

PROJECT NO.: NCHRP 20-59(44)

COPY NO. _____

A Guide for Public Transportation Pandemic Planning and Response

Task 7: Methodology Report & Implementation Plan

Prepared for
National Cooperative Highway Research Program
Transportation Research Board
of
The National Academies

Principal Investigator: Kim Fletcher (Loch Haven Partners, Edgewater, MD)
Project Director: Shanika Amarakoon (Abt Associates, Bethesda, MD)
Other team members: Deborah Matherly and Neeli Langdon (Louis Berger Group, Washington, DC)
Paul Penn and Megan Wilmoth (Environmental Security International/EnMagine, Inc., Diamond Springs, CA)
Tom Rich, Kim Stephens, Ray Glazier, Jacqueline Haskell, Charlie Koch, and Kelly Peak (Abt Associates, Bethesda, MD and Cambridge, MA)

December 2013

ACKNOWLEDGMENT OF SPONSORSHIP

This work was sponsored by one or more of the following as noted:

American Association of State Highway and Transportation Officials, in cooperation with the Federal Highway Administration, and was conducted in the **National Cooperative Highway Research Program,**

Federal Transit Administration and was conducted in the **Transit Cooperative Research Program,**

Federal Aviation Administration and was conducted in the **Airport Cooperative Research Program,**

Research and Innovative Technology Administration and was conducted in the **National Cooperative Freight Research Program,**

Pipeline and Hazardous Materials Safety Administration and was conducted in the **Hazardous Materials Cooperative Research Program,**

which is administered by the Transportation Research Board of the National Academies.

DISCLAIMER

This is an uncorrected draft as submitted by the Contractor. The opinions and conclusions expressed or implied herein are those of the Contractor. They are not necessarily those of the Transportation Research Board, the National Academies, or the program sponsors.

A Guide for Public Transportation Pandemic Planning and Response

Task 7: Methodology Report & Implementation Plan

Prepared for
National Cooperative Highway Research Program
Transportation Research Board
of
The National Academies

Principal Investigator: Kim Fletcher (Loch Haven Partners, Edgewater, MD)
Project Director: Shanika Amarakoon (Abt Associates, Bethesda, MD)
Other team members: Deborah Matherly and Neeli Langdon (Louis Berger Group, Washington, DC)
Paul Penn and Megan Wilmoth (Environmental Security International/EnMagine, Inc., Diamond Springs, CA)
Tom Rich, Kim Stephens, Ray Glazier, Jacqueline Haskell, Charlie Koch, and Kelly Peak (Abt Associates, Bethesda, MD and Cambridge, MA)

December 2013

Table of Contents

List of Figures and Tables	vi
Author Acknowledgements	vi
Abstract	vi
Summary	1
Research Approach.....	1
Key Research Findings.....	2
1. Background	4
2. Research Approach	5
2.1 Literature Review.....	5
2.2 Survey Instrument.....	5
2.3 Initial Interviews.....	7
2.4 Development of Draft Guide.....	9
2.5 Stakeholder Review of Draft Guide.....	9
3. Findings and Application	13
3.1 Current Practices.....	13
3.2 Innovations.....	16
3.3 Gaps.....	17
3.4 Issues/Concerns.....	18
3.5 Stakeholder Feedback on Draft Guide.....	19
4. Conclusions and Implementation Plan	22
4.1 The Guide.....	22
4.2 Intended Audiences.....	23
4.3 Impediments to Implementation.....	23
4.4 Potential Leaders in Guide Implementation.....	24
4.5 Online Implementation Support.....	26

4.6 Measuring Implementation Progress and Consequences 26

References..... 28

Appendix A Summary of Literature and Available Plans A-1

A.1 Domestic and International Government Guidance and Reports A-1

A.2 Journal Articles..... A-11

A.3 Non-Governmental, Nonprofit, University, and Private Sector Reports A-16

A.4 State and Local Pandemic Plans A-30

Appendix B Survey Questions and Summary B-1

Appendix C Interview GuideC-Error! Bookmark not defined.

List of Figures and Tables

Table 1: Summary of Organizations Interviewed	8
Table 2: Groups and Individuals Invited to Attend the Webinar	11
Table 3: Summary of Organizations Attending	11
Table 4: Stakeholders Providing Feedback.....	12
Table 5: Poll of Organization Pandemic Planning Status	20
Table 6: Poll of Opinion on Pandemic Planning Guide.....	20

Author Acknowledgements

The research reported herein was performed under NCHRP Project 20-59(44) by Abt Associates Inc. as the prime contractor. Kim Fletcher (Loch Haven Partners) is the Principal Investigator and Shanika Amarakoon (Abt Associates) is the Project Director. Other members of the research team are: Deborah Matherly and Neeli Langdon (The Louis Berger Group, Inc.); Paul Penn and Megan Wilmoth (Environmental Security International/EnMagine, Inc.); and Tom Rich, Kim Stephens, Ray Glazier, Jacqueline Haskell, Charlie Koch, and Kelly Peak (Abt Associates).

Abstract

An outbreak of a pandemic infectious disease is considered a certain event with an uncertain date of occurrence. There is a great need to provide support and assistance to small urban and rural public transit providers on the appropriate protocols and procedures that should be established within these agencies for an effective pandemic response. *A Guide for Public Transportation Pandemic Planning and Response* has been developed to fill this gap. The Guide includes simple step-by-step guidelines; planning and operations resources; checklists; and those steps necessary to facilitate coordination across the response spectrum. This report begins by describing the research approach used to locate available information and research on pandemic preparedness and responses in the public transportation sector (specifically in rural and small urban regions), development of the draft Guide, and the process for soliciting stakeholder feedback on the Guide. The report then discusses key findings of the research, including current practices and innovations which were directly incorporated into the draft Guide, as well as stakeholder feedback on the Guide. Finally, the report outlines steps taken to ease implementation of the Guide and potential future efforts to ensure successful and widespread implementation of the Guide.

Summary

The Abt Associates Team has developed a comprehensive and accessible pandemic planning Guide for use by small urban and rural public transportation agencies, human service transportation providers, and state Department of Transportation (DOT) agencies. The purpose of this report is to summarize the methodology used to create the Guide. This report is organized as follows:

- **Research Approach (Chapter 2):** Describes the approach used to locate available information and research on pandemic preparedness and responses in the public sector as it relates to transportation – specifically in rural and small-urban regions. In addition, this chapter includes an overview of the development of the draft Guide and the efforts made to solicit stakeholder feedback on the Guide.
- **Key Findings and Application (Chapter 3):** Discusses current practices and innovations, which were directly incorporated into the draft Guide, as well as stakeholder feedback on the Guide.
- **Conclusions and Implementation Plan (Chapter 4):** Describes steps taken to ease implementation of the Guide and outlines potential future efforts to ensure successful and widespread implementation of the Guide.

We summarize these sections briefly below and provide an overview of the revisions made to the Guide based on feedback from the National Cooperative Highway Research Program (NCHRP) Panel.

Research Approach

Our research methodology reflects the fact that addressing decision-making challenges in pandemic response in the transportation context is a multi-dimensional task, involving not only transportation/transit organizations, but health organizations, emergency management agencies, and communications outlets as well. Accordingly, our project team undertook a multi-media, phased approach to gather information to aid in the development of the Guide. To this end, first we conducted a literature review of publications, websites, and other information posted by transportation, health, and other relevant agencies (see Appendix A).

Next we developed and issued a survey (see Appendix B) to gather information on the extent to which pandemic planning is occurring; the level of interagency collaboration taking place for transportation pandemic planning; policies and procedures to continue transportation operations in a pandemic; and barriers to pandemic planning. The survey instrument was posted on a blog developed for the project (available at: <http://pandemictransportation.wordpress.com/>), which was then distributed using social media (e.g., Twitter, LinkedIn, and Facebook) and through listservs of relevant emergency management and transportation organizations (e.g., National Rural Transit Assistance Program). To date, the blog has received more than 1,000 hits and has been an important outreach tool not only for the survey (47 responses received), but also for the project in general.

We also conducted 20 phone interviews (see the interview guide in Appendix C). The survey and initial interviews targeted relevant local, state, and regional agencies with emergency management and response responsibilities; transportation managers; state transportation agency personnel; and other entities with a role in transportation planning and response in a pandemic. The survey and

interviews targeted not only the rural and small urban transit systems but also larger organizations to assist in identifying key issues and current practices. As a result of the survey and initial interviews, we received pandemic training materials and additional pandemic and emergency response plans that were reviewed and added to the literature review findings.

We used the information obtained through the literature review, survey, and initial interviews to develop a draft outline of the Guide. After presenting the outline to the NCHRP Panel and incorporating their feedback, we developed the first draft of the Guide. In order to make the Guide more accurately reflect the real experiences of its intended end-users, we engaged stakeholders in a review process of the draft Guide. The team identified key stakeholders based on the Guide's target audience: local, state, regional, tribal, and federal representatives who have responsibility for integrated pandemic planning and response. These stakeholders were primarily engaged through a webinar and phone interviews.

Webinar invitations were distributed via posts on relevant associations' listservs and emails to interviewees and survey respondents from Task 2 of the project. Participants who registered for the webinar were sent the draft Guide to review before the webinar. The webinar itself consisted of a brief introduction to the project, followed by a concise overview of the draft Guide. Webinar participants were polled on the status of their organizations' pandemic planning. They were also given the opportunity to provide their feedback on the draft Guide.

The Abt team also received comments from the NCHRP panel on key deliverables in each stage of the Guide development. These comments were integral to shaping the initial research process, the structure and content of the Guide, and the methodology for receiving stakeholder feedback.

Key Research Findings

Our research revealed that although some pandemic plans for transportation systems exist, there are limited resources and plans available for rural and small urban transportation systems. The majority of agencies interviewed noted that gaps in pandemic planning are largely due to limited resources (staff) and funding availability. As a result, although some agencies have all-hazards response plans available, measures for pandemics are not included. In addition, they do not target persons with disabilities or address small urban, rural transit considerations. Therefore, development of a Guide targeted to these audiences will fill a clear gap.

Based on the available plans, literature, and information gathered through the surveys and interviews we identified several current practices and innovations to incorporate in the final Guide. In particular, current practices include to:

- Coordinate the planning and response activities between all levels and types of organizations, including state agencies, local partners, and private organizations, to ensure more effective communication and distribution of information to the public;
- Develop public-private partnerships to leverage resources;
- Ensure worker protection and vaccination during a pandemic;
- Develop a plan for effective distribution of vaccines and medical countermeasures, especially in rural areas;
- Provide effective and targeted support for persons with disabilities and functional and access needs; and
- Conduct training and drills for responders and transportation workers.

In addition to these current practices, several interviewees noted innovations in their pandemic planning. These included planning more effective preventative measures (e.g., drive-through vaccination clinics), developing information management tools to identify populations in need, and using remote communication technology and networks to distribute pandemic flu planning information and disease tracking at the local level.

During the interview and survey processes, the project team also noted practices, issues, or concerns that are likely to hinder transportation organizations' ability to implement successful pandemic planning and response strategies. These concerns include: a lack of resources specifically for small urban and rural transit; communication challenges for small urban and rural transit; bus and rail agencies' level of involvement in statewide planning; lack of participation in emergency management and planning efforts with other organizations; and lack of clarity with respect to the definition of a pandemic and when response should be triggered.

Our findings were incorporated into a proposed outline that served as the foundation for the Guide. Given the limited resources available to local, regional, and state transportation organizations to develop a pandemic specific transportation plan, our proposed outline included clear guidance, templates and checklists, which may be used to develop a tailored Pandemic Flu Transportation Response Plan and address some of the concerns/issues raised.

We then solicited feedback on the draft Guide through a webinar and focused, one-on-one interviews. In particular, we contacted each webinar participant who indicated that their organization had a pandemic plan. Overall, stakeholders praised the organization and clarity of the plan and mentioned that they found the tools and checklists useful for creating their own pandemic plans. We received suggestions to improve the Guide by including more links to sample policy documents and specific guidance on staff training.

In addition, we received comments from the NCHRP panel during each step of Guide development and revision. These comments were both editorial and conceptual in nature. The Abt team provided individual responses to each comment. In some cases, specific modifications were made to the research methodology or Guide; in others, the comment changed the Abt team's conceptual approach to Guide development. Comments from the NCHRP Panel were received on the following project deliverables:

- June Quarterly Progress Report and work plan (submitted in June 2012);
- Sampling Plan and Interview Matrix (submitted on September 7th, 2012);
- Interim Report (submitted January 22nd, 2013);
- Draft Guide (submitted on May 30th, 2013);
- March Quarterly Progress Report (submitted on March 31st, 2013); and
- Draft Final Guide (submitted September 13th, 2013).

CHAPTER 1

Background

An outbreak of a pandemic infectious disease is considered a certain event with an uncertain date of occurrence. Although there is an abundance of information to address these events, there has been little sharing of such information. As a result, state agencies with emergency management and response responsibilities, transit managers, human service transportation providers, and state transportation agency personnel have many unanswered questions and incomplete protocols for preserving essential functions, including (but not limited to) establishing the authority of agencies to act, the determination of critical thresholds of employee absenteeism at which to suspend operations, and the identification of core functions and infrastructure to enable essential personnel to work from home.

The involvement of public health and other emergency management officials with state transportation agencies and local public transit providers is critical for the development of appropriate and effective planning for pandemic response from the transportation sector. To date, there has been limited interaction between public and community transportation and public health. In addition, these types of emergency events do not occur in isolation, and procedures must be established for public transportation to work in concert with other protocols.

State transportation agencies that provide funding for public transportation and/or coordinate statewide public transportation systems need guidance regarding advice and direction that should be included in subrecipient training and technical assistance, as well as appropriate guidance that their personnel may utilize in coordinating public transportation services during a local, statewide, or regional response to pandemic events. State transportation agencies also need assistance in developing appropriate protocols for the use of local transit resources.

In the area of public transportation, there are many unanswered questions regarding appropriate protocols and procedures to follow in the event of pandemic infectious disease. While some large urban public transit agencies have been heavily involved in establishing response and recovery plans, there is a great need to provide support and assistance to small urban public transit providers, rural public transit providers, and human service transportation providers on the appropriate protocols and procedures that should be established within these agencies for an effective response. There is a need for a process and guidance for smaller transit agencies that aligns with *NCHRP Report 525, Vol. 16: A Guide to Emergency Response Planning at State Transportation Agencies*, modified as appropriate to address pandemic infectious disease.

Thus, the objective of this research was to develop a pandemic planning Guide for use by all transit agencies with emphasis on (a) small urban and rural transit agencies; (b) human service transportation providers; and (c) the state DOTs that provide oversight for grant recipients in both categories. The research included a synthesis of current practices, gaps and opportunities for improved practices. The final Guide provides: simple step-by-step guidelines; planning and operations resources; checklists; and those steps necessary to facilitate coordination across the response spectrum.

CHAPTER 2

Research Approach

Below we describe the key phases of our research methodology, including the literature review, survey instrument, initial interviews, development of the draft Guide, and stakeholder review of the Guide.

2.1 Literature Review

As noted above, the literature review comprised the first step of the research methodology. Our research targeted available information on pandemic planning and transportation from the following resources:

- The websites of the Federal Emergency Management Agency (FEMA), the U.S. Department of Health and Human Services (DHHS) including Flu.gov and the Office of the Assistant Secretary for Preparedness and Response (ASPR), and the Centers for Disease Control and Prevention (CDC);
- The Transportation Research Board's Transport Research International Documentation (TRID) database;
- Literature searches using EBSCO Academic Search Complete;
- Other research that members of our team are currently involved in or have already compiled as part of other research activities; and
- Additional web searches.

The documents and information collected were categorized into four groups: (i) domestic and international government guidance and reports, (ii) state and local pandemic plans, (iii) journal articles, and (iv) non-governmental organization reports. The domestic and international documents and the non-governmental organization reports include documents such as guidelines, checklists, and assessments of states' pandemic plans. For state pandemic plans, we compiled plans that were readily available online, using a list on Flu.gov and web searches. Specifically, we clicked on all of the links to state plans on Flu.gov and compiled plans from the active links. We then looked at the individual plans and, if a state transit operational plan was mentioned within the pandemic plan, we checked the transit operational plans for additional information. Journal articles were collected through a literature search (using both the EBSCO database and the reference lists of articles that we initially compiled) and our team's other research activities. In addition, we conducted web searches to determine whether there were existing publications that addressed the operation of transportation systems for people who are disabled during a pandemic or other major disaster.

Appendix A presents a summary of each of these documents, including a brief overview, current practices, and gaps and opportunities for improvement.

2.2 Survey Instrument

As noted in the Summary section above, the blog was used to distribute the survey instrument, which was developed via Survey Monkey by the project team. The survey was designed to gather

information on the extent to which pandemic planning is occurring; the level of interagency collaboration taking place for transportation pandemic planning; policies and procedures to continue transportation operations in a pandemic; and barriers to pandemic planning. Two sub-objectives of the survey were to identify candidates for subsequent interviews and identify resources and tools that would be useful for Guide development.

The survey questions were initially drafted by the project team and revised based on comments from the NCHRP Panel overseeing the project and feedback from a selected group of individuals who pilot tested the survey. These individuals were from agencies and organizations that supported both rural and urban transit systems in New Hampshire (Cooperative Alliance for Seacoast Transportation (COAST)) and Springfield, Mass.; the Transit System at Gallaudet University (GU); and Kendall Demonstration Elementary School at Gallaudet in Washington, DC. We also contacted the Older Adults Transportation Service (OATS) transit agency, which primarily serves the elderly and those with disabilities in Missouri. The final survey questions and summary of survey responses are presented in Appendix B. (In addition, the survey tool may be accessed online via the following link: <https://www.surveymonkey.com/s/V35HYW7>.)

2.2.1 Survey Distribution and Social Media

In the last five years, social media has become a significant and growing tool for communication. We have leveraged this tool through a blog created specifically for this project, to gather names and contacts as well as information from a very wide array of people involved in pandemic planning. (The blog is available at: <http://pandemictransportation.wordpress.com/>.) To date, the blog has received more than 1,000 hits and has been an important outreach tool for the survey. Several subscribers to the blog received updates via email. The blog was used to conduct further outreach about the project. For example, one of the subscribers is a public health official in the Canadian government who runs an email listserv subscribed to by more than 2,000 individuals in the public health arena, most of which are U.S.-based. In addition, the blog post about the survey was efficiently distributed via email and on other social networks (e.g., Twitter, Facebook, and LinkedIn). Thus, the blog enabled us to target the survey to those who already showed interest in pandemic flu planning because of their engagement with the blog. Below is a list of additional distribution channels used by the project team:

- **Listservs:** Daily Brief, Emergency Management, HazMat-WMD (Weapons of Mass Destruction), California Disasters, Disaster PIO (Public Information Officer), National Clearinghouse, NCB (Nuclear, Chemical, Biological) News Bulletin, ICTW (Interstate Chemical Threats Workgroup).
- **Twitter:** #Transportation and #PublicHealth hashtags. We also sent a message to the CDC's Twitter account about the project.
- **LinkedIn:** APA (American Planning Association) Transportation Planning Division, Critical Transportation Infrastructure Protection, LinkedIn Transportation Professionals, Metropolitan Transportation Planning, Public Transit Professionals, The Infrastructure Security Partnership, Traffic Engineer and Transportation Planner, Transportation Planning and Traffic Engineers, TRB Public Involvement Committee, Global Public Health, Pandemic Planning and Policy, Pandemic Preparedness Group, Pandemic Health Crisis Group for Business and Industry, Public Health.

- **Facebook groups:** Emergency Management Issues, EM (Emergency Management) Higher Education, Pandemic Flu, Emergency Management Magazine.

We understand, however, that there are limitations in the applicability of social media for the target audience. Specifically, employees at most state DOTs and small transit systems are prohibited from using social media at work. Often, only the communications director has access to social media.

Accordingly, we did not rely on social media alone – more than 40 organizations were asked to distribute the survey to their members. Examples of these organizations include:

- American Public Transportation Association;
- American Association of Metropolitan Planning Organizations;
- Community Transportation Association of America;
- Agency on Aging;
- National Rural Transit Assistance Program;
- Rural Public and Intercity Bus Transportation; and
- Transportation Planning for Small and Medium-Sized Communities Committee (part of TRB).

However, we are not aware how many of the contacts/organizations that received the survey further distributed it to their members.

2.2.2 Survey Responses

We received 47 responses to the survey. Appendix B provides a summary of the survey responses. As shown in the summary, responses came from 26 states plus one tribal region. Approximately 19.5% of respondents were located in areas with populations between 10,000 and 50,000, and 53.7% of respondents were located in areas with populations below 250,000. Respondents from regions with populations greater than 1 million, where more detailed pandemic plans were available, represented 36.6% of all responses. Respondents primarily worked at transit organizations (34.9%), public health agencies (27.9%), and emergency management agencies (14%). Other respondent organizations included the Department of Social Services, non-specified local and federal government agencies, and consulting firms.

Notably, 17 respondents said their organization “rarely” conducted pandemic planning as it relates to transportation. Similarly, when asked about the status of pandemic planning, five respondents said their agency did not have a pandemic plan and another seven respondents answered “does not apply/do not know.” Thus, the survey responses indicated that for many agencies there is a lack of preparedness for pandemics. However, most organizations had an “all-hazards” or “continuity of operations” plan. If a pandemic plan was in place, most addressed protecting in-office staff and flex-time procedures. Some plans also addressed sanitation procedures, transportation service reduction, and procedures to protect transportation staff (e.g., drivers).

2.3 Initial Interviews

The project team also conducted phone interviews. In selecting interview candidates we targeted the following key groups and areas listed below in order of priority:

1. **Rural and small urban transit providers**, including areas that have fixed route bus systems and/or para-transit/on-demand transit systems;
2. **Local human service agencies** that offer public transportation services, including human services transportation offices from rural or small urban areas;
3. **State DOT agencies** (selected primarily from rural states that include all geographic regions of the country);
4. **Non-transit regional, state, and local agencies** (e.g., regional emergency health planners, regional air carriers, metropolitan police and fire services, emergency medical services, utility departments, and local school boards/systems); and
5. **Transportation and planning organizations or universities.**

We reached out to 55 interview candidates and conducted interviews with 20. Overall, we were able to conduct interviews with most of the key groups listed above. However, due to resource constraints and the response to Hurricane Sandy we were not able to conduct as many interviews as initially targeted. Our interviews also included transit agencies and organizations that covered a range of rural, and small urban, and urban transportation systems, with a focus on small urban and rural, defined as follows:

- **Rural (R):** Rural areas are defined by the Non-urbanized Transit Program (under 49 USC Section 5311) as non-urbanized areas with a population under 50,000, as designated by the U.S. Census Bureau (California Division of Mass Transportation 2013).
- **Small urban (SU):** Small urbanized areas are defined by the Urbanized Area Formula Program (under 49 USC Section 5307) as urban areas with a population of 50,000 to 199,999 (Federal Transit Administration 2000).
- **Urban (U):** An urbanized area is an incorporated area with a population of 50,000 or more, as designated by the U.S. Census Bureau (Federal Transit Administration 2005). Large urbanized areas are those with a population of 200,000 or more (Federal Transit Administration 2000).

The project team believed there were important lessons to be learned and information to gather from professionals with a range of pandemic planning experience and transportation systems; therefore, the team interviewed both practitioners who were experienced and those who were less experienced to identify the types of information that would be useful to all audiences for the resulting Guide. The organizations interviewed are summarized in Table 1.

