staff, families, and community members
- Increased expenses and reduced income
- Unintended consequences of response actions

For those agencies in the midst of a pandemic, the Playbook provides **Plays (Part 3)** for agencies and their leaders to consider, based on domestic/international research and interviews with key transportation leaders, from organizations large and small, throughout the United States during the COVID-19 pandemic. The resourcefulness and innovation demonstrated as agencies rose to serve their communities during an unprecedented crisis was amazing and inspiring. Many of these innovations are highlighted as "Exceptional Ideas" within the individual Plays. The Playbook concludes with challenges in **Part 4**.

As the Playbook was being written (September 2020), there was no end in sight for the COVID-19 pandemic. Organizations now must sustain operations into the foreseeable future and continue to both adapt to present conditions and create longer term plans. The Playbook includes a Play for Sustained Operations.

- R** Recognize the existence of the new environment
- E** Evaluate challenges and opportunities
- S** Speak the truth
- P** Plan accordingly
- O** Operate, then re-evaluate
- N** Need to adapt to resource constraints
- D** Do the right thing

Jim Archer, Director Service Planning, Scheduling and Evaluation, Houston Metro

Essentials/Key Points

- A pandemic emergency response is different for transportation agencies compared with other events in terms of timeline (extended and indeterminate rather than finite), impacts (no infrastructure impacts, but profound employee, community, and economic impacts), and transportation agency roles (support for health and other agencies).
- Have the right people in place for a pandemic including an Industrial Hygienist or other medical professional to provide guidance and credibility to the agency mitigation and response efforts.
- DOTs and transit agencies may have to adjust their working relationships and employee policies—from how work crews can travel together to a work site, to how transit operators interact with passengers, to closing facilities and enabling wide-scale work-from-home policies, to how transportation emergency managers interact with their counterparts within the agency and in the state emergency operations center (EOC).
- Don't be a vector for the pandemic. Protect your employees and the traveling public. Review all areas on the system such as roadside rest areas, vista points, and employee or public gathering places, that may be transmission points.
- The extended, indeterminate timeline can lead to employee burnout and public complacency and non-compliance with protective measures. The extended timeline also complicates response to “normal” disasters such as hurricanes, wildfires, heat events, tornadoes, flooding, blizzards, and so on.
- DOTs and transit agencies may engage in non-traditional but important support roles, such as providing essential equipment, food, and prescription deliveries; logistics support; screening passengers and highway visitors; traffic management for mass testing sites; and even contact tracing and helping with unemployment claims.
- COVID-19 has had proportionately much greater adverse impacts on traditionally underserved populations and people of color than on traditionally privileged communities. Agencies generate and influence social and environmental justice impacts and unintended consequences, positive and negative, through their actions and inactions in pandemic response.
- Pandemics emphasize an agency's need to balance safety with service, a challenge transportation agencies wrestle with every day. Major challenges experienced during COVID-19 provide kernels of opportunity to emerge stronger, more resilient, more compassionate, and more connected as agencies and as individuals.
- Potential silver linings include the ability to advance projects, pursue mainstream innovations, and establish more wide-scale and regular employee interactions.

INTRODUCTION

Community services are vital to the functioning of the communities where they operate. With people across the nation, and the globe, affected by COVID-19 and the ongoing challenges of responding to it, transportation systems must be as safe as possible and available to all. COVID-19 is the most recent pandemic. In the not too distant past there have been other pandemics (H1N1 “Swine Flu” in 2009, H3N2 “Hong Kong Flu” in 1968-69, and H2N2 “Asian Flu” in 1957-58) and potential pandemics (Zika in 2016, Ebola in 2014, H1N1 “Bird Flu” in 2005-2007, and SARS in 2003). Others are likely to occur in the future. All pandemics had real effects on health and the transportation systems.

This Pandemic Playbook was created to improve transportation agency responses to a pandemic. It concentrates on WHAT needs to be done, WHEN and by WHOM. It briefly addresses planning for a pandemic, a topic addressed in greater depth in the NCHRP Report 769: A Guide for Public Transportation Pandemic Planning and Response Pandemic Planning Guide. It summarizes effective practices currently used by transportation agencies based on interviews with state departments of transportation (DOT) and transit agency leaders and operational personnel, supplemented with national and international research results. The playbook was researched and assembled “while the plane was in flight” to be of practical use to transportation professionals during COVID-19 and for future pandemics. The researchers express our heartfelt gratitude to the transportation leaders who shared their ideas and practices during the midst of a pandemic response. Transportation truly is a community of practice, and once again the community members are helping each other address the unique challenges of pandemics.

How to Use

The goal of the Pandemic Playbook is to help transportation agency senior managers and emergency managers understand, plan, and implement an Emergency Management Program to address COVID-19 and future pandemics. It provides useful information to help guide surface transportation agency decision making and response.

Part 1 – the first three chapters – provides an overview of pandemics and their impacts on transportation, common response approaches, and key elements of planning for pandemic. Key questions to ask are provided to help develop policies, priorities, and approaches that fit agency needs, capabilities, and challenges. There is also an overview of the key roles and associated responsibilities in response to a pandemic.

Part 2 – Chapter Four – addresses the challenges transportation agencies have encountered and approaches to address them.

Part 3 – Chapter Five – contains a series of emergency management plays - key capabilities and activities by mission area - that recommend solutions and approaches for transportation agencies to assess and improve their currently existing processes and procedures and address gaps.

Lastly, **Part 4 – Chapter Six** - provides conclusions and information about moving forward into the future. Chapter Notes and Appendices provide additional resources and references.

Part 1

Chapter 1: Pandemic Basics

Key Facts

A pandemic is a “global disease outbreak” that may easily spread, with little or no immunity to the disease, resulting in a high rate of sickness and/or death. At the onset of a pandemic, no vaccine is available and there are limited, if any, successful medical treatments. Treatment or a vaccine may take some time to become available, if ever. Pandemics differ in their persistency, contagiousness, method of contagion, mutability, and lethality. These factors determine risk and must be included in the response to the disease. Understanding pandemics, their impacts to transportation, and potential effective response has become more important, not only for the response to COVID-19, but also if, as the World Health Organization warns, we are now “living in a time of viruses.”

Most natural and manmade hazards create a distinct emergency event, an occurrence that lasts for a specific, short period of time. There is an “event” and then a post-event response and recovery period. Pandemics do not present a distinct “event.” Once there is an initial outbreak, the pandemic can last for months or longer. Instead of a recovery or return to normal, there may be a series of recovery phases. Pandemics have other characteristics that differ from other hazards. **Table 1** highlights some of these differences.

TABLE 1: DIFFERENCES BETWEEN NATURAL/MANMADE HAZARDS AND PANDEMIC

Natural & Manmade Hazards	Pandemic
Tends to be distinct event occurrence or short duration event (days/weeks)	Can last for months or longer from initial onset with uncertain ending or ongoing more manageable threat
Physical infrastructure damage	Social impacts
Standard emergency management /response operations	May require change of habits and modification of normal operations
	Legislative and administrative issues may require special attention
	Increased supporting role for state and community
Short-term service disruptions and revenue impacts	Long-term service disruptions and revenue impacts
Return to normal/recovery	May require series of recovery phases

Impacts on Transportation

All hazards have social and economic consequences, but unlike other more common emergency events, pandemics have minimal, if any, impact on infrastructure. Pandemics “cause significant absenteeism, disrupt essential services and operations, change patterns of commerce, and interrupt supply chains.”

The social impacts on agency employees are significant. Direct impacts include exposure risks – illness and potential death – and the potential need to quarantine due to exposure or because family members are in high-risk occupations such as health care. Indirect impacts of the pandemic include the need to care for family members due to illness or disruptions of school or daycare. As COVID-19 demonstrated, the social impacts on the wider community are great as well. The community can experience disruptions of food distribution, education, routine medical care, social activities, and recreation. These disruptions can lead to job losses, business closures, reduced tax revenues, and fiscal challenges, with disproportionate impacts to traditionally underserved populations. Depending on the length of time, pandemics can significantly affect transportation revenues for highways as gasoline consumption and associated fuel tax revenues are reduced, along with reduced toll revenues- in both cases impacting paying off bonds and/or maintenance.

Economic impacts on transportation agencies can be drastic. At its peak, COVID-19 reduced overall traffic up to 90% as people worked from and sheltered at home, although commercial traffic increased as demand for supplies and online purchases increased. Public transit was hardest hit. Public fear and concerns for safety, along with the lockdowns and telework, resulted in service reductions that have been slow to recover. The economic impacts of the disruptions and reductions in service along with the reductions in revenue due to the pandemic may take years to overcome. Social and commercial impacts are starting to redefine the nature of social life in urban, suburban, and rural communities that affect transportation decisions well into the future.

Approaches to Pandemics

As demonstrated throughout the world, pandemics can be contained and mitigated with persistence, vigilance, and mitigation. Transportation plays a key role in supporting these efforts. Several approaches are available for frameworks to respond to a pandemic, as illustrated in [Table 2](#). When a pandemic occurs, there is potential for personnel and facilities to suddenly become unavailable. Either of these can cause a disruption of agency internal operations. A Continuity of Operations (COOP) Plan addresses how to prepare for, respond during, and recover from such internal disruptions. The COOP perspective provides agencies with a framework to maintain essential staffing/facilities and to prevent or mitigate employee absences.

Reducing the impact of a pandemic, or any emergency event, is the focus of the emergency response framework. From this perspective, transportation agencies play a critical role. They “sustain transportation services, mitigate adverse economic impacts, meet societal needs, and move emergency relief personnel and commodities.”

“Public transit faces a near-perfect storm. Ridership—and fare revenue—have dropped dramatically, as many people work from home and others avoid mass anything... tax receipts are falling at all levels of government amid the coronavirus-induced economic downturn. Meanwhile, agencies are shelling out more in cleaning costs, to protect riders and workers. And no one knows when Americans who have a choice will get back on the bus.”

Aarlam Marshall, Wired, July 2020

Additionally, in their support role as part of Emergency Support Function (ESF-1), transportation agencies provide resources and support to other agencies and to the community (See [Appendix A](#)). During a pandemic, agencies may be called upon to support local, state, and regional partners in both traditional and novel ways as illustrated in [Figure 1](#).

TABLE 2: OVERVIEW OF RESPONSE APPROACHES

Approach	Focus	Characteristics	Pandemic Implications
Continuity of Operations (COOP)	Internal Focus	Restore/sustain agency functions and services Quick restoration of essential functions	Maintain staffing & prevent or mitigate employee absences
Emergency Response	Event Focus	Respond to event Mitigate consequences Restore services & initiate preventive response efforts	Protect staff & public Support response & recovery Find financial support
Support Agency	Community Focus	Provide resources and assets to address community needs	Support supply chain and community

FIGURE 1: CDOT DELIVERS STRATEGIC NATIONAL STOCKPILE (SNS) SUPPLIES, APRIL, 2020

Source: Colorado Department of Transportation



Pandemic Planning

How to create an agency Pandemic Plan is addressed in NCHRP Report 769: *A Guide for Public Transportation Pandemic Planning and Response*. This page provides a brief overview of what should be included.

How to Plan

- Identify all relevant planning participants
- Distinguish event elements generic to all disasters vs. specific to pandemic

What's in the plan

- Definitions, organization, and roles
- Pandemic vulnerability assessment
- Priorities and policies
- Decision guidance - Potential event stages, timeline
- Coordination and collaboration - Identify traditional and new key stakeholders

Communications

- Strategies to receive information from emergency management (EM) and public health – situation reports, health alerts
- Sharing of information with staff, customers –information to assist planning, steps to be taken in response, key messages to include
- Sharing information with other transportation, EM, and public health agencies – impact on service, readiness, personnel and equipment needs, available resources, anticipated changes to services

Resource expectations

- Staffing
- Assets – Facilities, vehicles, etc.
- Equipment and supplies for response operations
- Training

Updating plan

- Regular review cycle
- Exercises
- Lessons learned
- After action reports

Chapter 2: Key Questions to Ask

In a pandemic, there are three overarching goals of a transportation agency. Health and safety needs to be first; without safe and healthy staff there is no response. Second, maintain transportation as an essential service to support the community and the supply chain. Finally, develop data driven, agile, flexible responses to the existing and future situations.

The response to a pandemic must address local, state and federal actions that affect travel demand, such as stay-at-home or lockdown orders or requirements for non-pharmaceutical interventions (NPIs) to prevent the spread. Over time, the reopening of businesses and increase in social activities can also impact transportation services. There may be additional protocols required such as screening of staff and patrons for symptoms, face coverings, and social distancing.

A series of decisions must be made to assist an agency in determining its responses and achieving its goal – from policy and priority decisions that drive staffing and resource decisions, to determining triggers and timing of actions to take, and addressing long-term financial and other implications. Asking the right questions creates the perspective necessary to focus on the ability to quickly adapt and return to service and withstand short-term and long-term impacts of the pandemic. **Table 3** summarizes the types of decisions that need to be made with questions that address aspects to consider as those decisions are being made.



TABLE 3: TYPES OF QUESTIONS AND CONSIDERATIONS OF CRITICAL AGENCY AREAS



Types	Considerations	Critical Areas
Policy	Are there agency policies established to address the situation? What additional agency policies must be put in place? How does the agency align its policies with state and local policies, if necessary? Are communications protocols and information management in place with health agencies?	HR, Finance, COOP, Emergency Support Function 1 (ESF1)
Priorities	What are the agency mission essential functions (MEFs)? Are additional MEFs required? How does the agency support community essential services?	Agency, ESF1, Supply Chain, Community
Triggers	What are the criteria or trigger points for initiating specific actions or implementations? When to implement plans, when should staff restrictions or service reductions occur? When to stand up Emergency Operations Center (EOC), support local EOCs and Joint Information Centers?	Agency Operations, COOP, ESF1
Staffing	Who are essential staff? Is additional staff needed? How does the agency maintain health and safety of staff?	All
Resources	Are there adequate supplies to address needs? Is there technology in place to support the situation?	Management, EM

Types	Considerations	Critical Areas
Timing	What is the estimated duration of the event? Are phased approaches possible? What are the elements in each phase?	All
Finance	Are there budget issues to address? Are there opportunities available?	Agency Operations, Construction, and Maintenance

Table 4 provides a matrix of key questions by mission area that can assist agencies in developing policies, strategies, approaches to effectively address a pandemic, and related plays in Part 3 of the Playbook.

TABLE 4: KEY CONSIDERATIONS BY MISSION AREA

Mission Area	Category	Key Questions	Related Plays
 Preparedness	Disease Characteristics/Threat	Severity – virulence, duration Transmission - modes Potential impact Monitoring – onset, asymptomatic percentage Screening – overt signs, methods	Plans/Training Employee Impact
	Plans/SOPs	Who is your organization dependent upon to get things done? When to dust off plans? When to confirm and revisit priorities/essential functions? Are there known alternative locations for maintaining operations, including working from home? What risks including concurrent risks are there?	Plans/Training
	Personnel	How and when to determine essential personnel? Has crosswalk been done? Who has been cross trained?	Employee Impact
	Coordination	Are there state or community deemed essential functions? What information is needed? How do you communicate if things change?	Situational Awareness and Reporting
 Prevention/ Mitigation	Countermeasures	What types are available? Is guidance available? Is guidance agreed to by experts?	Protective Actions
	Mitigation	What additional capabilities are available? Have alternatives been identified?	Protective Actions

Mission Area	Category	Key Questions	Related Plays
 Response	Activation	What levels of activation are there – stand-by, alert, monitoring, activate? What to stock up on supplies? When to activate plans? When to implement incident command center (ICS)/ unified command?	Traffic Management, Plans/Training
	Tracking	When to establish accounting codes, oversight and function/resource tracking? What data and reports to produce?	Finance
	Supply Chain	What functions/services/locations are critical to supply chain? Do you have the pre-incident waivers and/or approvals needed to respond to the incidents and after?	Traffic Management
	Community	What community needs are impacted or unmet? Are agency resources available to support community needs?	Situational Awareness
	Communications	What information is needed? For which audiences? What format/frequency to relay information? Who speaks for the Department? Is there a clear order of who speaks and under what circumstance? What role does the governor, or state emergency manager, or others play before the agency communicates with the outside world?	Communications
	Tools and Technology	What existing tools are available? What new/additional capabilities can be made available?	All
 Recovery	Restoration	When is after? Is phased approach possible? Who does what?	Stabilization
	Stabilization	How to handle continuing long-term impacts?	Stabilization
	Public Confidence	What is needed to ensure confidence in safety?	Public Confidence
	Lessons Learned	What changes need to be considered for the next incident based on After Incident reports?	Situational Awareness and Reporting

Chapter 3: Key Players and Agencies

Collaboration, coordination, and communications within a transportation agency and with other local, tribal and territorial, state, regional, and federal agencies that may be involved in pandemic emergency management can be challenging for state DOTs and other transportation agencies. **Table 5** lists the key players both internal to the agency and externally and their critical roles.

