Public notice was provided pursuant to Oregon Revised Statute 192.640

LANE TRANSIT DISTRICT
BOARD OF DIRECTORS
REGULAR MEETING

Wednesday, August 19, 2020
5:30 – 7:30 p.m.

VIRTUAL MEETING

Zoom details will be provided on the web calendar at www.LTD.org.

AGENDA

Time		ITEM	Page
5:30 p.m.	I.	CALL TO ORDER	
5:31 p.m.	II.	ROLL CALL	

❒ Carl Yeh (President) ❒ Kate Reid (Vice President) ❒ Joshua Skov (Secretary)
❒ Don Nordin (Treasurer) ❒ Caitlin Vargas ❒ Steven Yett ❒ Emily Secord

5:32 p.m. III. COMMENTS FROM BOARD PRESIDENT

This agenda item provides an opportunity for the Board president to formally communicate with the Board on any current topics or items that may need consideration.

5:34 p.m. IV. COMMENTS FROM THE GENERAL MANAGER

This agenda item provides an opportunity for the general manager to formally communicate with the Board on any current topics or items that may need consideration.

5:36 p.m. V. ANNOUNCEMENTS AND ADDITIONS TO AGENDA

This agenda item provides a formal opportunity for the Board president to announce additions to the agenda, and also for Board members to make announcements.

5:38 p.m. VI. BOARD CALENDAR 4

Board members are asked to coordinate the Board activity calendars with their personal calendars for discussion at each Board meeting. Board members are also asked to contact the Clerk of the Board with any changes in availability for LTD-related meetings and events, and to provide their vacation dates.

5:40 p.m. VII. EMPLOYEE OF THE MONTH - JULY 5

5:45 p.m. VIII. AUDIENCE PARTICIPATION

Public Comment Note: This part of the agenda is reserved for members of the public to address the Board on any issue. **Please note the following instructions:**

1. To indicate that you would like to provide testimony, please use the raise your hand button.
2. For those attending via phone only, press *9 on your phone to raise your hand.
3. When it is your time to speak, your name will be called.
   - For those attending via phone only, the last four (4) digits of your phone number will be called.
4. Please state your name, city of residence, and who you are representing for the audio record.
5. Once you have provided testimony, your hand will be lowered. Please do not raise your hand again. Only one opportunity to speak is provided.
6. For those unable or not wanting to speak publicly, testimony may be provided via e-mail at clerk@ltd.org.
7. Public testimony is limited to three (3) minutes per community member. A timer will be displayed on the screen and will beep when the three (3) minutes is up.

IX. PUBLIC HEARING: *NONE*

Time			Page
5:55 p.m.	X.	BOARD MEMBER REPORTS *This report provides an overview of the topics that have been covered at all Board subcommittees, Community Advisory Committees, and local governmental and stakeholder committees that Directors have attended since the previous months Board meeting. Directors also provide more in-depth verbal updates.*	6
6:05 p.m.	XI.	CONSENT CALENDAR: **Action Needed**: Approval 1. Minutes of the June 17, 2020, Regular Board Meeting 2. Minutes of the July 1, 2020, Special Board Meeting 3. Minutes of the July 8, 2020, Special Board Meeting 4. Delegated Authority Report – JULY 5. Proposed Board Public Engagement Policy	8
6:10 p.m.	XII.	PUBLIC MEETING SCHEDULE: *Materials Included* [Director Yeh] **Action Needed:** Discussion and Approval	26
6:15 p.m.	XIII.	TRANSIT TOMORROW DECISION-MAKING PROCESS UPDATE WITH SPC RECOMMENDATION: *Materials Included* [Jennifer Zankowski] **Action Needed:** Discussion and Approval	30
6:45 p.m.	XIV.	FISCAL YEAR 2019-2020 AUDIT PLAN: *Materials Included* [Christina Shew] **Action Needed:** None. Information Only	34
7:00 p.m.	XV.	SOLAR PANELS: *Materials Included* [Aurora Jackson] **Action Needed:** None. Information Only	55
7:10 p.m.	XVI.	GENERAL MANAGER ANNUAL PERFORMANCE REVIEW: *Materials Included* [Director Yeh] **Action Needed:** Information and Discussion	58
	XVII.	WRITTEN REPORTS – RESPOND IF QUESTIONS	
		A. MONTHLY FINANCIAL REPORT - JUNE [Christina Shew] *Attached is the Year-to-Date Financial Report. Financial reports are considered a draft until the conclusion of the fiscal year and completion of the Comprehensive Annual Financial Report. This report is provided in written form monthly, with the addition of a verbal update on a quarterly basis.*	66
		B. MONTHLY CASH DISBURSEMENTS – JUNE & JULY [Christina Shew] *This report is provided in response to the Board's request to implement financial practices consistent with other public entities. This report provides a complete listing of all non-payroll disbursements for the current month.*	67

Time		Page

C. QUARTERLY GRANT REPORT – PRESENTED: MARCH/JUNE/SEPTEMBER/DECEMBER
[Christina Shew]

The Grant Report contains financial data for all Federal Transit Administration (FTA) and Oregon Department of Transportation (ODOT) grants that have a remaining balance or that have had activity within the last quarter. The sources of information are the Transit Award Management System (TrAMS) and the Oregon Public Transit Information System (OPTIS).