Table 1: Summary of Organizations Interviewed

Organization	State	R/SU/U ^{1a}	Organization Type ^{1b}				
			1	2	3	4	5
OATS, Inc.	MO	All		a			
Northern Kentucky District Health Department	KY	R				a	
Transit Authority of Northern Kentucky (TANK)	KY	R	a				
United Way 2-1-1	N/A	U				a	
Mid-America Regional Council	N/A	All				a	
Santee Wateree Regional Transportation Authority (RTA)	SC	R	a				
Cooperative Alliance for Seacoast Transportation (COAST)	NH	SU	a				
North Carolina Division of Public Health, NCDHHS	NC	All				a	
Idaho Transportation Department	ID	SU			a		

Organization	State	R/SU/U ^{1a}	Organization Type ^{1b}				
			1	2	3	4	5
Illinois Department of Transportation	IL	U			a		
Illinois Department of Public Health	IL	All				a	
North Carolina Department of Transportation	NC	All			a		
Alaska DOT & Public Facilities	AK	All			a		
Louisiana State University – Health Sciences Center	LA	All					a
Pandemic Region E (Federal Districts IX and X)	CA	All				a	
Spartanburg Area Regional Transit Agency (SPARTA)	SC	SU	a				
National Rural Transit Assistance Program (RTAP)	US	R	a				a
Tennessee State Public Health Agency	TN	All				a	
Rutgers / National Transit Institute	US	All					a
Gallaudet University/Kendall Elementary	DC	U					a

Notes: ^{1a} rural (R); small urban (SU); urban (U). ^{1b} Corresponds to the following organization types: 1. Fixed route, paratransit and on-demand transit; 2. Local human service agencies that offer public transportation services; 3. State DOTs; 4. Non-transit regional, state, and local agencies; and 5. Transportation planning organizations or universities.

During the interviews, candidates were asked specific questions regarding their transit systems or services to identify available information, current practices, and gaps in the research. Interview questions were compiled in an Interview Guide (see Appendix C) to ensure consistency across interviews.

It is important to note that during the stakeholder review of the draft Guide, we also reached out to survey respondents who indicated a willingness to participate in a follow-up interview (see Section 2.5).

2.4 Development of Draft Guide

The literature review, survey responses, and initial interviews helped us to identify the current state of knowledge among small and rural transit agencies and their information needs and gaps. Based on this information, we developed an initial draft Guide that included simple step-by-step guidelines, planning and operations resources, checklists, and those steps necessary to facilitate coordination across the response spectrum. The first step in this process was to develop a proposed outline for the draft Guide, which we presented to the NCHRP Panel at an interim meeting. Based on the panel's input, we revised the outline and wrote the first draft of the Guide.

2.5 Stakeholder Review of Draft Guide

Below we describe the process used to solicit stakeholder feedback on the draft Guide (dated May 30, 2013), including: a detailed summary of the methodology used for soliciting stakeholder feedback (Section 2.5.1), identifying members of the target audience of the Guide (Section 2.5.2), and the list of stakeholders who provided feedback.

2.5.1 Stakeholder Feedback Methods

The project team solicited feedback through several methods, including a webinar, telephone interviews (with a target duration of 30-45 minutes), and email. We followed a specific set of

questions to ensure consistency in data collection across methods. The following questions were presented to all stakeholders in advance of the webinar and/or interview:

1. Talk about the content you find to be most useful or helpful to your organization's pandemic planning.
2. What information would not be useful or wouldn't work for your organization?
3. What information did you expect to see that was missing?
4. Overall, what could be done from a content standpoint to improve the Guide?

Webinar invitations were distributed via posts on relevant associations' listservs and emails to interviewees and survey respondents from Task 2. Participants who registered for the webinar were sent the draft Guide to review before the webinar. The webinar itself consisted of a brief introduction to the project, followed by a concise overview of the draft Guide. Webinar participants were polled on the status of their organizations' pandemic planning. They were also given the opportunity to submit feedback or questions directly to the research team through the chat functionality in the GoToWebinar program.

2.5.2 Target Audience and Stakeholder Identification

The target audience for the stakeholder outreach task included local, state, regional, tribal, and federal representatives who had responsibility for integrated pandemic planning and response. Accordingly, in addition to the survey and interview participants from Task 2, we reached out to the following additional organizations to identify additional stakeholders:

- State agencies and DOTs;
- American Association of State Highway and Transportation Officials (AASHTO);
- Community Transportation Association of America (CTAA);
- Multi-State Technical Assistance Program (MTAP); and
- Rural Transit Assistance Program (RTAP).

Table 2 lists the stakeholders we contacted for the webinar and Table 3 lists those who actually participated.

Table 2: Groups and Individuals Invited to Attend the Webinar

Stakeholder Organizations / Groups	R/SU/U ^{1a}
Listserves/Groups	
Daily Brief (365 members, Category: Emergency Operators)	All
HazMat/WMD (1078 members, Category: Other)	All
Emergency Management (1561 members, Category: Emergency Services)	All
Professionals in Emergency Management (19,000+)	All
Interstate Chemical Threats Workgroup	All
National Clearinghouse (NIEHS)	All
Local Emergency Planning Committee (LEPC) for Region IV of California (includes Alpine, Amador, Calaveras, El Dorado, Nevada, Placer, Sacramento, San Joaquin, Stanislaus, Tuolumne, and Yolo)	All
Interview participants	
Cooperative Alliance for Seacoast Transportation (COAST)	SU
OATS, Inc.	All
Rutgers / National Transit Institute	N/A
Santee Water Regional Transportation Authority (RTA)	R
Spartanburg Area Regional Transit Agency (SPARTA)	SU
Transit Authority of Northern Kentucky (TANK)	R
Survey respondents	
Columbia (Mo.) Transit	U

Notes: ^{1a} rural (R); small urban (SU); urban (U).

Table 3: Summary of Organizations Attending

Organization	State	R/SU/U ^{1a}	Organization Type ^{1b}							
			1	2	3	4	5	6	7	
Advance Transit	VT	SU	a							
California Governor's Office of Emergency Services (Cal OES)	CA	All				a				
Columbia (Mo.) Transit	MO	U	a							
Consultant	VA	N/A								a
Department of Transportation	DC	All			a					
Dept. of Veterans Affairs	CA	All				a				
DS Ekern Consulting	MN	N/A								a
Escambia County Area Transit	FL	SU	a							
First Bank	NC	N/A								a
Fort Bend County Public Transportation	TX	U	a							
Metropolitan Transit Authority of Harris County - METRO Police	TX	U	a							
Miller-Keystone Blood Center	PA	U							a	

Organization	State	R/SU/U ^{1a}	Organization Type ^{1b}						
			1	2	3	4	5	6	7
Monroe County Local Emergency Planning Committee (LEPC)	IN	SU				a			
NCDOT	NC	All			a				
Orange County Public Schools	FL	U				a			
Talisman Energy Inc.	AB	N/A							a
The Jewish General Hospital	QC	U						a	
Transportation Research Board	DC	All					a		
VA Central California Health Care System, Fresno	CA	U						a	
Western Management & Consulting	WI	N/A							a

Notes: ^{1a} rural (R); small urban (SU); urban (U). ^{1b} Corresponds to the following organization types:

1. Fixed route, paratransit and on-demand transit; 2. Local human service agencies; 3. State or federal DOTs; 4. Non-transit federal, regional, state, and local agencies; and 5. Transportation planning organizations or universities; 6. Health Care Organizations; 7. Private Companies.

Webinar participants who said their organization had a pandemic plan were contacted to participate in follow-up interviews. Table 4 lists those stakeholders who agreed to be interviewed or sent feedback via email.

Table 4: Stakeholders Providing Feedback

Organization	Role	Method of Communication	R/SU/U ^{1a}
Monmouth Ocean Hospital Service Corporation	Corporate Director, Support Services	Telephone Interview	SU
Miller-Keystone Blood Center	Medical Director	Telephone Interview	U
First Bank of North Carolina	Vice President	Telephone Interview	SU
OATS, Inc.	Executive Director	Email Feedback	R
Transit Authority of Northern Kentucky	Director of Operations	Email Feedback	SU

Notes: ^{1a} rural (R); small urban (SU); urban (U).

CHAPTER 3

Findings and Application

Overall, our research revealed that although some pandemic plans for transportation systems existed, there were limited resources and plans targeted to rural and small urban transportation systems. The majority of agencies interviewed noted that gaps in pandemic planning were largely due to limited resource (staff) and funding availability. As a result, although some agencies had all-hazards response plans available, measures for pandemics were not included. In addition, they did not target persons with disabilities or address small urban and rural transit considerations.

Based on the available plans, literature, and information gathered through the surveys and interviews we identified several current practices and innovations to incorporate in the final Guide. Our findings are summarized into current practices, innovations, gaps, and issues/concerns, described below.

In the sections below, we also describe the feedback we received from stakeholders on the draft Guide (via a webinar and follow-up interviews), as well as the modifications that were made to the Guide as a result.

3.1 Current Practices

As noted above, current practices in pandemic planning for transportation systems were identified based on what survey and interview respondents noted as a “best practice,” as well as our expertise based on our review of the available plans and guidance. Overall, the key current practices included (i) coordination of planning and actual response activities between all levels and types of organizations, including state agencies, local partners, and private organizations; (ii) public-private partnerships to leverage resources; (iii) worker protection and vaccination; (iv) effective distribution of vaccines and medical countermeasures; (v) support for persons with disabilities; and (vi) conducting training and drills. We describe these practices in detail below.

3.1.1 Coordination of planning efforts and response activities

Coordination between the various agencies and stakeholders involved in developing and implementing the pandemic plans was noted as important by multiple interviewees. Specific plans that were cited as using this approach included the Alaska Pandemic Influenza Response Plan (2011), the Idaho Pandemic Influenza Response Plan (2006), the Idaho Transportation Department Continuity of Operations Plan (2010), Illinois Pandemic Influenza Preparedness and Response Plan (2010), and the Louisiana Department of Health and Hospital Pandemic Influenza Plan (2011). These plans emphasized effective communication and coordination across different types of agencies and organizations (e.g., public health, transportation, and emergency management) and multiple levels of government (i.e., local, state, and/or federal). In addition, many plans were developed collaboratively (i.e., in coordination with other agencies and organizations) to ensure a clear understanding of roles and responsibilities. For example:

- Alaska DOT (2012) highlighted its inter-agency coordination with the Department of Public Health and local partners such as Juneau International Airport and ferry and road agencies.

- Idaho Transportation Department (ITD) (2012) noted that, in drafting its plan, staff worked with many other agencies that seemed less relevant (e.g., Fish and Game) in order to potentially utilize their resources, such as staff and vehicles.
- Illinois DOT and Department of Public Health (DPH) updated their plan annually and sent out the draft to a large group of support agencies for comments. In originally drafting the plan, they conducted monthly meetings to discuss the different sections of the plan (i.e., roles and responsibilities, and anti-viral purchases and distribution) and worked with Illinois state police and emergency management officials to plan transport routes (Illinois DPH 2012).
- The Northern Kentucky Health Department's disaster preparedness staff met regularly with the Director or Deputy Director of Emergency Management and held quarterly meetings with hospitals and long-term care providers (Northern Kentucky Health Department 2012).
- The Arizona Pandemic Influenza Operational Plan (2008) included detailed steps for pandemic response across all state government functions and described coordination between agencies. Specifically, communicating social distancing measures to reduce the spread of influenza during a pandemic event was highlighted. Specific response strategies for public awareness included distributing educational materials to passengers and providing guidance to employees who must travel.

3.1.2 Public-private and other partnerships to leverage resources

Several interviewees identified the strategic importance of collaborating with the private sector and other organizations to leverage resources, namely access to vehicles primarily needed for vaccine distribution. For example, in Illinois, the state DOT worked with a private warehouse company to receive, package, ship and distribute medications effectively (Illinois DOT 2012). In addition, the Idaho Department of Health and Welfare contracted with private trucking firms to distribute vaccines as part of its vaccine distribution plan. ITD contracted with the same dispatcher as the Department of Health and Welfare, which was noted as a best practice because it allowed both agencies to implement the same dispatch command system in a coordinated manner. ITD also coordinated with partners in the distribution of vaccines in the event that they need to access additional transport systems (e.g., a partnership with the Civil Air Patrol to access airplanes to transport vaccines). They also have partnerships with public transportation agencies to access buses if needed. ITD asked all suppliers of services, materials and contractors to supply a copy of their plans for business continuity in a pandemic or other disaster or situation (ITD 2010).

3.1.3 Worker protection and vaccination

Several agencies and organizations interviewed identified the importance of worker protection in the event of a pandemic, namely the need for personal protective equipment and medication for transport providers and first responders before being provided to the general public. The Illinois DOT surveyed its employees to assess their willingness to support transportation needs and serve as first responders during pandemics. The majority surveyed stated they would be willing to do so in exchange for information on and priority access to protection. The Illinois DOT collaborated closely with the Illinois DPH to determine the specific types of personal protection equipment and medication needed for first responders, depending on the type of pandemic (Illinois DOT 2012). Other examples of worker protection included:

- The Alaska Department of Public Health and Alaska Transportation Unions offered free vaccinations for all state workers (Alaska DOT Public Facilities 2012).
- A rural transport provider (OATS) allowed drivers to get tuberculosis vaccines and training on blood borne pathogens. In addition, each OATS vehicle was equipped with a blood borne pathogen kit, which included masks, gloves, and cleanup supplies (OATS, Inc. 2012).
- The Transit Authority of Northern Kentucky (TANK) developed a wellness committee, which offered flu shots and other vaccinations to employees. They also had affixed hand sanitizers on buses and distributed hand sanitizers and masks to drivers in case of a pandemic scare (TANK 2012).

3.1.4 Effective distribution of vaccines and medical countermeasures

A few of the agencies interviewed highlighted procedures they had in place to support the mass dispensing of vaccines and medical countermeasures, such as protective equipment, sanitizing equipment, and medication.

- Some state agencies, such as Illinois DPH, required local health departments to have a plan for distribution and mass dispensing of medical countermeasures, which they reviewed and evaluated periodically. In addition, Illinois DOT took aerial photographs of distribution warehouses and other facilities across the state in order to identify transport routes that maximized accessibility to all areas of the state (including rural areas) as well as minimized potential traffic or other obstructive issues (Illinois DOT 2012).
- TANK arranged for alternative fuel and maintenance locations to be setup to supply fuel to vehicles used for vaccine distribution (TANK 2012).
- The Northern Kentucky Health Department had a partnership with a private physicians group, hospitals, and other private medical providers to exchange information and updates on disease outbreaks to assist in more effective planning (Northern Kentucky Health Department 2012).

3.1.5 Support for people with access and functional needs

A small number of agencies and organizations interviewed noted current practices for handling the needs of people with access and functional needs in an emergency or pandemic.

- Illinois DOT considered the provisions made for people with access and functional needs before approving local municipality medical distribution plans. The Illinois DPH worked in turn with DOT to locate specialized vehicles for transportation during emergencies for people with disabilities that affect mobility (Illinois DPH 2010).
- The Mid-America Regional Council (MARC) was in the process of developing a database for the Veterans Transportation and Community Living Initiative, which identified veterans with access and functional needs. They also developed a Special Transportation and Job Access Partnership Committee, which focused on transportation services for older adults, people with disabilities, and low income populations (MARC 2012).
- Some pandemic plans and guidance documents reviewed provided recommendations for considering the transportation needs for people with access and functional needs. For example, the King County (Wash.) Metro system's (2006) pandemic plan emphasized

services to groups with access and functional needs. Gallaudet University and Kendall Demonstration Elementary School on the GU campus had significant current practices for riders with functional and access needs (Gallaudet University 2012). For example, all drivers were practiced in American Sign Language. However, they had no plans for addressing flu that were specific to transit.

Note that FEMA's National Response Framework provided a new definition of the term "special needs populations" that is function based. This definition reflected a need rather than a condition, diagnosis, or label. Individuals may have additional needs before, during, and after an incident in functional areas, including but not limited to: maintaining independence; communication; transportation; supervision; and/or medical care. Individuals in need of additional response assistance may include: people with disabilities; people who live in institutionalized settings; elderly; children; people from diverse cultures; people with limited English proficiency; non-English speaking; and/or transportation disadvantaged.

3.1.6 Training and drills

Several agencies identified current practices in training transportation workers who played a role in pandemic response.

- The Alaska DOT (2012) and Illinois DPH (2012) conducted annual drills and/or trainings to simulate pandemic situations with medical providers and emergency responders.
- The Northern Kentucky Health Department (2012) held several exercises to address dispensing medications, including a drive-through exercise at seasonal flu shot clinics.
- OATS (2012) provided training to drivers on assisting people with mobility devices and developmental disabilities.

3.2 Innovations

We identified pandemic planning innovations during the interviews, including more effective preventative measures, specialty training, and information management tools, described below.

- **Drive through vaccinations:** A Director in the IDT noted that while in his previous position at Michigan DOT, they used and retrofitted a maintenance garage on the corner of two main roads in the region to serve as drive-through flu shot centers (IDT 2012).
- **Information management:** The Kansas City, Missouri, transit authority had a database with thousands of agencies listed that operators can search by typing in keywords to identify services and explore available programs. They could also look up services by zip code. Kansas City was working to change their database so that information can be shared with St. Louis' transit authority and anyone can call from anywhere to get information. During a pandemic, staff could create an event in the database so that their call-takers could pull up different services organized by topic (e.g., transportation, flu clinics) and update the database to reflect current information (MARC 2006).

The IDT (2010) proposed the development of Joint Information Centers in states to set up adjacent to command centers that coordinate the type of information that needs to be distributed to agencies and the public.

- **Remote communication technology:** Several interviews expressed the importance of innovative communication technology (e.g., the ability to take people's temperatures remotely). The IDT (2010) also developed a backup communication network (in place of their state radio network) that they can use to communicate with workers, which is being converted by the state police into a larger system.

3.3 Gaps

Gaps in pandemic planning for transportation systems were identified based on the survey responses and interviews as well as our experience in emergency management and planning. The majority of agencies interviewed noted that gaps in pandemic planning were largely due to limited resources (staff) and funding availability. Key aspects of the plans that were limited or missing included: (i) pandemic-specific planning measures; (ii) coordination in planning efforts; (iii) planning for persons with disabilities; and (iv) small urban and rural transit considerations. We describe these gaps in detail below.

3.3.1 Lack of pandemic-specific planning

The most noticeable gap was a lack of pandemic-specific planning across all types of agencies and organizations (COAST Bus 2012; Santee Wateree Regional Transportation Authority (RTA) 2012; MARC 2012; CTAA 2012). A few of the state agencies included pandemic planning only as a small part of a larger emergency response or continuity of operations plan. For example, the Northern Kentucky Health Department (2012) had an all-encompassing emergency operations plan that addressed tornadoes, flooding and other types of events, including a small section on pandemics. OATS (2012) noted that the guidelines they received from the Federal Transit Administration defined threat assessments, which they included in the organization's safety and security plans; however, pandemics were not included. United Way in Missouri (2012) noted they had not experienced many pandemic planning efforts in the Kansas City region, although information about the flu had been distributed. In addition, although the National RTAP (2012) held technical briefs addressing pandemics from 2006 and 2009, the members we interviewed were not familiar with them.

3.3.2 Limited coordination of planning efforts

Many non-governmental and other organizations interviewed identified a lack of coordination between associations, private partners, and state agencies as a gap in pandemic planning. As noted above, many agencies did not have pandemic plans in place and were not included in or aware of pandemic planning activities in their area. Accordingly, many were unaware of plans for business continuity in their own organizations and their roles and responsibilities to provide assistance in an emergency or disaster. In the event of a pandemic, some transit agencies suggested they could potentially play a role during the response phase. However, they were not involved in any local or statewide planning efforts. In addition, small transportation organizations and nonprofits that could play a part in serving transportation needs in a pandemic were hesitant because the associated costs were uncertain and funding availability was limited.

3.3.3 Limited planning for persons with disabilities

In general, most of the organizations and agencies interviewed did not address accommodating people with access and functional needs in their existing pandemic planning efforts. One transport service provider for people with access and functional needs noted that funding agencies, such as the Area Agency on Aging, had access to records of people in need of specialized assistance. However, a

challenge was ensuring that smaller organizations that often deal with the transportation of elderly and disabled populations have access to this information (OATS, Inc. 2012). A survey respondent also noted that communicating procedures to non-English speaking populations (e.g., Spanish, Arabic, Mongolian, Vietnamese, Korean, and South Asian) was also important to consider, especially when these populations also experience additional mobility or disability issues.

Only some of the pandemic preparedness and emergency transportation reports and guidance documents we reviewed specifically addressed the transportation needs of persons with disabilities during a pandemic. Much of the disability and disaster literature assumed that personal transportation was the only option for people with access and functional needs during an emergency. However, FEMA, in the National Response Framework and the Comprehensive Preparedness Guide 101 Version 2, emphasized the need to consider and plan for the Whole Community when preparing for emergencies, including people with access and functional needs who may need additional assistance (including transportation). Transit Cooperative Research Program Report 150, Communication with Vulnerable Populations, A Transportation and Emergency Management Toolkit, provides steps and tools to create a network of community agencies, organizations and individuals to address transportation and communication needs.

3.4 Issues/Concerns

During the interview and survey processes, the project team noted practices, issues, or concerns that were likely to hinder transportation organizations' ability to implement successful pandemic planning and response strategies.

The sections below describe the following issues/concerns in detail: (i) lack of resources specifically for small urban and rural transit; (ii) communication considerations for small urban and rural transit; (iii) bus and rail agencies' level of involvement in statewide planning; and (iv) participation in emergency management and planning efforts with other organizations.

3.4.1 Lack of resources and funding for small urban and rural transit

As noted in the discussion of gaps above, most agencies attributed gaps in pandemic planning to limited funding. This was a significant concern because the interview and survey participants found it hindered the pandemic planning process.

A lack of awareness of available guides and resources for supporting pandemic planning – primarily for small urban and rural transit agencies – was also a concern. Only five documents in the literature review directly addressed small urban or rural transit agencies, while 28 others were potentially relevant to those agencies. These documents provided step-by-step guidelines or checklists, pertinent planning and operations resources, and information necessary to facilitate coordination across the response spectrum. However, there were likely to be challenges in applying the tools and concepts from these documents to meet the needs of small urban and rural transit agencies.

3.4.2 Communication considerations for small urban and rural transit

Some interviewees noted that limited broadband and internet access throughout a state (especially in rural areas) was an obstacle in communicating necessary information on pandemics. For example:

- North Carolina DOT (2012) noted that the diversity of places from rural counties to large cities created challenges in orchestrating a comprehensive response and communication strategy during emergencies.
- The CTAA (2012) noted that some of their members might use a dial-up system to access the internet, so they made sure that the electronic version of their magazine was easily downloadable and available in a range of information platforms, from video webinars to printed materials.

3.4.3 Transit agencies' level of involvement in statewide planning

The project team's general impression from the interviews was that transit agencies (e.g., bus and rail services) are frequently left out of state-level planning. One transit agency mentioned a lack of involvement in the planning process on a statewide level; however, it had agreements with local entities in the event of an emergency (e.g., sending a vehicle to help evacuate a nursing home).

In addition, our interviews with state agencies indicated that coordination with transit organizations occurred largely at the local, not state level (e.g., Illinois DPH and Idaho DOT). For example, TANK belonged to the Kentucky Outreach and Information Network (led by the Northern Kentucky Health Department), a local network of volunteers who have agreed to be conduits of information in emergencies and other significant events. North Carolina DOT noted that local governments were working with both local partners (including bus services) and the state to help build a statewide plan.

The Alaska DOT interview respondents also stated that this was a core part of its planning process and that they coordinated on the statewide plan. Specifically, they work with airports, Marine Highways, ferry systems, and cruise ships for commercial services in the planning process (note that rail and bus services are not significant in Alaska). Therefore, coordination with local transit services is an essential component that is often missing.