TABLE 5: KEY ROLES AND RESPONSIBILITIES

Types	Key Player	Critical Roles
Internal Agency	Leadership and Department Heads	HR, Finance, COOP, Emergency Support Function 1 (ESF1)
	Agency HQ EOC/DOC	Roles, responsibilities, coordination (pre, during, and after)
	Agency District/parish EOC	
	Transportation Services Maintenance and Operations (TSMO)	Staffing and resources
	Human Relations	Policies and clear expectations for organizations and employees for worker safety and for healthy/safe workplace
	Health	Coordination with and advice from technical experts in the community (e.g., physicians, environmental health experts) who understand how to interpret recommendations and address related challenges
	Public Affairs	Coordination of communications
	Financial	Accounting codes, reimbursement compliance
	Purchasing/Logistics	Ordering/purchasing processes
Union	Workforce Representatives	Review labor agreements, participation in planning, employee buy-in/acceptance
State/Local	State and Local Government	Emergency declarations
		Policy maker
		Consistency in guidance among jurisdictions and between levels of government (desirable)
	Department of Health	Consult with and be able to articulate specific information and direction and control requirements for the transportation organization Understand how hospitals or nursing homes are transporting pandemic patients, or ICU patients
	Department of Human Services	Coordinate on state shelter plans and desired transportation and/or communications support
	Emergency Management/EOC	ESF 1 support and coordination/collaboration Directives to state departments

Types	Key Player	Critical Roles
Regional/ National	FEMA	All
	CDC, HHS	Guidance and recommendations
	FHWA/US DOT	Guidance and recommendations/directives
	Reg'l/Nat'l Associations – I-95 Corridor Coalition, All Hazards Consortium, etc.	Information sharing and roles
	AASHTO/APTA/CTAA regional and national committees and working groups	Information sharing
	DOT and transit agency peer groups	Coordinating help from other agencies or DOTs
Other External	Community organizations	Identify community needs requiring support
		Share safety protocols
		Share guidance and recommendations
	Energy and telecommunications companies	Support and coordination
		Facilitate exceptional requirements, e.g. increased demand; expanded service coverage
	Commerce/supply chain - Trucking/ Freight Associations	Logistics requirements, e.g. rest area protocols, safety protocols, CDL testing
	Contractors	Coordinate availability and support including surge workforce requirements if necessary
		Communicate additional capabilities
	Vendors	Coordinate availability and support including additional capabilities, e.g. services or products
	Suppliers	Confirm goods availability, e.g., PPE, cleaning supplies, specialized equipment
		Identification of alternate sources

Part 2

Chapter 4: Challenges

A pandemic presents the DOT and transit agency with challenges, some unfamiliar, that must be overcome. Unknown risks and tradeoffs may require new ways of doing regular jobs and communicating with one another; and bring new partners and stakeholders to the table. The greatest of these challenges is the ongoing need to balance safety with service, a challenge transportation agencies wrestle with every day. During a pandemic that balancing must be done while dealing with uncertainty - in science and what is known (related to the disease); in policy (related to the response and capabilities of agency and stakeholders); and in behavioral/social/political spheres (affecting changes in both attitudes and behaviors of individuals but also agencies, firms, organizations and communities).

The following are other major challenges agencies have experienced during COVID-19. Within these challenges are kernels of opportunity to emerge stronger, more resilient, more compassionate, and more connected as agencies and as individuals.

Fear/loss of confidence in safety

Pandemics can trigger feelings of powerlessness, discomfort, and insecurity. There is much unseen and unknown about the most effective steps to reduce or even eliminate risks, which, in turn, can impact the perception of safety. Fears and concerns of employees and the traveling public influence their work and travel decisions, and some of those fears are grounded in fact. Some are not. According to Dr. Thomas Matte, Senior Science Advisor for Environmental Health at Vital Strategies, a global public health organization, “the public perceptions and press coverage of COVID-19 transmission risk in transit has created more fear than is warranted by the evidence.” Nevertheless, transportation workers can be at risk for exposure in the workplace even with the known risks mitigated through protective actions.

Managing the fears of employees and the public is a major challenge during a pandemic. Fears can be fed by lack of information and rumors. Transportation agencies must demonstrate their “safety first” culture, visibly adhering to and enforcing science-based health guidelines within their authority. The American Public Transportation Association (APTA) and others recommend establishing credibility by following public health guidelines from official sources. Maryland Department of Transportation – Maryland Transit Administration (MDOT MTA) had a registered nurse from Operations speak to every department and each front line shift to provide information about COVID-19 and explain related MDOT MTA processes.

*More information is found in the **Public Confidence Play**.*

Keeping employees and passengers informed and empowered makes a difference. As pandemic testing and infection rates ebb and flow, region to region and season to season, and as health advisories change, transportation agencies must be transparent and forthcoming with employees and the public about the risks, the exposure (notifying employees and the public about potential exposure with HIPAA guidelines in mind), and what the agency is doing to keep employees and the public safe. Above all, the agency can emphasize the social contract of mutual respect and consideration that employees and the public must adhere to for keeping one another safe.

Instituting concrete measures and communicating what is being done will provide reassurance to both employees and the public. High-visibility cleaning and strong health-messaging campaigns coupled with universal mask wearing will help reassure passengers that they can return to a safe transit system. APTA launched a national “Health and Safety Commitments Program” for transit agencies. New York MTA, along with the New York Port Authority and New Jersey Transit, implemented “Operation Respect,” a multi-layered strategy to encourage universal face covering compliance by customers on the region’s trains, buses, and commuter rails.

Morale and trust

Pandemics impact employees in many ways. Almost everyone has their regular work routine severely disrupted. During COVID-19, some are now performing tasks that are quite different from their regular job, e.g., assisting the state with “surge” needs in other agencies or conducting specific pandemic-related data collection tasks. In some states, employees may face furloughs.

These impacts all affect employee morale. Maintaining or rebuilding morale is a multi-faceted and long-term effort requiring trust between the agency and employees. During COVID-19, most agencies have had very good outcomes with remote work forces, which fundamentally is an exercise in mutual trust. Transparency with employees is paramount.

An agency must stay in close touch with employees, and the union if applicable, to be aware of employee issues and address them as much as possible. Employees must know that their safety and concerns are as important to the agency as “getting the work out.” Some agencies are designating a staff member to be responsible for responding to COVID-19 concerns or establishing a convenient means, such as the existing safety hotline MDOT MTA used, to collect those concerns.

Some seemingly small things can make a real difference. Providing “pizza days” for in-house or field staff or other morale boosters, for example, let employees know they are appreciated.

Loss of team building/interaction

During a pandemic, agencies may transform into virtual operations for large portions of their workforce—planners, engineers, administrators, and more. Maintenance and other field crews may be isolated from their peers into smaller units. Virtual meetings and on-line interactions become more common than the face-to-face interactions and idea exchanges that are a major part of many normal DOT and transit agency work activities.

During COVID-19, some agencies have found that interactions through existing or ramped-up technologies are better than before. For example, weekly or monthly briefings with key staff were held rather than quarterly in-person meetings. However, opportunities for informal interactions and loss of team building experiences created challenges for many agencies.

To address these challenges, agencies took a range of approaches. Some designated specific sessions, e.g., Friday sessions to share stories to getting to know one another better on a personal as well as professional level. Others posted photos of employees working during the pandemic.

Stress and psychological impacts

The unprecedented long-term nature of a pandemic and the uncertainty it brings creates stress. Along with work and financial stressors, many employees are dealing with worries about family members’ health and/or employment status. Many are also juggling childcare responsibilities including supervising remote learning or home schooling. Areas may experience concurrent events, such as earthquakes, hurricanes, or wildfire, compounding the stress their employees or family members are experiencing.

Long-term stress is physically and psychologically harmful. Trauma causes us to “go to the emotional basement” and cuts off higher skills in favor of survival skills. Agencies must recognize this. Employees may want to press through without a break, but the agency must recognize the imperative for employees to rest and recuperate. Agencies can modify schedules to allow staff to take needed time to address family concerns and reduce stress. The use of Employee Assistance Programs (EAP) can be encouraged, and additional mental health resources should be made readily available if necessary. Agencies can work with the group health care provider to waive co-pays, if necessary.

*More information is found in the **Employee Impact and Communications Plays**.*

*More information is found in the **Employee Impact Play**.*

Guidance is available from national health organizations, such as the Centers for Disease Control (CDC) and National Drug & Alcohol Screening Association (NDASA), on managing stress and anxiety during COVID-19.

Funding

Pandemics create an immediate reduction of agency revenue (tolls, fares, sales tax, and gas tax) as travel shuts down that is compounded by the long-term impacts of potentially reduced federal and state funding. Most agencies already have faced significant revenue losses due to COVID-19. Diversification of funding sources is critical. In addition to direct user fees, consider use of tolling, annual fixed user fees on electric vehicles, transitions to road user charging programs, and use of rainy-day funds.

There is potential for cost savings from employees working at home. The reduction in vehicle miles traveled may reduce the need for expensive congestion relief projects.

Federal assistance is essential. Agencies must be proactive in learning about and understanding any changed or expanded eligibility of existing federal assistance programs such as the FHWA and FTA Emergency Relief Programs. For COVID-19, FTA ER funding was expanded for emergency-related capital and operating expenses including the provision of personal protective equipment (PPE) in states where the governor has declared an emergency.

For major national emergencies, Congress may pass legislation providing additional funding. The Coronavirus Aid, Relief, and Economic Security (CARES) Act, in response to COVID-19, allocated \$2.2 trillion in support to individuals, businesses, and organizations affected by the coronavirus pandemic and economic downturn. Transportation agencies were eligible for CARES Act funding for operating and capital expenses.

Documenting damages related to a pandemic is critical, for both existing federal funding, or if future federal funding or grant opportunities become available.

Unintended consequences

Well-intended actions for public safety may have unintended consequences. Closing rest areas to limit the spread of a pandemic may save costs and protect workers, but long-distance truckers, interstate logistics, and the critical supply chains are adversely impacted by this policy. DOTs responded in various ways to the needs of truckers during COVID-19—some opened selected rest areas and weigh stations for overnight parking, some set up temporary portable

*More information is found in the **Finance Play**.*

toilets and kept the rest areas as a whole closed, some allowed food trucks to operate in rest areas, and most informed truckers through established information networks.

Transit agencies instituted new contact-less fare policies to reduce interactions between riders and operators. Some eliminated fares altogether. Concerns arose that the free services were encouraging undesired behaviors. In Cincinnati, officials re-instituted fares to discourage people from violating the state's stay-at-home order.

In Philadelphia, the Southeastern Pennsylvania Transportation Authority (SEPTA) changed its approach to enforcing mask requirements after a widely shared video of a passenger being removed from a bus for not wearing a face covering.

DOTs and transit agencies should consult with their in-house experts, federal partners, and other key external stakeholders in a timely fashion prior to implementing broad new policies. Monitoring the implementation of the policies and making timely adjustments when necessary will minimize the impacts of unintended consequences.

Part 3

Chapter 5: Emergency Management Plays: Approaches and Solutions

In an emergency, transportation agencies need to protect employees and customers, ensure continuity of operations, re-align service to meet changes in demand, secure additional funding and assets, enhance communications with all stakeholders, and train and educate employees on response duties. All this must be accomplished while ensuring systemic and structural resilience of their transportation system.

The emergency management plays—key capabilities and activities—in this section are designed to assist an agency in performing those critical actions. Each one provides key actions and considerations to assist an agency in determining its own approach based on the agency’s own goals, priorities, and resources. Exemplary practices, with actionable detail, of surface transportation agencies during COVID-19 are included. The intent is to enable all agencies to incorporate and improve their currently existing processes and procedures and to develop additional approaches to address gaps, contingencies, or new hazards as necessary.

Table 6 provides an overview of the plays contained in this section, by mission area and by category.

TABLE 6: PLAYS BY MISSION AREA AND CATEGORY

Mission Area	Play Category	Play	Page
 Preparedness	Planning/Training	Planning, Training, & Exercises	19
 Protection/ Mitigation	Employee Impact	Availability & Status	21
	Protective Actions	Employees: All Modes	23
		Public Transit	25
	Situational Awareness	Situational Awareness & Response	29
 Response	Communications	Internal & External Communications	32
		Public Confidence	36
	Response Actions	Traffic Management	38
		Service Operation Adjustments	40
	Evacuations/Shelter in Place/ Quarantine	Pandemic Evacuation Impact	43
	Financial	Financial Management	45
	Resiliency	ESF1 and Community Support	47
 Recovery		Stabilization Approaches	49
	Lessons Learned	Situational Awareness & Reporting	29
	Multiple Events	Concurrent Emergencies with Pandemic	51



PLAY: Planning, Training, & Exercises

MISSION AREA	MODE	EVENTS
Preparedness	All	Pandemic

IMPROVE AND UPDATE PLANNING

- **Pandemic plans** (who does what) are a variation of existing plans such as Continuity of Operations (COOP) Plans and Emergency Response Plans.
- **Pandemic vulnerability** assessment is different.
 - » Infrastructure undamaged, people at risk.
 - » Often longer term than typical event.
 - » Essential functions can vary.
- **Cyber plans and weather** plans may also be relevant.
- **Operational plans** (how and when) are dynamic and change with phases of the event.
 - » You may want to use the ICS Incident Action Plan format (see **Appendix B**).
 - » As the event progresses, Operational Period may vary (one day if the pandemic is fast-moving, one-week or longer if things are not changing rapidly).
- You may need to develop a **“Sustainment Plan”** to help you get through a long-term pandemic.
- Organizations you support and that support you **may be different** than “normal”; account for this in your planning.
- Natural, technological, or human-caused disasters still happen during a pandemic, so make sure your plans **consider multiple hazards**.

CONDUCT TRAINING

- In addition to ongoing training, you may want to **conduct short training interventions** specific to job responsibilities in the pandemic phase.
 - » Toolbox talks with operational staff.
 - » Distance learning for teleworking staff.
 - » On-site talks by health experts can help respond to staff questions and concerns.
- **Cross train staff** so they can perform different functions.
- You may be using new **software or collaboration tools**. Make sure staff has an opportunity to train on them.
- Your organization may need to perform **new functions** requiring staff training, such as contact tracing or supporting other state organization surge responsibilities, e.g., unemployment claims.
- **Use the opportunity of teleworking** to facilitate taking online training programs and courses, such as those offered by FEMA and FHWA.



PLAY: Planning, Training & Exercises, cont'd

MISSION AREA	MODE	EVENTS
Preparedness	All	Pandemic

DO EXERCISES

- **Short tabletop exercises** can be valuable. Good topics include:
 - » Employee rights and protections.
 - » Distribution of PPE to employees and customers.
 - » Distribution of vaccines or elements of the Strategic National Stockpile.
- Longer tabletop exercises can **incorporate full pandemic considerations** into planning for more typical emergencies such as hurricanes, wildfires, earthquakes, flooding, and tornadoes.
- **Involve partner organizations**, such as the health department, in your exercises and participate in theirs.

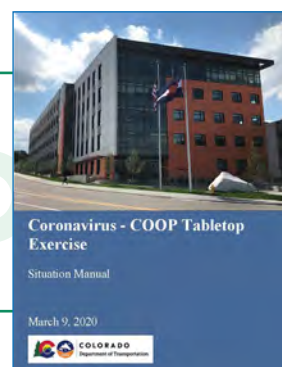


Exceptional
Ideas

Colorado DOT completed a tabletop exercise early in the pandemic, considering responsibilities and authorities and anticipating issues ranging from making sure to protect personally identifiable information when reporting health statistics, to recommendations regarding PPE (Figure 2).

FIGURE 2: CDOT EXERCISE - SITUATION MANUAL COVER

Source: Colorado Department of Transportation



Exceptional
Ideas

California Department of Transportation (Caltrans) conducted an exercise regarding distribution of elements of the Strategic National Stockpile (Figure 3).

FIGURE 3: CALIFORNIA DEPARTMENT OF TRANSPORTATION INTERIM PANDEMIC PLAN

Source: California Department of Transportation





PLAY: Employee Impact

MISSION AREA	MODE	EVENTS
Mitigation	All	Pandemic

OVERVIEW

Employee health and safety are paramount in a pandemic. Like other events, pandemics impact employees' availability for work because of family circumstances, illness, and safety. During pandemics, exposure or illness in the family may require isolation or quarantine. COVID-19 community "lock downs" disrupted schools and daycare centers, creating childcare issues for many employees. Work responsibilities change as tasks are halted or reduced while new tasks emerge.