D. MONTHLY PERFORMANCE REPORTS - JULY
[Tom Schwetz]

Monthly performance reports will be provided to the Board in response to their request for regular reporting on the District's performance in several areas. On a quarterly basis, staff will present a review of key metrics that are trending in the performance report.

E. MONTHLY DEPARTMENT REPORTS – AUGUST 77
[Aurora Jackson]

Monthly department activity reports, and reports throughout the District, are provided for the Board's information.

F. BOARD ANNUAL WORKING AGENDA 81

Attached is a calendar of Action or Information items that will be included on the agenda for future Board meetings.

7:30 p.m. XVIII. ADJOURNMENT

To request a reasonable accommodation or interpreter, including alternative formats of printed materials, please contact LTD's Administration office no later than 48 hours prior to the meeting at 541-682-5555 (voice) or 7-1-1 (TTY through Oregon Relay).

AGENDA ITEM SUMMARY

DATE OF MEETING: August 19, 2020

ITEM TITLE: BOARD CALENDAR

PREPARED BY: Camille Gandolfi, Clerk of the Board

ACTION REQUESTED: Information and discussion.

PURPOSE: To review and discuss the current and upcoming Board calendar.

ROLE OF THE BOARD: The Board's role in this instance is to review and discuss the Boards' meeting schedule and any conflicts.

HISTORY: Each month the Board reviews its activity calendar for the current and upcoming calendar month. Board members are asked to contact the Clerk of the Board with any changes in availability for LTD-related meetings and events and to provide their summer and fall vacation dates when available.

CONSIDERATIONS: The up-to-date electronic SharePoint calendar is available to be viewed via the link below.

ALTERNATIVES: N/A

NEXT STEPS: N/A

SUPPORTING DOCUMENTATION:

1) Internal SharePoint Calendar Link

PROPOSED MOTION: N/A

AGENDA ITEM SUMMARY

DATE OF MEETING: August 19, 2020

ITEM TITLE: JULY EMPLOYEE OF THE MONTH

PREPARED BY: Van Snyder, Operations Supervisor

BACKGROUND: Bus Operator, Mike Johnson, has been selected to receive the July 2020 Employee of the Month (EOM) award. Mike was hired as a bus operator on February 4, 2008. Mike was recently awarded his 12 years of consecutive years of safe driving award. Mike also excels in attendance, customer service, and professionalism in his daily duties.

Mike was recognized for going above and beyond when he noticed an elderly passenger with disabilities de-board his EmX at Glenwood Station with the intention of walking up the hill to Motel 6. Operator Johnson called Operations (OPS) Dispatch to arrange transportation for the passenger, who thanks to Mike's quick thinking, was safely transported to his destination by another operator. This is an example of Mike's desire to help people, especially our customers. Thank you, Mike, well done, and well-deserving of EOM.

When asked to comment on Mike's selection as EOM, Van Snyder, Operations Supervisor said:

> Mike has always been one to care for his passengers. He's known to call in when someone is in a pinch and need additional help because they were not able to make transfers, or perhaps their route has been detoured and their stops were missed. Mike is soft-spoken. However, he is well aware of what is going on in his bus and who may be needing help. Mike is well-liked amongst his peers and will go out of his way to help OPS if required. He is an outstanding operator, and LTD is fortunate to have Mike as an employee.

AWARD: Mike will attend the August 19 Board meeting to be introduced to the Board and to receive his award.

AGENDA ITEM SUMMARY

DATE OF MEETING: August 19, 2020

ITEM TITLE: BOARD MEMBER REPORTS

PREPARED BY: Camille Gandolfi, Clerk of the Board

ACTION REQUESTED: None. Information Only

BACKGROUND: The Lane Transit District Board of Directors has several subcommittees and Community Advisory Committees in which Directors are assigned to attend as representatives of the Board. Directors also are assigned to represent the District at a variety of local governmental and stakeholder committees. This report provides an overview of the topics covered at all Board subcommittees, Community Advisory Committees, and local governmental and stakeholder committees that Directors have attended since the previous months Board meeting. Directors also provide more in-depth verbal updates during Board meetings.

The following activities have occurred since the last Board meeting:

MEETINGS HELD:

Board members may take this opportunity to report briefly on any one-on-one meetings they have held with local officials or other meetings that they have attended on behalf of LTD.