3.4.4 Participation in emergency management and planning efforts with other organizations

Question 13 of the survey specifically asked respondents whether their organization had a "seat at the table" in the appropriate Emergency Operations Center (EOC) during a pandemic. Eight of the 47 survey respondents answered "no," and 15 respondents either said they did not know or skipped the question. One respondent had tried repeatedly to be included in the EOC. Another respondent's organization had a seat at the table, but its providers did not. OATS made their vehicles available on a local level during an emergency, but they were unsure of any larger planning efforts. They noted that their vehicles and resources could be beneficial to a wider community.

Thus, while 20 respondents answered "yes" to the survey question about participating in the EOC, there seemed to be many other agencies that experienced obstacles in becoming involved in emergency management operations or were unaware of such efforts.

3.5 Stakeholder Feedback on Draft Guide

As described in Section 2.4, based on the current practices, gaps, and innovations we identified above, we developed a draft Guide that was distributed for stakeholder feedback. Below we summarize the feedback received from the webinar and from interviews conducted on the phone and via email. Next, we highlight the modifications that were made to the Guide as a result of the stakeholder review process.

3.5.1 Webinar Feedback

During the webinar, a poll was conducted with the participants on the status of their organization's pandemic planning (see Table 5). The webinar participants had more pandemic planning experience than we anticipated, with 14 individuals from organizations that had a pandemic plan complete or in development.

Table 5: Poll of Organization Pandemic Planning Status

Status of your organization's pandemic planning:	Number of Responses	Percentages
Has a pandemic response plan	11	69%
Is considering or developing a pandemic response plan	3	19%
Does not have a pandemic response plan	2	12%

Following review of each chapter of the Guide, participants were polled on the effect of the Guide on their confidence in their organization's capacity to create a pandemic plan (see Table 6).

Table 6: Poll of Opinion on Pandemic Planning Guide

The pandemic planning Guide gave me a greater level of confidence that my organization (check all that apply):	Number of Responses	Percentages
Can improve its pandemic planning by using this resource	6	46%
Has pandemic planning that is on target	6	46%
Can do pandemic planning	4	31%

The research team also solicited feedback from the participants, specifically on the four discussion questions. Two participants gave positive feedback, but specific suggestions for improvement were limited. The Miller-Keystone Blood Center stated that the Guide would be a useful adjunct to its current pandemic response plan, and recommended that the Guide include a description of the CDC's pandemic response stages. The Department of Veterans Affairs said that the overview looked very comprehensive and looked similar to the outline that at one of its hospitals. The California Governor's Office of Emergency Services asked about tying local plans to state and local government plans and how the Guide fit into that aspect of planning. We also received positive feedback on the tools section of the Guide.

3.5.2 Follow-up Interviews

OATS, Inc. and the Transit Authority of Northern Kentucky gave feedback by email in response to our outreach for in-depth interviews. Both stated that they found the Guide comprehensive and easy to follow. They also praised the usefulness of the checklists and tools included in the Guide and stated they would like to use it to help augment their emergency management plans.

We conducted three telephone interviews. One interview was with the Monmouth Ocean Hospital Service Corporation (MONOC), a nonprofit company providing interfacility transportation, emergency response, and critical care transportation for about a third of the state of New Jersey. Overall, MONOC found the Guide to be well written and organized, and specifically commended the section pertaining to providing transportation services for ill passengers. MONOC made specific suggestions as follows:

- Provide more specific detail in providing “how-to’s” (e.g., example training programs for bus drivers in a pandemic, sample policy documents for dealing with clean-up of a contaminated bus);
- Make certain sections more concise (e.g., pharmaceutical interventions); and
- Add links to more detailed information (e.g., the CDC, Flu.gov, the Occupational Safety and Health Administration, and local health departments).

We also conducted a telephone interview with the Miller-Keystone Blood Center, who found the Guide to be a useful reference for its own pandemic planning. In particular, the center praised the utility of the checklists and tables at the end of the Guide. The center’s primary suggestion was to provide some information regarding the World Health Organization’s (WHO) pandemic phase system, which guides health-related organizations globally on preparation and response to the threat of a pandemic disease outbreak. The Miller-Keystone Blood Center grades its preparedness and response on these phases; by phase 4 (human-to-human transmission of an animal or human-animal influenza reassortant virus able to sustain community-level outbreaks has been verified), the center initiates significant public outreach and education programs. The Miller-Keystone Blood Center also mentioned the CDC’s official pandemic and said the organization’s graded response to pandemics would compensate for a potential lag time between the beginning of an outbreak and announcements from the CDC.

Lastly, we interviewed a stakeholder from the First Bank of North Carolina, who said the Guide gave a better perspective on how a pandemic might affect the transportation industry, and suggested that we consider mentioning that transportation agencies should be prepared for cash shortages during a crisis.

3.5.3 Guide Modifications

Overall, we received positive feedback on the draft Guide and incorporated specific suggestions in the draft final Guide (dated September 13, 2013), including:

- Provide more “how-to” details;
- Make the Guide more concise, when possible; and
- Provide more links to information from CDC, Flu.gov, the Occupational Safety and Health Administration, and local health departments.

However, we received a few suggestions that our study team decided not to incorporate, as follows:

- **Provide information on WHO and CDC’s pandemic stages and phases:** As discussed during the interim meeting with the panel, WHO and the U.S. DHHS had previously defined phases of a pandemic, but these organizations no longer recommended using those concepts.
- **Describe how local plans can be tied to state and local government plans:** This suggestion reflected the perspective of a state-level stakeholder, which is not the target audience of the draft Guide.
- **Mention that transportation agencies should be prepared for cash shortages during a crisis:** Since the Guide already addressed budget considerations, we did not add information about cash shortages.

CHAPTER 4

Conclusions and Implementation Plan

The Abt Associates Team developed a comprehensive and accessible pandemic planning Guide for use by small urban and rural public transportation agencies, human service transportation providers, and state DOT agencies. However, significant efforts will be necessary to ensure that the Guide is put into practice widely and properly by the target audience. While products of the NCHRP are developed to be useful to practitioners, these products are not always utilized in the target audience's day-to-day work. Despite significant efforts by the TRB to actively promote research products (through the e-newsletter, website, and annual meeting), common feedback suggests a lack of knowledge among practitioners about existing TRB research products. The purpose of this section is to describe steps that have been taken to ease implementation of the Guide and outline efforts that could be made in the future to ensure successful and widespread implementation of the Guide.

It is important to note that once the Guide is published, we recommend it should be revised and updated regularly (at least every three years) based on feedback from the target audience as it is reviewed and implemented.

4.1 The Guide

The Guide itself has been written and structured to facilitate the implementation of its recommendations by the end user. To achieve this, the Guide's style and content incorporate the following elements:

- **Ease of use:** The Guide has been written with the busy, resource-limited professional in mind. The Abt Associates team has made significant revisions to the original draft of the Guide to make it more concise and to make the Guide easier to read and understand.
- **End-user adaptability:** Included in the Guide are reproducible, adaptable resources, tools, and templates that can be tailored to meet the individual needs of all end-users.
- **Thoroughness:** To ensure the Guide conveys a complete process from start to finish, it is based on the fundamental assumption that the end user is starting from the beginning. An exhibit in the Guide provides instructions to end users on how to utilize the Guide depending on the size of their organization and their emergency management experience level. This approach helps readers use the Guide in an effective and time-efficient manner.
- **Actionable items:** The Guide provides practical "how-to" steps that are actionable and realistic. Vague language (e.g., "the practitioner should") has been replaced with steps showing how the work can be accomplished.
- **Aesthetically pleasing:** Graphic design elements, such as illustrations, text boxes, sidebars, and other formatting components have been incorporated to make the Guide user-friendly and the content more manageable to digest and use.

The Guide includes the following assessment tools and checklists that enable the end-user to assess their pandemic planning needs and begin to create their own plan:

- Sample Pandemic Activation Matrix;

- Pandemic Vulnerability Assessment;
- Decision-Making and Partnership Planning Tool;
- Preventing the Spread of Disease Checklist;
- Providing Services During a Pandemic Checklist;
- Workforce Checklist; and
- Public and Media Relations Checklist.

End users are pointed toward additional resources to complement the tools and information contained within the Guide. The external resources referenced in the Guide do not require the reader to go to the site in order to complete the work outlined in the Guide. Contained within the Guide is a distillation of the research, making it unnecessary for the busy professional to seek additional resources unless they desire to do so.

4.2 Intended Audiences

The Guide and its tools are intended to be used primarily by rural and small urban transit organization planners, planning committees, and administrative personnel. More specifically, the target audience for the Guide is transportation agency personnel with emergency response responsibilities, especially those who have responsibilities for pandemic flu planning and response. However, this Guide can also be used by all types and sizes of transportation agencies and organizations who may have achieved different levels of preparedness for pandemics.

4.3 Impediments to Implementation

Effective pandemic planning and response requires shared responsibility, coordination, and collaboration among public and private sector organizations with emergency response capabilities and responsibilities. These organizations include those focused on public health, emergency management, transportation, or public transit, as well as community-based transportation providers, faith-based organizations, and others. However, public sector agencies may have a tendency to work in “silos” due to barriers such as “turf” issues, lack of funding and staff resources, policy differences, and overburdened staff. In addition, lack of federal funding has impacted public health and pandemic preparedness, particularly for agencies with a range of related critical functions, including: responsibility for maintaining the transportation system; protection of critical infrastructure and key resources; providing continuity of operations guidance to public and private employers; and ensuring a strong, sustained law enforcement presence.

In sum, these impediments can be characterized as follows:

- **Budgetary Constraints:** Many transportation organizations are currently under intense budgetary constraints that pose challenges to day-to-day operations. Expending time and resources for pandemic planning, which is considered to be a “low frequency/high consequence” event, may be problematic.
- **Lack of Resources:** Our literature review was only able to identify five documents in the literature that directly addressed small urban or rural transit agencies, although an additional 28 documents with other target audiences may be of some relevance. These documents provided step-by-step guidelines or checklists, pertinent planning and operations resources, and

information necessary to facilitate coordination across the response spectrum. However, there are likely to be challenges in applying the tools and concepts from these documents to meet the needs of small urban or rural transit agencies.

- **Abstract Nature of the Threat:** Disease outbreaks are difficult to conceptualize, especially for organizations whose focus is on tangible delivery of transportation services.
- **Cultural Barriers/Turf battles:** There are existing cultural and perception barriers between public health and transportation organizations including mindset, nomenclature, priorities, and approaches to emergency management. In our survey of transportation agencies, only 20 of 47 respondents indicated they had a “seat at the table” in the appropriate EOC during a pandemic. Further, it is difficult to predict with any certainty how the small and rural transportation community will react/respond to the conflicting need to provide essential services to a sick population versus the clinical suggestion to deny service to those who are ill or drastically reduce services because of a sick workforce.
- **Infrequent Nature of the Threat:** Disease concerns in recent memory have not resulted in a high morbidity/mortality outbreak (e.g., anthrax, smallpox, SARS, H5N1, H1N1) with organizational consequences. “Flu fatigue” may also be an impediment to pandemic planning.

4.4 Potential Leaders in Guide Implementation

Diffusion and proper utilization of the Guide can be improved by involving leaders from the transportation and public health fields. Potential transportation partners include:

- **AASHTO’s Special Committee on Transportation Security and Emergency Management** – This committee serves as the voice and leader for state DOTs in developing an approach to transportation security and emergency management among all modes through partnerships with AASHTO, its members, other agencies, and professional organizations on security and emergency management advocacy, research program implementation, policy development, and training and awareness.
- **AASHTO Multi-State Technical Assistance Program (MTAP)** – Amongst other duties, MTAP supports a network for professionals working for state public transportation agencies to share best practices, receive technical assistance, and obtain new ideas.
- **American Public Transportation Association (APTA)** – APTA has a Small Operations Committee that consists of transit officials of systems operating less than 100 buses. This committee provides a forum for information dissemination and other activities of mutual interest to small operators. Other APTA committees, such as the Research and Technology Committee and Safety and Security committees (there are several), present important opportunities for outreach and will want to be involved. APTA also has a strategic partnership with TRB that can be tapped. Other aspects of APTA that can be utilized include:
 - The resource library where the final product can be listed; and
 - Numerous meetings and conferences where outreach and dissemination of the product can be facilitated (e.g. the Risk Management Seminar).
- **Community Transportation Association of America (CTAA)** – The CTAA supports effective public and community transportation throughout the United States. A liaison from the CTAA sits on the NCHRP panel and can assist with receiving help from this organization.

- **National Rural Transit Assistance Program (RTAP)** – National RTAP serves the needs of rural, small urban and tribal transit operators by developing and distributing training materials, providing technical assistance, generating reports, publishing best practices, and conducting research.
- **State Agencies and DOTs** – State agencies that deal with transportation, especially DOTs, could use their credibility and local knowledge to help promote the Guide to small urban and rural transportation agencies in their area.
- **TRB** – The TRB Annual Meeting attracts more than 10,000 transportation professionals and provides an important opportunity for disseminating and promoting research products. Conducting outreach to committees and subcommittees whose purpose and mission align with this project work can present potential opportunities for proposing workshop topics and presentations for the annual meeting, thus enabling the Abt research team to disseminate the research findings and promote the Guide. Committees of interest include but are not limited to: Security and Emergencies, Transportation Safety Management, Safety and Human Factors, Critical Transportation Infrastructure Protection, Rural Public and Intercity Bus Transportation, Passenger Transportation, and the Public Transportation Group.

Public health partners could include:

- **Association of State and Territorial Health Officials (ASTHO)** – The ASTHO represents public health agencies in the United States, the U.S. Territories, and the District of Columbia, and more than 100,000 public health professionals that these agencies employ.
- **Centers for Disease Control and Prevention (CDC)** – The CDC is a leader in the field of emergency preparedness and response, especially as it pertains to pandemics. More information can be found on their websites: <http://emergency.cdc.gov/cerc/panflu/> and <http://www.flu.gov/>
- **National Association of County and City Health Officials (NACCHO)** – NACCHO has several programs that align with the applications of the Guide. NACCHO's preparedness work focuses on activities related to both practice and policy. NACHHO also serves as a conduit through which local input can reach and effect positive change on national initiatives.
- **State and local Departments of Public Health (DPHs).**
- **United States Department of Health and Human Services (DHHS).**

Members of the project team have pre-established connections to many of the organizations listed above. This can help in providing immediate and credible access to these leaders.

At an earlier stage during the development of the Guide, 20 organizations participated in extended telephone interviews. They are interested in using the Guide and may share it with partner organizations. These organizations include:

- Alaska DOT & Public Facilities;
- COAST (New Hampshire);
- Gallaudet University/Kendall Elementary (District of Columbia);
- Idaho Transportation Department;
- Illinois DPH;

- Illinois DOT;
- Louisiana State University – Health Sciences Center;
- Mid-America Regional Council;
- National RTAP;
- North Carolina DOT;
- North Carolina DPH;
- Northern Kentucky District Health Department;
- OATS, Inc. (Missouri);
- Pandemic Region E (Federal Districts IX and X, California);
- Rutgers / National Transit Institute;
- Santee Wateree Regional Transportation Authority (South Carolina);
- Spartanburg Area Regional Transit Agency (South Carolina);
- Tennessee State Public Health Agency;
- Transit Authority of Northern Kentucky; and
- United Way 2-1-1.

4.5 Online Implementation Support

There are many resources on the internet that can help support the implementation of the Guide. The Guide can be marketed on various websites such as flu.gov and the websites of the Center for Infectious Disease Research and Policy (<http://www.cidrap.umn.edu/>) and the National Center for Disaster Preparedness (<http://ncdp.columbia.edu/>). Continued discussion and outreach about the product can occur via the online social networks of transportation professionals such as groups on LinkedIn. In addition, the project blog (available at: <http://pandemictransportation.wordpress.com/>) could be maintained in order to facilitate dissemination of the Guide.

End users may require training in order to understand the usefulness of the product and to incorporate the guidance into their all-hazards emergency response plans. One low-cost way to deliver basic training for the tools included in the Guide is to create “how-to” YouTube videos. This is a similar approach taken by CDC as detailed in its social media health communicator’s guidebook (see http://www.cdc.gov/socialmedia/tools/guidelines/pdf/socialmediatoolkit_bm.pdf).

4.6 Measuring Implementation Progress and Consequences

We propose the following criteria for judging the progress and consequences of implementation:

- Given an identified group of planners from a selection of end users, the planners would be able to successfully incorporate 20% of guidance content into their organization’s emergency plan as determined by a third party evaluation.

- Given an identified group of transportation officials from small urban and rural transportation organizations, the officials would be able to successfully participate in a series of tabletop, functional, and field/full-scale exercises and substantially meet exercise objectives.

References

- Alaska Department of Transportation (DOT) & Public Facilities, telephone interview, November 29, 2012.
- Arizona Department of Health Services. 2008. *Arizona Pandemic Influenza Operational Plan*. Phoenix, AZ.
- California Division of Mass Transportation. *FTA Section 5311*. Division of Mass Transportation. Accessed December 19, 2013. <http://www.dot.ca.gov/hq/MassTrans/5311.html>
- Cooperative Alliance for Seacoast Transportation (COAST Bus), telephone interview, October 3, 2012.
- Community Transportation Association of America (CTAA), telephone interview, December 13, 2012.
- Federal Transit Administration. 2005. *FTA Authorization Fact Sheet: Urbanized Area Formula Grants*. http://www.fta.dot.gov/documents/FTA_Urbanized_Formula_Fact_Sheet_Sept05.pdf
- Federal Transit Administration. 2000. *The Urbanized Area Formula Program and the Needs of Small Transit Intensive Cities: Report to Congress*. Report Number FTA-TBP10-00-04. <http://www.fta.dot.gov/7918.html>
- Gallaudet University, telephone interview, November 21, 2012.
- Idaho Transportation Department (ITD). 2010. *Continuity of Operations Plan*. Boise, ID.
- Idaho Transportation Department (ITD), telephone interview, November 30, 2012.
- Illinois Department of Public Health (DPH). 2010. *Pandemic Influenza Preparedness and Response Plan*. Springfield, IL.
- Illinois Department of Public Health (DPH), telephone interview, November 28, 2012.
- Illinois Department of Transportation (DOT), telephone interview, November 20, 2012.
- King County (WA) Department of Transportation. 2006. *King County Metro Pandemic Flu Plan, Summary*. Seattle, WA. <http://www.mrsc.org/govdocs/k5metrotranspandemicflu.pdf>
- Mid-America Regional Council (MARC), telephone interview, October 30, 2012.
- North Carolina Department of Transportation (DOT), telephone interview, November 20, 2012.
- Northern Kentucky Health Department, telephone interview, October 24, 2012.
- OATS, Inc., telephone interview, November 8, 2012.
- Rural Transit Assistance Program (RTAP), telephone interview, November 16, 2012.
- Santee Wateree Regional Transit Authority (RTA), telephone interview, November 7, 2012.

Transit Authority of Northern Kentucky (TANK), telephone interview, November 1, 2012.

United Way, telephone interview, October 23, 2012.

APPENDIX A

Summary of Literature and Available Plans

Below we present a summary of the literature and plans identified via the interviews and survey research. The information is categorized into four groups: (i) domestic and international government guidance and reports, (ii) state and local pandemic plans, (iii) journal articles, and (iv) non-governmental organization reports. For each document we provide a brief overview, current practices, and gaps and opportunities for improvement.

In the descriptions of current practices, we included strategies that were: identified by the documents' authors as "best" practices or key practices, recommended by the authors of many documents, or demonstrated to be effective through research or prior experience (as described by the authors). We defined gaps and opportunities for improvement as needs or opportunities for improving the preparedness and response to a pandemic, as identified by the documents' authors. If a document did not describe current practices or gaps, we denoted this as "(None identified)."

Note that some of the guidance we found may be outdated. In particular, the World Health Organization (WHO) and the U.S. Department of Health and Human Services (DHHS) had previously defined phases of a pandemic, but these organizations no longer recommended using those concepts.

A.1 Domestic and International Government Guidance and Reports

(CDC) Centers for Disease Control and Prevention. *Pandemic Influenza Preparedness and Response for People with Disabilities*. 2009.

http://www.aucd.org/template/news.cfm?news_id=4660&parent=&parent_title=Resources&url=template/news_mgt.cfm?type%3D550%26topic%3D139%26%26parent%3D677

- **Brief Summary:** This is a presentation on incorporating people who are disabled into pandemic planning, with a discussion emphasizing the lack of data on disabled population estimation and reaction to pandemics.
- **Current Practices:** This presentation recommends that disability questions be routinely included in all data collection related to pandemic influenza. It also recommends including people who are disabled and care-givers in the planning process.
- **Gaps and opportunities for improvement:** This report listed some issues that make people with disabilities more vulnerable, such as lack of data on the experience of people with disabilities in emergency events and lack of accessibility to information and health services. The major gap identified is that there are no data on how people with disabilities have been affected by previous outbreaks of pandemic influenza.

(CDC/ATSDR) Centers for Disease Control and Prevention, Agency for Toxic Substances and Disease Registry, Committee on Community Engagement. *Principles of Community Engagement*, Second Edition. Atlanta, GA, CDC, Public Health Program Office. 2011.

http://www.atsdr.cdc.gov/communityengagement/pdf/PCE_Report_508_FINAL.pdf

- **Brief Summary:** This document provides public health professionals, health care providers, researchers, and community-based leaders and organizations with both a science base and practical guidance for engaging partner organizations in projects and planning. The report reviews community engagement literature, collects information on how to manage organizational support for community engagement, and reflects on the challenges on engaging the community. While this document does not provide direct commentary on pandemic or public transit planning, it does contain information on vital components of planning.
- **Current Practices:** (None identified)
- **Gaps and opportunities for improvement:** (None identified)

Congressional Research Service. *Pandemic Influenza: Domestic Preparedness Efforts*. Domestic Social Policy Division. 2005. <http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA450401>

- **Brief Summary:** This report discusses the pandemic preparedness plans of WHO and the U.S. DHHS, as well as relevant policy issues. Specific issues that are discussed include the feasibility of stopping a pandemic, federal coordination and roles in pandemic response, rationing resources during a pandemic, and vaccine supply and use.
- **Current Practices:** The report emphasizes the importance of coordination across sectors beyond health care and public health, such as transportation.
- **Gaps and opportunities for improvement:** The report identifies gaps in local officials' ability to participate in multi-sector coordination, since most federal programs that engage with state and local jurisdictions are sector-specific. The author mentions the Department of Transportation's (DOT's) relationship with transit agencies as an example. An opportunity for improvement is to conduct a large-scale exercise of pandemic response that is focused on coordination across sectors.

(DHHS) Department of Health and Human Services. *Assessment of States' Operating Plans to Combat Pandemic Influenza*. Report to Homeland Security. 2009. http://www.flu.gov/planning-preparedness/states/state_assessment.pdf

- **Brief Summary:** The report summarizes the federal agencies' and offices' assessment of states' pandemic plans. The plans were measured against strategic goals and operating objectives. The operating objective related to transportation is "sustaining transportation systems."
- **Current Practices:** According to the report, there are three areas for sustaining transportation systems where states generally have effective plans: (1) communication with neighboring transportation authorities, stakeholders, emergency response, and other officials involved in transportation plans or procedures; (2) communication with Federal Operations Centers; and (3) providing public service announcements and starting public safety campaigns.

- **Gaps and opportunities for improvement:** States generally have significant gaps in the following issues related to cleaning and sanitizing: implementing methods for transportation systems and cargo and preparing public transportation systems for future use. Some states require improvement in their plans for keeping people and goods moving.