ESTABLISH APPROPRIATE POLICIES

- **Address absenteeism, including family sickness leave.** Your organization may provide additional sick leave or other paid time off (PTO) for employees who are required to quarantine for a designated period. You may choose to institute more flexible sick leave/leave policies to encourage employees to stay home when they are feeling ill.
- **Establish compliance requirements/standards** regarding use of PPE/respiratory protection.
- **Confirm and communicate requirements and guidelines** for personnel health information related to the Health Insurance Portability and Accountability Act (HIPAA) and personally identifiable information (PII).
- **Assign staff** nontraditional functions on a temporary basis.
- **Work with public health officials** regarding testing or vaccinating your employees and families.



FIGURE 4: CDOT GUIDANCE FOR SUPERVISORS

Source: Colorado Department of Transportation



FIGURE 5: HILLSBOROUGH AREA REGIONAL TRANSIT AUTHORITY (HART) ADVERTISEMENT (APRIL 2020)

Source: Frank Wyszynski, Sr. Comm. and Marketing Specialist

DEMONSTRATE GOOD LEADERSHIP AND EMPLOYEE RELATIONS

- **Executives should support "demonstrable, long-term, substantive commitment"** to enhance organization morale (Figure 5). Leadership, especially CEOs, play a critical role.
- **Create clear expectations** for employees through Human Resources (HR), with worker and union input (Figure 4). Provide reasonable accommodation regarding performance of certain tasks due to personal safety or health risks.
- **Work with employees and union(s)** to establish safe work processes and procedures. Be alert for improvements as public health guidance changes or new opportunities are presented.
- **Encourage employees to stay home when sick** to avoid exposing others. Have a simple system to aggregate and report employee absences, following HIPAA guidelines.



PLAY: Employee Impact, cont'd

MISSION AREA

Mitigation

MODE

All

EVENTS

Pandemic

- **Reinforce family disaster preparedness information.** Make sure family notification procedures and survivorship choices are updated for all employees.
- **Recognize the stress and psychological impacts** and provide support services for stress reduction. Make sure employees understand how to access programs as needed.
- **Try to keep staff working**, if possible. Assign staff nontraditional functions on a temporary basis and facilitate working from home if possible. Recognize and address potential morale impacts of new or different duties. If furloughs are necessary, be open and honest with employees about decisions and future expectations.
- **Keep lines of communications available** with employees up and down the chain so you can identify issues early and adjust if advisable. If not, explain why not. Continue communicating with furloughed employees and help them gain government assistance if available.
- **Have good methods** for tracking employee availability and accountability while providing flexibility for family needs and multiple priorities.
- **Have good mechanisms** for letting employees know about new policies and procedures.
- **Explain how** employees will be evaluated during the pandemic.
- **Document policy and procedure** successes and failures for future reference and lessons learned.



Exceptional
Ideas

Kansas DOT reported a significant number of employees have spouses who are essential service workers, some of whom are frequently exposed to COVID. To accommodate their needs, the organization expanded the availability of telework.

Vermont Agency of Transportation (Vermont AOT) recognized morale problems with employees temporarily reassigned to track crossings at state borders, so rotated the duty to not fall disproportionately on a few.

Vermont AOT helped those furloughed with unemployment claims.

Louisiana DOTD was sensitive to many experiences of event impacts on employees, engaged workers in brainstorming options and attempted to address as much as possible. They even considered providing day care at agency locations but recognized that would not be wise.

Caltrans engaged a professional worker stress program to work with employees.

MDOT MTA created an electronic system to track employee health status and do contact tracing. System was based on an agency application already in development that could be modified for new purposes, resulting in less time and development costs.

Maryland DOT MTA used an existing Safety Management System (SMS) Phone Line to track/monitor employee status as a COVID hotline.

Charlevoix County Transit, Michigan, to meet new needs and to keep workers employed, began new services, such as providing free rides for school food programs, food delivery, and a new food shopping/delivery service for seniors and people with disabilities.



PLAY: Pandemic Protective Actions

MISSION AREA	MODE	EVENTS
Response	All	Pandemic

“Controlling exposures to occupational hazards is the fundamental method of protecting workers.” CDC

OVERVIEW

During a pandemic, voluntary or mandatory protective actions may be required to ensure the safety of employees and passengers. Because employees' work requirements may differ, there may be different types of protective actions necessary. Many agency positions require physical presence and public interaction, such as bus, train, or ferry operators; train conductors; flight attendants and some customer service and supervisor positions; security personnel or safety inspectors; highway or vehicle maintenance crews; port specialists or laborers; and airline baggage crews.

APPLY GENERAL PUBLIC HEALTH PRINCIPLES TO PROTECT EVERYONE

- **Follow credible health authority guidance**, which can include social distancing, requiring wearing masks in common areas in the workplace and on the job, regular handwashing and surface disinfection, and quarantine in the event of symptoms, potential exposure, or confirmed infection.
- **Develop active health monitoring and contact tracing** for employees who become ill or are exposed to an active infection. Communicate employee tracking plans.
- **Establish clear policies and procedures** on PPE, supplies or equipment (e.g., cleaning/fogging) procurement and usage, and training.
- **Involve employees** in developing safety protocols. Facilitate feedback on effective procedures and available alternatives.
- **Monitor complacency and weariness** with restrictions as a pandemic continues, which may prove a major impediment to compliance and contribute to resurgence of disease rates.

FACILITATE REMOTE WORK FOR POSITIONS THAT ARE SUITABLE

- **Consider providing laptops, webcams, headphones, and other equipment** for employees eligible for remote work to facilitate the transition.
- **In addition to computers for employees**, consider letting them take their office chair home. Employees may appreciate this consideration. Be sure to maintain good records on all equipment leaving the workplace.
- **When examining software policies and programs**, consider expanding collaborative software options. Many recent technology improvements facilitate group work regardless of location.
- **Consider and where possible set up or allow** employees to set up hot spots for internet connectivity, particularly in rural areas.
- **Consider a transition phase for moving back to the office.** Spacing of desks and other adaptive measures for facility use can promote social distancing in the office environment, in tandem with mask protocols for common areas.




PLAY: Pandemic Protective Actions, cont'd

MISSION AREA	MODE	EVENTS
Response	All	Pandemic

ENHANCE PROTECTION FOR EMPLOYEES WITH PUBLIC FACING JOBS

- **For COVID-19 and similar respiratory-based pandemics**, public health guidelines are likely to recommend that all employees and travelers wear masks to protect themselves and others, in addition to following regular handwashing and sanitation measures. Make sure you have a clear policy and enforcement guidelines for employees.
- **Inspectors, supervisors, and security personnel** move in and out of environments where mask wearing is required; these personnel must continue to socially distance themselves unless all are wearing masks.
- **Include information about WHY** these policies are in place in your training so employees continue sound public health practices while on breaks or commuting.
- **Clarify expectations of employees**, such as wiping down truck cab surfaces at the end of the shift; wiping down and possibly fogging a bus; and regularly cleaning and disinfecting high-touch surfaces in common areas such as door handles (**Figure 6**). Consider changes in protocols over time as conditions change.
- **Consider contactless systems** for reducing spread of disease such as automatic doors, soap dispensers, and touchless fobs instead of keys.



Safety

General Safety Message:

- Maintain Social Distance whenever and wherever possible
 - Greater than six (6) feet apart
- Wash your hands often with soap and warm water for at least 20 seconds
 - Use of hand sanitizer will aid, but is not a substitute for hand washing
 - Avoid handshakes & unnecessary bodily contact
- Utilize a face covering (CDC/CDPHE guidelines)
- Visit the CDOT Safety website, CDC Website, and/or the CDPHE website for continuous updates
- Contact your Region Safety Officer with questions, comments, or concerns

WORK ZONE SAFETY:

- Excessive Speeding in our Work Zones
 - **140 mph on North I-25**

FIGURE 6: EXCERPT FROM COLORADO DOT REGULAR SITUATION REPORT

Source: Colorado Department of Transportation



PLAY: Pandemic Public Transit Protective Actions

MISSION AREA

MODE

EVENTS

Response

Transit

Pandemic

"Just as riders rely on us, we rely on our passengers to protect themselves and one another by respecting these commitments." American Public Transportation Association (APTA)

OVERVIEW

To ensure the safety of employees and passengers, voluntary or mandatory protective actions may be required. For the COVID-19 pandemic, public health authorities recommended for transit the universal use of masks (PPE); social distancing on transit vehicles and in transit stations; frequent sanitizing of high-touch surfaces; and measures for passengers to avoid having to touch public surfaces.

ESTABLISH CLEAR PROGRAMS REGARDING PROTECTIVE ACTIONS

Wearing Masks/PPE

- **Clarify your policies and procedures** regarding compliance, exceptions, and enforcement. Be aware there may be aggression involved with noncompliance, and make sure employees know their limits and boundaries.
- **Incorporate a mask mandate** into your organization's passenger code of conduct that is enforceable; consider it similar to clothing mandates (shirts, shoes).
- **Establish how to and who** should enforce wearing a mask. Encouraging compliance with messaging and free mask distribution is considered a better, safer, strategy than active enforcement of compliance by agency personnel.
- **Clarify expectations for potential passengers** through a comprehensive public awareness campaign involving multiple media, including social media. Use words, pictograms, and multiple languages as appropriate to clearly convey your messages (**Figure 7**).
- **Use the mask program as an opportunity for improving customer relations**, such as with mask giveaways at community events, agency-branded masks, or agency ambassadors at stations.



FIGURE 7: THE COMET - BUS POSTER

Courtesy of Flock and Rally for the Comet



FIGURE 8: THE COMET - SANITIZING BUSES

Courtesy of Michael Dantzer Photog.



PLAY: Pandemic Public Transit Protective Actions. cont'd

MISSION AREA	MODE	EVENTS
Response	Transit	Pandemic

Social Distancing

- **Carefully establish and communicate** social distancing policies with staff and passengers.
- **Enforcing social distancing** requires information and agility. A real-time passenger count can ensure limits are not exceeded. If passengers know passenger counts in advance, they may be able to time travel accordingly. Dispatchers may need to notify operators to pass people up, alerting waiting passengers that an additional bus has been dispatched to avoid overcrowding.
- **Keep some flexibility** in social distancing rules so family groups can sit together.
- **Social distancing may require** additional equipment as ridership recovers.

MOBILE POSITIONS (Train Conductors, Flight Attendants, Inspectors; Supervisors, Security Personnel, Employee Work Crews, On-site Staff, and others)

- **Limit crews to one per truck or two in a split cab**, with both wearing masks or allow crews to use their own vehicles. If the logistics of parking multiple vehicles at a work site is unwieldy or impractical, limit the number of individuals in the cab, and require ventilation (open windows), and masks with regular surface sanitation.
- **Organize employees into self-contained units/sheds/pods/teams**, intentionally and deliberately eliminating interaction with other teams. With this framework, if one member of a team is exposed to or infected with the virus, the team can be quarantined. Other teams can step in to help with the workload, but the entire organization is not sidelined.
- If possible, **provide supplies**, such as hand sanitizer, to encourage safe practices.



Exceptional
Ideas

A paratransit organization split itself into two stand-alone teams to cover all functions of administration, dispatching, and driving; ensuring that their customers would have at least one healthy team to provide essential services.

Oahu Transit, HI, erected tents outside the headquarters office building, to allow employees to spread out more.

MD MTA had many employee meetings on mask usage, to make sure everyone understood proper ways to wear the masks and requirements to do so.

The Central Midlands Regional Transit Authority (COMET) Transit, SC, offered COVID tests at their facilities.



PLAY: Pandemic Public Transit Protective Actions. cont'd

MISSION AREA

MODE

EVENTS

Response

Transit

Pandemic

SEMI-STATIONARY POSITIONS (Bus and Train Operators, Station Attendants)

- **Require the public** to adhere to specific protocols such as masks to protect other passengers and operators or station attendants.
- **Train operators and station attendants** are typically in a cabin or kiosk that offers protection under most circumstances. Decide whether your mask protocols (if in place) also extend to train operators and station attendants; extending such protocols models appropriate behavior to the public.
- **Protect the bus operator** from infection through social distancing:
 - » Implement rear-door boarding.
 - » Use barriers such as a chain or partition to keep passengers at least six feet from the operator; or you can use shower curtains, Plexiglas, or other materials to protect operators when front door boarding resumes.
- **Consider providing bus operators** for mobility services such as paratransit with protective masks, visors, and training in safe securement under pandemic conditions. These operators are often required to closely assist passengers (securing seat belts to a wheelchair or applying other fasteners to secure a mobility device). Passengers can be requested to turn their heads during securement and should wear masks or face shields if physically able.
- **Provide regular cleaning and disinfection** of surfaces, particularly high-touch surfaces. Review air filtration systems and improve ventilation wherever possible.
- **If passengers are confirmed or suspected to be infected**, you may request the public health agency to provide transportation. In at least one small community, volunteers in full protective medical attire volunteer to transport such patients to medical appointments.



PLAY: Pandemic Public Transit Protective Actions, cont'd

MISSION AREA	MODE	EVENTS
Response	Transit	Pandemic

CLEANING AND DISINFECTING

- **High visibility of cleaning crews and sensory cues**, such as scent, can reassure passengers (**Figure 8**). Frequency of surface cleaning will vary depending on health guidance, organization policy, operations schedules, and use.
- **Investigate ventilation systems** in your equipment and see if there are ways to improve air circulation and fresh air replenishment if necessary. Air circulating through subway cars and buses is typically replaced with fresh air close to 18-times an hour, more frequently than 12 times recommended for airborne isolation rooms in medical facilities.
- **Contactless access can reduce spread of disease**. Evaluate options for reducing or eliminating passenger contact with surfaces such as temporarily eliminating fare collection until alternative collection means are established.
- **Monitor employee and public responses**, and adjust program to address issues that may arise.

OTHER CONSIDERATIONS

Organizations that operate in multiple jurisdictions may need to coordinate to achieve a common set of standards or enforce different standards at different locations. Consistent, clear communication is the key to success.

Document successes and failures, and adjust policies and plans accordingly.

Be alert for health advisories and policy recommendation updates on PPE and social distancing recommendations on transit vehicles, which may vary depending on passenger adherence to mask policies; passenger adherence to limit conversations; local infection rates; and bus or train ventilation systems. Keep your customers informed of the changes.

Develop screening and tracking tools for symptoms and support of contact tracing for outbreaks.



Exceptional
Ideas

After implementing robust cleaning protocols, **TriMet in Portland, Oregon**, was able to increase ridership per vehicle and maintain safety. Its mandate went from 10-15 to 19-24 riders per bus and rider spacing from six feet to three feet on light rail.

Vancouver's TransLink tracks the regional infection rate and modifies load targets daily accordingly.

After installing physical separation for the operator, such as plexiglass shields, many agencies are returning to front-door bus boarding and fare collection. Several transit organizations have hand sanitizer and mask dispensers available at stations or on vehicles.

The **COMET, SC**, gave away branded masks as a public service and to make sure passengers are aware of the mask policy. **New York City MTA's** "Operation Respect" campaign encourages compliance through celebrity public service announcements and a volunteer "Mask Force" distributing free masks to bus, subway, and commuter rail riders.



PLAY: Situational Awareness & Reporting

MISSION AREA	MODE	EVENTS
Response	All	Pandemic

“It’s what you know, what you learn, and what you can confirm.”

Shelton Shaw, Utah Transit Authority

OVERVIEW

Situational awareness allows the organization to understand the existing environment in which it works, comprehend the current situation, and project appropriate actions for the future. Although maintaining situational awareness presents a significant challenge during emergencies and crises, it provides an essential common view for the organization to develop and use for decisions up and down the line. Situation reports, passed through pre-established reporting channels, contain verified information and details (who, what, where, when, and how) related to events. Status reports, which may be contained in situation reports, relay specific information about resources.

During a pandemic, disease spread outside your jurisdiction may be informative, preparing you for future situations in your jurisdiction. Likewise, techniques for mitigating spread, such as protective measures for people and sanitation techniques for equipment, if discovered and tested by others, can help your organization get a head start on your response.