1. **Strategic Planning Committee (SPC)**: This committee generally meets monthly and is composed of Board Members Carl Yeh and Emily Secord, members of local units of government, and community representatives. At the August 4 meeting, committee members discussed rescheduling SPC meetings; discussed the District "why" statement/strategic business plan and developed a recommendation for the Board of Directors; received a membership recruitment update; received a Transit Tomorrow update and developed a recommendation for the Board of Directors; and discussed a Board meeting report.

2. **Metropolitan Policy Committee (MPC):** Board members Kate Reid and Carl Yeh are LTD's MPC representative; the alternate Board member is Steven Yett; General Manager Aurora Jackson is the District's ex-officio attendee. MPC meetings are held on the first Thursday of each month. At the August 6 meeting, committee members held a public hearing on Revisions to the Metropolitan Transportation Improvement Program Amendment Approval Authority; discussed Federal Performance Measures Process Agreement; discussed Oregon Transportation Commission (OTC) 24-27 STIP Funding Allocations; and reviewed the Travel Barriers Survey Process and Results Draft Report.

3. **Lane Area Commission on Transportation (LaneACT)**: In 2009 the Oregon State Legislature directed Lane County to develop an Area Commission on Transportation (ACT). Commission membership includes representatives from Lane County, cities within the county, LCOG, and LTD, and meets on the second Wednesday of the month. Board Member Don Nordin serves as LTD's representative. At the August 12 meeting, committee members discussed a letter of support for the Safe Routes to School grant application; discussed the procedure for LaneACT letters of support; reviewed 2024-27 STIP: stakeholder engagement; received an update on 2024-27 STIP: stakeholder engagement; received an update on LaneACT Area Strategy; reviewed and discussed LaneACT Area Strategy; and discussed Transportation safety, equity and inclusion.

NO MEETINGS HELD:

1. **LTD Pension Trust Committee**: LTD's two pension plans (one for ATU-represented employees and one for administrative employees) are each governed by a board of trustees. The pension trustees generally meet three times a year, and Board Member Steven Yett serves as one of the trustees. The next meeting is scheduled for August 20.

2. **LTD Board Contract Committee:** The Board Contract Committee is composed of Board Members Carl Yeh, Emily Secord, and Joshua Skov. The committee meetings are scheduled for the second Monday of each month. The August 10 meeting was canceled. The next meeting is scheduled for September 14.

3. **LCOG Board of Directors**: LTD Board Member Don Nordin represents LTD on the LCOG Board of Directors as a non-voting member; Board Member Caitlin Vargas is the alternate. The next meeting is scheduled for September 24.

4. **LTD Board Budget Committee:** The Budget Committee is composed of all seven Board members and seven citizen members. The Budget Committee meets multiple times a year to give guidance regarding LTD's annual budget. Each LTD Board member selects one citizen member to fill a term of three years. The next meeting is scheduled for October 7.

5. **Ad Hoc Sustainability Committee**: This ad hoc committee has been created for the purpose of reviewing the District's sustainability Policies. The committee is composed of Board members Kate Reid, Joshua Skov, and Don Nordin. The next meeting has not been scheduled.

6. **Ad Hoc Strategic Planning Committee (SPC) Topic Review Committee**: This ad hoc committee has been created for the purpose of reviewing and discussing when the SPC should reconvene and what topics would be appropriate in light of the ongoing COVID-19 pandemic. The committee is composed of Board members Kate Reid, Joshua Skov, and Emily Secord. The next meeting has not been scheduled.

7. **Oregon Metropolitan Planning Organization Consortium (OMPOC)**: The Oregon Metropolitan Planning Organizations (MPO) Consortium was formed on May 25, 2005, as a forum for MPOs to work together on matters of mutual interest and statewide significance. LTD Board Member Kate Reid attends the committee meetings as LTD's representative. The next meeting has not been scheduled.

8. **MovingAhead Oversight Committee**: This committee is composed of representatives from the City of Eugene, LTD, and regional partners with the goal of a system-level approach to corridor improvements. LTD Board member's Don Nordin and Carl Yeh serve as LTD's representatives. The next meeting has not been scheduled.

9. **Main Street Projects Governance Team:** This committee was formed to provide informed direction and collaborative decision making to support the Main Street-McVay Transit Study and four other concurrent projects along Main Street in Springfield. Board Members Steven Yett and Kate Reid serve as LTD's representatives. The next meeting has not been scheduled.

10. **Vision Zero Task Force**: The City of Eugene, as part of its Vision Zero implementation, has developed a Vision Zero Task Force. Board Member Joshua Skov has been appointed the LTD representative to the Task Force. The next meeting has not been scheduled.

11. **Ad Hoc Fare Policy Committee**: This ad hoc committee has been created for the purpose of reviewing the District's fare system. The committee is composed of Board members Kate Reid, Carl Yeh, and community representatives. The next meeting has not been scheduled.