(DHHS) Department of Health and Human Services. *Correctional Facilities Pandemic Influenza Planning Checklist*. 2007. <http://www.flu.gov/planning-preparedness/business/correctionchecklist.pdf>

- **Brief Summary:** This checklist is a tool for prison and jail systems to use to assess pandemic preparedness. Topics include developing a pandemic plan and important elements that each system and facility's plan should include. The checklist suggests accounting for disruptions in public transportation when planning for employee absences during a pandemic.
- **Current Practices:** The checklist identifies several elements that all systems' and facilities' plans should include. Examples are: an education and training plan, an infection control plan, and coordination with other agencies and organizations.
- **Gaps and opportunities for improvement:** (None identified)

(DHHS) Department of Health and Human Services. *Interim Guidance for Cargo Trucking Crews for the Prevention of Pandemic Influenza*. Undated. http://www.flu.gov/planning-preparedness/transportation/cargo_trucking.html

- **Brief Summary:** This document is designed to inform cargo trucking management and crew personnel of tactics to reduce workplace influenza transmission. The guidelines presented are meant for government, cargo carriers, and for-hire motor carriers but they are applicable to any transit situation where people or cargo are being transported.
- **Current Practices:** Generally, this document focuses on tactics for minimizing disease transmission through personal interactions and cargo encounters. Some tactics include text messaging or emailing instead of face-to-face contact or digital meetings rather than in-person meetings.
- **Gaps and opportunities for improvement:** (None identified)

(DHHS) Department of Health and Human Services. *Interim Guidance for Cleaning Transit Stations During an Influenza Pandemic*. Undated. http://www.flu.gov/planning-preparedness/transportation/cleaning_transit_stations.html

- **Brief Summary:** These guidelines describe specific methods to be used when cleaning a transit station during an influenza pandemic.
- **Current Practices:** The guidelines provide recommendations on topics such as: cleaning commonly touched surfaces and electronic items, using disinfectants registered by the U.S. Environmental Protection Agency for use against influenza viruses, and disposal of gloves.
- **Gaps and opportunities for improvement:** (None identified)

(DHHS) Department of Health and Human Services. *Interim Guidance for Passenger Railcar (Transit Vehicle) Cleaning When a Passenger or Crewmember is Visibly Ill During an Influenza Pandemic*. Undated. http://www.flu.gov/planning-preparedness/transportation/cleaning_railcar.html

- **Brief Summary:** These guidelines describe specific methods to be used when cleaning a railcar in which a passenger or crew member became ill with pandemic influenza.
- **Current Practices:** The guidelines provide recommendations on topics such as: cleaning certain surfaces near the passenger or crew member who became ill, using disinfectants registered by the U.S. Environmental Protection Agency for use against influenza viruses, and disposal of materials.
- **Gaps and opportunities for improvement:** (None identified)

(DHHS) Department of Health and Human Services. *Report of the Interagency Workgroup on Pandemic Influenza and At-Risk Individuals*. 2009.

<http://www.phe.gov/Preparedness/planning/abc/Documents/at-risk-panflu.pdf>

- **Brief Summary:** This report focuses on planning for populations that are considered “at-risk individuals” in the case of a pandemic; with regard to public transportation, this means those “who rely on a para-transportation system.” The document first reviews the needs of at-risk individuals and then provides specific recommendations for folding these needs into federal, state, and local pandemic response plans.
- **Current Practices:** For at-risk populations, healthcare providers should develop plans to ensure medication for all populations through the first phase of the pandemic so that communities set up effective mobilization mechanisms for supplies. Furthermore, the community should plan transit for individuals who are transportation-challenged and for the transportation and care for those who work in attendant care. In order to best tend to at-risk populations, the report suggests centralized transportation coordination between public transit, faith communities, and community clubs to minimize hospital burden.
- **Gaps and opportunities for improvement:** Lack of transportation accessibility could generate isolation issues in the instance of a pandemic for certain populations. If public transportation were to lessen service during a pandemic, transportation disadvantaged individuals could become “severely limited in access to basic necessities and health care follow-up.”

(DHHS) Department of Health and Human Services. *State and Local Pandemic Influenza Planning Checklist*. 2005. <http://www.flu.gov/pandemic/history/checklist.pdf>

- **Brief Summary:** This checklist, intended for state and local governing entities, provides specific activities to prepare for pandemics.
- **Current Practices:** This document emphasizes that states and local entities should develop and test a plan for surge capacity of public transit, to prepare for any potential mass crowding that could occur during a pandemic, as well as for potential vaccination distribution. Furthermore,

entities should delineate procedures for isolation or quarantine, and how to transport individuals and enforce containment tactics. It also suggests identifying law enforcement personnel who will be in charge of directing and addressing populations during a pandemic.

- **Gaps and opportunities for improvement:** (None identified)

(DHHS/AHRQ) Agency for Healthcare Research and Quality. *Home Health Care During an Influenza Pandemic: Issues and Resources*. AHRQ Publication No. 08-0018. Rockville, MD. August 2008.

<http://healthvermont.gov/emerg/documents/homehealthcare.pdf>

- **Brief Summary:** This document reviews the work currently being done in home health care planning and preparedness and explores the key issues and challenges of providing home health care services during an influenza pandemic. It is meant to provide guidance for home health care providers and state and local emergency planners.
- **Current Practices:** Many home health care providers may depend on public transit to care for their patients. Therefore, all home health care agencies should be aware of how many of its employees use public transportation and should share those numbers with local planners. This document also recommends the implementation of tele-health technologies during public health emergencies to support patient care and reduce home health care worker and patient exposure risk. These technologies can reduce demands on transportation systems.
- **Gaps and opportunities for improvement:** Approximately one-third of home health care providers cite lack of transportation accessibility as a primary reason for missing work. AHRQ recommends that health care agencies and emergency planners develop a plan to ensure safe transportation for these workers.

(DHHS/CDC) Department of Health and Human Services, Centers for Disease Control and Prevention. *Interim Pre-pandemic Planning Guidance: Community Strategy for Pandemic Influenza Mitigation in the United States—Early, Targeted, Layered Use of Nonpharmaceutical Interventions*. February 2007. <http://healthvermont.gov/panflu/documents/0207interimguidance.pdf>

- **Brief Summary:** This document provides interim planning guidance for state, territorial, tribal, and local communities. It emphasizes non-pharmaceutical tactics to reduce influenza pandemic harm.
- **Current Practices:** In general, this document suggests tactics such as isolation, quarantine, and social distancing as current practices during a pandemic. With regard to public transit, the guidance recommends that changes, such as running additional trains and buses, should ensue during a pandemic if possible given employee absenteeism and transit financial limitations. It is recommended that work schedules stagger shifts to reduce transmission risk, and if risk is high, large gatherings such as concerts should be cancelled or postponed.
- **Gaps and opportunities for improvement:** The results of a survey in the report concluded that 75% of people would cooperate with lifestyle limitation (such as avoiding or limiting public transit use) for a pandemic. The respondents were not asked if they would cooperate longer in the

case of a severe pandemic. The report reminds the reader that Americans should not assume that public transportation will be available during a pandemic.

(DHHS/CDC) Department of Health and Human Services, Centers for Disease Control and Prevention. *Travel Industry Pandemic Influenza Planning Checklist*. March 2007.

<http://www.flu.gov/planning-preparedness/business/travelchecklistpdf.pdf>

- **Brief Summary:** The intended audience for this checklist is travel agencies and air, rail, bus, and cruise lines. The checklist includes sections on the impact of a pandemic on businesses, employers, and travelers, and policies and procedures for pandemic response.
- **Current Practices:** The checklist includes sections on resources to protect employees and travelers, education and communication, and coordination with other organizations.
- **Gaps and opportunities for improvement:** (None identified)

(DHS) Department of Homeland Security. *Guide for critical infrastructure and key resources annex: Mass Transit Sub-Sector Pandemic Guideline*. 2008.

<http://www.dot.gov/pandemicflu/pdf/masstransit.pdf>

- **Brief Summary:** This guide is intended to stimulate the U.S. private sector to take action on pandemic planning. The main guide discusses the roles and responsibilities for levels of government and the private sector in pandemic preparedness and provides specific recommendations and tools for the business community. Specific to transportation, the mass transit annex of the guide includes a list of actions and questions for emergency planners to consider in planning for mass transit response to a pandemic.
- **Current Practices:** In general, the guide encourages full participation from private sector businesses in pandemic preparedness. Such planning should be coordinated across critical infrastructures and the public and private sectors. The guideline for the mass transit subsector provides specific actions and questions to consider related to the following topics: services, functions, and processes; assets and equipment; raw materials and supplies; workers; interdependencies; regulatory issues; and impacts from community disease mitigation strategies.
- **Gaps and opportunities for improvement:** While most critical infrastructure resources are in the private sector, most businesses' contingency plans do not specifically consider catastrophic health emergencies.

(DOJ/ADA) Department of Justice, Americans with Disabilities Act. *Emergency Management Under Title II of the ADA*. Chapter 7: Emergency Management. 2007.

<http://www.ada.gov/pcatoolkit/chap7emergencygmt.htm>

- **Brief Summary:** This is a guide for how to form emergency management programs, services, and activities, with an emphasis on how to incorporate people with disabilities.

- **Current Practices:** Suggested practices include a comprehensive evacuation plan, emergency shelter programs, and access to temporary housing. The guide recommends that emergency plans identify accessible forms of transportation to facilitate evacuation of people with disabilities.
- **Gaps and opportunities for improvement:** (None identified)

Federal Highway Administration, U.S. Department of Transportation. *Transportation Operations during Biohazard Events: Learning Tool*. Available at:

http://www.its.dot.gov/eto/docs/transops_biohazard/learning_tool/index2.htm

- **Brief Summary:** The Federal Highway Administration provides an online tool to help transportation agencies learn about their potential role in addressing a biohazard event and how to improve their plans for these events. One example of a biohazard agent identified in the tool is influenza viruses. The tool discusses the governmental framework for response to a biohazard event.
- **Current Practices:** The tool identifies the several important preparedness activities, such as: developing plans and procedures; coordinating with local, regional, and state agencies to address the needs of special populations during an event; and establishing decontamination protocols. The tool emphasizes how intelligent transportation systems technologies can improve a transportation system's normal operations and their ability to respond to a biohazard event. The tool provides links to several biohazard reports (including a literature review on existing government programs, plans, and guidance on biohazard events) and a toolkit with readiness checklists and tips.
- **Gaps and opportunities for improvement:** (None identified)

(KDHE) Kansas Department of Health and Environment. *The Prepared Lifestyle: Seasonal and Pandemic Preparedness for People with Disabilities*. 2010.

<http://www2.ku.edu/~rrtcpbs/resources/pdf/Prepared%20Lifestyle%20revised%201%202010.pdf>

- **Brief Summary:** This document is a booklet for individuals to prepare for a pandemic. It includes hygiene and lifestyle tips.
- **Current Practices:** This document is a good example of the type of information that should be distributed to individuals. It provides important suggestions for improving preparedness for a pandemic and facilitating centralized pandemic response. The only specific suggestion for public transportation is that it might be best to limit use and service.
- **Gaps and opportunities for improvement:** (None identified)

(NHTSA) National Highway Traffic Safety Administration. *EMS Pandemic Influenza Guidelines for Statewide Adoption*. Undated.

<http://www.nhtsa.gov/people/injury/ems/PandemicInfluenzaGuidelines/>

- **Brief Summary:** The guidelines provide recommendations for pandemic preparation and response for state and local emergency medical services agencies. The document discusses

ensuring that plans and procedures are consistent with the National Incident Management System (NIMS) and the Incident Command System (ICS). Procedures for transporting patients to health care facilities vary by pandemic severity.

- **Current Practices:** The guidelines emphasize participation in community-wide planning and exercises, coordinated system response, and consideration of populations with special needs.
- **Gaps and opportunities for improvement:** (None identified)

Ontario Ministry of Health and Long-Term Care. *Final Report of the Ontario Expert Panel on SARS and Infectious Disease Control*. 2004.

http://www.health.gov.on.ca/english/public/pub/ministry_reports/walker04/walker04_mn.html

- **Brief Summary:** The Ontario (Canada) Minister of Health and Long-term Care established an expert panel on SARS and infectious disease control in 2003. The expert panel's report summarizes lessons learned from the SARS outbreak and provides recommendations on public health emergency planning in Ontario.
- **Current Practices:** The recommendations in the report focus on the establishment of centralized public health and health emergency preparedness agencies in Ontario.
- **Gaps and opportunities for improvement:** (None identified)

Royal Canadian Mounted Police. *The 2003 SARS crisis: prelude to a pandemic?* Gazette, Vol. 69. No. 3, 2007.

http://swissmc.academia.edu/DaleDuchesne/Papers/151420/The_Intelligence_Cycle_Why_Analyst-Client_Feedback_is_Crucial

- **Brief Summary:** This issue of the Royal Canadian Mounted Police's quarterly magazine is largely dedicated to the topic of emergency response. It includes many articles on disaster and pandemic preparedness and response.
- **Current Practices:** There were no specific transit suggestions. However, it was recommended that all staff who were directly or indirectly isolated voluntarily quarantine themselves for 10 days. Therefore, transit authorities should prepare for these potential 10-day employee isolations.
- **Gaps and opportunities for improvement:** Many suggestions for improved response were included in this SARS article and can be related to transportation systems: create a pandemic plan within a corporate incident management system, expand incident command training, enhance training and equipment for all staff, and improve interoperability and coordination between police and external partners.

(RTAP) Rural Transit Assistance Program. *Resource Catalog*. Undated. <http://www.nationalrtap.org/>

- **Brief Summary:** This catalog provides information on the Rural Transit Assistance Program's (RTAP's) available resources for rural transit agencies, including training modules, technical briefs, and web applications.

- **Current Practices:** The training modules focus on a variety of topics such as elderly mobility in Indian Country, emergency procedures for rural transit drivers, and a threat and vulnerability toolbox. The technical briefs include emergency response checklists and a document on transit's role in emergency response.
- **Gaps and opportunities for improvement:** (None identified)

(RTAP) Rural Transit Assistance Program. *RTAP Seasonal Flu Resources*. 2012.

<http://www.nationalrtap.org/Resources/ResourceSearchResults.aspx?org=a2GSpnDbruI=&query=seasonal%20flu%20resources>.

- **Brief Summary:** This is a list of resources put together by RTAP. It provides resources designed to help transit agencies and passengers minimize the effects of the flu season through knowledge and planning.
- **Current Practices:** There are no specific suggestions offered. However, the list links to a guide for businesses dealing with flu pandemics and offers transportation-specific resources.
- **Gaps and opportunities for improvement:** (None identified)

(RTAP) Rural Transit Assistance Program. *Seasonal and H1N1 Flu Resources*. Undated.

<http://www.nationalrtap.org/>

- **Brief Summary:** This document provides lists of websites for general information on pandemic influenza, transit-specific information, posters, fliers, webcasts, and videos.
- **Current Practices:** The transit-specific resources include links to a checklist of actions for essential services, equipment, workers, and mitigation strategies; a customizable presentation to provide basic information to transit employees; a pandemic planning checklist for the travel industry; and a summary of preventive measures that have been taken by transit agencies across the U.S.
- **Gaps and opportunities for improvement:** (None identified)

The White House. *The Federal Response to Hurricane Katrina: Lessons Learned*. February 2006.

<http://library.stmarytx.edu/acadlib/edocs/katrinawh.pdf>

- **Brief Summary:** This report reviews the federal response to Hurricane Katrina and provides recommendations on improving national-level disaster preparedness and response.
- **Current Practices:** The report recommends that the U.S. DOT should coordinate with other federal agencies to improve capacity and plans for evacuation of patients and the transportation of medical supplies and personnel.
- **Gaps and opportunities for improvement:** The report identifies several gaps, including insufficient transportation assets and plans to facilitate evacuation. In addition, response strategies

did not coordinate the protection and restoration of critical infrastructure across key emergency support functions, including transportation.

United States Government. *Federal Guidance to Assist States in Improving State-Level Pandemic Influenza Operating Plans*. 2008. <http://www.flu.gov/planning-preparedness/states/guidance031108.pdf>

Note: This report was prepared by several federal agencies including: Department of Agriculture, Department of Commerce, Department of Defense, Department of Education, DHHS, Department of Homeland Security, Department of Interior, Department of Justice, Department of Labor, Department of State, DOT, Department of Treasury, Department of Veterans Affairs, Homeland Security Council, and the Office of Personnel Management.

- **Brief Summary:** The federal guidance provides a framework for states and territories to improve and maintain their pandemic plans based on assessments of states' pandemic planning processes. The guidance includes information on planning fundamentals and guidance for states to submit planning information for a second round of assessments. There is an appendix on transportation systems.
- **Current Practices:** The appendix on transportation systems recommends that pandemic plans for every transportation mode should include the following three goals: (1) keep goods and people moving; (2) protect transportation workers; and (3) protect the public while using the transportation system. The appendix provides specific actions to meet these goals.
- **Gaps and opportunities for improvement:** The U.S. Government conducted its first round of assessments of states' pandemic planning and determined that there were needs for improved federal guidance and increased state-level efforts to address gaps in preparedness.

United States Nuclear Regulatory Commission. *Interim Pandemic Response Plan*. 2006. <http://safety4public.nrc.gov/reading-rm/doc-collections/commission/comm-secy/2006/2006-0033comscy.pdf>

- **Brief Summary:** This pandemic plan complements the Nuclear Regulatory Commission's (NRC's) Continuity of Operations Plan in order to provide a wider set of operations for a longer period in response to a pandemic.
- **Current Practices:** A primary practice of the NRC regarding transportation is the provision of public transit media distribution depending on the status of available transportation modes. All employees would continue to work at NRC facilities during a pandemic. However, absenteeism would be acceptable if, for example, an employee were unable to reach work because public transportation is closed. The NRC also developed an expanded telework capability for those who may become unable to reach work because public transportation is severely restricted.
- **Gaps and opportunities for improvement:** (None identified)

A.2 Journal Articles

Bell, David M., Isaac B. Weisfuse, Mauricio Hernandez-Avila, Carlos del Rio, Xinia Bustamante, and Guenael Rodier. *Pandemic Influenza as 21st Century Urban Public Health Crisis*. *Emerging Infectious Diseases*, 15(12). December 2009.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3044553/pdf/09-1232_finalPR.pdf

- **Brief Summary:** The authors discuss challenges and strategies for pandemic response in urban areas worldwide. The paper analyzes Mexico City's and New York City's response to the H1N1 virus in 2009.
- **Current Practices:** Important strategies for pandemic response in urban areas include collaboration across public health and emergency management agencies and successful public communication.
- **Gaps and opportunities for improvement:** A challenge related to transportation is finding methods for implementing social distancing and infection control measures in urban settings such as mass transit. In general, coordination with the private sector is an important component of response that needs improvement.

Blendon, Robert J., Lisa M. Koonin, John M. Benson, Martin S. Cetron, William E. Pollard, Elizabeth W. Mitchell, Kathleen J. Weldon, and Melissa J. Herrmann. *Public Response to Community Mitigation Measures for Pandemic Influenza*. *Emerging Infectious Diseases*, 14(5): 778–786. May 2008. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2600239/pdf/07-1437_finalPR.pdf

- **Brief Summary:** This article contains the results of a national survey conducted to understand the public's response to community mitigation interventions for a severe outbreak of pandemic influenza.
- **Current Practices:** About 85% of respondents said that they could keep their children from taking public transportation and attending large public events for about three months, and 89% overall could limit their use of public transportation. Therefore, public transit could plan to readjust service to cater to those who cannot limit their use.
- **Gaps and opportunities for improvement:** The survey findings suggested that most respondents would comply with emergency recommendations but would be challenged if the recommendations severely compromised their incomes or jobs. Furthermore, 24% of respondents did not have anyone available to care for them if they were to fall ill. Therefore, planners need to prepare for ensuring that individuals can maintain their income and jobs during a pandemic alert and for additional caretakers.

Blumenshine, P., Arthur Reingold, Susan Egarter, Robin Mockenhaupt, Paula Braveman, and James Marks. *Pandemic Influenza Planning in the United States from a Health Disparities Perspective*. *Emerging Infectious Diseases*, 14(5). May 2008.

http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2600245/pdf/07-1301_finalP.pdf

- **Brief Summary:** The authors examine the likely impacts of an influenza pandemic and related policies on socioeconomic and racial/ethnic groups in the United States. For instance, low-income and minority groups are likely to experience greater exposure through public transportation, since they make up 63% of public transportation users. Certain groups may receive treatment in a less timely and efficient manner due to transportation obstacles.
- **Current Practices:** To reduce social disparities, pandemic plans should address the needs of vulnerable groups in three key areas: exposure, susceptibility, and treatment.
- **Gaps and opportunities for improvement:** This paper discusses many opportunities for improvement in meeting the needs of socially disadvantaged groups during pandemic planning and response. Health disparities related to transportation include differences in exposure and access to medical care.

Chong, Ka Chun, and Zee, Benny Chung. *Modeling the impact of air, sea, and land travel restrictions supplemented by other interventions on the emergence of a new influenza pandemic virus*. BMC Infectious Diseases 12: 309. Available at: <http://www.biomedcentral.com/content/pdf/1471-2334-12-309.pdf>. doi:10.1186/1471-2334-12-309

- **Brief Summary:** This study examined the impact of regulating air, sea, and land transportation during the 2009 influenza A pandemic in Hong Kong. The authors found that travel restrictions, particularly a 99% air travel restriction, delayed the spread of the virus. In addition, land transportation causes vulnerabilities in spreading a pandemic. However, the authors found that non-transportation strategies used by the government (e.g., antivirals and hospitalization) were more effective in reducing the attack rate than travel restrictions.
- **Current Practices:** The study results indicate that travel restrictions only reduced the spread of a disease with mild transmission intensity. Other important strategies include regular hand washing, voluntary quarantine, school closures, and other social distancing measures.
- **Gaps and opportunities for improvement:** The authors state that travel restrictions do not have widespread social acceptance, but could be highly beneficial.

Germann, Timothy C., Kai Kadau, Ira M. Longini, Jr., Catherine A. Macken. *Mitigation strategies for pandemic influenza in the United States*. Proceedings of the National Academy of Sciences, 103(15): 5935-5940. April 2006. <http://www.pnas.org/content/103/15/5935.long>

- **Brief Summary:** The authors model the impact of various factors (including attributes of the virus and vaccines, as well as characteristics of social mobility such as travel restrictions) on the spread of influenza. Specifically, the study examines the likely timing and location of the spread of disease and the effective medical and social resources for pandemic response.
- **Current Practices:** The results of the study indicate that social distancing measures (e.g., travel restrictions) can slow the spread of highly transmissible strains of influenza.
- **Gaps and opportunities for improvement:** (None identified)

Gostin, Lawrence O. *Medical Countermeasures for Pandemic Influenza: Ethics and the Law*. Journal of the American Medical Association, 295(5):554-556. 2006.

<http://jama.jamanetwork.com/article.aspx?volume=295&issue=5&page=554>

- **Brief Summary:** This journal article discusses the most common pandemic responses, therapeutic countermeasures, and non-pharmaceutical interventions, focusing on the medical countermeasures.
- **Current Practices:** This document does not focus on public transit planning. However, it does include many topics and concerns that are worth considering in transportation planning such as intergenerational equity and how to best inspire public cooperation with emergency plans.
- **Gaps and opportunities for improvement:** (None identified)

Gupta, Rahul and David Abramson. *Comparison of Urban Transit Planning Responses to Pandemic Influenza*. National Center for Disaster Preparedness, Mailman School of Public Health, Columbia University. 2007.

http://www.ncdp.mailman.columbia.edu/files/NCDP%20Research%20Brief%202007_1%20Urban%20Transit%20Pandemic%20Influenza.pdf

- **Brief Summary:** This report compares existing urban transit pandemic plans from seven major U.S. cities and six major international cities. The authors use a set of criteria to create a transit preparedness matrix for each city.
- **Current Practices:** The authors discuss several best practices from the King County Metro system (located in Seattle, WA), including: employing social distancing measures by adding service to high traffic routes, emphasizing services to access and functional needs groups, and instructing employees to sanitize their workspace. (Note that, while we generally use the term “current,” not “best,” practices in this report, the authors of the “Comparison of Urban Transit Planning Responses to Pandemic Influenza” report specifically referred to these strategies as “best” practices.)
- **Gaps and opportunities for improvement:** Areas for improvement in the King County Metro system include detailed plans for service delivery changes and public communications.