UNDERSTAND YOUR ENVIRONMENT

- **Continuously monitor** relevant sources of information to discover emerging issues and understand context that could impact your organization.
- **Prevent information overload.** Find ways to sort credible, verified information from rumors and opinions. Both can be helpful but need to be clearly identified.
- **Establish protocols for data collection, information updates, and reporting** within your organization and those who receive information from you. The scope and type of monitoring varies based on the type of incident, and reporting thresholds.
- **Consider using the Operational Period concept** from the Incident Command System so the rhythm for updated information submitted to you and reports generated by you can be anticipated.

COMPREHEND THE CURRENT SITUATION

- **Monitor logistics and travel** through and into your State, and on your system. Unlike during natural disasters, where the impact is usually to the physical environment, pandemics focus impact on people—staff and customers.
- Although data elements may change, to the extent possible, **use or modify existing information exchange protocols and systems.** Setting up an entirely new system can result in confusion and delays.
- In addition to monitoring your staff and customers served for your operational purposes, you may need to **track information of use to others**, such as the number of vehicles crossing into your state or traffic counts within your jurisdiction. Be alert to opportunities to help your community improve overall situational awareness through tools accessible to you.



PLAY: Situational Awareness & Reporting, cont'd

MISSION AREA

MODE

EVENTS

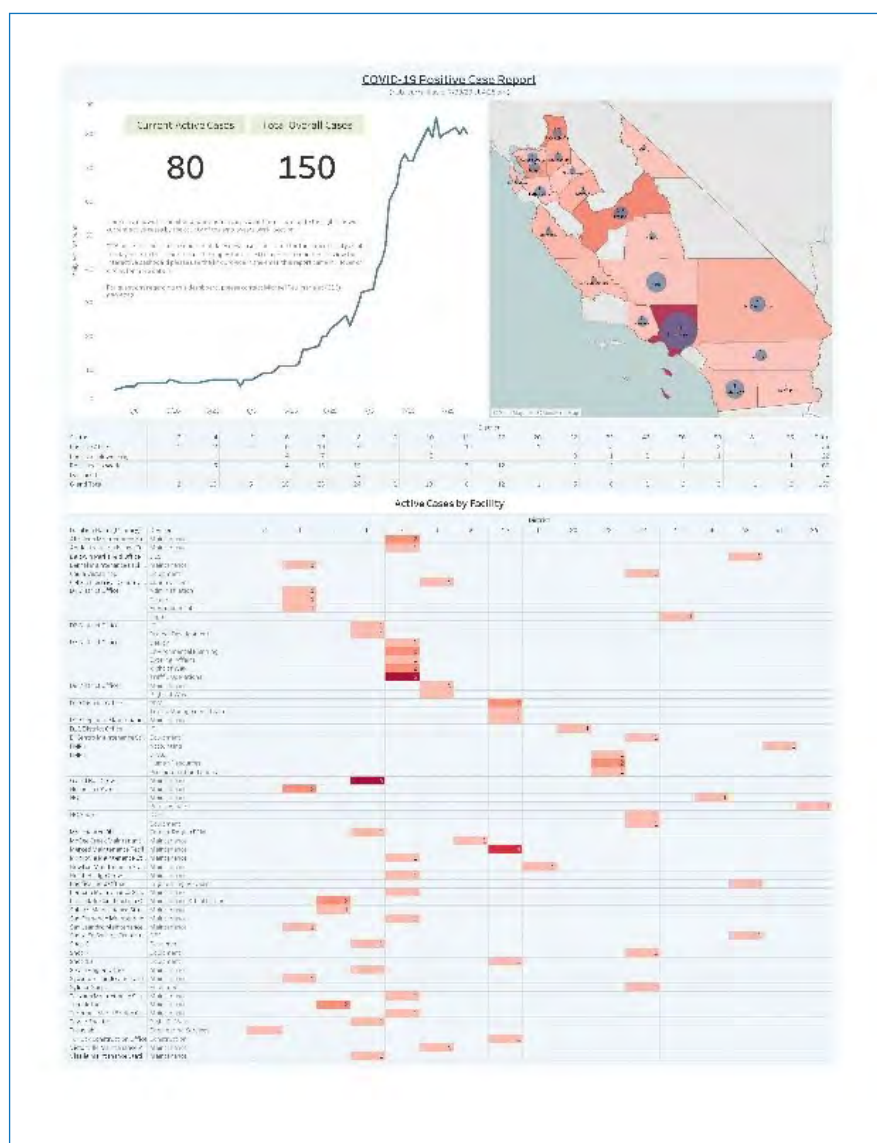
Response

All

Pandemic

CONTINUOUSLY MONITOR AND EVALUATE

- **Track health and availability** of operators and key staff every day, division by division (**Figure 9**).
- **Strategize and consider options** for quick adjustments to routes should illnesses increase among your staff.
- **Watch for emerging issues** in equipment availability due to maintenance issues, lack of spare parts, or other logistics considerations.
- **Recognize that the virus may mutate**, and new approaches may be needed.
- **Undertake serious and periodic risk analysis.**



**FIGURE 9: CALTRANS
EXAMPLE SITUATION
REPORT (PARTIAL)**

*Source: California Department
of Transportation*



PLAY: Situational Awareness & Reporting, cont'd

MISSION AREA	MODE	EVENTS
Response	All	Pandemic

CONSIDER FUTURE OPTIONS

- **Use your community's or organization's disaster experience**, whether from response to storms, cyber-attacks, or exercises to help guide planning for future actions. Recognize the differences and similarities between a pandemic and previous events.
- **Build flexibility into your decisions about the future** so you can course correct as needed.
- **Identify lessons learned** through After-Action Reviews and incorporate recommendations into existing plans and procedures.

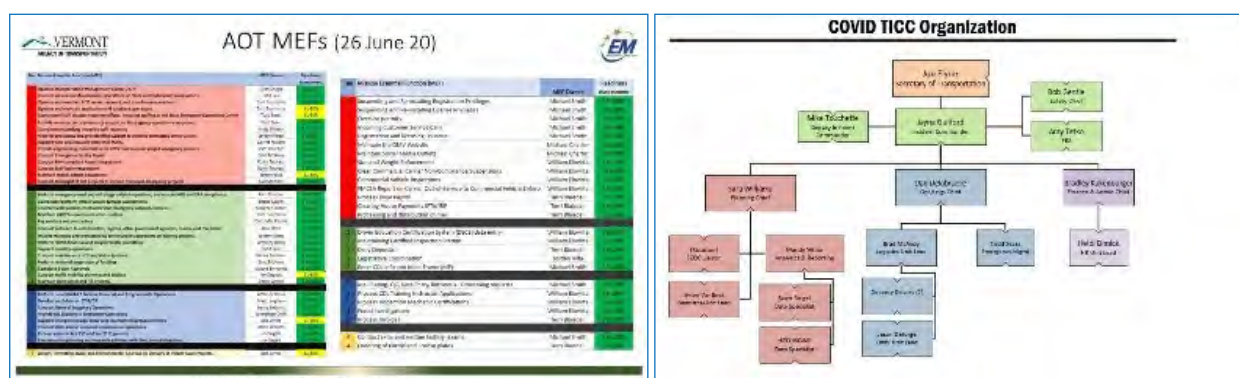


FIGURE 10: VERMONT AOT INCIDENT ACTION PLAN EXCERPTS - MISSION ESSENTIAL FUNCTIONS

Source: Vermont Agency of Transportation



Exceptional Ideas

Vermont AOT used field staff to manually count vehicle crossings at state borders and to assist the Department of Health and the National Guard to set up and resource food distribution, as well as testing sites.

Utah DOT, Vermont AOT, and others created or modified “dashboards” to provide simple visual representations of key data (**Figure 10**).

Caltrans maintains an up-to-date digital warehouse to ensure that “everyone knows what resources we have and who is getting what.”

New York MTA is sending transit workers out across the subway system to report overcrowding in real time — information that they provide to riders on a new data dashboard on the agency's website.



PLAY: Communications

MISSION AREA	MODE	EVENTS
Response	All	Pandemic

“Overcommunication is your best friend – when people are stressed and fearful, they have a hard time absorbing information.” Dana Hendrix, Caltrans

OVERVIEW

Clear, consistent messaging across levels of government and organizations is crucial for agency credibility and for public and employee confidence and compliance. During events, regular communications keep the agencies' partners, press, and public informed and address rumor control. Although messages and directions will change over time as situations evolve, “one voice” is much more effective than “many voices.” Determine who speaks for the department or agency and when. Confirm and clarify roles with the governor, the state emergency manager, and the state health commissioner.

WITH YOUR STAFF

- **Meet in small groups** for two-way communication, such as toolbox talks.
- When employee or public compliance with health directives declines, **renew public health information and education.**
- **Emphasize personal resilience and stress reduction.**
- **Find ways to communicate other than email;** many employees may not have access (e.g., over half MD Transit employees did not have access to agency email.)
- **Use familiar formats for communicating among operational staff,** such as an Incident Action Plan, which helps communicate and refresh priorities.
- **Explore and use collaborative platforms,** such as WebEOC, DLAN, Microsoft Teams, or other technology tools.
- **Make sure you have opportunities and methods** for staff to tell you their concerns and ideas.



Exceptional
Ideas

MD MTA conducts onsite training programs for employees, with an RN coordinating with a union representative at each location with the theme: “Communicable diseases are preventable. We have a stake and you have a stake.” When supervisors notice reduced compliance with protective actions, they go back for another session.

Kaiser Hospitals set up a Zoom Lunchroom – an open Zoom meeting around the lunch hour where people can “drop by” virtually for a chat with coworkers and other colleagues.

KS DOT set up weekly conference calls among district staff and HQ, to help clear up miscommunications instead of waiting until their customary quarterly meetings.

MD MTA uses the Safety Hotline (originally for use by employees and contractors regarding possible safety violations or questions) for staff to get up-to-date information about department policies and plans – it became so popular employees from other departments started calling, too.

PLAY: Communications, cont'd

MISSION AREA	MODE	EVENTS
Response	All	Pandemic

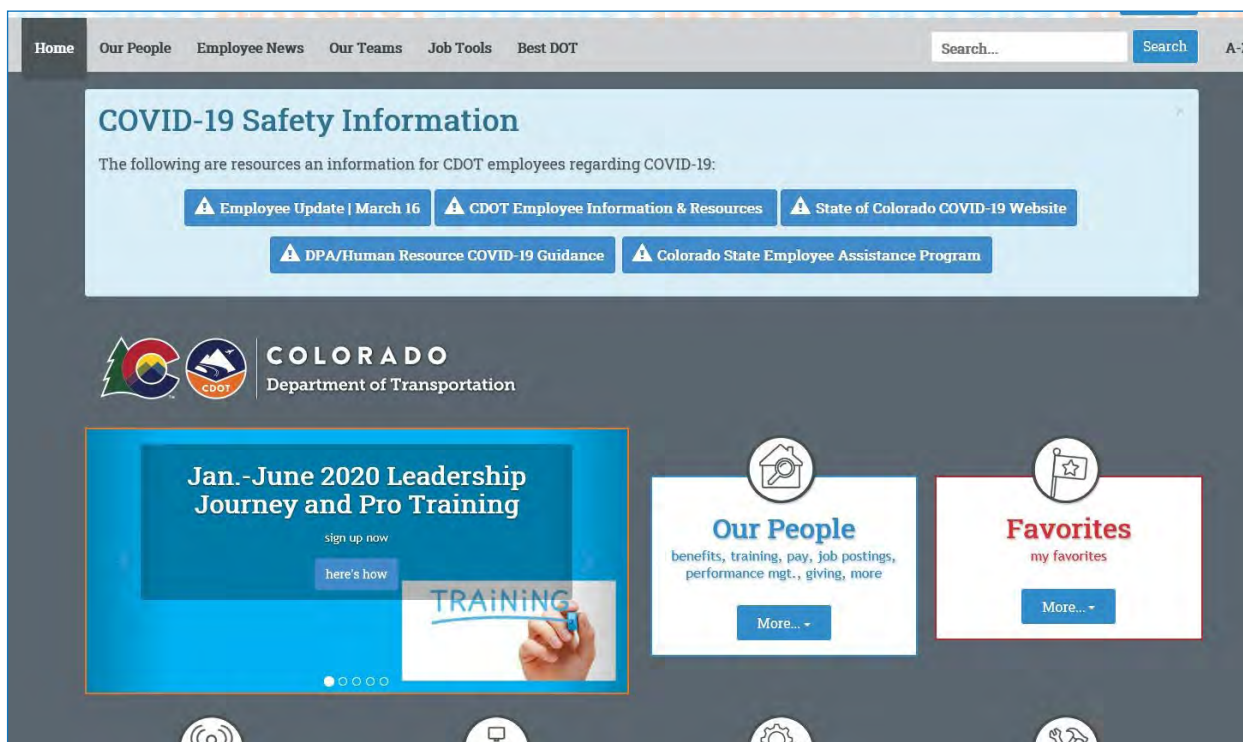


FIGURE 11: CDOT INTRANET WEBPAGE

Source: Colorado Department of Transportation

WITH EXECUTIVE LEADERSHIP

- **Jointly establish routines for ongoing communications** so leaders know what to expect and when.
- **Use key indicators or dashboards to reflect status.** Select elements that are readily available to keep reporting from becoming too burdensome (**Figure 11**).
- **Be ready for impromptu reports** depending on need.



Exceptional
Ideas

***Caltrans Night Missive** that provides an internal brief to executive and senior leadership every evening with latest information.*

***Delaware DOT** distributed a regular internal email from senior leadership that included status and statistics plus uplifting messages and suggestions that support morale and reduce stress such as “spend time with family” and “take a walk.”*



PLAY: Communications, cont'd

MISSION AREA	MODE	EVENTS
Response	All	Pandemic

WITH THE PRESS

- **Maintain relationships with newspaper, radio, and television reporters** who understand the transportation context.
- **Provide regular briefings and press releases** on policies, service changes, and events.

WITH OTHER ORGANIZATIONS

- **Keep current with public health guidance and leadership policies for your area.**
- **Changes in the policies and procedures of others can change your requirements** – for example, opening and closing of schools and other public facilities. Keep communicating with them so you can anticipate your future needs.
- **Stay in touch with your mutual aid organizations**, especially in preparing for additional hazards and sharing resources – communicate both what you have available and what you need.
- **Work with your union(s)** – use this as an opportunity for improved relationships and partnership.

WITH YOUR CUSTOMERS

- **Use all media, including social media and apps** – many people spend a lot of time online (Figure 12).
- **Develop a special web page regarding the pandemic** and highlight not only schedule changes but also public health precautions and expectations of customers.
- **Put visible vests or other markings on cleaning crews** so customers can notice and easily identify them.
- **Understand customers' diverse communications** needs such as those with visual or hearing impairments or both; people with limited English skills; who are distracted (e.g., wearing headphones and focused on electronic devices); who are not familiar with the system or the schedules; with cognitive disabilities; and with mobility issues who may require accessible information about accessible entrances and exits (See Appendix D).
- **Consider that anxiety due to the pandemic** may make people less open to information and changes when preparing communications.
- **Allow public access** to some of your virtual meetings.
- **If you make a mistake, own and clear it up immediately to retain trust.**



FIGURE 12: ROGUE VALLEY TRANSIT AUTHORITY SAFETY POSTER

Source: Rogue Valley Transit District



PLAY: Communications, cont'd

MISSION AREA	MODE	EVENTS
Response	All	Pandemic

STATE DOTs

- **Use variable message signs** for public health messages in compliance with the Manual on Uniform Traffic Control Devices (MUTCD).
- **Notify travelers if there is a mandatory mask order** in your state and of other highway travel restrictions, such as an area closed to traffic as a result of quarantine or other actions.
- **Provide tips for fighting disease spread** in public spaces such as rest areas and where employees gather.
- **Be careful to balance public health with safety messages**, such as regarding fire season.
- **Communicate about service reductions** e.g., trash pickup, rest areas.

TRANSIT ORGANIZATIONS

- **Keep employees and customers informed** on what, how, and why changes are made to your services. Use signage, apps, and social media to keep information flowing.
- **Make sure your service planners and schedulers communicate** with dispatchers, supervisors, communications managers, and other on-the-ground personnel such as operators and customer service staff to ensure that timely, pertinent information is reflected in evolving service adaptations.
- **Notify passengers of bus capacity limits and “next bus” available** if they are passed by. Some organizations modified their apps to show this information.
- **Publish information** about your sanitary procedures and cleanliness to reassure customers.
- **Report information about infected bus operators or public-facing staff** not only to your superiors but also to the public while maintaining compliance with HIPAA requirements (see Exceptional Ideas).
- **Modify your transit app** to include bus, subway car, or light rail car crowding information.
- **Repeat messages frequently** using many different delivery methods.
 - » Display reminders on-board, at bus stops, in stations; include pictograms where feasible to overcome language differences; use public messaging (visual and spoken) for service announcements; employ and publicize service availability apps; make use of electronic bus and train message signs as reminders of safety policies as well as service status.
- **Step up suicide prevention messages.**



Exceptional
Ideas

Oahu Transit issues press statements with bus number, routes, and times for any operators who test positive, so passengers can get tested too.