Kayman, Harvey and Angela Ablorh-Odjidja. *Revisiting Public Health Preparedness: Incorporating Social Justice Principles Into Pandemic Preparedness Planning for Influenza*. J Public Health Management Practice, 12(4), 373–380. 2006.

<http://test.naccho.org/topics/HPDP/infectious/influenza/upload/2006JPHMP-Kayman-Revisitingpublichealthpreparedness-incorporatingsocialjusticeintopandemicin.pdf>

- **Brief Summary:** The authors review pandemic planning efforts and provide recommendations for integrating social justice principles into pandemic plans.
- **Current Practices:** The authors recommend that those involved in pandemic planning consider the fact that disadvantaged communities are likely to have inadequate transportation, which is an obstacle to accessing vaccinations, medications, and information. In addition, the authors

recommend that public health professionals collaborate with other communities and institutions (such as transportation agencies) to address such obstacles.

- **Gaps and opportunities for improvement:** The authors reviewed the DHHS’ “Planning Guide for State and Local Officials” and identified opportunities for improvement in pandemic planning with regard to access to vaccinations among ethnic and racial minorities and the poor.

Turner, Daniel S., Jay K. Lindly, Menasse T. Kumlachew, Edd Hauser, Sherry Elmes. *Transit Evacuation Planning: Two Case Studies*. University Transportation Center for Alabama. Report Number 08112. June 2010. http://ntl.bts.gov/lib/35000/35400/35439/08112_Final_Report.pdf

- **Brief Summary:** This study examines the transit-dependent population in Mobile County, Alabama, during a major hurricane and recommends strategies for communicating with these populations during all stages of an emergency evacuation.
- **Current Practices:** The study recommends that preparedness plans be tailored to each state’s resources and risk level and that multiple communication systems be used to reach transit-dependent populations.
- **Gaps and opportunities for improvement:** The study identified the following gaps in the county’s preparedness to serve transit-dependent populations during a disaster: (1) a lack of a federal definition of individuals with access and functional needs (as a result, states and planning agencies use varying definitions), and (2) a single communication system cannot effectively reach all transit-dependent individuals.

Upshur, Ross E. G. *Enhancing the Legitimacy of Public Health Response in Pandemic Influenza Planning: Lessons from SARS*. *Yale Journal of Biology and Medicine* 78: 335-342. 2005. <http://www.canprep.ca/publications/yjbm2005.pdf>

- **Brief Summary:** This paper describes the events and lessons learned from the SARS outbreak in Toronto. The paper also discusses an ethical framework for pandemic planning that has been incorporated into Ontario’s pandemic plan.
- **Current Practices:** Related to the gaps below, the paper recommends fairness, transparency, and effective risk communication with the public when making decisions.
- **Gaps and opportunities for improvement:** The paper discusses several ethical issues raised by the SARS outbreak, including organizational issues in setting priorities. Specifically, those with medical needs unrelated to the pandemic must also be given care.

Weisfuse, Isaac B., Debra Berg, Rose Gasner, Marci Layton, Mark Misener, and Jane R. Zucker. *Pandemic Influenza Planning in New York City*. *Journal of Urban Health: Bulletin of the New York Academy of Medicine*, Vol. 83, No. 3. 2006. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2527189/pdf/11524_2006_Article_9043.pdf

- **Brief Summary:** This paper (written by New York City Department of Health and Mental Hygiene staff) summarizes pandemic influenza preparedness planning in New York City, including goals and challenges.
- **Current Practices:** City agencies and critical infrastructure partners (including those in transportation) are encouraged to make plans to keep essential functions operating during a pandemic, consider social distancing policies, and consider increasing their inventories of critical supplies. The authors also emphasize the importance of communication with the public, including risk communication and increased ability to reach non-English speakers. Emergency medical transports have a role in disease surveillance.
- **Gaps and opportunities for improvement:** The authors conclude that the main challenges for pandemic planning in New York City are accounting for population density and diversity, dependency on the mass transit system, and a health care system that is likely to become strained during a pandemic.

White, Glen W., Michael H. Fox, Catherine Rooney, Jennifer Rowland. *Nobody Left Behind: Disaster preparedness for persons with mobility impairments*. The University of Kansas. 2007. <http://www.nobodyleftbehind2.org/findings/Final%20Report%20NLB%20July%202007.pdf>

- **Brief Summary:** This paper is based on empirical research on whether disaster plans and emergency response systems include necessary actions for mobility impaired persons. The research discusses how well current plans meet mobility impaired needs and collects examples of best practices from a sample of historical disasters. (Note that, while we generally use the term “current,” not “best,” practices in this report, the authors of the “Nobody Left Behind” report specifically referred to these strategies as “best” practices.)
- **Current Practices:** The results from this research suggest that all jurisdictions should plan for disasters of all types, and must include surveillance of mobility impaired persons in their preparedness planning. In particular, all first responder trainings, informative material, and communications should include a portion pertaining to people who are disabled. Furthermore, it is recommended that all disabled individuals be trained on how to be proactive with emergency management systems.
- **Gaps and opportunities for improvement:** This research found that there was little representation of mobility impaired persons at the planning stages for emergency plans, and only 21% of emergency managers surveyed were planning to develop guidelines for assisting disabled persons.

Whitley, Richard J. and Arnold S. Monto. *Seasonal and Pandemic Influenza Preparedness: A Global Threat*. *J Infect Dis*. 194 (Supplement 2): S65-S69. 2006. http://jid.oxfordjournals.org/content/194/Supplement_2/S65.full

- **Brief Summary:** This paper provides an overview of a 2006 meeting where participants examined the DHHS’ pandemic plan and provided recommendations for state and local implementation.

- **Current Practices:** The current infrastructure for seasonal influenza should be improved, which would improve preparedness for influenza that becomes pandemic.
- **Gaps and opportunities for improvement:** The response to Hurricane Katrina demonstrated gaps relevant to pandemic influenza. In particular, coordination of assets and communication should be improved at the federal level.

A.3 Non-Governmental, Nonprofit, University, and Private Sector Reports

211 California Partnership. *211 California Rural Mobility Management Planning Study: Improving Human Services Transportation Coordination through Partnership with "211 California."* February 2009. <http://www.cairs.org/211/docs/MobilityManagementPlan090331.pdf>

- **Brief Summary:** This Federal Transit Administration-funded document provides a useful model for implementing mobility management concepts through partnerships.
- **Current Practices:** The study provides steps to improving coordination of existing transportation services to simplify access, identifies strategies for extending transportation service partnerships with providers in rural counties, and includes strategies for emergency operations and response planning. A key recommendation is for rural communities to partner across several counties for transportation purposes during emergency situations.
- **Gaps and opportunities for improvement:** Challenges associated with embracing partnerships as a primary strategy are that it requires a lead organization to take primary responsibility for communications and accountability, involves many organizations updating and changing information, and requires constant maintenance of information.

(ABAHO) Association of Bay Area Health Officers. *Public Transit Guidance: Public Transit Use During Influenza Pandemic.* 2008. <http://www.sfcdep.com/pandemicresponse.html>

- **Brief Summary:** This guidance document provides recommendations to California transit agencies and the public on transit use during a pandemic.
- **Current Practices:** The health officers recommend that public transportation use be limited to essential travel. Infection control recommendations relate to topics such as hand washing and distance between travelers.
- **Gaps and opportunities for improvement:** (None identified)

Aflac. *Pandemic Plan Business Continuity Plan.* 2012. Received via email from Mel Cuertis, Aflac.

- **Brief Summary:** Aflac's pandemic plan for its U.S. facilities describes procedures for response to a pandemic event, as well as resources needed before and during an event. The plan is also intended to promote employees' understanding about pandemics.

- **Current Practices:** Transportation is only mentioned as a “triggering mechanism” that determines which actions should be taken by the company (e.g., infections have occurred near a major transportation hub that serves at least one of the company’s facilities). In such cases, the plan describes social distancing and communication measures that would be taken: restrictions on travel outside of the local area, increased educational communications to employees and limiting access to Aflac facilities for commuters in particular areas. Other measures (not related to a transportation trigger) include an education/information program for employees and leadership.
- **Gaps and opportunities for improvement:** The plan mentions the potential for rumors and misunderstandings about a pandemic event, and aims to provide information to management and employees to minimize these issues.

(APTA) American Public Transportation Association. *Recommended Practice for a Pandemic Flu Response Plan*. 2009. <http://www.aptaerpp.com/pdfs/APTA-SS-SEM-RP-005-09.pdf>

- **Brief Summary:** This document is a guide for transit agencies developing a Pandemic Flu Response Plan (CVRP). A CVRP is intended to be the primary reference guide during a flu pandemic, but is suggested to be used in conjunction with a transit agency’s all-hazards Continuity of Operations Plan (COOP) to provide for comprehensive planning.
- **Current Practices:** The report suggests that transit agencies first identify alert phases of the flu pandemic (e.g., the six phases of flu pandemic as defined by the World Health Organization) that will trigger specific actions. Suggested actions include: developing an information and education program for transit staff and passengers (via press releases); implementing a tiered disinfection program as risk increases including scheduled wipe downs of transit stations; dispensing sanitary aids to staff and passengers such as disposable face masks and disinfectant hand gels at various transit access points; and developing a service reduction plan, system shutdown plan, and a system restoration plan.
- **Gaps and opportunities for improvement:** The primary gap identified in this report was that a CVRP cannot necessarily stand alone as a comprehensive response to a pandemic. Agencies may have to consult their COOP in the event that pandemic flu spreads to the degree that it limits or restricts a transit agency’s service. This document assumes that agencies have COOPs. Furthermore, the report comments that an agency may need an outside contractor for certain levels of cleaning. It is also mentioned that providing facemasks too quickly could “spread baseless concern and fear” to patrons, leading to an “unnecessary drop in ridership.”

Association of Train Operating Companies, National Rail (UK). *Guidance Note: Contingency Planning Arrangements for a Flu Pandemic*. 2008.

https://update.cabinetoffice.gov.uk/sites/default/files/resources/flu_atoc_nr_guidance.pdf

- **Brief Summary:** This document was written as a guide for the Network Rail and Train Operators to plan and implement arrangements prior to and during a flu pandemic. Most recommendations pertain to maintaining the rail business while a pandemic ensues.
- **Current Practices:** This report advises that rail should initiate response measures as soon as WHO declares a pandemic to be in phase 5 (large cluster(s) but human-to-human spread still localized). In preparation for a pandemic, the document suggests stockpiling cleaning supplies

and ensuring items can be sourced from more than one supplier. Other best pre-emptive practices include monitoring the health status of staff and setting up cleaning arrangements for high traffic areas. Beyond these measures, the document provides suggestions for business risk analysis and employee action plans.

- **Gaps and opportunities for improvement:** (None identified)

(ASTHO) Association of State and Territorial Health Officials. *At-Risk Populations and Pandemic Influenza: Planning Guidance for State, Territorial, Tribal, and Local Health Departments*. June 2008. <http://www.astho.org/Display/AssetDisplay.aspx?id=402>

- **Brief Summary:** The Association of State and Territorial Health Officials' (ASTHO's) guidance document provides information on pandemic planning with special consideration to populations that may be at increased risk during a pandemic event. The guidance provides recommendations on data sources for identifying populations that require assistance to use public transportation and discusses transportation as an essential non-clinical public health service. The guidance includes suggestions for organizational exercises, including those for assessing the availability of transportation services.
- **Current Practices:** The guidance recommends that planners emphasize that public health planning should include social service functions such as transportation and that transportation providers focused on serving persons with disabilities participate in emergency planning.
- **Gaps and opportunities for improvement:** Common barriers to preparedness include a lack of baseline data on at-risk populations and a lack of inter-agency coordination across public health, public transportation, and other appropriate agencies.

Brenman, Marc, and Thomas W. Sanchez. *Planning as if People Matter: Governing for Social Equity*. Brochure. 2012. Chicago: Island Press.

- **Brief Summary:** This brochure provides an overview of a book about how to address equity issues in planning.
- **Current Practices:** While the book is broad in scope and does not focus on pandemic planning, it does address disaster response and stakeholder participation, which are relevant issues for transportation planning for a pandemic.
- **Gaps and opportunities for improvement:** The brochure describes the lack of literature that provides real-world examples of planning that addresses inequity.

CalTrans. *Questions for Transit Managers to Consider in Reference to Operational Response to Swine Flu Concerns*. 2009. <http://www.dot.ca.gov/hq/MassTrans/Docs-Pdfs/safety-security/questionsfortransitmanagers.pdf>

- **Brief Summary:** The California DOT provides a checklist of questions that transit managers should ask about their preparedness for a swine flu outbreak. Questions relate to characteristics of

the transit agency's location and passengers, preparedness measures that are in place, and specific strategies that the transit agency may want to consider.

- **Current Practices:** The document recommends that transit managers coordinate with local or regional emergency management personnel to help answer the questions.
- **Gaps and opportunities for improvement:** (None identified)

Connecticut Developmental Disabilities Network. *A Guide for Including People with Disabilities in Disaster Preparedness Planning*. Undated.

http://www.ct.gov/opapd/lib/opapd/documents/adobe/guide_final.pdf

- **Brief Summary:** This guide for municipal and regional planners provides information on incorporating the needs of people with disabilities into disaster planning and response. The guide is based on a daylong forum on lessons learned from disasters along the Gulf Coast in 2005 and discussions of planning and response in Connecticut.
- **Current Practices:** The guide recommends that representatives from local disability groups be included in preparedness planning and assessments of transportation plans. When assessing resources and needs, planners should contact human service agencies (such as medical transportation providers) that serve people with disabilities.
- **Gaps and opportunities for improvement:** Disaster planning and response often overlook the needs of persons with disabilities. People with disabilities and human service organizations are often unprepared for disasters.

(CSTS) Center for the Study of Traumatic Stress. *Mental Health and Behavioral Guidelines for Response to a Pandemic Flu Outbreak: Background on the Mental Health Impact of Natural Disasters, including Epidemics*. Undated. http://www.cstsonline.org/wp-content/resources/CSTS_mental_health_behavioral_guidelines_response_to_pandemic_flu_outbreak_dcoe.pdf

- **Brief Summary:** The authors state that this article is the first of its kind, a collection of information for mental health and behavioral guidelines in the case of a pandemic outbreak.
- **Current Practices:** The report suggests that localities develop population-level estimates of mental health problems and incorporate this surveillance into their emergency plans. Furthermore, the document recommends that the public prepare on an individual basis for a pandemic before it begins, local government officials prepare, and all plans incorporate stigma and discrimination awareness into the emergency response training.
- **Gaps and opportunities for improvement:** There are limited data on the mental health impacts of disease outbreaks.

Kailes, June I. *Southern California Wildfires After Action Report*. Center for Disability Issues and the Health Professions. The Access Coalition, The California Foundation for Independent Living Centers. 2008. <http://www.jik.com/CaliforniaWildfires.pdf>

- **Brief Summary:** This document focuses on disaster response and recovery areas of specific and significant concern to the diverse disabilities communities in California. It offers 71 recommendations for improving preparedness, response actions and recovery efforts that include the disability community.
- **Current Practices:** This report recommends many preparedness actions and response preparations that state and local emergency planners could incorporate into their pandemic plans. Some of these actions and preparations include devising a list of all drivers and potential back-up drivers, projecting response times both during and after operational hours, and completing a reimbursement plan for neighboring jurisdictions that may assist with transportation during a pandemic.
- **Gaps and opportunities for improvement:** A recurring challenge in emergency planning for disability communities is that there are many more disabilities and activity limitations than are commonly recognized. Therefore, this guide recommends that localities address this gap by developing a function based orientation for emergency plans.

(LSUHSC-S) Louisiana State University Health Science Center. Pandemic Influenza Plan. 2009.

Available at:

<http://myhsc.lsuhschreveport.edu/safetyoffice/Policies/2.21%20Pandemic%20Flu%20Plan.pdf>

- **Brief Summary:** This document describes the Louisiana State University Health Science Center's (LSUHSC-S's) response plan in the event of a novel influenza virus in Northwest Louisiana that could become a pandemic. The plan includes an influenza rapid screening tool.
- **Current Practices:** While the plan does not address transportation, it covers more general topics that are relevant to transportation, such as: external and internal communication; coordination with local, state and federal levels of government; education and training; and managing ill workers.
- **Gaps and opportunities for improvement:** (None identified)

Luna, Andrea M., Corina Solé Brito, Elizabeth A. Sanberg. *Police Planning for an Influenza Pandemic: Case Studies and Recommendations from the Field*. Police Executive Research Forum. October 2007.

<http://www.iaclea.org/members/pdfs/PERF.Pandemic.Planningpdf.pdf>

- **Brief Summary:** This document provides information and guidance on police management during a pandemic, with an emphasis on the fact that many law enforcement agencies are facing budget and personnel cuts. Since police may be called upon to enforce quarantines, provide security in hospitals swamped with patients, ensure that vaccines, and direct public transit it is crucial that these agencies focus on preparedness and planning.
- **Current Practices:** Public transit authorities and police should stay in close communication and coordinate during a pandemic. For example, Toronto formed a Control Group which is responsible for activating and coordinating the emergency plan. Law enforcement officials should

coordinate with public health officials to develop a plan for traffic direction and crash management in the case of an accident.

- **Gaps and opportunities for improvement:** A difficulty often arises when transportation contractors and other officials do not have proper identification, which can restrict them from accessing certain parts of localities. Police and transportation authorities should coordinate to ensure that this identification issue does not affect pandemic response.

Meit, Michael, Thomas Briggs, Alene Kennedy. *Urban To Rural Evacuation: Planning For Rural Population Surge*. Walsh Center for Rural Health Analysis. 2008.

http://www3.norc.org/NR/rdonlyres/D0577161-5CFF-4F4A-A243-2BB67826A256/0/URBANTORURALEVACUATIONPLANNINGFORRURALPOPULATIONSURGE_FinalReport.pdf

- **Brief Summary:** This study assessed the likelihood that urban populations may be evacuated to nearby rural areas during an emergency such as pandemic influenza or a dirty bomb. The study includes a literature review, as well as both qualitative and quantitative analyses. The authors also provide recommendations specific to planning and response in rural areas.
- **Current Practices:** The authors provide several recommendations for rural communities. They recommend that rural and urban communities incorporate urban-to-rural evacuation into their preparedness planning and that both groups of communities participate in the planning. Other suggestions that may be relevant to transportation include: tools, training, and risk communication should be part of plans; federal and state guidance and funding should encourage planning for urban-to-rural evacuation; and cultural competency information should be provided to rural communities to enable them to work with more diverse urban populations.
- **Gaps and opportunities for improvement:** The study results indicate that, if evacuation occurs, traffic obstructions are likely. In addition, many urban residents are likely to evacuate to a rural area, even when the government instructs the public not to evacuate.

(NACCHO) National Association of County and City Officials. *Local Health Department Guide to Pandemic Influenza Planning*. Version 1.0. Undated.

<http://www.naccho.org/topics/HPDP/infectious/influenza/upload/NACCHOPanFluGuideforLHDsII.pdf>

- **Brief Summary:** This guide provides recommendations for local health departments that are preparing or improving a pandemic plan. Transportation entities are a key partner for local health departments in many aspects of pandemic planning. The guide discusses utilization of NIMS and ICS in pandemic planning.
- **Current Practices:** Social distancing strategies are likely to be used. Risk communication and a coordinated community response are considered to be critically important.
- **Gaps and opportunities for improvement:** (None identified)

National Center for Emergency Medical Preparedness and Response. Texas A&M University. *School Closure in Pandemic Influenza: Planning Session / Program of Instruction*. Flyer.

- **Brief Summary:** This flyer describes a planning session for school district and public health officials and relevant emergency response authorities. The focus of the planning session is on managing school closures during a pandemic.
- **Current Practices:** The flyer does not focus on transportation, but notes that disease control in schools is a critical part of a community's emergency response during a pandemic. The session emphasizes planning and assessing preparedness, as well as "trigger points" for school closure.
- **Gaps and opportunities for improvement:** (None identified)

National Consortium on the Coordination of Human Service Transportation. *Transportation and Emergency Preparedness Checklist*. Undated.

http://web1.ctaa.org/webmodules/webarticles/articlefiles/Emergency_Checklist.pdf

- **Brief Summary:** This checklist was developed by a gathering of public and community transportation professionals at the National Consortium on the Coordination of Human Service Transportation, with the goal of providing guidance to transportation providers on planning for the transport of persons requiring mobility assistance during an emergency.
- **Current Practices:** Some suggested preparedness measures include identifying those in need of transportation assistance, public involvement and community outreach to ensure public awareness of emergency planning, and equipment, personnel, and communication support. When the emergency is imminent and actually taking place, all communications should be disseminated centrally. The checklist also provides details on managing transit to ensure that the best service is provided and that all service providers are compensated fully.
- **Gaps and opportunities for improvement:** (None identified)

National Council on Disability. *Effective Emergency Management: Making Improvements for Communities and People with Disabilities*. 2009.

http://www.ncd.gov/rawmedia_repository/50b76caf_054c_491d_ae88_587c096d8b3a?document.pdf

- **Brief Summary:** This report discusses the challenges faced by people with disabilities in disaster situations, and provides a series of intervention strategies to reduce the impact of disasters on disabled persons. Federal, state, local, and individual-level interventions are examined, along with the current presidential administration agenda. Furthermore, this document discusses the importance of connecting emergency managers and voluntary organizations, and how to leverage combined resources for disability preparedness.
- **Current Practices:** The suggested practices for disabled persons in disaster situations include providing paratransit services and ensuring wheelchair lifts, early evacuation, and voluntary registries for public transit. The document also describes tactics for when there is a gasoline shortage.

- **Gaps and opportunities for improvement:** The authors identify key issues to be addressed: considering the needs of nursing home residents and those without personal vehicles, developing search and rescue procedures that are focused on assisting people with disabilities, and providing shelters that meet the needs of people with disabilities.

National Disability Rights Network. *Disaster Preparedness Checklist*. Undated.

http://www.napas.org/images/Documents/Issues/Disaster_Preparedness/NDRN_Disaster_Preparedness_Checklist.pdf

- **Brief Summary:** This checklist provides people with special health care needs a set of recommendations for preparing for hurricane. The checklist provides information on how to register for a disaster evacuation transportation service that is available to those with transportation needs in disaster zones.
- **Current Practices:** The checklist provides suggestions for being prepared to stop along an evacuation route if roads are overly congested. It also recommends that individuals make their own transportation plans, since the disaster evacuation service is only available to areas that have been declared a disaster zone.
- **Gaps and opportunities for improvement:** (None identified)

National Organization on Disabilities. *Functional Needs of People With Disabilities: A Guide for Emergency Managers, Planners, and Responders*. 2009. <http://nod.org/assets/downloads/Guide-Emergency-Planners.pdf>

- **Brief Summary:** This document is a guide for emergency managers, planners, and responders on including people with disabilities in all levels of emergency preparedness. It includes information on relevant legislation and policies, how to partner with the disability community, how to evacuate people with disabilities, and other functional needs during emergencies. This guide is not a comprehensive plan. Rather, it summarizes issues surrounding the functional needs of the disability community.
- **Current Practices:** Transportation support for disabled persons should include accessible vehicles (e.g., lift-equipped or vehicles suitable for transporting individuals who use oxygen) or information about how and where to access mass transportation during an evacuation. In some cases, door-to-door pick-ups have been embraced in communities. If possible, localities should consider partnering with ambulette and private accessible transportation companies.
- **Gaps and opportunities for improvement:** 61% of people with disabilities have not made plans to evacuate their homes. In addition, only 24% of people with disabilities made emergency plan preparations specific to their disability. Therefore it is crucial to not only incorporate disability planning into local pandemic plans, but also inform the disability community on proactive preparations.