The **COMET Transit, SC**, uses a QR code on buses for customers to take a survey with feedback on bus conditions.

Utah Transit Authority held a free mask giveaway to communicate with incoming university students.

Louisiana DOTD offers free “branded” masks.

Chicago Transit Authority has an interactive website with crowding information by route by hour.

COMET Transit wrote an OpEd about their decisions regarding limiting routes and enhancing on demand services.



PLAY: Restore Public Confidence

MISSION AREA	MODE	EVENTS
Response/Recovery	All	Pandemic

“Winning riders back is a process, not a one-time action.”

Phil Washington, Los Angeles County Metropolitan Transportation Authority

OVERVIEW

Employees, customers, and the general public may fear returning to the workplace, resuming riding buses or trains, and resuming interactions with co-workers, in restaurants, and other facets of everyday life. Those who are in high-risk health categories, or have family members at high risk, may be particularly concerned. One of most important tasks of transportation organizations, especially transit agencies, will be restoring confidence to employees and the traveling public.

ENSURE THAT TRANSPORTATION SYSTEM LOOKS AND FEELS SAFE

- **Perform high-visibility cleaning**, such as clearly identifying how and when the system will be cleaned and what cleaning agents are being used. Some agencies have cleaning staff wear distinctive vests or uniforms or use scented cleaners to reassure riders.
- **Create a system culture that reinforces safety and compliance** with health recommendations, using a multi-layered approach – policies, education, communication – for employees and the public.
- **Use Ambassador programs** to place agency staff at locations in the system to promote safety recommendations and compliance. Be sure these staff and volunteers are visible and actively work with customers for safety and comfort.

PSYCHOLOGICAL COMFORT IS IMPORTANT

- **Provide accurate information** to customers on arrival times to reduce wait times, especially in subways and other enclosed areas. Riders feel more comfortable above ground than in trains and underground stations, and they want to limit the time spent in contained areas.
- **Report demand and overcrowding in real time** to customers so they can make their own decisions on the safest times to travel.
- **Recommend actions** that the traveling public can take to contribute to their safety such as personal hygiene (e.g., use of hand sanitizers) and PPE (e.g., facial coverings).

INSTITUTE CONCRETE MEASURES AND COMMUNICATE WHAT IS BEING DONE

- **Provide regular reports** to the public on the measures you have taken, any modifications that were made due to updated information, and any changes in the pandemic (See [Appendix D](#)).
- **Create education and communication campaigns** to build confidence among riders, e.g., RTD Denver developed an education and communication campaign called “Let’s Get The Region Moving.”
- **Partner with others in your region** to develop a joint plan to reinforce trust in the transportation system, e.g., Bay Area transit agencies released a joint plan, “Riding Together: Bay Area Healthy Transit Plan,” to bolster trust in their transit systems.



PLAY: Restore Public Confidence, cont'd

MISSION AREA	MODE	EVENTS
Response/Recovery	All	Pandemic



Exceptional Ideas

APTA developed a *Health and Safety Commitments Program* (**Figure 13**) that identified four key areas that transit systems need to address to earn riders' confidence:

- Following public health guidelines from official sources.
- Cleaning and disinfecting transit vehicles frequently and requiring face coverings and other protections.
- Keeping passengers informed and empowered to choose the safest times and routes to ride.
- Putting health first by requiring riders and employees to avoid public transit if they have been exposed to COVID-19 or feel ill.

New York MTA, Boston MBTA, and others have rolled out apps that relay real-time information about how many passengers are on incoming buses and trains, so riders can decide whether to take the next train or wait for another.

New York MTA, the Port Authority of New York and New Jersey, and NJ TRANSIT joined on "Operation Respect," a multi-layered strategy to encourage universal face covering compliance by customers on the region's trains, buses, and commuter rails.

SEPTA established "social distancing coaches"—transit authority managers and administrative employees who have offered to swap their regular duties for giving out masks and promoting social distancing as riders return to SEPTA.



FIGURE 13: APTA HEALTH AND SAFETY COMMITMENT PROGRAM POSTER

Source: American Public Transportation Association



PLAY: Traffic Management

MISSION AREA	MODE	EVENTS
Response	Highway	Pandemic


“Develop a broader view.” PennDOT

OVERVIEW

Pandemics can disrupt community life, involving changes in commuting patterns, closures of schools, stores, and gathering places, and creating new services, such as testing or distribution centers, disrupting traffic management. Traffic monitoring at state borders and enforcement of local quarantines can interrupt normal traffic flow. Commonly used traffic management tools and techniques such as disseminating traffic information, controlling traffic, and managing traffic demand can be effective approaches for pandemics. Recognize that traffic instability may last for a long time.

ADAPT AND IMPROVE TRAFFIC MANAGEMENT

- **Analyze emerging traffic needs and priorities** using traffic management techniques for Planned Special Events as a model, to support pandemic testing or vaccination sites and other high traffic demand locations such as food distribution sites.
- **Use traffic control devices** (cones, barriers, portable static signs) to guide and regulate traffic and enforce social distancing.
- **Incorporate lessons learned** from exercises and experiences with animal disease for state border traffic management.
- **Be prepared to use detours and alternate routes** to enforce local travel restrictions as needed.
- If your community uses policies like permitting outdoor dining, **consider how traffic management, such as closing lanes nearest the sidewalk, can contribute to public health and safety.**
- If your community has initiated alternate uses of traffic lanes for bikes, pedestrians, and/or dedicated bus lanes, **consider impacts of maintaining those changes.**
- **Work with partner organizations** like health departments and school districts to anticipate traffic changes and proactively meet new challenges.
- **Coordinate with border states** for enforcing traffic restrictions.
- **Actively manage your inventory of traffic control devices** to support needs and establish priorities if required.
- **Be prepared to both request and provide mutual aid,** especially if there are additional hazards like a natural disaster or civil action.
- **Document successes and failures** for lessons learned and corrective actions.

	PLAY: Traffic Management, cont'd		
	MISSION AREA	MODE	EVENTS
	Response	Highway	Pandemic



Exceptional
Ideas

Many State and local transportation organizations use signage, traffic barriers, and cones to facilitate traffic flow at COVID testing sites (**Figure 14**).

Florida DOT provided traffic management around virus testing sites and reduced construction projects around hospitals.

Westchester County, NY, used traffic management to isolate a quarantine area in New Rochelle.

Kansas DOT used lessons from agricultural exercises regarding cattle/stock state quarantines to facilitate their preparedness for border screening if needed.

Many DOTs used Dynamic Message Signs to share recommendations on restricting travel to essential purposes.

PennDOT transitioned all its Traffic Management Centers (TMC) to remote operations to ensure that essential traffic management systems continue to function.



FIGURE 14: COVID 19 DRIVE-THROUGH TESTING AT VEHICLE EMISSIONS INSPECTION SITE

Source: Maryland Department of Transportation State Highway Administration



PLAY: Service Operations Adjustments

MISSION AREA	MODE	EVENTS
Response	Highway	Pandemic

“As a public service provider, you don’t restore your service just to restore your service, you try to identify where you can accomplish the most good.”

Carl Sedoryk, CEO of the Monterey-Salinas Transit District

OVERVIEW

During a pandemic, it is critical to continuously monitor and dynamically adjust service and operations in response to both passenger demand and operator/vehicle supply and capacity. Demand can change dramatically: passenger volumes by time of day, definitions and requirements for essential travel, and passenger trip patterns. The ability to provide service can change rapidly related to the availability of operators, vehicle capacity constraints due to social distancing requirements, and impacts of current or anticipated funding shortfalls.

SET GOOD POLICIES

- **Set clear policies** regarding pandemic requirements and consider them in service planning, schedules, and procedures. Your policies should reflect priorities of jurisdictional leadership; if public health and policy decisions are to reduce interactions, your policies should reinforce that guidance.
- **Consider designating several levels of employees as “essential.”** Recognize and acknowledge additional expectations and hardships essential employees face and reward them as possible.
- **Consider waiving fares or move to a cashless system** to avoid contagion through contacts. No longer accepting cash may require an agency to perform a Fare Equity Analysis and take mitigation actions to comply with Title VI of the Federal Civil Rights Act of 1964.
- **Consider adjusting or temporarily waiving requirements** for licensing and medical exams (e.g., for operators or maintenance personnel) if enforcing them presents an undue hardship.
- **Be aware of the potential** for local leaders to establish a “quarantine zone” involving an area with a particularly high infection rate, and be ready to quickly implement your existing standby procedures.

CONTINUOUSLY MONITOR AND ADJUST ROUTES

- **Identify routes** that must be continued “no matter what.” Although overall demand may fall, routes to hospitals and other essential services may experience increased demand.
- **Use schedules** that the riding public is already familiar with, if possible, such as weekend or holiday schedules. Consider closed businesses and changes in destinations that may require route adjustments.
- **Be alert for new opportunities** such as working with local government to establish new bus lanes and priority signal timing to facilitate higher operating speeds. Investigate maintaining some of these changes for the long term.
- If your service coordinates with routes of another jurisdiction, **be sure you adjust routes** considering these interfaces.
- **Monitor traffic and usage**—some systems have been able to maintain equivalent headways with fewer buses due to less congestion and higher operating speeds. Track ridership by time of day, by line, and



PLAY: Service Operations Adjustments, cont'd

MISSION AREA

MODE

EVENTS

Response

Highway

Pandemic

by bus, compared with capacity under social distancing policies. Also track “pass-bys” or passengers not picked up due to exceeded bus capacity.

- **Experiment and innovate**—some organizations have been able to implement floating operator assignments for more nimble scheduling, others have started Mobility as a Service initiatives to use buses in higher density routes while subcontracting with transportation network companies (TNCs such as Uber and Lyft) for low-density or late-night service with accessible paratransit as an on-call backup.
- **Make flexible plans** for mid-term and long-term operational adjustments. You may want to consider dynamic scheduling to rapidly adjust to changes in demand.

COMMUNICATE CHANGES CLEARLY WITH PASSENGERS AND STAFF

- **Keep employees and customers informed** on what, how, and why changes are made to your services. Use signage, apps, and social media for timely notifications (**Figure 15**).
- **Make sure your service planners and schedulers communicate** with dispatchers, supervisors, communications managers, and other on-the-ground personnel such as operators and customer service staff to reflect pertinent information in evolving service adaptations.
- **Notify passengers** of capacity limits and “next bus/train” available if they are passed by. Some organizations modified their apps to show this information. MTA's Long Island Railroad TrainTime app now displays crowding conditions for each rail car.

HOW TO RIDE DURING COVID-19 RESTRICTIONS

- Always wear a face mask covering nose and mouth
- Transit should only be used if necessary
- Once boarded give driver 6 feet space and Exit at rear door
- Maintain distance between you and other passengers
- Driver will not allow new boardings if buses reach passenger limits

THANK YOU FOR HELPING KEEP OUR COMMUNITY SAFE

TRIP PLANNING TOOLS

- Transit
- OneBusAway
- Google Maps

FARES AND PASSES

Transit Passes are valid for two trips within 90 minutes of boarding. Validated from driver at time of fare payment.

Passengers over 60, passengers ages 60-70 on Medicare, or with an eligible disability qualify for reduced fare. See agent at Front Street Station to obtain a reduced fare ID card.

	Single	Day	30-Day	Monthly
Full	\$2	\$5	\$32	\$35
Reduced	\$1	\$3	\$16	\$17

RVTD is subject to inclement weather suspensions under Title 11

CONTACT US

Main Line: (541) 770-BUS (2877)

24-Hour Info: (541) 638-2400

Admin: (541) 775-5321

Valley Lift: (541) 842-2000

TransLink: (541) 842-2000

Carpool Info: (541) 775-5321

Email Us: info@rvtd.org

Go to www.rvtd.org for latest schedules

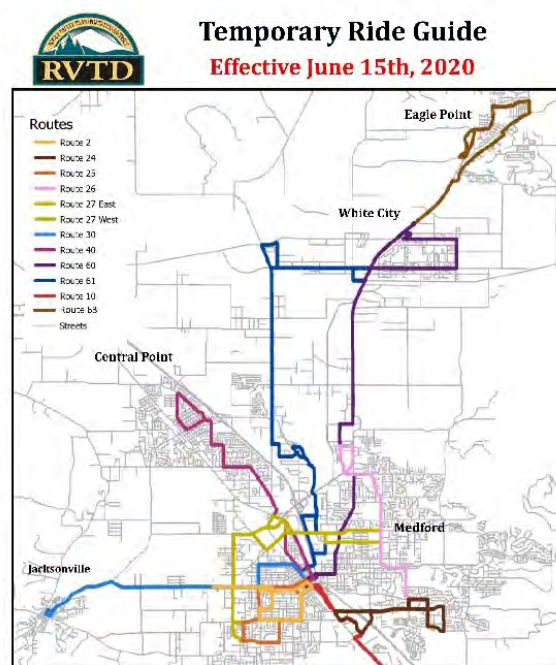


FIGURE 15: ROGUE VALLEY TRANSIT DISTRICT TEMPORARY RIDE GUIDE

Source: American Public Transportation Association



PLAY: Service Operations Adjustments, cont'd

MISSION AREA	MODE	EVENTS
Response	Highway	Pandemic



Exceptional
Ideas

Oahu Transit, HI, uses dynamic scheduling to adjust buses and routes depending on need. Drivers are trained on multiple lines and can be shifted as needed during the day. Passengers follow an app rather than a set schedule.

Rogue Valley Transit, OR, adjusts service based on demand and jurisdiction policies. With many stores closed, they eliminated Saturday service which was mostly for shopping; when stores reopened, Saturday service was resumed.

At **The Comet, SC**, bus operators track passenger numbers and radio to dispatch when they are full, with signs notifying prospective passengers of the status, and when the next bus can be expected. If this occurs regularly, headways are adjusted.

Miami-Dade Transit Authority reduced large buses on selected low-density late night routes and reallocated them to higher density requirements. Agreements with TNCs provided service to routes with passengers within a quarter mile of the corridor, improving service, reducing costs, and providing additional capacity where needed. They reserved on-call paratransit vehicles to be available for people without smart phones and/or people requiring lift-equipped or wheel-chair accessible vehicles.

Flagstaff, AZ, Northern Arizona Intergovernmental Public Transportation Authority (NAIPTA) reframed its mission from "Getting you Where You WANT to Go" to "Getting You Where You NEED to Go" to discourage ridership beyond essential trips at the outset of the pandemic.

Boston MBTA made its schedule more flexible, adding services to accommodate health care workers in early morning hours and in locations where essential workers are riding. They added dedicated bus lanes in Boston and its suburbs on bus routes with the highest rates of ridership – those for essential workers.

Chicago Transit Authority redirected buses to areas with a high concentration of transit-dependent riders, such as low-income neighborhoods.

SEPTA began to offer a new three-day pass to attract office employees who may report to work on a shortened schedule.



PLAY: Evacuations/Shelter-in-Place: Pandemic Impact

MISSION AREA

Response

MODE

All

EVENTS

Concurrent/Pandemic

"We're planning for evacuation buses and mobilizing our people, but from a pandemic perspective, we're also having to take into account screening people and providing PPE."

Dr. Shawn Wilson, secretary of the Louisiana Department of Transportation and Development

OVERVIEW

Certain events, such as hurricanes, wildfires, and major flooding, require people to evacuate their current locations and move to safer ones. Evacuations - moving large populations outside their communities - can spread the risks of infection during a pandemic. Several states have backed off conducting mass evacuations in recent years. Shelter-in-place (or shelter nearby, in the community) may be an alternative to evacuations, depending on the location and event.