(NGA) National Governors Association. *Preparing For a Pandemic Influenza: a Primer for Governors and Senior State Officials*. 2006.

<http://www.nga.org/files/live/sites/NGA/files/pdf/0607PANDEMICPRIMER.PDF>

- **Brief Summary:** This document addresses issues that governors and state officials must consider as they develop plans to respond to disease outbreaks. The suggestions focus on state actions, with the potential of federal guidance.
- **Current Practices:** In order to stress hygiene and curb germ spread, the document recommends placing public signage throughout public transit systems before and during a pandemic outbreak. Furthermore, it is emphasized that transit restrictions may include closing high-risk stops, limiting schedules, or canceling travel routes altogether.
- **Gaps and opportunities for improvement:** (None identified)

(NTI) National Transit Institute, Rutgers University. *Signs and Symptoms: Pandemic Preparedness for Transit Managers*. Training materials obtained via email from Karen Lowrie, Associate Director, Center for Transportation Safety, Security and Risk (CTSSR) at Rutgers University. The CTSSR website is available at: <http://policy.rutgers.edu/ctssr>

- **Brief Summary:** The National Transit Institute (NTI) at Rutgers University offers training courses in pandemic preparedness for transit systems. NTI developed two versions of the course: one for frontline employees and one for managers. NTI provided a fact sheet about both training courses. The project team also received the following materials for the transit managers course from NTI: course slides, instructor’s guide, and participant workbook.
- **Current Practices:** Each of the training materials includes sections on disease basics, public health infrastructure, and outbreak preparedness. In particular, the materials emphasize reducing vulnerabilities, COOP, risk communication, and disease prevention strategies. The participant workbook includes a “COOP Planning for Pandemics” worksheet and provides links to resources for disease prevention. The instructor’s guide provides learning activities (on COOP planning and communication) and resources (a genetics and disease evolution resource book and a policy and procedure pamphlet).
- **Gaps and opportunities for improvement:** The training materials identify the following areas that often have vulnerabilities: services, functions, and processes; assets and equipment; workers; and external influences. The materials then describe how continuity of operations planning can reduce these vulnerabilities, and provide questions to consider about each vulnerability area.

Roberts, Marc. “Suggested Guiding Principles for Supporting the Health, Safety, and Security of Aging or Disabled Washingtonians During a Pandemic Influenza Outbreak.” From: *Bioterrorism and Other Public Health Emergencies Tools and Models for Planning and Preparedness Providing Mass Medical Care with Scarce Resources: A Community Planning Guide*. Received via email from the author.

- **Brief Summary:** Dr. Marc Roberts, a Professor of Economy, Department of Health Policy Management, Harvard University, contacted the project team with information about his team’s

work with Washington State, specifically for vulnerable populations during pandemic flu. They developed “*Suggested Guiding Principles for Supporting the Health, Safety, and Security of Aging or Disabled Washingtonians During a Pandemic Influenza Outbreak.*” Although the principles were written with Washington State as the intended audience, they are broad enough to be adopted by other states.

- **Current Practices:** Although the principles do not address transportation specifically, principle #2 mentions comprehensive planning, which would certainly involve transportation.
- **Gaps and opportunities for improvement:** (None identified)

(UITP) International Association of Public Transport. *Preparing PT Systems for an Avian Influenza Pandemic.* 2007. http://www.uitp.org/public-transport/security/pics/bird_Flu_2.pdf

- **Brief Summary:** This document describes potential impacts of avian flu on transit systems and presents results of a brief survey of transit organizations worldwide. The survey results indicate the some transit operators have developed pandemic plans in coordination with health teams and human resource experts, while other transit operators are simply following general plans provided by health departments.
- **Current Practices:** In general, transit operators indicated that pandemic plans are coordinated with health departments and local or national authorities.
- **Gaps and opportunities for improvement:** Some transit operators did not have emergency plans specific to pandemic events.

Rutgers University, Center for Transportation Safety, Security and Risk. *Understanding H1N1 Risks in the Transportation Sector (Instructor Guide).* 2009. <http://www.dot.ca.gov/hq/MassTrans/Docs-Pdfs/safety-security/h1n1transportationsectornstructorguide.pdf>

- **Brief Summary:** This document is an instructor guide for a course on H1N1 virus risks in the transportation sector. The course materials provide background on the H1N1 and seasonal flu viruses and raise a list of general questions about pandemic preparedness that agencies should ask during planning.
- **Current Practices:** The guide recommends that all employees at an agency participate in the H1N1 training, not only for general awareness, but also to ensure continuity of operations during a pandemic flu event.
- **Gaps and opportunities for improvement:** (None identified)

(TCRP) Transit Cooperative Research Program. *Communication with Vulnerable Populations: A Transportation and Emergency Management Toolkit.* 2011. Report 150. http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_150.pdf

- **Brief Summary:** This report describes how to create a communication process to reach vulnerable populations regarding their transportation options in emergencies.

- **Current Practices:** The report provides a replicable framework for a communication process that is adaptable and built on a network of agencies from public, private, and nonprofit sectors. It includes guiding chapters on steps in this process including information gathering, building a network, communicating through and sustaining the network. The report also provides contacts that work with vulnerable populations.
- **Gaps and opportunities for improvement:** The toolkit identifies gaps in communication with vulnerable populations and outlines steps to evaluate contact lists or databases for gaps in geographic and vulnerable population coverage.

(TCRP) Transit Cooperative Research Program. *Methods for Forecasting Demand and Quantifying Need for Rural Passenger Transportation: Final Workbook*. 2012. Project B-36. Prepared by Vanasse Hangen Brustlin, Inc. with LSC Transportation and Erickson Consulting.

- **Brief Summary:** This workbook outlines steps for forecasting need and demand for passenger transportation in rural communities, and comes with a spreadsheet tool.
- **Current Practices:** This workbook does not focus on emergency preparedness or response.
- **Gaps and opportunities for improvement:** (None identified)

Ted Stevens Anchorage International Airport. *Guidelines for Preventing the Introduction, Transmission, and Spread of Communicable Diseases from Foreign Countries into the United States*. 2011. Received via email from Alaska Department of Transportation.

- **Brief Summary:** This document was developed by a consortium of federal, state, and local agencies as well as private stakeholders. The Ted Stevens Anchorage International Airport, Municipality of Anchorage Office of Emergency Management, U.S. Customs and Border Protection, Alaska Division of Public Health (DPH), and the CDC Anchorage Quarantine Station jointly manage the plans which were developed in conjunction with the DPH's Pandemic Influenza Response plan and Transportation and Public Facilities' Communicable Disease Continuity of Operations Plan.
- **Current Practices:** Crew members have annual trainings and drills with medical providers on ships and airlines.
- **Gaps and opportunities for improvement:** (None identified)

Transportation Equity Cooperative Research Program. *Environmental Justice and Transportation Toolkit, Vol. 2 (draft)*. Prepared by Glenn Robinson, School of Engineering and Institute for Urban Research, Morgan State, Washington, D.C. 2008.

<http://www.scribd.com/doc/10102507/Environmental-Justice-Toolkit-Volume-2>

- **Brief Summary:** The goals of this document were to build upon the Baltimore Region Environmental Justice and Transportation platform, and advance the integration of this platform into metropolitan planning processes. The actions pursued are community-driven intergovernmental engagement, community assessment and citizen input, information gathering

and analysis, developing a community profile, and communicating and incorporating environmental justice issues into the planning.

- **Current Practices:** Some environmental justice communities are dependent on public transportation, and in order to best provide services to these communities, it is suggested that agencies complete neighborhood, travel, and activity based travel profiles. It is also recommended that public transit planning be adjusted to provide more frequent service to neighborhoods with fewer cars.
- **Gaps and opportunities for improvement:** (None identified)

Transportation Research Board of the National Academies. *TCRP Report 101. Toolkit for Rural Community Coordinated Transportation Services*. 2004.

http://onlinepubs.trb.org/onlinepubs/tcrp/tcrp_rpt_101.pdf

- **Brief Summary:** This toolkit is a resource for building and maintaining a sustainable and cost-effective transportation service in rural communities. The document includes information needed for new coordination efforts and for fine-tuning existing efforts, as well as case studies of successful state and local efforts.
- **Current Practices:** Generally, this document emphasizes transportation coordination across sectors and details how to coordinate, brainstorm and implement strategies, budget, market and monitor the programs, and develop a program assessment protocol. Some specific, highly recommended strategies include pooling vehicles across all local departments, organizations, and individual volunteers, and combining administrative operations across all local governmental offices.

Gaps and opportunities for improvement: The upfront time and monetary investment for some coordination efforts can often be high. Frequently transportation operators become prohibited from coordinating because of legislative or regulatory barriers. That said, the report is quick to mention that many barriers are often perceived rather than realistic.

(Tri-CAP) Tri-County Action Program, Inc. *2012-2013 Emergency Action Plan*. 2012. Received via email from Linda Elfstrand, Tri-CAP.

- **Brief Summary:** Tri-County Action Program, Inc. (Tri-CAP) is a community action program in central Minnesota. Tri-CAP's emergency action plan provides general emergency response steps, guidelines for external communication with the media, and sections on specific emergencies, including H1N1 planning.
- **Current Practices:** Components of the H1N1 planning section of the document include: establishing lines of communication with state and local health departments; sharing best practices with other businesses; posting information in break rooms and via email; and social distancing strategies. Examples of social distancing strategies mentioned in the plan are reducing employee contact by telecommuting, increasing teleconferencing, and reducing travel.
- **Gaps and opportunities for improvement:** (None identified)

(Tri-CAP) Tri-County Action Program, Inc. *Tri-CAP Business Continuity Plan*. Received via email from Linda Elfstrand, Tri-CAP.

- **Brief Summary:** Tri-County Action Program, Inc. (Tri-CAP) is a community action program in central Minnesota. Tri-CAP's business continuity plan describes strategies at three levels of response, depending on the percentage of employees who are absent. Communication strategies vary from disseminating information on health and wellness at Level I Response, and notifying the media of closures at Level III Response.
- **Current Practices:** During a Level I Response, a key strategy for maintenance of business operations is to employ social distancing. The plan identifies the following priority transportation activities during Level II Response: running bus routes for adult day care; transportation for WACOSA (a non-profit organization that provides training and employment services for people with disabilities); and school, dialysis, and medical transportation services. During a Level III Response, transportation activities that must occur are call handling and ride assignment to the available resources.
- **Gaps and opportunities for improvement:** (None identified)

University of Maryland. *Software for Improving Mass Dispensing and Vaccination Clinic Operations*. 2009. Project homepage is available at:

<http://www.isr.umd.edu/Labs/CIM/projects/clinic/index.html>

- **Brief Summary:** The software is a Clinic Planning Model Generator that creates a Microsoft Excel workbook for POD (point of dispensing) planning. Based on patient flow, the model calculates staffing needs at each workstation and then determines POD capacity. The model also estimates the amount of time patients will spend in a POD to determine the space needed and allows the user to estimate walking times between workstations.
- **Current Practices:** While this software focuses on dispensing medication (not transportation), it is a good example of a tool to help emergency preparedness planners avoid congestion and crowding.
- **Gaps and opportunities for improvement:** The website states that poor clinic design can lead to insufficient capacity, congestion, and confusion.

University of Maryland. *Vaccine Allocation Model*. 2009. Project homepage is available at:

<http://www.isr.umd.edu/Labs/CIM/projects/clinic/index.html>

- **Brief Summary:** The model helps public health officials determine how treatment can be allocated among different target groups.
- **Current Practices:** This model focuses on allocating vaccines (not transportation). However, it is useful as an example of a tool that emergency preparedness planners can use during planning or during a vaccination campaign.
- **Gaps and opportunities for improvement:** (None identified)

Victoria Transport Policy Institute. *Evaluating Transportation Resilience: Evaluating the Transportation System's Ability to Accommodate Diverse, Variable and Unexpected Demand with Minimal Risk*. TDM Encyclopedia. 2010. <http://www.vtpi.org/tdm/tdm88.htm>

- **Brief Summary:** This encyclopedia chapter discusses how a transportation system can become more resilient to disaster situations at the individual, community, design, economic, and strategic-level. Furthermore, the chapter provides a checklist for evaluating the resilience of a transportation system and a table discussing examples of transportation risks and stresses and strategies that can help mitigate these problems.
- **Current Practices:** The document suggests that a comprehensive response plan be created with a focus on developing a fail-safe system with preparedness communication strategies in place. Specifically for people who are disabled, it is suggested that transit systems develop plans to provide basic access to people with access and functional needs under unusual conditions.
- **Gaps and opportunities for improvement:** (None identified)

World Health Organization. *Comparative Analysis of National Pandemic Influenza Preparedness Plans*. 2011.

http://www.who.int/influenza/resources/documents/comparative_analysis_php_2011_en.pdf

- **Brief Summary:** This study examined 119 national pandemic preparedness plans and evaluated the nations' preparedness for the H1N1 pandemic in 2009.
- **Current Practices:** Most plans described the roles of multiple agencies as part of a coordinated response strategy and discussed the creation of pandemic planning committees. The transportation sector was usually included in such coordination. In general, the plans addressed communication with health and non-health agencies and the public.
- **Gaps and opportunities for improvement:** Sub-national planning should be enhanced.

World Health Organization. *Pandemic Influenza Preparedness and Response*. April 2009.

<http://dse.healthrepository.org/bitstream/123456789/162/1/PIPGuidance09.pdf>

- **Brief Summary:** This document is a set of guidelines meant to inform and harmonize national and international response to pandemics. The guidance separates what types of actions should be taken by particular sectors within a nation.
- **Current Practices:** This document recommends that preparation for a pandemic include planning and coordination, situation monitoring, reducing spread of disease, continuity of health care provision, and communications efforts. With respect to transit, the guidelines for national actions suggest that all public transportation use be minimized ("limiting all non-essential movement") and conducting relevant screening at transit points.
- **Gaps and opportunities for improvement:** WHO suggests that there will be somewhat large-scale support from the organization for nations, and effective communication routes that can react quickly during a pandemic could prove difficult to develop.

A.4 State and Local Pandemic Plans

Alabama Department of Public Health. *State Pandemic Influenza Operational Plan*. 2009.

http://www.adph.org/pandemicflu/assets/AL_PI_Op_Plan_10-09.pdf

- **Brief Summary:** Alabama's pandemic plan describes a set of operating objectives, including one for sustaining transportation systems. The transportation section focuses on the responsibilities of the state DOT. The plan instructs primary response agencies to work with other agencies and organizations on their own operational plans.
- **Current Practices:** Alabama's strategies for transportation focus on the lead individuals' responsibility to coordinate with division and bureau staff to keep roads open, transport medical supplies, and communicate roadway status to other agencies. In addition, the state DOT will be responsible for communicating with its employees and the public on restricted travel advisories, passenger protection and hygiene information, and other relevant information and materials.
- **Gaps and opportunities for improvement:** (None identified)

Alaska Division of Public Health. *Pandemic Influenza Response Plan*. 2011.

<http://www.pandemicflu.alaska.gov/panfluplan.pdf>

- **Brief Summary:** Alaska's pandemic plan outlines roles and assumptions, and describes the planning, using the structure of the WHO phases. (The WHO phases include three preparedness/planning phases and three response and mitigation phases, followed by two recovery phases. For details, see <http://www.who.int/influenza/preparedness/pandemic/h5n1phase/en/index.html>.) There is no specific role included for any transportation agency, but social distancing measures and risk communication are featured prominently in the plan. According to an interview with the Alaska DOT and Public Facilities, the role for transportation officials is detailed in the Alaska Transportation and Public Facilities' *Communicable Disease Continuity of Operations Plan*, which was written in conjunction with the Pandemic Response Plan, as well as the Ted Stevens Anchorage International Airport Communicable Disease Emergency Response Plan.
- **Current Practices:** The Division of Public Health will supervise implementation of social distancing measures, including isolation-cohorting, quarantine, cancellation of public activities and gatherings, and partial or full closure of schools, businesses, and other public gathering places. Other measures will include restrictions on non-essential travel and measures to ensure essential travel for supplies, medical care, and worker protection. The Alaska Department of Health and Social Services will implement a risk communication plan that will explain vaccine availability and social distancing measures to the public.
- **Gaps and opportunities for improvement:** (None identified)

Alaska Transportation and Public Facilities. *Communicable Disease Continuity of Operations Plan*. Undated. Received via email from Ocie Adams, Alaska Transportation and Public Facilities.

- **Brief Summary:** Alaska's Communicable Disease Continuity of Operations Plan establishes procedures for the notification, response, and recovery from communicable disease incidents across the state of Alaska by the Department of Transportation and Public Facilities. It was written in conjunction with the Alaska Division of Public Health's Pandemic Influenza Response Plan as well as the Ted Stevens Anchorage International Airport Communicable Disease Emergency Response Plan.
- **Current Practices:** The Transportation and Public Facilities Division Plan works in conjunction with other plans, notably the Ted Stevens International Airport Communicable Disease Plan, since air travel is the primary form of transportation in Alaska. All participating agencies, localities, and transport hubs participated in the drafting of the state-wide plan. The initial responsibility lies with the crew of a vessel, then the Operations Control Center and Airport Quarantine Station which then notifies state agencies.
- Gaps and opportunities for improvement: (None identified)

Arizona Department of Health Services. *Arizona Pandemic Influenza Operational Plan*. 2008.
<http://www.azdhs.gov/phs/edc/edrp/pdf/08apiop.pdf>

- **Brief Summary:** Arizona's pandemic plan provides detailed steps that the state will take in the event of a pandemic influenza outbreak across all state government functions (including transportation) and describes coordination between agencies. The transportation section of the plan includes several response and recovery strategies. Examples of Arizona's response strategies include communication with transportation authorities, distributing educational material to passengers, and providing guidance to employees who must travel. Recovery strategies include sanitizing assets and documenting and integrating best practices or lessons learned.
- **Current Practices:** Arizona aims to form a joint operations capability at the state and local level to allow for large-scale operations throughout the state. The document states that such capability is integral to the plan.
- **Gaps and opportunities for improvement:** The plan noted gaps in several areas and ways that these gaps are being addressed. For instance, the emergency management plan for Arizona's METRO Light Rail System did not address public health emergencies, but was being revised to account for such events. In addition, Arizona recently developed state-level joint operations capability. The plan calls for the establishment of similar capability in each county.

Arkansas Department of Health. *County Guidance for Developing a Mass Dispensing Plan*. Undated.
<http://www.healthy.arkansas.gov/programsServices/preparedness/Documents/CountyPlanningGuidance.pdf>

- **Brief Summary:** This plan is directed at Arkansas counties responsible for Mass Dispensing sites under the Strategic National Stockpile program. It is not primarily focused on transportation, but includes some references to utilizing public transit and information on risk communication.
- **Current Practices:** The plan suggests that counties may want to involve local public transportation in ensuring access to dispensing sites. It also stresses the importance of having a

local health risk communication plan in place to ensure that essential personnel and local communities receive information in a timely and efficient manner.

- **Gaps and opportunities for improvement:** The document notes that it is intended to be a dynamic document that will be updated as new information about best practices and effectiveness of planned exercises becomes available.

Barren River District Health Department (Ky.). *Tab 8: Epidemiological Response*. Undated. Received via email from Amanda Bogard, Branch Manager for Disaster Preparedness, Barren River District Health Department.

- **Brief Summary:** This document is an excerpt from the Barren River District Health Department's (BRDHD) All Hazard Plan, focusing on isolation, quarantine, and the agency's line of authority. In particular, the document describes the responsibilities of the BRDHD Epidemiological Team during an outbreak of an infectious disease.
- **Current Practices:** The document states that while outbreaks will typically be handled by the BRDHD Communicable Disease Team, a larger outbreak would be addressed by the BRDHD Epidemiological Rapid Response Team (ERRT). Responsibilities of the ERRT include: external communication with local and state agencies and the medical community; ensuring that at-risk populations are advised; and ensuring that appropriate social distancing measures are used. The document provides a list of epidemiologic clues indicating a possible bioterrorism attack, as well as several flow diagrams to describe the agency's response process. The document includes a list of control measures that may be used, such as isolation of cases, quarantine, criteria for exclusion from work or school, closure of facilities, and disinfection procedures.
- **Gaps and opportunities for improvement:** (None identified)

California Department of Health Services. *Pandemic Influenza Preparedness and Response Plan*. 2006. <http://www.cdph.ca.gov/programs/immunize/Documents/pandemic.pdf>

- **Brief Summary:** California's plan describes the health department's coordination with other health care agencies and organizations, the federal government, and other partners. The plan includes a discussion of patient transportation.
- **Current Practices:** Community-based restrictions on public transportation may be advised during a pandemic to try to contain the disease. The plan emphasizes risk communication and the state business, transportation, and housing agency and local transportation agencies are included as partners in this effort.
- **Gaps and opportunities for improvement:** (None identified)

City of Iowa City. *Pandemic Influenza Continuity Plan*. 2009. <http://www.icgov.org/site/CMSv2/File/empRes/PanFluPlan.pdf>

- **Brief Summary:** This document is a pandemic plan for the City of Iowa. The plan is organized by the responses that should take place during particular phases of the pandemic.
- **Current Practices:** This plan recommends that public transportation be avoided if at all possible, but also recognizes that public transportation must be maintained at the fullest extent possible for those who depend on transit for other services.
- **Gaps and opportunities for improvement:** (None identified)

Colorado Department of Human Services, Division of Mental Health. *Pandemic Influenza: Quarantine, Isolation and Social Distancing – A Toolbox for Public Health and Public Behavioral Health Professionals*. 2009.

http://trainingcalendar.ct.train.org/panflu_toolkit/documents/Resilience/PanFluQuarantineIsolation.pdf

- **Brief Summary:** This document is the Colorado Disaster Mental Health Response System's handbook on quarantine and isolation. Major topics include public fear and information, compliance, psychosocial issues, and self-care for health care workers.
- **Current Practices:** The handbook includes checklists and guidelines on each key topic, such as a list of guidelines for public information and risk management.
- **Gaps and opportunities for improvement:** (None identified)

Colorado Department of Public Health and Environment. *Public Health Plans: Flu Pandemics*. 2009.

<http://www.cdphe.state.co.us/epr/pandemic.html>

- **Brief Summary:** The plan summarizes the DPH's preparations for a pandemic. It does not address or include transportation.
- **Current Practices:** The plan notes that the state's health department has an emergency operations center, one role of which is to coordinate communication activities.
- **Gaps and opportunities for improvement:** (None identified)

Connecticut Department of Public Health. *Pandemic Influenza Response Plan*. 2006.

http://www.ct.gov/dph/lib/dph/php/bt/pdf/ctdph_pan_flu_plan_2-feb-2006.pdf

- **Brief Summary:** The plan describes the DPH's responsibilities during a pandemic. It does not address or include transportation.
- **Current Practices:** The plan's major response actions include risk communication.
- **Gaps and opportunities for improvement:** (None identified)

Delaware Department of Health and Human Services. *Delaware Pandemic Influenza Plan*. 2008.

<http://www.dhss.delaware.gov/dph/files/depanfluplan.pdf>

- **Brief Summary:** The plan describes all relevant state agencies' responsibilities during a pandemic. It includes risk communication measures and a minor role for the DOT.
- **Current Practices:** Risk communication is a major component of the plan, to be supervised by the DPH. The DOT is also responsible for providing support for pandemic preparations and for traffic control at sites where vaccines will be dispensed. State National Guard may assume transportation roles that other agencies cannot handle.
- **Gaps and opportunities for improvement:** The plan contains provisions for evaluation of each exercise or actual implementation of the plan to identify opportunities for improvement. The plan also includes annual review provisions that call for quality assurance and reviews of plan components.