CONSIDER IMPACTS OF PANDEMIC ON EVACUATION PROCEDURES

- **Recognize that during a pandemic** sheltering in place may not be possible for some events, and that infected people, many or most unknowing, will be escaping to who knows where.
- **Incorporate the potential** for spread of the pandemic to the equation of assessing risk and cost/benefit of protective actions.
- **Reconsider standard evacuation procedures** (See [Appendix D](#)). For example, during a pandemic it may be advisable to shelter carless populations in place in storm-proof facilities nearby in the community if feasible and safe instead of evacuating them by bus or other vehicles.
- **Consider alternative shelter locations** to facilitate social distancing: family/friends, hotels, and college dormitories (if colleges are not in session), in places outside the hazard zone. Consider associated staffing if applicable.
- **Recognize that social distancing and other protective actions** against a pandemic will increase the transportation requirements. Social distancing and sanitizing requirements will impact how many evacuation buses and drivers are required to carry out an evacuation of carless residents in the available time. Evacuations will typically require more transportation; buses can only safely be partly filled. Communities will likely use non-congregant shelters, such as hotels, meaning more stops for the arriving vehicles.
- **Determine the level and type of screening** for evacuees you transport. If transporting sick or contagious passengers, try to keep them separate from the general population. An urgent, no-notice evacuation due to a wildfire, dam burst or other catastrophe may require crowding for life safety. Collect as much contact information as possible to enable contact tracing after the event if an infectious outbreak occurs.
- **Develop plans** to address critically ill patients, incapable of bus or auto transport.
- **Understand how pandemic restrictions** may impact agreements with other states on evacuations and contra flow. How will out-of-state visitors be viewed? Can they get food/gas/other supplies as they pass through? Will they need to quarantine while in state? Will they be turned back at the state border?



PLAY: Evacuations/Shelter-in-Place: Pandemic Impact, cont'd

MISSION AREA	MODE	EVENTS
Response	All	Concurrent/Pandemic

SHELTERING-IN-PLACE OR IN THE COMMUNITY

- **Identify transportation implications** if the Emergency Management Agency (EMA) is considering recommending shelter-in-place (or shelter nearby, in the community) as an alternative to evacuations, depending on the location and event. Prepare for the possibilities of shorter trips and more dispersed destinations.
- The shelter administrator may require screening tests to anyone entering a shelter; **minimize entries and exits**.
- **Ensure that people feel comfortable** that the risk of the pandemic at mass shelter locations is lower than the risk of loss of life by staying home during the event. You must present a unified message that people's health and safety is the primary consideration – safety from the event and safety from infection.

RECOVERY AND REENTRY

- **Local governments make the decision** on who can come back to the community and how. In the case of pandemic, the public health organization will be closely involved in that decision. The DOT may be called upon to support local directives.



Exceptional
Ideas

Florida Department of Transportation (FDOT) increased their cadre of “road rangers” who are prepared to help those who are stranded in an evacuation and included social distancing precautions in the training program.

Louisiana made special plans for bus loading for evacuations to keep families together while maintaining social distancing from other, non-related individuals.



PLAY: Financial Management

MISSION AREA

Recovery

MODE

All

EVENTS

Pandemic

“With limited resources, an agency needs to think differently, more creatively.”

Laura Mester, Michigan DOT

OVERVIEW

Pandemics can have broad-ranging impacts on the financial aspects of an agency – ranging from the tracking and documentation necessary for reimbursement of emergency responses, immediate loss of agency revenue (tolls, fares, sales tax, and related revenues) as travel shuts down to the long-term impacts of potentially reduced federal/state/local funding and business demand as the economy settles into an altered state.

RECOGNIZE IMPACTS ON REVENUE

- **Your organization may lose income** from shortfalls in tax revenue, executive decisions to redirect funds, fewer paying customers, or other shortages.
- Eliminating fares may be a wise public health strategy but review this decision periodically. **Consider implementing contactless fare systems.**
- Distinguish between short-term and longer lasting reductions. **Keep projections up to date** and clarify between actuals and projections.
- Identify availability of financial assistance from other government levels. **Explore and take advantage of all opportunities** to supplement your funds or receive in-kind donations.
- **Prioritize your organizational costs and project outlays.** If possible, delay some projects and transfer funding to operations.

MANAGE EXPENDITURES

- **Set up accounting/functions codes** to track pandemic-related resources, expended time, and expenses. Some may be reimbursable.
- **Review your priorities and cut where possible.** Provide options to executive leadership with cost/benefit analysis.
- **Be prepared for some expenses to increase**, such as those for sanitation and cleaning and initial costs of establishing employees to work at home. Agencies found that some expenses may decrease.
- **Review current project and vendor contracts** to determine if they can be terminated or accelerated if necessary, without significant penalty.
- **Consider options to furloughing employees** (e.g., partial across-the-board furloughs), after making careful analysis of short- and long- term implications, and/or consider reassigning staff to a capital program (staff costs are capitalized), and/or consider assigning staff to other agencies with surge requirements, such as contact tracing or processing unemployment claims.



PLAY: Financial Management, cont'd

MISSION AREA

MODE

EVENTS

Recovery

All

Pandemic

Incident Action Plan – AOT COVID19		
Operational Period: 6/27 0800 – 7/2 1600		
Submitted By: Jayna Guilford, Incident Commander		
Objective 2	Expenditure Tracking <ul style="list-style-type: none"> QA/QC all COVID-19 DWRs through current pay period Refresh list of employees from DHR into Staff Availability App Continue making transfers of COVID 19 costs to the FEMA fund (on-going through end of June) 	Weekly, 1 st Tuesday of every pay period Every two weeks, Beginning of new pay period Daily
Objective 2	COVID Compliance Monitor @ BCP and Dill	Weekly, Tues/Thurs
Objective 3	Publish Governor's dashboard & render PDF of current week dashboard	Weekly, Wednesday

FIGURE 16: VERMONT AOT INCIDENT ACTION PLAN EXCERPT: OBJECTIVE 2- EXPENDITURE TRACKING

Source: Vermont Agency of Transportation

LOOK FOR OPPORTUNITIES

- **Manage contracts proactively** – expedite ready-to-complete projects at reduced time/cost and stop projects that can be delayed conserving available budget if necessary.
- **Access funds that may become available** in special legislation focused on “shovel ready projects.” Make sure you have a list available so you can respond quickly to opportunities.



Exceptional
Ideas

The **Vermont AOT and others** established accounting function codes (for time, expenses, resources) for the pandemic early on, avoiding backtracking and recoding later (**Figure 16**).

Utah DOT “doubled down on construction” to take advantage of reduced traffic on highways.

Maryland DOT completed the most complex rebuild of the heavily trafficked Chesapeake Bay Bridge Project one year early due to expedited construction during reduced traffic resulting from the pandemic.

Charlevoix County Transit maintained fare revenue by using community contracts, such as with the Association of Aging, and the school district – to provide contracted fare payment for affiliated riders.

Multiple highway agencies are using online and e-payment for tolls and Department of Motor Vehicle processes. Many transit agencies adopted e-payment apps and other cashless payment systems.

Officials in a few cities are turning to voters to raise money to prevent transit cutbacks; e.g., a Cincinnati sales tax increase was approved by voters, and a Seattle sales tax increase is on the November ballot.

Metropolitan Transportation Authority, New York lawmakers decided in 2019 to roll out a fee for automobile drivers entering Manhattan's business core; San Francisco and Los Angeles are considering similar ideas.



PLAY: Emergency Support Function 1 (ESF-1) and Community Support

MISSION AREA	MODE	EVENTS
Response/Recovery	All	Pandemic

"It's important work that transit agencies are doing right now, even if it looks different than what we normally see."

Ann Rejewski with the Colorado Association of Transit Agencies

OVERVIEW

Transportation's role in the National Response Framework requires state DOTs and transit organizations, among others, to support the community with resources and services. This support can take a different shape during a pandemic than most disasters. For example, during COVID-19, transportation has been called upon to support state, regional, and local partners in both traditional and novel spheres of influence.

FACILITATE LOGISTICS AND THE TRANSPORTATION INDUSTRY

- **Identify key supply chain transportation routes** and ensure that at least some essential interstate rest areas remain open to support truck movements.
- **Explore options** to provide needed services at rest areas, especially if local authorities close restaurants and other food service options. Some DOTs licensed food trucks to work out of the rest areas during COVID-19.
- **It may be necessary** for states to temporarily suspend weight and load restrictions, or Commercial Drivers Licence renewals due to the pandemic. The Federal Motor Carrier Safety Administration of USDOT can also selectively enforce hours of service limitations for motor carriers providing direct assistance to emergency relief efforts in a certain geographic area during certain dates.

SUPPORT THE COMMUNITY

- **Some states directly support logistics**, moving essential supplies and medicines in DOT vehicles and airplanes.
- **Use fixed and deployable messaging systems** to display public health messages consistent with MUTCD requirements or with waivers.
- **Use transportation facilities** as staging areas for testing or providing vaccinations or other medical countermeasures.
- **Transit agencies and DOTs can deliver food, medicine, and PPE** to organizations and individuals in need.
- **Support other agencies** by providing surge staff to help when possible. Agencies during COVID-19 assisted with unemployment claims, conducted passenger screening for cruise ships and airports, and conducted contact tracing.
- **Temporarily deploy employees to support other agencies.** This works best when you analyze impacts on mission-essential functions, seek volunteers who are qualified, ensure staff is trained and equipped for safe performance, and ensure staff understand their responsibilities and resources. This is especially beneficial if your staff might otherwise be furloughed.
- **Provide support** for other organizations, and investigate programs, regulations, or exemptions that may enable state or federal reimbursement for exceptional activities.



PLAY: Emergency Support Function 1 (ESF-1) and Community Support, cont'd

MISSION AREA	MODE	EVENTS
Response/Recovery	All	Pandemic



Exceptional Ideas

The Governor of Florida tasked **Florida DOT** with screening visitors coming into the state, first at seaports and airports, then arriving by road from adjoining states at one phase of the pandemic. They transitioned truck inspection waypoints into screening areas for passenger cars, and waved all trucks through. Florida DOT also coordinated with other state agencies to provide staff.

At the request of the Salt Lake County Health Department, the **Utah Transit Authority** allocated a paratransit vehicle to be used specifically for transportation of COVID-19 positive citizens to healthcare facilities and quarantine facilities.

Westchester County, NY, contracted with a private operator to supplement bus service for essential employees, especially to and from hospitals.

Charlevoix Transit, MI, helped the Area Agency on Aging to deliver free hot meals, which the agency reimburses at the senior fare rate. They also partnered with other feeding operations and through these partnerships have delivered more than 8,000 meals in a rural area. They worked with local pharmacies and hardware stores to respond to critical needs. The Federal Transit Administration supported such actions and implemented a funding waiver.

The **COMET, SC**, worked with seniors' programs in two counties, including Meals on Wheels, to provide delivery services. They maintained their existing partnerships with TNCs to make sure passengers were able to take essential trips safely.

Kansas DOT used their trucks and vans to transport food around the state. They also partnered with state police to deliver anti-viral medicine to remote areas using department airplanes. They donated most of their stockpile of N95 masks to hospitals early in the pandemic, replenishing as supplies became available.

Westchester County, NY, used Access-a-Ride vehicles for food distribution to school districts and childcare programs.

Colorado DOT transported healthcare resources from the Strategic National Stockpile using their equipment and contractors. They also donated some of their PPE stockpile to healthcare facilities in rural areas.

Vermont AOT transported 90% of the PPE arriving in the state and partnered with the National Guard for food and commodity distribution. They provided staff to help the Department of Labor process unemployment claims.

Louisiana DOTD helped hospitals move resources during surge operations.

Utah DOT helped public health officials with contact tracing and assisted in procuring PPE.

Monterey-Salinas Transit (MST) parked its Wi-Fi-enabled commuter buses in rural areas to provide hot spots for farm workers and rural residents.

MST provided two buses to be converted into mobile COVID-19 testing facilities, to get testing capability out to the workers in the fields to support the agricultural industry. It offered additional support by arranging for 7,500 masks received from the federal government to be distributed to families in farmworker communities.



PLAY: Agency Stabilization

MISSION AREA	MODE	EVENTS
Recovery	All	Pandemic

“Normal functions wouldn’t return until a tested vaccine is available for everyone, the Stabilization Plan is a ‘working document’ that will change.”

Pauletta Tonilas, Agency spokeswoman, Denver Regional Transportation District (RTD)

OVERVIEW

Because pandemics can last for months or longer, an initial agency emergency response cannot be sustained long-term. Developing a Stabilization approach, strategy and plan that addresses when and how an agency can return to more stabilized operations, can allow the organization to fulfill its mission over the longer term during a pandemic.

ESTABLISH A RECONSTITUTION OR STABILIZATION PLAN

- **Review your essential functions and priorities** for the longer term. Note needed functions, personnel and facilities. Being careful to ensure flexibility, begin to scope out the longer term impacts.
- **Review your component organizations and parts**, to assess capabilities and limitations that could impact stabilization. Consider units of effort, such as shed-by-shed or office-by-office.
- **Address differences** in functional needs, such as operations vs. administration.
- Recognize that stabilization may require **changes of habits** and modifications of normal operations.

USE A PHASED APPROACH TO PROVIDE FLEXIBILITY

- **Identify and define phases** to be used to roll out the stabilization. A phased approach allows an agency to “test” the safety and effectiveness of the approach and modify as necessary.
- **Consider using state or federal guidelines** to establish phases, if possible.
- **Determine the “trigger points” and decision criteria for each phase.** Consider the measures and data to determine when it is safe to move from one phase to the next. Think of how you will assess safety and effectiveness.

ENSURE CONFIDENCE OF STAFF IN SAFETY OF APPROACH

- **Provide accurate information** to employees about what is being planned, the specific approaches and measures being taken, and their role.
- **Clarify expectations** and responsibilities of employees.
- **Provide regular reports** to employees on results and modifications to be made due to updated information and any changes in the pandemic.



PLAY: Agency Stabilization, cont'd

MISSION AREA

MODE

EVENTS

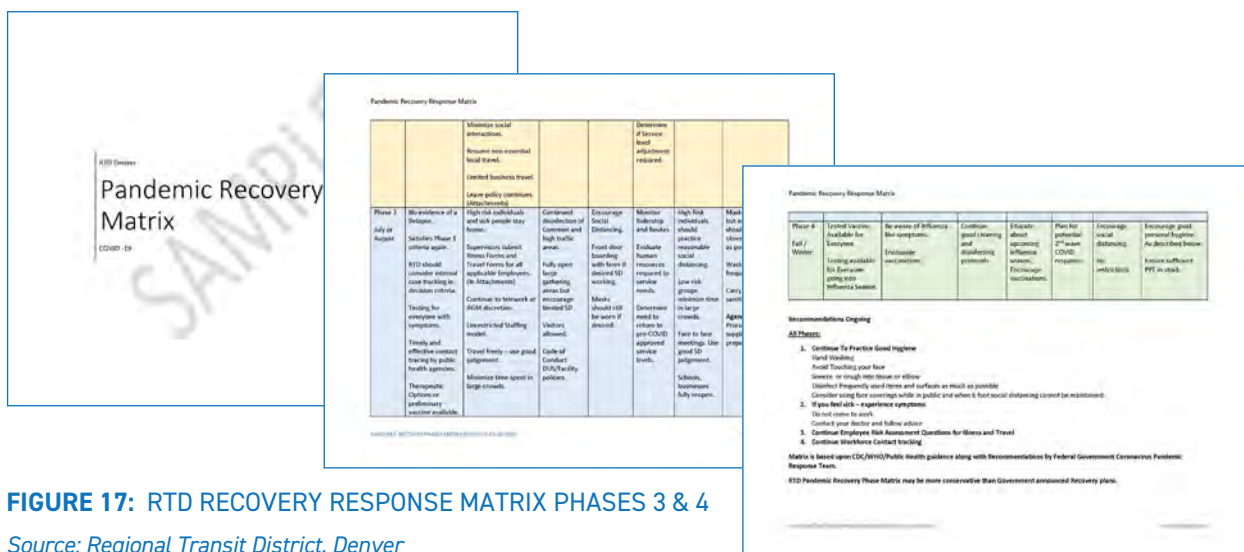
Recovery

All

Pandemic

MONITOR, ASSESS AND DOCUMENT LESSONS LEARNED

- **Monitor** whether strategies and actions are fully implemented as intended and analyze data on how effective those strategies/actions are.
- **Consider using a safety assurance program** with indicators to assess safety. Include performance measures to track staff pandemic cases and audits to monitor compliance with the policies and procedures.
- **Continually review data and information** and be prepared to modify your approach.
- **Document results and lessons learned** and modify plans accordingly.



Exceptional
Ideas

Utah DOT created a “return to office” or stabilization plan based on the color-coded phases (orange, yellow, green) in the Utah Governor guidelines. The “Return-to-office” policies were established on a shed-by-shed, office-by-office basis. A continual monitoring of COVID-19 cases was done to support the approach.

Denver RTD developed a Recovery Plan (**Figure 17**) to reinstate service that uses a phased approach. If certain milestones are met, like a sustained decrease in the number of COVID-19 cases, an increase in the availability of tests and effective contact tracing by public health agencies, RTD will reinstate reduced or eliminated services. The Plan is a “working document” that will change.

ALL

PLAY: Concurrent Emergencies with Pandemics

MISSION AREA

All

MODE

All

EVENTS

Pandemic, Plus Hurricane, Wildfire, Flooding, Other Disasters

"It's really a juggling act and you're juggling some very fragile crystal balls."

Dr. Shawn Wilson, secretary of the Louisiana Department of Transportation and Development

OVERVIEW

The long-lasting nature of pandemics means one or more other major emergency events may also occur. Interconnected events are not simply additive- they create complications and stressors greater than the sum of the parts.

CONSIDER IMPACTS AND INFLUENCES OF MULTIPLE SIMULTANEOUS EVENTS

- **Conduct tabletop exercises of your potential major events** - hurricanes, civic protests, wildfires - with the overlay of a pandemic. What changes and what does not change?
- **Find creative ways** to get additional bench strength for your staff. Consider using volunteers and/or retirees for certain tasks. Work with FEMA and local organizations to strengthen community volunteer resources with training on how to safely help while socially distancing.
- **Consider the emergency needs** of remote working staff and encourage them to make viable family emergency plans that include evacuation.
- During operations, **ensure that public and employee safety remain priorities**, along with other operational needs.
- **Review common protocols** for response, damage assessment, and recovery to find safe and healthy ways to perform essential functions in a pandemic environment.
- **Make sure to update your support contracts** to require adherence to health directives and that your contractors for debris management and reconstruction are available to support recovery efforts while adhering to safety guidelines.
- **Review your supply chain** for traditional, emergency, and pandemic-related supplies. Make sure you have adequate stock and backup suppliers for critical items.
- **Help staff and systems develop flexibility:** normalize change. With participant engagement, help build capacities for self-organization. Such capacities will pay off both during complex emergencies and in "normal" times.
- **Make sure you have a system for establishing priorities.** Document them and communicate them throughout your organization. There may come times when not all priorities can be met initially. People generally are more understanding if they know all the facts.
- **Evacuations typically require more transportation** because, with a pandemic, buses can only safely be partly filled. Communities will likely use non-congregant shelters, such as hotels, and arriving vehicles will require more stops.
- **Determine the level and type** of screening for evacuees you transport. If you must transport sick or contagious passengers, try to keep them separate from the general population.
- **Be aware of social justice and equity concerns.** Establish enhanced partnerships as needed.

ALL

PLAY: Concurrent Emergencies with Pandemics, cont'd

MISSION AREA

MODE

EVENTS

All

All

Pandemic, Plus Hurricane, Wildfire, Flooding, Other Disasters

- **Consider increasing use of technology** to limit human exposure. For example, for damage assessment, use unmanned aerial vehicles (UAVs, also known as drones), videos, LIDAR, Google Street View and 360 Imaging and geo-spatial imagery rather than on-site teams of individuals.
- **The recovery phase(s) in a multiple/concurrent disaster scenario** is different because the crises will not end concurrently. Especially with stringent health directives still in place, supporting people through this phase will be more challenging because they will want to “get back to normal,” even though a crisis may still be taking place.
- **Coordinate fleet movements** (such as power and communications restoration crews) for response and recovery with the fleets and other DOTs (e.g., via the non-profit All Hazards Consortium) to ensure consistent guidelines and safe and expeditious transit across state borders.

Exceptional
Ideas

Utah Department of Transportation responded to an earthquake in March 2020 as the pandemic was starting, prompting them from the beginning to prepare for multiple disasters simultaneously.

FDOT conducted tabletop exercises for hurricane planning for each district, working through their specific requirements and resource needs. They coordinated with their emergency response vendors to understand how their supplies have been impacted, and shared PPE with staff, vendors, and industry partners.

NY learned from Hurricane Sandy to require backup generators at critical facilities, such as gas stations.

Vermont AOT expanded their emergency management cadre so some could concentrate on the pandemic while others prepared for hurricanes and other disasters.

Part 4

Chapter 6: Conclusions

DOTs and transit agencies have learned, responded, and innovated throughout the COVID-19 pandemic. One emergency manager likened the experience to “in-flight missile repair”; another to “an intense training exercise, with one improbable inject after another—only this exercise doesn’t stop—it keeps going on and on and on.”

- **A pandemic, by definition, is a novel, global event.** Expect the unexpected. Pandemic expectations and reality often differ. Flexibility is critical. Remember that viruses mutate, and situations can change rapidly just as hurricanes quickly change direction and wildfires skip communities because of a change in a gust.
- **Lessons learned can come from all types of events.** A cyber ransomware incident provided lessons for telework. Agency efforts with the homeless can inform social aspects of response to a pandemic.
- **Pandemics affect people, not infrastructure, and they do not affect everyone equally.** In transportation, as in many other occupations, many employees can continue working remotely for extended periods of time while others in public-facing jobs are exposed to risk daily. Agencies must consider social equity and environmental justice in policy responses to pandemics.
- **A pandemic is a long-term stressor** that will likely require vigilance and countermeasures for months or years to come. This is not a sprint, but a marathon and could be an ultra-marathon.

Together, we can help our agencies, our employees, and the public weather a pandemic and adapt to the longer term impacts by becoming stronger, more resilient, more compassionate, and more aware of our human fragility and common humanity.

Silver Linings

Pandemics, just as other events, bring the good along with the bad. Agencies can discover “silver linings” as they struggle to respond and recover. Transportation agency responses to COVID-19 have created some significant benefits to agencies, their employees, and the community. Notable examples from response to COVID-19 include:

FOR EMPLOYEES

- A leap forward in widespread adaptation and acceptance of remote work technology. This led to increased productivity and improved employee work/life balance for many employees due to reduced or eliminated commuting time. In addition, this change creates greater resilience to future events.
- A new definition, understanding, and appreciation for “essential workers.” COVID-19 has defined them as health workers, bus and train operators, truck drivers, postal service employees and delivery personnel, grocery store and pharmacy personnel, food processing workers, and manufacturers.

Transportation is a crucial, common thread for all these essential workers.

- Better relationships within and outside of the organization. As the head of MST put it, “This has forced us to not just talk about problems, but to get to know each other as people and develop a relationship — that’s helped out a lot.”

FOR THE AGENCY

- Reduced peak hour and overall traffic volumes enabled some highway construction and reconstruction projects to advance faster than scheduled with additional available work hours.
- Sped up implementation of planned equipment and technology such as protective barriers for operators and contactless credit card payment systems.
- Changed how the community perceives transportation agencies. “They see us ... not as a stodgy, bureaucratic entitlement program but as a solution that they need,” according to the CEO of MST.

FOR THE COMMUNITY

- Reduced peak congestion has given a boost to the complete streets movement, enabling some cities and towns to “reclaim” traffic lanes for bicycle, pedestrian, or exclusive bus lane use; some of these temporary adjustments may become permanent.
- New appreciation for local suppliers of essential materials with an understanding of ways to strengthen weak links in the supply chain and how transportation agencies can support them.

Moving Forward

Although the COVID-19 pandemic has exposed weaknesses in our systems of response and recovery, it highlights the importance of transportation as an essential service.

Because of COVID-19, our lives have changed. Because we are living in an age of viruses, the risk of another pandemic after COVID-19 is likely. Therefore, a renewed focus on transportation resilience is essential. Pandemic resilience requires that, at a minimum, agencies:

- Maintain a hygienic system
- Promote and communicate new health/safety norms
- Protect workers and the public
- Mitigate passenger and traffic congestion with dynamic vehicle management and real-time status information
- Make space for social distancing

As a Jacksonville local transportation agency summarized it, “The pandemic has given us the opportunity to pause and reflect on what we currently provide in terms of our services, and we are using it frankly as the momentum to be the transportation network of the future.”

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Agency Stabilization p.49

“Normal functions wouldn’t return until a tested vaccine is available for everyone, the Stabilization Plan is a ‘working document’ that will change”. Pauletta Tonilas, Agency spokeswoman, Denver Regional Transportation District (RTD). After Coronavirus Slashed Ridership, Colorado’s Transit Agencies Prep For A Long Trip Back, Nathaniel Minor, CPR News, April 30, 2020

Utah DOT – based on interview with agency by research team.

Denver RTD - After Coronavirus Slashed Ridership, Colorado’s Transit Agencies Prep For A Long Trip Back, Nathaniel Minor, CPR News, April 30, 2020

Concurrent Emergencies with Pandemics p.51

“It’s really a juggling act and you’re juggling some very fragile crystal balls,” Dr. Shawn Wilson, secretary of the Louisiana Department of Transportation and Development

Utah DOT – based on interview with agency by research team.

Vermont AOT – based on interview with agency by research team.

Conclusions p.53

“in-flight missile repair” – Interview with CDOT agency by research team.

“an intense training exercise...” – Interview with transportation agency by research team.

Silver Lining p.53

“As the head of MST put it...” - Rural California Transit Agency Reinvents Itself During COVID, Governing Magazine, <https://www.governing.com/now/Rural-California-Transit-Agency-Reinvents-Itself-During-COVID.html>

“They see us ... Rural California Transit Agency Reinvents Itself During COVID, Governing Magazine, <https://www.governing.com/now/Rural-California-Transit-Agency-Reinvents-Itself-During-COVID.html>

Moving forward p.54

“Pandemic resilience requires...” Based on Transportation During Coronavirus in NYC, NYU: Wagner Rudin Center for Transportation, and Sam Schwartz Transportation Consultants, July 2020

“As a Jacksonville local transportation agency...” Covid Flight From Transit Forces Shift to Riders Without Choices, Courtney Rozen, Bloomberg Government, August 17, 2020

Appendices

Appendix A: Emergency Support Functions

Part of the National Response Framework, the Emergency Support Functions (ESFs) provide the structure for coordinating interagency support for response to an incident. They are a functional grouping that is used by the national and state governments. While transportation is the lead for ESF-1, it also supports the other ESFs and they also support transportation.

The following provides an overview of all of the ESFs and the role of transportation in each.

Emergency Support Functions (ESF)	Overview	Transportation Role
1	Transportation. Assist in management of transportation systems and infrastructure.	Monitor and report damage and interruptions, identify alternative transportation solutions and coordinate prevention, preparedness, response, recovery, and mitigation activities among transportation stakeholders.
2	Communications. Supports the restoration of communications infrastructure, coordinates support for response and facilitates information delivery to decision makers.	Coordinate, especially regarding priorities for restoring services.
3	Public Works and Engineering. Coordinates impact assessments for infrastructure, contracts for lifesaving and sustaining services, technical engineering assistance and emergency repairs of damaged public infrastructure.	Coordinate about transportation infrastructure.
4	Firefighting. Detect and suppress wildland, rural and urban fires requiring coordinated inter-jurisdictional response.	Coordinate, particularly about route closures, alternate routes, and evacuations.
5	Information and Planning. Collects, analyzes, and disseminates information about potential or actual incidents and conducts planning to facilitate assistance.	Contribute information about transportation systems and participate in plan development to assure transportation priorities are considered.
6	Mass Care, Temporary Housing & Human Services. Provides life-sustaining resources and essential services for the needs to disaster survivors.	Coordinate, particularly about evacuations and sheltering.
7	Logistics. Coordinates timely delivery of supplies, equipment, services, and facilities.	Coordinate about route planning and provide resources as available for transportation of key materials.
8	Public Health and Medical Services. Assists in events that may lead to a public health, medical, behavioral, or human service emergency.	Coordinate regarding transportation requirements for essential workers, locations of services such as testing centers or points of distribution for medicine or vaccine.

Emergency Support Functions (ESF)	Overview	Transportation Role
9	Search and Rescue. Provides teams and resources for locating and rescuing disaster survivors.	Coordinate about infrastructure collapses and support transportation needs of teams.
10	Oil and Hazardous Materials. Support response regarding potential discharge or release of hazardous substances.	Coordinate if spill involves transportation infrastructure.
11	Agriculture and Natural Resources. Protects agriculture and natural and cultural resources during emergencies.	Coordinate about protecting these resources during transportation disruptions.
12	Energy. Coordinates capabilities, services, technical assistance, and expertise regarding all the phases of energy production and use.	Coordinate, especially about restoring damaged infrastructure.
13	Public Safety and Security. Coordinates law enforcement response.	Coordinate regarding use of transportation for movements. Cooperate on crimes involving transportation.
14	Cross-sector Business & Infrastructure. Stabilization of key supply chains and lifelines among business and government.	Coordinate about transportation systems.
15	External Affairs. Provide accurate, coordinated, timely and accessible information to affected audiences.	Coordinate about transportation information and audiences.

Appendix B: ICS Incident Action Plan

An Incident Action Plan (IAP) is an oral or written plan that identifies general objectives that are part of the overall strategy for managing response activities according to the National Incident Management System – A Workbook for State Department of Transportation Frontline Workers (FHWA, 2009). The purpose of the IAP is to provide all incident supervisory personnel with direction for actions to be put into action during the operational period identified in the plan.

All Incident Action Plans must have four elements:

- Objectives (FORM ICS 202) - What do we want to do? What are the objectives to be accomplished?
- Organizational Assignments (FORM ICS 203) - Who is responsible for doing what?
- Communications (FORM ICS 205) - How do we communicate with each other?
- Medical Plan (FORM ICS 206) - What is the procedure if someone is injured?

Other elements may include:

- Health and Safety Plan - Specifies safety procedures and messages, a health and safety analysis for hazardous on-scene tasks or tactical operations, personnel training requirements, medical monitoring requirements, site control measures, and an air monitoring plan as appropriate.
- Traffic Management Plan - Describes procedures to direct and control the flow of traffic; determines the placement of barricades, warning lights, or signs for the duration of the highway incident impeding normal traffic flow.

The following table provides the key activities for developing an Incident Action Plan.

Phase	Activity
Understand the Situation	<p>Gather, record, analyze, and display situation and resource information (i.e., conduct incident briefing) - determine what happened, responding agencies and roles, and threats or risks to responders</p> <p>Obtain a clear picture of incident scale, complexity, and potential impact</p> <p>Ensure ability to accurately determine resources required to develop and implement an effective IAP</p>
Establish Incident Objectives and Strategy	<p>Formulate and prioritize incident objectives</p> <p>Identify, analyze, and evaluate reasonable alternative strategies (i.e., "what" has to be done) that will accomplish overall incident objectives and conform to the legal obligations and practice of all affected agencies</p>

Phase	Activity
Develop the Plan	<p>Determine tactical direction (i.e., how, where, and when) and the specific resource, reserves, and support requirements for implementing selected strategies for one operational period</p> <p>Select operational period—shorter for escalating and complex incidents and longer for less complex incidents</p> <p>Identify resource needs and availability</p> <p>Configure ICS organizational structure to execute tactics, and determine work assignments and resource requirements specific to ICS (Operations Section) organizational elements</p> <p>Determine need to develop IAP attachments (e.g., Communications Plan, Medical Plan, Health and Safety Plan, Traffic Management Plan)</p> <p>Transportation specific activities that emphasize that transportation must be involved in the development of the plan</p>
Prepare and Disseminate the Plan	<p>Format IAP in accordance with the level of complexity of the incident—well-prepared outline for oral briefing or written plan</p> <p>Obtain IAP attachments and review for completeness and approval</p> <p>Ensure the IAP is up-to-date and complete in relation to the incident situation</p> <p>Reproduce IAP and distribute before the start of the next operational period</p>
Evaluate and Revise the Plan	<p>Compare planned progress with actual progress on a regular basis and identify deviations—changes in resource availability, mission failure or unexpected success, and new safety/cost/political/environmental considerations</p> <p>Input new information and situation changes into the first step of the planning process as necessary to modify the IAP for the current or subsequent operational period</p>

Source: *Simplified Guide to the Incident Command System for Transportation Professionals, FHWA 2006*

Appendix C: Pandemic Playbook Interviewee List

The following table provides a summary of the agencies and interviewees that were interviewed in the development of the Pandemic Playbook.