District of Columbia Department of Health. *Pandemic Influenza Preparedness Plan*. 2005.

http://dchealth.dc.gov/doh/frames.asp?doc=/doh/lib/doh/information/influenza/pdf/dc_pandemic_influenza_plan.pdf

- **Brief Summary:** The plan focuses on the response of the public health sector, but also discusses coordination with transportation authorities.
- **Current Practices:** Risk communication is emphasized. In addition, the plan identifies transportation as a non-health asset that is important to health operations and encourages coordination with the transportation community to address issues of surge capacity.
- **Gaps and opportunities for improvement:** (None identified)

Florida Department of Health. *Pandemic Influenza Appendix Version 11.2*. 2009.

http://www.doh.state.fl.us/rw_Bulletins/flpanfluv104final.pdf

- **Brief Summary:** The plan details the department's response to a pandemic, including information on planning, situation assessment, concept of operations, and continuity of operations. The plan is not focused on transportation.
- **Current Practices:** Transportation provisions primarily concern transporting vaccines to dispensing sites. The plan also includes provisions for social distancing and details the Office of Communications' role in risk communication.
- **Gaps and opportunities for improvement:** The plan contains provisions for plan review and maintenance. Otherwise, no gaps are noted.

Georgia Department of Human Resources, Division of Public Health. *Georgia Pandemic Influenza Preparedness Information*. 2006. <http://health.state.ga.us/pandemicflu/GAPanfluSOP.asp>

- **Brief Summary:** The plan analyzes the threat of a pandemic and provides guidelines for response, focusing on the role of the public health community.

- **Current Practices:** The section of the plan on managing travel-related disease risk discusses engaging community partners in the transportation industry. In addition, public health officials must develop procedures for restrictions of mass transit and non-essential travel. Such measures may be used to reduce the spread of the disease.
- **Gaps and opportunities for improvement:** (None identified)

Hawaii State Department of Health. *Pandemic Influenza Preparedness and Response Plan*. 2008. <http://hawaii.gov/health/family-child-health/contagious-disease/pandemic-flu/fluplan.pdf>

- **Brief Summary:** Hawaii's pandemic plan provides steps the state will take across all essential functions in the event of a pandemic influenza outbreak, including possible transit closures and restrictions. Specifically, on the topic of social distancing measures, Hawaii's response strategies include restriction of mass transit schedules.
- **Current Practices:** Hawaii's plan discusses transportation as it relates to limiting the spread of pandemic influenza virus, primarily through social distancing methods. Limiting the use of public transportation systems is intended to reduce social interactions.
- **Gaps and opportunities for improvement:** (None identified)

Idaho Bureau of Homeland Security. *Idaho Emergency Operations Plan*, 2009.

<http://www.bhs.idaho.gov/Pages/Plans/Documents/Idaho%20Emergency%20Operations%20Plan.pdf>

- **Brief Summary:** Incident Annex 6 provides planning on pandemic influenza, which provides a framework for initiating a coordinated statewide response to an influenza pandemic with Federal, State, tribal, local, private-sector, and nongovernmental partners. The emphasis is on a closely coordinated response and the majority of the report focuses on laying out roles and responsibilities.
- **Current Practices:** The Idaho DOT has a dispatch contract with the same dispatcher from the Department of Health & Welfare. This was identified as a best practice during the interview because the same dispatchers are in same place and have extensive training. (Note that, while we generally use the term "current," not "best," practices in this report, the Idaho DOT specifically referred to these strategies as "best" practices.)
- **Gaps and opportunities for improvement:** In the interview, Idaho DOT officials identified a lack in human resources as a gap in current pandemic planning. When faced with an emergency, there is not enough staff to cover daily operations, let alone additional emergency response duties.

Idaho Department of Health & Welfare. *Idaho Pandemic Influenza Response*. 2006. Received via email from Brian Ness, Idaho Transportation Department.

- **Brief Summary:** This plan describes the Idaho Department of Health & Welfare's responsibilities during a pandemic, including patient evacuation, public health information, and other health care topics.

- **Current Practices:** The plan provides an operational checklist for pandemic influenza and a list of priority groups for vaccines. Priority groups include critical transportation workers and high-risk populations. The checklist describes activities such as education and implementation of social distancing measures, travel advisories to the public, and limiting patient transport.
- **Gaps and opportunities for improvement:** (None identified)

Idaho Transportation Department. *Continuity of Operations Plan*. 2010. Received via email from Brian Ness, Idaho Transportation Department.

- **Brief Summary:** This plan describes the concept of operations, responsibilities and procedures, and administration and logistics during an emergency. The plan identifies pandemic influenza as a specific emergency scenario that would trigger the activation of this plan, and includes an appendix on pandemic preparedness.
- **Current Practices:** The pandemic preparedness appendix describes social distancing, disinfection, and communication measures to be taken at several levels of disease spread. The appendix provides details on surface wipe-down procedures. The plan also mentions an Emergency Message Hotline for Idaho Transportation Department employees.
- **Gaps and opportunities for improvement:** (None identified)

Illinois Department of Public Health. *Pandemic Influenza Preparedness and Response Plan*. 2010. http://www.idph.state.il.us/pandemic_flu/Current_IL%20Pandemic_Flu_Plan.pdf

- **Brief Summary:** Illinois' plan describes actions to be taken by state agencies to prepare for a pandemic and the coordination of pandemic response across state agencies. The plan was written by the Illinois DPH through collaboration with other state agencies that would respond to a pandemic.
- **Current Practices:** The plan includes nine annexes on topics including risk communication, measures to control the spread of the disease, and training. In each annex, the primary and support agencies are identified. The annex on control measures emphasizes quarantine and when it should be considered, as well as coordination across state agencies. This annex also includes a chart on social distancing strategies.
- **Gaps and opportunities for improvement:** (None identified)

Kansas Department of Health and Environment. *Pandemic Influenza Preparedness and Response Plan*. 2011. http://www.kdheks.gov/cphp/download/KS_PF_Plan.pdf

- **Brief Summary:** Kansas' plan is scalable for various levels of pandemic incidence, and primarily focuses medical and health care concerns. Overall the plan emphasizes preparedness surveillance and conducting preparedness tests, public and private coordination for goods and services provision, and devising back-up personnel and infrastructure options.
- **Current Practices:** (None identified)
- **Gaps and opportunities for improvement:** (None identified)

Kentucky Commissioner for Public Health. *Kentucky Pandemic Influenza Preparedness Plan*. 2007. <http://chfs.ky.gov/NR/rdonlyres/6CD366D2-6726-4AD0-85BB-E83CF769560E/0/KyPandemicInfluenzaPreparednessPlan.pdf>

- **Brief Summary:** Kentucky’s plan focuses on public health response but also discusses coordination with other agencies and organizations.
- **Current Practices:** The plan prioritizes vaccines for transportation workers, since they support critical infrastructure for pandemic response. Risk communication and social distancing are also considered important strategies.
- **Gaps and opportunities for improvement:** (None identified)

King County (WA) Department of Public Health. *Pandemic Influenza Response Plan*. 2010. <http://www.kingcounty.gov/healthservices/health/preparedness/pandemicflu/plan.aspx>

- **Brief Summary:** This plan is an annex to Emergency Support Function 8 (Health, Medical, and Mortuary Services) of the King County Emergency Management Plan, the City of Seattle Emergency Management Plan, and the Regional Disaster Plan. The plan primarily focuses on the roles, responsibilities, and activities of Public Health – Seattle and King County (PHSKC) and the command structure, ESF 8 Area Command. This plan also addresses measures that would be taken to contain an outbreak of avian influenza virus in birds or other animal populations occurring in King County.
- **Current Practices:** The plan has nine attachments that provide planning details for specific aspects of pandemic planning such as medicine distribution, the decision to implement social distancing measures, and worker protection measures.
- **Gaps and opportunities for improvement:** (None identified)

King County (Wash.) Department of Transportation. *King County Metro Pandemic Flu Plan, Summary*. 2006. <http://www.mrsc.org/govdocs/k5metrotranspandemicflu.pdf>

- **Brief Summary:** This plan is for King County in the Seattle, WA, area and seeks to limit sickness and death, maintain essential services, minimize social disruption and economic losses, and educate the public on ways that they can reduce risks.
- **Current Practices:** This plan emphasizes that the cancellation of public transit services should be avoided if possible. While some pandemic plans call for increased transit service, the King County plan prepares for service to operate at a reduced level due to potential employee sickness and low fuel. Furthermore, this county planned for alternative service networks with the “most geographic coverage” and “meet the most demand” to be developed and implemented. Finally, the plan emphasizes the importance of protecting transit employee health.
- **Gaps and opportunities for improvement:** This document mentions that the ability of the transit service to continue through a pandemic is somewhat dependent on the ability of the county

government to continue operation. If actions, such as purchasing and payroll, were to be dramatically affected during the pandemic, then this could negatively affect the transit function.

Knox County (Tenn.). *Pandemic Influenza Response Plan*. 2007.

http://www.knoxcounty.org/health/emer_prepare/pdf/kchd_flu_response_plan.pdf

- **Brief Summary:** This is the pandemic response plan for Knox County, Tennessee. It describes the role of the Knox Area Transit Authority in pandemic response.
- **Current Practices:** The Knox report recommends that transit authorities assist Emergency Medical Services during a pandemic and coordinate to transport dialysis patients to Knox Area Dialysis Centers. It is suggested that transport systems maintain their main routes for as long as possible, and that the governing body provide transportation through existing bus contracts from staging areas to vaccination points.
- **Gaps and opportunities for improvement:** (None identified)

Louisiana Department of Health & Hospitals. *Louisiana Hospital Pandemic Influenza Plan*. 2011.

<http://www.lhaonline.org/associations/3880/files/LA%20Hospital%20Pan%20Flu%20Plan%202011.pdf>

- **Brief Summary:** This plan is a guidance document for hospitals on pandemic planning and response. The plan describes the roles and responsibilities of the U.S. DHHS, state and local governments, and health care facilities.
- **Current Practices:** The plan identifies critical transportation workers as a priority group for vaccines. The plan includes several resources that could be applicable to other organizations, including a hospital preparedness checklist and examples of supply needs. The plan also discusses isolation and quarantine precautions.
- **Gaps and opportunities for improvement:** (None identified)

Michigan Department of Community Health. *MDCH Pandemic Plan (v4.0) Redacted*. 2009.

http://www.michigan.gov/mdch/0,1607,7-132-2940_2955_22779_40567-177148--,00.html

- **Brief Summary:** Michigan's plan is an annex to the state's primary Emergency Operations Plan. The plan focuses on public health actions, communication, coordination, and virus surveillance efforts.
- **Current Practices:** Travel and public transportation restrictions may be used as a social distancing strategy. In the case of a severe pandemic, the plan emphasizes that the U.S. DOT could have authority over local transit provision via an amendment to the "Safe, Accountable, Flexible, Efficient Transportation Equity Act" that created an express exception for national defense or in the event of a national or regional emergency.
- **Gaps and opportunities for improvement:** (None identified)

Minnesota Department of Public Health. *Pandemic Influenza Plan: All-Hazards Response and Recovery Supplement*. 2006.

<http://www.health.state.mn.us/divs/idepc/diseases/flu/pandemic/plan/2006/mdhpanfluplan.pdf>

- **Brief Summary:** The plan describes statewide response to pandemic influenza, including the role of transportation.
- **Current Practices:** The plan discusses the closure of public transportation systems as a measure to contain the disease. The plan also recommends that each region develop a transportation plan to address increased transportation needs for pandemic response. Transportation workers are a priority group for vaccines.
- **Gaps and opportunities for improvement:** (None identified)

Mississippi State Department of Health. *Plan for Receiving, Distributing, and Dispensing Strategic National Stockpile Assets*. 2011.

<http://www.msdh.state.ms.us/msdhsite/index.cfm/44,1136,122,154,pdf/SNSPlan.pdf>

- **Brief Summary:** Mississippi's plan focuses on developing a management framework for public health emergencies that require the distribution of large quantities of medical supplies.
- **Current Practices:** While Mississippi's plan emphasizes cargo transport, the plan provides some details on managing transportation staff and infrastructure during an emergency. For example, it is suggested that an organization track and monitor all vehicles, as well as ensure that all vehicles are fueled and routes are delineated.
- **Gaps and opportunities for improvement:** (None identified)

Mohave County (Ariz.) Department of Public Health. *Pandemic Influenza Response Plan*. 2007.

<http://resource.co.mohave.az.us/File/PublicHealth/HealthELinks/MCDPHPandemicResponsePlanV2.7P1-18-07.pdf>

- **Brief Summary:** This plan details preparedness and response tactics at the county level, with an emphasis on surveillance and epidemiology, health care response coordination, vaccine administration, and travel-related risk. The report separates responsibilities among the scope of governing bodies (i.e., state, county, and city).
- **Current Practices:** This report emphasizes the coordination among state and local governing bodies with tribal and reservation lands and governing bodies, particularly for transportation and vaccine delivery. This report also recommends that at high-risk periods of the pandemic, health care providers at the national and local level begin screening travelers who arrive via bus, train, or airplane.
- **Gaps and opportunities for improvement:** (None identified)

Nevada State Health Division. *Pandemic Influenza Preparedness and Response Plan*. 2007. <http://health.nv.gov/PDFs/Flu/PandemicFluPlan.pdf>

- **Brief Summary:** Nevada's plan describes the health division's role in coordinating with other health care agencies and organizations, the federal government, and other partners.
- **Current Practices:** Nevada's plan discusses risk communication and includes transportation workers as a priority group for vaccines.
- **Gaps and opportunities for improvement:** (None identified)

New Hampshire Division of Public Health Services. *Influenza Pandemic Public Health Preparedness and Response Plan*. 2007. <http://www.dhhs.nh.gov/dphs/cdcs/avian/documents/pandemic-plan.pdf>

- **Brief Summary:** New Hampshire's plan describes the specific preparedness, response, recovery, and maintenance actions to be taken by the Division of Public Health Services in the event of a pandemic.
- **Current Practices:** There is no recommendation to halt public transportation during a pandemic. However, this plan will consider modifications to decrease passenger density if possible.
- **Gaps and opportunities for improvement:** (None identified)

New Mexico Department of Health. *The New Mexico Pandemic Influenza Operational Plan (NM PIOP)*. 2008. http://nmhealth.org/FLU/docs/NM_PAN_FLU_OPS_PLAN_072008.pdf

- **Brief Summary:** This very extensive plan covers the assumptions made prior to planning for a pandemic, as well as specific actions to be taken during and after a pandemic in rural communities. This plan is particularly pertinent to small town and rural planning because 50% of New Mexico's population lives in rural or frontier areas where services are scarce.
- **Current Practices:** This plan includes a wide range of suggestions for all aspects of pandemic planning. Regarding public transportation, this plan suggests that it be avoided in most instances during a pandemic. This plan recommends developing alert levels for disease transmission on public transit, and that the state DOT contact all media outlets to share how to use public transit safely.
- **Gaps and opportunities for improvement:** A primary concern in this western rural state is the difficulty that might arise in coordinating with many distanced and alternately governed (with varying health care systems) tribes and pueblos. Another challenge that arises in border states is the added effect of transmission and disease spread across the United States border. Furthermore, this plan mentions that it will become more difficult to plan for public transportation as gas prices rise, incomes stagnate, and use of personal transportation during a pandemic becomes less likely. Finally, devising a creative way to reimburse health costs that might be covered during a pandemic for people who are uninsured is vital.

New York State Department of Health. *Pandemic Influenza Plan*. 2008.

http://www.health.ny.gov/diseases/communicable/influenza/pandemic/plan/docs/pandemic_influenza_plan.pdf

- **Brief Summary:** New York's plan focuses on the role of public health agencies and health care providers in pandemic response.
- **Current Practices:** Restriction of public transportation and social distancing are potential measures for containing the disease.
- **Gaps and opportunities for improvement:** (None identified)

Oklahoma State Department of Health. *Pandemic Influenza Management Plan*. 2007.

http://www.ok.gov/health/documents/TPRS_2007%20OK%20State%20Pandemic%20Plan%20.pdf

- **Brief Summary:** The Oklahoma plan's primary goal was to create a coordinated statewide, multi-sector response to pandemic influenza. The plan is public-health focused, but also recognizes and accounts for social and economic effects from a pandemic.
- **Current Practices:** This plan recommends social distancing on mass transit as a primary tactic and, if necessary, curtailing public transportation service. It is suggested that transportation workers transporting fuel, water, food, and medical supplies, as well as public ground transportation workers, be prioritized for vaccination. If possible, transportation should be provided for medical evaluation of those who exhibit symptoms.
- **Gaps and opportunities for improvement:** (None identified)

Outagamie County, Wis. *Pandemic Influenza Plan*. 2007.

<http://www.postcrescent.com/assets/pdf/U013400551.PDF>

- **Brief Summary:** Outagamie County's pandemic plan provides guidance for county departments and agencies, provides guidance and tools for community partners, and outlines activities to educate and prepare the public. The plan also outlines pandemic response steps, including steps to limit transit usage during a pandemic event. For example, under certain conditions, public transit may be limited to essential travel.
- **Current Practices:** Social distancing strategies are likely to be used. Risk communication is considered to be critically important.
- **Gaps and opportunities for improvement:** The plan recommends that, before a pandemic begins, the public should be educated on pandemic preparedness and coordination should occur with bordering jurisdictions.

Republic of Palau. *Republic of Palau Pandemic Influenza Response Plan*. 2005.

http://www.spc.int/pbs/PPHSN/Outbreak/Influenza/Palau_Flu_Plan_Final_Draft_103105.pdf

- **Brief Summary:** The plan describes the Republic of Palau Ministry of Health's role in pandemic response. Other than travel advisories, transportation is not addressed.

- **Current Practices:** Risk communication and travel advisories are components of the plan.
- **Gaps and opportunities for improvement:** (None identified)

Santa Clara County (Calif.). *Santa Clara County Pandemic Influenza Preparedness and Response Guidance For Vulnerable Populations*. 2007. http://www.sccgov.org/sites/sccphd/en-us/Partners/BePrepared/Documents/VPOPS_PanFlu_Guidance_7-09.pdf

- **Brief Summary:** This resource kit describes pandemic preparedness and response strategies as they relate to vulnerable populations in Santa Clara County, including suggestions for transit and para-transit. The document includes guidance and tools for community-based organizations (CBOs), as well as a countywide response strategy incorporating both CBOs and faith-based organizations.
- **Current Practices:** Based on research on best practices, this document provides a set of suggestions focused on people who depend on public transportation and/or para-transit services (including persons with disabilities). Examples of suggested strategies are: developing a COOP, developing emergency schedules, scheduling extra transit services to alleviate impacts on regular para-transit clients, and exploring the use of other transit resources.
- **Gaps and opportunities for improvement:** (None identified)

San Mateo County (Calif.). *Pandemic Influenza Planning Guide & Template for San Mateo County Transportation Organizations*. 2007. **Error! Hyperlink reference not valid.**
http://www.co.sanmateo.ca.us/vgn/images/portal/cit_609/18/42/898861484transporttemplate-101906finaldraft.pdf

- **Brief Summary:** This guide and template is meant to assist transportation organizations in the development of their own pandemic plan, which is suggested to eventually be folded into an organization's overall emergency response plan. The document mostly provides template documents for organizational response hierarchy when flu strikes.
- **Current Practices:** This document focuses primarily on the flu response for transportation organizations. The main suggestion regarding transportation is that public transportation should be avoided when infected if possible. If public transportation is necessary, it is suggested that an infected individual wear a mask at all times.
- **Gaps and opportunities for improvement:** (None identified)

Santa Rosa County (Fla.). *Pandemic Flu Plan*, 2009.
http://www.santarosa.fl.gov/emergency/CEMP/Appendix10_PandemicFluPlan.pdf

- **Brief Summary:** This plan emphasizes federal plans and working with the Department of Health (DOH) in the implementation of the DOH plan as well as those developed by municipalities, the School Board, Sheriff's Office, and local businesses, as long as they supplement the DOH plan. The plan discusses social distancing as a key prevention measure and also addresses the use of local media.

- **Current Practices:** The plan provides a detailed list of suggested implementation plans for continuation of critical functions of county government and public safety, including: social distancing measures; required use of face masks for employees having frequent contact with the public, as well as gloves for those handling money or paper work as a regular part of their job; and use of the Animal Services department for protection equipment.
- **Gaps and opportunities for improvement:** (None identified)

South Dakota Department of Health. *Pandemic Influenza Plan*. 2006.

<http://doh.sd.gov/Flu/PDF/PanFluPlan06.pdf>

- **Brief Summary:** South Dakota's plan is designed as an annex to the South Dakota All-Hazards Emergency Operations Plan and links into the Strategic National Stockpile Plan. The plan was created from the DHHS model.
- **Current Practices:** During a pandemic, this plan states that the Governor may provide for the protection, construction or reconstruction, repair, and maintenance of public or private transportation facilities. The plan also recommends that transportation workers transporting fuel, water, food, and medical supplies as well as public ground transportation workers be prioritized for vaccination.
- **Gaps and opportunities for improvement:** (None identified)

State of New Jersey. *New Jersey State Pandemic Influenza Response Plan*. 2009.

http://www.nj.gov/health/flu/documents/splan/combined%20pdf/toc_res.pdf

- **Brief Summary:** The plan describes a framework for governmental and private sector response to pandemic influenza. Transportation is considered critical infrastructure for hospitals and emergency medical services.
- **Current Practices:** Risk communication is mentioned as a critical part of educating the public.
- **Gaps and opportunities for improvement:** (None identified)

Tarrant County (Tex.) Public Health. *Pandemic Influenza Preparedness & Response*. 2009.

http://www.tarrantcounty.com/ehealth/lib/ehealth/PanFlu_Plan_3_final09.pdf

- **Brief Summary:** Tarrant County's public health department's plan describes the county's anticipated pandemic response measures, including response levels at which mass transit would be restricted or closed. Specifically, if there is evidence of significant community-based transmission, transit schedules would be restricted. If these conditions were accompanied by significant morbidity or mortality, mass transit would be closed.
- **Current Practices:** The plan says that successful implementation requires collaboration with local, regional, and state agencies, as well as other partners. Risk communication and public education and preparedness are considered to be critically important. Social distancing strategies are likely to be used. Consideration of access and functional needs groups is also required.

- **Gaps and opportunities for improvement:** (None identified)

Tennessee Department of Health. *Pandemic Influenza Response Plan*. 2009.

http://health.state.tn.us/CEDS/PDFs/2006_PanFlu_Plan.pdf

- **Brief Summary:** The Tennessee plan provides a framework for pandemic response, focusing on public health.
- **Current Practices:** Social distancing (which may include public transportation closures) is listed as a key response strategy. In addition, the plan discusses at-risk populations' potential needs for transportation during a pandemic.
- **Gaps and opportunities for improvement:** (None identified)

University of Minnesota Parking and Transportation Services. *Operational Continuity Plan: Pandemic Preparedness*. 2006.

<http://www1.umn.edu/pts/files/PTS%20Pandemic%20Plan.pdf>

- **Brief Summary:** The University Transportation Services' plan for a pandemic outbreak includes the university transit system. The transit section of the plan describes reduced operations of the transit system during a pandemic event. Regularly-scheduled transit operations would continue as long as possible. However, modifications to the bus system may become necessary.
- **Current Practices:** (None identified)
- **Gaps and opportunities for improvement:** (None identified)

Utah Department of Health. *Utah Pandemic Influenza Response Plan*. 2007.

<http://pandemicflu.utah.gov/plan/indexofplan.html>

- **Brief Summary:** Utah's plan includes sections on operational communications and coordination, as well as public and risk communications. Utah's DOT and the Utah Transportation Agency are considered key partners.
- **Current Practices:** Travel and public transportation restrictions may be used as a social distancing strategy. The risk communication section of the plan recommends addressing the transportation needs of persons with physical disabilities.
- **Gaps and opportunities for improvement:** (None identified)

Vermont Department of Health. *Pandemic Influenza Preparedness and Response Plan*. 2006.

<http://healthvermont.gov/panflu/documents/0706PandemicFluPlan.pdf>

- **Brief Summary:** Vermont's plan is a collection of strategies and guidelines for health care workers, health care facility administrators, health department officials, emergency management officials, and community officials. The plan calls for the coordination between the Vermont

Department of Health, Federal government (in particular CDC), private health care providers, and other agencies of Vermont state government.

- **Current Practices:** Primary suggestions include disseminating traveling advisories and setting up traveler screenings at transit stations for visitors. If circumstances become severe at the community level, the central agency should stop transit service and all individuals should limit travel in general.
- **Gaps and opportunities for improvement:** (None identified)

West Virginia Department of Transportation, Division of Public Transit. *Pandemic Flu Plan*, 2009. Received via email from Susan O'Connell, West Virginia Department of Transportation, Division of Public Transit.

- **Brief Summary:** The Division of Public Transit has no authority over public transit authorities, which are quasi-governmental bodies answering to their own local boards. This plan, however, offers pandemic planning suggestions that the public transit authorities may choose to implement. Many of the items covered in this document can be found in the general plan for West Virginia's public transit systems.
- **Current Practices:** The plan makes suggestions to public transit systems to address pandemics, such as transit systems' use of social distancing measures and service reduction, stockpiling resources, and transportation worker protection. It also suggests that public transit agencies evaluate their existing contractual and collective bargaining obligations, as well as their current technological situation, to determine whether changes need to be made to accommodate pandemic response planning.
- **Gaps and opportunities for improvement:** (None identified)

Wisconsin Division of Public Health. *Pandemic Influenza Operations Plan*. 2007.
<http://flu.wisconsin.gov/docview.asp?docid=13654&locid=106>

- **Brief Summary:** Wisconsin's plan includes sections on vaccination, public health surveillance, communications, community coalitions, surge preparations, sustaining business and agriculture, and education.
- **Current Practices:** This plan does not focus on public transportation. Suggestions for public transit include having official transit drivers as back-up vaccination drivers.
- **Gaps and opportunities for improvement:** (None identified)

Wyoming Department of Public Health. *Pandemic Influenza Response Plan*. 2009.
<http://www.health.wyo.gov/phsd/epiid/pandemic.html>

- **Brief Summary:** Wyoming's plan provides guidance for detecting and responding to an influenza pandemic, with assumptions, resources, priorities, and protocols for pre-, during, and post-pandemic.

- **Current Practices:** This plan recommends that communities limit public transportation service and that face masks be worn if transit is necessary. In preparation and during a pandemic, the central control should distribute updates and recommendations to local public health for distribution to public transportation operators.
- **Gaps and opportunities for improvement:** (None identified)

APPENDIX B

Survey Questions and Summary



1. Please provide your name, organization, and contact information below. Please note all responses will be aggregated and contact information will remain confidential in subsequent reporting.

		Response Percent	Response Count
Name		100.0%	42
Organization		97.6%	41
Phone number		92.9%	39
Email address		100.0%	42
Organization's website		83.3%	35
Organization's Facebook page		28.6%	12
Organization's Twitter Account		26.2%	11
Other		7.1%	3
		answered question	42
		skipped question	3

2. Are you willing to participate in a follow-up interview for this project? If yes, please indicate whether the contact information provided in Question 1 should be used to reach you.

		Response Percent	Response Count
Yes, use contact information provided in Question 1		89.5%	34
Yes, use contact information provided in the box below		5.3%	2
No		5.3%	2
	Other (please specify)		2
answered question			38
skipped question			7

3. In what state(s) or U.S. territory(ies) do you currently work? (Select more than one, if applicable)

		Response Percent	Response Count
All	<input type="checkbox"/>	7.1%	3
Alabama		0.0%	0
Alaska		0.0%	0
Arizona		0.0%	0
Arkansas		0.0%	0
California	<input type="checkbox"/>	7.1%	3
Colorado	<input type="checkbox"/>	2.4%	1
Connecticut		0.0%	0
Delaware		0.0%	0
District of Columbia		0.0%	0
Florida	<input type="checkbox"/>	7.1%	3
Georgia	<input type="checkbox"/>	4.8%	2
Hawaii		0.0%	0
Idaho		0.0%	0
Illinois	<input type="checkbox"/>	2.4%	1
Indiana		0.0%	0
Iowa		0.0%	0
Kansas	<input type="checkbox"/>	2.4%	1
Kentucky	<input type="checkbox"/>	4.8%	2
Louisiana		0.0%	0
Maine	<input type="checkbox"/>	2.4%	1
Maryland	<input type="checkbox"/>	2.4%	1

Massachusetts		7.1%	3
Michigan		4.8%	2
Minnesota		2.4%	1
Mississippi		0.0%	0
Missouri		7.1%	3
Montana		2.4%	1
Nebraska		2.4%	1
Nevada		0.0%	0
New Hampshire		2.4%	1
New Jersey		0.0%	0
New Mexico		0.0%	0
New York		7.1%	3
North Carolina		0.0%	0
North Dakota		2.4%	1
Ohio		2.4%	1
Oklahoma		0.0%	0
Oregon		0.0%	0
Pennsylvania		0.0%	0
Rhode Island		0.0%	0
South Carolina		2.4%	1
South Dakota		0.0%	0
Tennessee		7.1%	3
Texas		7.1%	3
Utah		0.0%	0
Vermont		0.0%	0
Virginia		2.4%	1

Washington	<input type="checkbox"/>	2.4%	1
West Virginia	<input type="checkbox"/>	2.4%	1
Wisconsin	<input type="checkbox"/>	2.4%	1
Wyoming		0.0%	0
U.S. Territory(ies) - Pacific		0.0%	0
U.S. Territory(ies) - Caribbean		0.0%	0
Pacific Compact Nations		0.0%	0
Tribal nation(s)	<input type="checkbox"/>	2.4%	1
Other		0.0%	0
answered question			42
skipped question			3

4. Please select the item below that most accurately characterizes the population size of the community or region your organization serves.

		Response Percent	Response Count
Under 10,000		0.0%	0
10,000-50,000	<input type="checkbox"/>	19.5%	8
50,000-100,000	<input type="checkbox"/>	12.2%	5
100,000-250,000	<input type="checkbox"/>	22.0%	9
250,000-500,000	<input type="checkbox"/>	7.3%	3
500,000-1 million	<input type="checkbox"/>	2.4%	1
More than 1 million	<input type="checkbox"/>	36.6%	15
answered question			41
skipped question			4

5. Please select the item below that best describes the type of organization in which you work. Select all that apply.

		Response Percent	Response Count
Transit agency or public transportation organization		18.6%	8
Small urban transit agency		4.7%	2
Rural public transit agency		11.6%	5
State department of transportation		2.3%	1
Metropolitan/regional planning organization		4.7%	2
Rural or Tribal planning organization		0.0%	0
Council of governments		0.0%	0
Public health organization		27.9%	12
Primary, acute, or long term health care organization		0.0%	0
Emergency management organization		14.0%	6
Rural human service agency that provides public transportation		2.3%	1
Nonprofit organization that provides transportation services		7.0%	3
Private/for-profit organization that provides transportation services		0.0%	0
Academic/educational institution that provides transportation services		7.0%	3
Other (please specify)		25.6%	11
		answered question	43
		skipped question	2

6. Please identify the role(s) or position(s) you fulfill in your organization. Select all that apply.

		Response Percent	Response Count
Board of Directors		0.0%	0
Chief Executive Officer/Executive Director		0.0%	0
DOT Transit Staff		0.0%	0
Transportation Operations		0.0%	0
Transportation Planning		0.0%	0
Transportation Administration/Management		0.0%	0
Transit Management		100.0%	1
Transit Planning		0.0%	0
Transit Operations		0.0%	0
Transit Police/Security		0.0%	0
Transit Safety Officer		0.0%	0
Emergency Manager		0.0%	0
Other Emergency Management		0.0%	0
Planner		0.0%	0
Public Health Management		0.0%	0
Public Information Officer		0.0%	0
Professor		0.0%	0
Consultant		0.0%	0
	Other (please specify)		1
answered question			1

7. Please indicate the number of years of experience you have working in your current profession.

		Response Percent	Response Count
Less than 1 year		0.0%	0
1-5 years		0.0%	0
6-10 years		50.0%	1
11-15 years		0.0%	0
16-20 years		50.0%	1
21-25 years		0.0%	0
More than 25 years		0.0%	0
answered question			2
skipped question			43

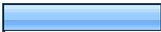
8. Please select the public transportation mode(s) your organization operates or manages. Select all that apply.

		Response Percent	Response Count
Bus		60.9%	14
Paratransit		47.8%	11
Urban demand response service		0.0%	0
Rural and/or small urban demand response service		21.7%	5
Light rail		4.3%	1
Heavy rail		0.0%	0
Commuter rail		4.3%	1
Vanpool, shared-ride taxi and/or other ride-sharing services		4.3%	1
Ferry		0.0%	0
Does not apply		26.1%	6
Other (please specify)		21.7%	5
answered question			23
skipped question			22

9. Please estimate your organization's total annual ridership, defined as the number of passengers who board public transportation vehicles annually.

		Response Percent	Response Count
Less than 1,000		0.0%	0
1,000-5,000		0.0%	0
5,000-10,000		7.1%	1
10,000-50,000		7.1%	1
50,000-100,000		14.3%	2
More than 100,000		64.3%	9
Don't know		7.1%	1
	Other (please specify)		2
answered question			14
skipped question			31

10. Please select all public transportation modes that operate in your community.

		Response Percent	Response Count
Bus		96.4%	27
Paratransit		46.4%	13
Urban demand response service		28.6%	8
Rural and/or small urban demand response service		42.9%	12
Light rail		25.0%	7
Heavy rail		25.0%	7
Commuter rail		39.3%	11
Vanpool, shared-ride taxi and/or other rideshare services		64.3%	18
Ferry		7.1%	2
Does not apply/Don't know		0.0%	0
Other (please specify)		21.4%	6
answered question			28
skipped question			17

11. Please estimate the total annual ridership of all public transportation services in your community.

		Response Percent	Response Count
Less than 1,000		0.0%	0
1,000-5,000		3.6%	1
5,000-10,000		7.1%	2
10,000-50,000		3.6%	1
50,000-100,000		3.6%	1
More than 100,000		28.6%	8
Don't know		53.6%	15
	Other (please specify)		3
answered question			28
skipped question			17

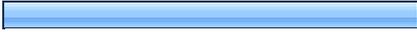
12. How often is pandemic planning, as it relates to public transportation, discussed in your organization's planning meetings?

		Response Percent	Response Count
Monthly		5.0%	2
Quarterly		5.0%	2
Annually		10.0%	4
Rarely		42.5%	17
Never		20.0%	8
Does not apply/do not know		10.0%	4
Other (please specify)		7.5%	3
answered question			40
skipped question			5

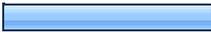
13. Does your organization have a "seat at the table" in the appropriate Emergency Operations Center(s) in the event of a pandemic?

		Response Percent	Response Count
Yes		52.6%	20
Yes, my organization is the lead agency in the Emergency Operations Center		10.5%	4
No		21.1%	8
Does not apply/do not know		18.4%	7
Other (please specify)			5
answered question			38
skipped question			7

14. Please select the type(s) of emergency plans your organization has in place. Select all that apply.

		Response Percent	Response Count
An all-hazards emergency plan		66.7%	26
A hazard-specific emergency plan		38.5%	15
A continuity of operations plan		66.7%	26
My agency does not have an emergency plan.		2.6%	1
Other (please specify)		15.4%	6
		answered question	39
		skipped question	6

15. Please select the statements below that best describe the status of your organization's pandemic planning.

		Response Percent	Response Count
My agency/organization has a pandemic plan/annex.		33.3%	13
My agency's/organization's pandemic plan/annex has been developed within the last five (5) years.		23.1%	9
My agency's/organization's pandemic plan/annex has been updated within the last five (5) years.		30.8%	12
My agency is considering or in the process of creating a pandemic plan.		12.8%	5
My agency/organization does not have a pandemic plan/annex.		12.8%	5
Does not apply/do not know		17.9%	7
answered question			39
skipped question			6

16. Does your organization's pandemic plan have a transportation annex or component?

		Response Percent	Response Count
Yes		50.0%	8
No		31.3%	5
Does not apply		18.8%	3
	Other (please specify)		1
		answered question	16
		skipped question	29

17. Please select the transportation-related policies and procedures that are included in your organization's pandemic plan/pandemic transportation annex. Select all that apply.

		Response Percent	Response Count
Plans/policies for transportation service reduction, suspension, and/or restoration		20.0%	3
Plans for using other jurisdictions' transportation resources		13.3%	2
Policies/procedures to maintain adequate staffing levels to continue transportation operations (e.g., utilizing temporary staff)		13.3%	2
Sanitation policies/procedures		26.7%	4
Procedures to protect transportation operations staff, such as drivers (e.g., priority vaccines, hygiene practices)		26.7%	4
Procedures to protect in-office staff (e.g., telework, flex shifts)		46.7%	7
All of the above		6.7%	1
None of the above		13.3%	2
Does not apply/do not know		20.0%	3
Other (please specify)		6.7%	1
answered question			15
skipped question			30

18. Please select the entities with which your organization's pandemic plan is coordinated. Select all that apply.

		Response Percent	Response Count
Surrounding jurisdictions		41.2%	7
Public health agency/organization		70.6%	12
Emergency management agency		88.2%	15
State department of transportation		23.5%	4
Other health care facilities' plans (hospitals, nursing homes, long term care facilities)		41.2%	7
Public transportation/transit agency		29.4%	5
For-profit/private transportation agency or provider		23.5%	4
Nonprofit transportation agency or provider		11.8%	2
School		29.4%	5
Community-based/faith-based organization		5.9%	1
All of the above		5.9%	1
None of the above		0.0%	0
Does not apply/Do not know		0.0%	0
Other		11.8%	2
		answered question	17
		skipped question	28

19. How would you characterize your organization's pandemic plan? Select all that apply.

		Response Percent	Response Count
Mostly a compliance document with minimal operational content		0.0%	0
A broad guidance document covering the organization with minimal specificity		58.8%	10
A highly detailed document with usable information		35.3%	6
Intended for use prior to an event		47.1%	8
Intended to be used during an event		70.6%	12
User friendly		41.2%	7
Does not apply/do not know		5.9%	1
Other (please specify)		0.0%	0
answered question			17
skipped question			28

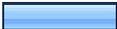
20. Which of the following steps has your organization taken to coordinate/collaborate with other agencies and organizations to plan for transportation in a pandemic event? Select all that apply.

		Response Percent	Response Count
Developed a contact list of key partners		52.9%	9
Established a working group(s) of various agencies/organizations		29.4%	5
Tapped into a pre-existing network (s) of agencies		29.4%	5
Conducted outreach to private sector businesses and organizations		29.4%	5
Conducted outreach to nonprofit/voluntary sector agencies and organizations		23.5%	4
All of the above		5.9%	1
None of the above		29.4%	5
Does not apply/do not know		5.9%	1
Other (please specify)		17.6%	3
answered question			17
skipped question			28

21. What actions has your organization taken to plan for the transportation-related needs of people with access and functional needs in a pandemic? Select all that apply.

		Response Percent	Response Count
Incorporated transportation needs of people with access and functional needs into emergency plans		47.1%	8
Used data and/or other tools to identify or locate people with access and functional needs		17.6%	3
Established a working group dedicated to planning for people with access and functional needs		17.6%	3
Engaged directly with people with access and functional needs		23.5%	4
Coordination/collaboration with government agencies		35.3%	6
Coordination/collaboration with nonprofit or voluntary sector agencies		29.4%	5
Coordination/collaboration with private sector businesses or organizations		17.6%	3
Coordination/collaboration with hospitals, nursing homes, or other health care facilities		35.3%	6
All of the above		0.0%	0
None of the above		5.9%	1
Does not apply/do not know		17.6%	3
Other (please specify)		11.8%	2
answered question			17
skipped question			28

22. Which of the following types of formal/informal agreements does your organization have in place to address transportation needs in a pandemic event?

		Response Percent	Response Count
Agreements with other entities for acquiring additional transportation resources		23.5%	4
Agreements with other entities for transporting supplies that will be needed during a pandemic		41.2%	7
Agreements with other entities for acquiring additional staff		5.9%	1
Agreements with other entities for transporting people with access and functional needs		11.8%	2
All of the above		5.9%	1
None of the above		17.6%	3
Does not apply/do not know		17.6%	3
Other (please specify)		5.9%	1
answered question			17
skipped question			28

23. Please select the statements below that apply to your organization. Select all that apply.

		Response Percent	Response Count
My organization's pandemic plan has been exercised by a simulated event within the last five (5) years.		29.4%	5
My organization's plan has been tested by a real event within the last five (5) years.		52.9%	9
My organization's pandemic plan has not been exercised or tested.		23.5%	4
Does not apply		5.9%	1
	Other (please specify)		1
		answered question	17
		skipped question	28

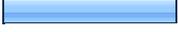
24. What type of exercises were conducted to test your organization's pandemic plan/annex?

		Response Percent	Response Count
Tabletop exercise		80.0%	4
Functional exercise, which simulated an emergency but did not require moving real people and equipment		60.0%	3
Full-scale exercise, a multi-agency exercise using equipment and personnel that would be called upon in a real event to test capabilities		20.0%	1
Other (please specify)		0.0%	0
		answered question	5
		skipped question	40

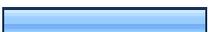
25. How frequently is your organization's pandemic plan exercised?

		Response Percent	Response Count
Once every 1-2 years		50.0%	2
Once every 3-5 years		0.0%	0
Other (please specify)		50.0%	2
		answered question	4
		skipped question	41

26. Which of the following items describe the outcomes of the exercise/event that tested your organization's pandemic plan/annex? Select all that apply.

		Response Percent	Response Count
Helped my organization identify strengths and weaknesses		90.9%	10
Led to improvement planning/changes to my organization's pandemic plan		54.5%	6
Led to the development of other types of plans		45.5%	5
Led to collaboration with new organizations and agencies		27.3%	3
Led to more frequent collaboration/coordination with organizations already involved in pandemic planning (for example, more meetings)		36.4%	4
All of the above		9.1%	1
None of the above		0.0%	0
Does not apply/do not know		0.0%	0
Other (please specify)		0.0%	0
answered question			11
skipped question			34

27. What barriers to pandemic planning has your organization experienced? Select all that apply.

		Response Percent	Response Count
Lack of internal executive support		17.6%	6
Lack of agreement or consensus among planners or participants		11.8%	4
Lack of interest or support in the community		35.3%	12
Lack of funding		32.4%	11
Other priorities		35.3%	12
Lack of staff to conduct pandemic planning		26.5%	9
Lack of usable information/templates/guidance appropriate to my organization		35.3%	12
All of the above		5.9%	2
None of the above		5.9%	2
Does not apply/do not know		5.9%	2
Other (please specify)		11.8%	4
answered question			34
skipped question			11

28. Please select the entity(ies) your organization would rely on for information about how to plan for a pandemic event. Select all that apply.

		Response Percent	Response Count
Public health agency		81.8%	27
Emergency management agency		66.7%	22
State department of transportation		30.3%	10
Public transit/transportation agency or provider		21.2%	7
Metropolitan or regional planning organization		9.1%	3
Private sector business or organization		18.2%	6
Nonprofit organization		9.1%	3
Does not apply/do not know		12.1%	4
Other (please specify)		3.0%	1
answered question			33
skipped question			12

29. What information or guidance would be useful to your organization in developing, revising, or implementing a pandemic plan appropriate to the scale of your operations and nature of the community(ies) you serve?

	Response Count
	18
answered question	18
skipped question	27

30. If you have links to relevant websites or resources that provide good information about or examples of pandemic planning, please include them in the space below.

**Response
Count**

5

answered question

5

skipped question

40

APPENDIX C

Interview Guide

Interview Date: Interviewer Name:

Interviewee Name:

Title:

Organization:

Contact Information:

Type of Organization:

The goal of this project is to identify current practices for pandemic preparations and responses in the public sector as they pertain to transportation; the information gathered in this research will be foundational to the development of a guide for public transportation pandemic planning and response. Our research will help us identify emerging, good, better and best practices, lessons learned, gaps and opportunities for improvement related to transportation planning and response in a pandemic. Best or promising practices include those that are:

- Scalable.
- Replicable.
- Instrumental in improving performance.
- Innovative.

It is just as important to learn from agencies and organizations that may not be as far along in their pandemic planning. Critical to this research will be collecting information about the barriers to pandemic planning as it relates to transportation and the types of guidance and information that will be useful to agencies in advancing pandemic planning efforts.

For interview candidates who have completed an online survey, please note the interviewer has access to your online survey; however, when the results are compiled and reported, all personally identifiable information will be omitted. Please let us know if you want your name and title included in the interview summaries or if you prefer anonymity (e.g., meaning only the state or city, level of government and agency type would be included).

Questions for All Interviewees	Prompts/Listening Cues
<p>1. Please describe your agency's/organization's pandemic planning efforts.</p>	<p>-What prompted plan development?</p> <p>-Process used to develop plan (level of collaboration with other agencies, etc.)?</p> <p>-Resources, templates used?</p> <p>-Lessons learned?</p>
<p>2. How did you interrelate with the pandemic planning efforts that have occurred in your community or region?</p>	<p>-What agency/organization initiated the planning?</p> <p>-What were the outcomes?</p>
<p>3. Please describe some of the key transportation-related procedures/policies in your pandemic plan that you consider to be well-developed and how they were developed.</p> <p>a. Would you be willing to share your plan(s)?</p>	<p>-Continuity of transportation operations</p> <p>-Maintaining adequate staffing levels</p> <p>-Worker protection</p> <p>-Social distancing</p>
<p>4. Please describe any challenges or barriers to transportation planning for a pandemic and any measures your agency/organization has taken to overcome those challenges.</p>	<p>-Organizational challenges?</p> <p>-Regulatory hurdles?</p> <p>-Lack of funding?</p> <p>-Administrative hurdles?</p>
<p>5. Can you please identify best practices in transportation planning for a pandemic (i.e., activities, processes, or accomplishments)?</p>	<p>-In your own organization?</p> <p>-Do you know of other agencies doing this work well?</p>
<p>6. What information or resources would be most helpful to your agency in developing, revising or effectively implementing a Pandemic Preparedness Plan appropriate to the scale of your operations and nature of the communities you serve?</p>	<p>-What kinds of things would you like to see in a pandemic planning guide?</p>
<p>7. What resources or information could your agency/organization offer that would be useful to agencies charged with planning for transportation in a pandemic?</p>	

Questions for All Interviewees	Prompts/Listening Cues
<p>8. What is your agency doing to plan for the transportation-related needs of people with access and functional needs?</p>	<p>-Do you have relationships with entities that provide transportation for people with access and functional needs?</p> <p>-If operations are suspended or under reduced levels?</p> <p>-Barriers to doing this kind of planning?</p>
<p>9. In a pandemic, will your agency/organization use social media to communication information:</p> <ul style="list-style-type: none"> a. Internally (to staff, contractors) b. Externally (to the general public) c. To people with access and functional needs 	<p>-If so, what type(s) of social media?</p>