Organization	People Interviewed
California Department of Transportation (Caltrans)	Maintenance Division Liaison Chief, Office of Emergency Management Homeland Security Liaison
Charlevoix County Transit, Boyne City, MI	Director
Colorado Department of Transportation	Office of Emergency Management, Plans Section Chief
Florida Department of Transportation	Chief Engineer Emergency Coordination Officer
Kansas Department of Transportation	Operations Manager Assistant to the Director of Operations
Louisiana Department of Transportation and Development	Secretary of Transportation
Maryland Department of Transportation Maryland Transit Administration	Chief Safety Officer Deputy Safety Officer for Emergency Management SMS Manager Senior Director, Operations Compliance
Oahu Transit Services, Inc., HI	President & General Manager Deputy General Manager
Rogue Valley Transit, Medford OR	Operations Manager Planning and Strategic Programs Manager
Central Midlands Regional Transit Authority (The COMET), Colombia, SC	Executive Director Marketing and Public Information Manager Planning and Development Specialist Customer Experience and Contract Compliance Manager
Utah Department of Transportation	Emergency Manager Risk Manager
Utah Transit Authority	Director, Safety and Security Emergency Management Program Manager
Vermont Agency of Transportation	Emergency Management Director (EMD), Highways Division
Westchester County Government, Westchester County, White Plains, NY	County Director of Operations

Appendix D: Quick Response Grant Preliminary Results

The Natural Hazards Center at the University of Colorado partnered with the research team to facilitate advertisement and award of three Quick Response Grants on timely topics relevant to this Playbook. Preliminary results are summarized below, as some of the research projects are still under way.

RESEARCH PROJECTS AND TEAMS

Topic	Researchers	Organizational Affiliation
Equitable Mobility in Times of Pandemic	Chris Wyczalkowski, Deirdre Oakley, Karen Johnston, Stacie Kershner, Fei Li, Niklas Vollmer, Prentiss Dantzler	Georgia State University
Content Analysis of Web-based Communication Strategies used by Public Transit Agencies in Major US Cities during the COVID-19 Pandemic	Jessica Franks Erin Vinoski Thomas	Georgia State University
Adapting Transportation to Accommodate Populations Vulnerable to COVID-19 in Hazardous Settings	Nicole Hutton Jennifer Whytlaw Saige Hill	Old Dominion University

RESEARCH RESULTS

TRANSIT CUTBACKS AND COVID-19 BOTH DISPROPORTIONATELY AFFECT LOWER INCOME COMMUNITIES IN ATLANTA

Source: Equitable Mobility in Times of Pandemic

- The COVID-19 Pandemic has reduced the number of transit riders by as much as 80%. In response, the agencies have drastically reallocated service and eliminated routes to operate with higher frequencies on other, more essential routes. As states and cities reopen, ridership may remain low in the face of service sector unemployment, social distancing, and perceptions of public transit as a super-spreader of COVID-19, leading riders to seek alternative modes of transit. Yet, there is a subgroup of mostly essential, low-income workers who remain dependent on public transit.
- Reduced ridership and resulting service cutbacks have exacerbated accessibility problems long facing lower income communities in Atlanta, even as evidence emerges that low-income African American communities are more affected by COVID-19 than the rest of the population.
- Rider concerns for transit include cleanliness of stations and transit vehicles, elimination of bus routes necessary for essential workers, and improving communication about both system and expected passenger responses. Riders are willing to walk to bus stops, but barriers like lack of sidewalks or high traffic areas impede them.

TRANSIT AGENCIES' COMMUNICATIONS ARE GENERALLY GOOD BUT COULD BE IMPROVED REGARDING VULNERABLE POPULATIONS

Source: Content Analysis of Web-based Communication Strategies

- Transportation is considered one of the most important social determinants of health. Particularly in the United States, access to affordable, accessible, and reliable transportation increases access to

essential services, resources, and opportunities, such as jobs, health care, and education. On the other hand, transportation barriers prevent 3.6 million Americans from receiving medical care each year.

- Those most affected by transportation barriers are vulnerable populations who are more likely to rely on public transit, including individuals from low-resource communities, racial and ethnic minorities, and people with disabilities. As the nation simultaneously navigates a global pandemic and a powerful and complex civil rights movement to combat racial inequities and disparities, access to transportation is an important part of the discussion.
- Analysis of 16 nationally distributed transit agencies' (with largest ridership) websites and Twitter feeds, assessed between March 1 and August 31, 2020 reveals:
 - » 100% covered COVID-19 in their communications, and the majority were well organized
 - » 94% provided adjusted schedule information due to COVID-19
 - » 94% targeted vulnerable populations through media channels such as print, TV, radio, websites, Facebook, Twitter, and other social media
 - » 91% provided information about what customers should do and how to behave for safety
 - » 85% described how facilities and equipment are being sanitized for safety
 - » 82% used images in COVID-19 related messages to reflect racial/ethnic diversity, but only 21% reflected disability diversity
 - » 73% provided text alternatives for graphics, although only 36% were considered adequate
 - » 69% messaged that social distancing and other protective measures will protect both riders and operators
 - » 66% provided clearly marked information about COVID-19 schedule changes and safety information
 - » 38% recognized that vulnerable populations are more likely to use public transit, or described actions specifically taken to keep vulnerable populations safe
 - » 32% provided messages specifically for individuals with disabilities/mobility needs

This suggests that as of August 31, 2020, public transit agencies may not be disseminating information optimally and should consider improvements for helping vulnerable populations to be adequately informed during times of an emergency, such as COVID-19.

EVACUATIONS ARE MORE DIFFICULT DURING PANDEMICS

Source: Adapting Transportation to Accommodate Populations

- Studies of evacuation behavior within Hampton Roads, VA in response to Hurricanes Irene and Florence indicate that vulnerable and medically fragile populations have lower propensity to evacuate relative to non-vulnerable populations.
- Surveys show the intent to evacuate and shelter is elevated above previous behavior in Hampton Roads, but COVID-19 related financial concerns are preventing some from considering it. 72% of those that did evacuate and 40% of those that went to public shelter plan to evacuate for a major hurricane in 2020. 29% of those that did not evacuate in 2018 would in 2020. Of those who evacuated for Hurricane Florence but would not in 2020, 73% cited insufficient cash or credit on hand as a

contributor to the decision. This means more people with limited resources may remain in high risk areas in the 2020 hurricane season unless alternative transportation and sheltering options are available.

- 50% of those that did evacuate and 60% of those that went to public shelter in 2018 are considering going to a public shelter in 2020. 12% of those that did not evacuate in 2018 would go to a public shelter in 2020. Of those who would not consider going to a public shelter, 70% reported that concerns of COVID-19 transmission contributed to the decision.
- Under the compound pandemic-hurricane scenario, both the demands for evacuation assistance will be increased and the capacity to meet these demands will be truncated (e.g., furloughs, budget shortfalls, and ridership limits).
- Evacuation contracts require renegotiation to account for bus company closures associated with financial strain during the pandemic and to implement new COVID-19 health and safety protocols.
- New and expanded partnerships were established in some states to meet demand and account for heightened staff needs to increase route frequency and expected failure of staff to report for shifts due to their own vulnerability to or anxiety about COVID-19 transmission. TNCs agreed to contract with emergency management between 72-48 hours before a storm to speed evacuation and provide non-congregate transportation options. Riders would either receive a voucher to use in the appropriate app or have their vehicle booked for them directly in the company's portal. Rides could either go to a friend or relative's home or a public shelter.
- Thinking of the future, participants suggested infrastructural changes including alternative pick-up points, retrofitting, and identification of shelters of last resort.
- Evacuation guidance during a pandemic is to stay locally with friends or family with a residence that can withstand expected winds and is above expected flood levels rather than evacuating outside the region.
- Another strategy is, "outside storm surge zones, we are promoting 'Know your home' --if built to code and in a safe space, maybe stay home."

Appendix E: Pandemic Playbook Resources

This appendix provides additional resources on emergency management and on pandemic response.

General Resources

Emergency Management Resources

NCHRP Research Report 931: *A Guide to Emergency Management at State Transportation Agencies*. National Academies of Sciences, Engineering, and Medicine, Transportation Research Board, Washington, DC. (2019). Available at: <https://www.nap.edu/catalog/25557/a-guide-to-emergency-management-at-state-transportation-agencies>

Coordination in Crises: Implementation of the National Incident Management System by Surface Transportation Agencies, Hambridge, N. B., Howitt, A. M., & Giles, D. W. (2017). *Homeland Security Affairs*, 13(2), 38-42.

NCHRP Web-Only Document 206: *Managing Catastrophic Transportation Emergencies: A Guide for Transportation Executives*. Frazier, E. R., Ekern, D. S., Smith, M. C., Western, J. L., Bye, P. G., & Krentz, M. A. (2014). National Academies of Sciences, Engineering, and Medicine, Transportation Research Board, Washington, DC.

NCHRP Report 753: *A pre-event recovery planning guide for transportation*. Bye, P. (2013). National Academies of Sciences, Engineering, and Medicine, Transportation Research Board, Washington, DC.

Role of Transportation Management Centers in Emergency Operations Guidebook. Krechmer, D., Samano III, A., Beer, P., Boyd, N., & Boyce, B. (2012). Federal Highway Administration, Washington, DC. (No. FHWA-HOP-12-050).

The National Incident Management System (NIMS): A Workbook for State Department of Transportation Frontline Workers, (2012). Federal Highway Administration, Washington, DC. Available: https://www.fhwa.dot.gov/security/emergencymgmt/profcapacitybldg/docs/nims/nims_wkbk.pdf

MTI Report 09-10: *Handbook of Emergency Management for State-Level Transportation Agencies*. Edwards, F. L., & Goodrich, D. C. (2010). Mineta Transportation Institute, San Jose, California.

Training Resources

MTI Report 12-70: *Emergency Management Training for Transportation Agencies*. Edwards, F., Goodrich, D., & Griffith, J. (2016). Mineta Transportation Institute, San Jose, California.

NCHRP Synthesis 468: *Interactive Training for All-Hazards Emergency Planning, Preparation, and Response for Maintenance and Operations Field Personnel*. Nakanishi, Y. J., & Auza, P. M. (2015). National Academies of Sciences, Engineering, and Medicine, Transportation Research Board, Washington, DC.

MTI Report 12-08: *Exercise Handbook: What Transportation Security and Emergency Preparedness Leaders Need to Know to Improve Emergency Preparedness*. Edwards, F., & Goodrich, D. C. (2014).

Emergency Management Training and Exercises for Transportation Agency Operations. Edwards, F. L., & Goodrich, D. C. (2010). MTI Report 09-17. Mineta Transportation Institute, San Jose, California.

Pandemic Resources

Non-medical Interventions: A Desk Reference to Help Planners Recover from COVID-19 and Other Pandemics, DHS S&T, June, 2020

Transportation During Coronavirus in NYC, Wagner Rudin Center for Transportation, and Sam Schwartz Transportation Consultants (2020). New York University, New York, New York.

Pandemic Planning/Training

NCHRP Report 769: *A Guide for Public Transportation Pandemic Planning and Response*. Fletcher, K., Amarakoon, S., Haskell, J., Penn, P., Wilmoth, M., Matherly, D., & Langdon, N. (2014). National Academies of Sciences, Engineering, and Medicine, Transportation Research Board, Washington, DC.

NCHRP Report 777: *A Guide to Regional Transportation Planning for Disasters, Emergencies, and Significant Events*. Matherly, D., Langdon, N., Wolshon, P. B., Murray-Tuite, P. M., Thomas, R., Mobley, J., & Reinhardt, K. (2014). National Academies of Sciences, Engineering, and Medicine, Transportation Research Board, Washington, DC.

Comprehensive Preparedness Guide 201, Second Edition (2013) Federal Emergency Management Agency, Washington, DC.

TCRP Report 86/NCHRP Report 525 Volume 8: *Continuity of Operations (COOP) Planning Guidelines for Transportation Agencies*, National Academies of Sciences, Engineering, and Medicine, Washington, DC. 2005.

Employee Impact

Management of COVID-19: Potential measures to restore confidence in rail travel following the COVID-19 pandemic, International Union of Railways (UIC). UIC COVID-19 Task Force, April 2020.

“Coping with Stress”, Center of Disease Control (CDC), COVID-19 Website, <https://www.cdc.gov/coronavirus/2019-ncov/daily-life-coping/managing-stress-anxiety.html#responders>

Protective Actions

Cleaning and Disinfecting Transit Vehicles and Facilities During a Contagious Virus Pandemic. American Public Transportation Association (APTA), Standards Development Program. 2020a. APTA-SS-ISS-WP-001-20.

The COVID-19 Pandemic Public Transportation Responds: Safeguarding Riders and Employees. American Public Transportation Association (APTA). 2020c. April 13, 2020

“Yale students research train safety during pandemic”, Maya Geradi, October 4, 2020, Yale Daily News, Yale Daily News Publishing Co. New Haven, CT. Available at <https://yaledailynews.com/blog/2020/10/04/yale-students-research-train-safety-during-pandemic/>

Situational Awareness and Reporting

Role of Transportation Management Centers In Emergency Operations Guidebook, Federal Highway Administration, 2012. Available: <http://www.ops.fhwa.dot.gov/publications/fhwahop12050/fhwahop12050.pdf>

Information sharing guidebook for transportation management centers, emergency operations centers, and fusion centers. Houston, N., Wiegmann, J., Marshall, R., Kandarpa, R., Korsak, J., Baldwin, C., & Vann Easton, A. (2010). Federal Highway Administration. (No. FHWA-HOP-09-003).

Communications

NCHRP Project 25-25, Task 105, *A Guidebook for Communications between Transportation and Public Health*, (2019) National Academies of Sciences, Engineering, and Medicine, Transportation Research Board, Washington, DC. <http://onlinepubs.trb.org/onlinepubs/nchrp/docs/NCHRP25-25Task105/NCHRP25-25Task105Guidebook.pdf>

TCRP Report 150, *Communications with Vulnerable Populations- A Transportation and Emergency Management Toolkit* (2011) National Academies of Sciences, Engineering and Medicine, Transportation Research Board, Washington, DC. Available: <http://www.trb.org/Publications/Blurbs/166060.aspx>

NCHRP Report 690: *A Guidebook For Successful Communication, Cooperation, And Coordination Strategies Between Transportation Agencies And Tribal Communities*, (2011) National Academies of Sciences, Engineering, and Medicine, Transportation Research Board, Washington, DC. Available: <http://www.trb.org/main/Blurbs/165472.aspx>

CDC Crisis & Emergency Risk Communication (CERC) framework, Center of Disease Control (CDC), CDC Website, Available at <https://emergency.cdc.gov/cerc>

CDC communications tools, Center of Disease Control (CDC), CDC COVID-19 Website, <https://www.cdc.gov/coronavirus/2019-ncov/communications>

The American Speech, Language and Hearing Association (ASHA) Website <https://www.asha.org/public/communicating-effectively-while-wearing-masks-and-physical-distancing/>

Response Actions

Public Transit and COVID-19: Global Research and Best Practices, Sam Swartz Consulting, September 2020

COVID-19 – Emergency Management Tips and Practices for Bus Transit Systems, Center for Urban Transportation Research, Published April 1, 2020, Revision, August 26, 2020

Federal Highway Administration Emergency Transportation Operations Website, Available: http://ops.fhwa.dot.gov/eto_tim_pse/index.htm

National Special Security Events: Transportation Planning for Planned Special Events, Houston, Nancy, Baldwin, C, Vann Easton, A. & Sangillo, S. Federal Highway Administration, 2011. (FHWA-HOP-11-012)

NCHRP Report 525: Surface Transportation Security, Volume 10: *A Guide to Transportation's Role in Public*

Health Disasters. (2006) National Academies of Sciences, Engineering, and Medicine, Transportation Research Board, Washington, DC. Available: <http://www.trb.org/Main/Public/Blurbs/156474.aspx>

Evacuation/Shelter-In-Place/Quarantine

NCHRP Report 740: *A Transportation Guide for All-Hazards Emergency Evacuation*. Matherly, D. (2013). National Academies of Sciences, Engineering, and Medicine, Transportation Research Board, Washington, DC.

Financial

NCHRP Synthesis 472: *FEMA and FHWA Emergency Relief Funds Reimbursements to State Departments of Transportation*. Nakanishi, Yuko J. and Auza, Pierre M., (2015) National Academies of Sciences, Engineering, and Medicine, Transportation Research Board, Washington, DC. Available at http://onlinepubs.trb.org/onlinepubs/nchrp/nchrp_syn_472.pdf

Resiliency

Stabilization/Reconstitution

Developing a Pandemic Virus Service Restoration Checklist. American Public Transportation Association (APTA), Standard Development Program. 2020b. APTA-SS-SEM-WP-016-20.

ESF-1/Community Support

National Response Framework, Third Edition – Information Sheet, Emergency Management Agency (FEMA), Washington, DC, 2016. <https://www.fema.gov/emergency-managers/national-preparedness/frameworks/response>

National Disaster Recovery Framework, Second Edition – Information Sheet, Federal Emergency Management Agency (FEMA), Washington, DC, 2016

Multiple Events

Dual Disaster Handbook, American Public Health Association and the American Flood Coalition, 2020