12. **Ad Hoc Communications Committee**: This ad hoc committee has been created for the purpose of reviewing the District's communications. The committee is composed of Board members Kate Reid, Joshua Skov, and Caitlin Vargas. The next meeting has not been scheduled.

13. **Comprehensive and Accessible Transportation Committee (CATC)**: Board Members Carl Yeh, Don Nordin, and Caitlin Vargas serve as LTD's representatives. The next meeting has not been scheduled.

14. **State Transportation Improvement Fund (STIF) Committee**: The Committee is administered by LCOG. The Committee will meet a minimum of two times per year, or a sufficient number of times to advise the LTD Board of Directors regarding its review of project proposals and the STIF Plan. The committee, in accordance with state law, is composed of 14 members with eight (8) members representing in-district communities, two (2) members representing out-of-district communities, and three (3) ex-officio (non-voting) members; the ex officio LTD Board members are Kate Reid and Carl Yeh. The next meeting has not been scheduled.

15. **Special Transportation Fund (STF) Committee**: The Committee will meet a minimum of two times per year, or a sufficient number of times to advise and assist LTD's Board of Directors in carrying out the purposes of the Special Transportation Fund for the elderly and people with disabilities Transportation Operating Grants Program. The committee is composed of local community member representatives in accordance with state law; the ex officio LTD Board member is Don Nordin. The alternate ex-officio LTD Board member is Emily Secord. The next meeting has not been scheduled.

AGENDA ITEM SUMMARY

DATE OF MEETING: August 19, 2020

ITEM TITLE: CONSENT CALENDAR

PREPARED BY: Camille Gandolfi, Clerk of the Board

ACTION REQUESTED: Adoption

BACKGROUND: Items for approval that can be explained clearly in the written materials for each meeting, and not expected to draw public testimony or controversy, are included in the Consent Calendar for approval as a group. Board members can remove any item from the Consent Calendar for discussion before the Consent Calendar is approved each month.

The Consent Calendar for August 19, 2020, consists of:

- Approval of the Minutes of the June 17, 2020, Regular Board Meeting
- Approval of the Minutes of the July 1, 2020, Special Board Meeting
- Approval of the Minutes of the July 8, 2020, Special Board Meeting
- Approval of Delegated Authority Report - JULY
- Approval of Proposed Board Public Engagement Policy

ATTACHMENT:

1) Minutes of the June 17, 2020, Regular Board Meeting
2) Minutes of the July 1, 2020, Special Board Meeting
3) Minutes of the July 8, 2020, Special Board Meeting
4) Delegated Authority Report - JULY
5) Proposed Board Public Engagement Policy

PROPOSED MOTION: I move adoption of LTD Resolution No. 2020-08-19-046:

It is hereby resolved that the Consent Calendar for August 19, 2020, is approved as presented [amended].

MINUTES OF DIRECTORS MEETING

LANE TRANSIT DISTRICT

REGULAR BOARD MEETING

Wednesday, June 17, 2020

Pursuant to notice provided in accordance with Oregon Revised Statute 192.640, the Board of Directors of the Lane Transit District held a virtual Regular Board Meeting on Wednesday, June 17, 2020, beginning at 5:30 p.m., via ZOOM online.

Present: Carl Yeh, President
Kate Reid, Vice President
Emily Secord
Josh Skov, Secretary
Don Nordin, Treasurer
Caitlin Vargas
Steven Yett
A.J. Jackson, General Manager
Camille Gandolfi, Clerk of the Board

CALL TO ORDER/ROLL CALL — Mr. Yeh convened the meeting and called the roll.

PRELIMINARY REMARKS BY BOARD PRESIDENT — Mr. Yeh stated that virtual meetings were being conducted in compliance with Governor Kate Brown's stay-at-home orders. He said the proposed Fiscal Year 2020-2021 Annual Budget would not be approved until the June 24, 2020, Board meeting in order to allow for a 30-day public comment period.

COMMENTS FROM THE GENERAL MANAGER — None.

ANNOUNCEMENTS AND ADDITIONS TO THE AGENDA — Mr. Skov said he had a number of topics he wanted addressed at future meetings and would provide a listing of those at the end of the meeting.

BOARD CALENDAR — Ms. Jackson said a discussion of public meetings was scheduled later in the meeting.

EMPLOYEE OF THE MONTH — Postponed during District response to COVID-19.

AUDIENCE PARTICIPATION — Mr. Yeh thanked community members for attending the meeting and explained the procedures for providing public testimony during the virtual meeting.

Alex Schay, Portland, representing the Northwest Alliance for Clean Transportation, said he hoped that LTD would seriously consider renewable natural gas alternative during its decisions regarding the decarbonization process and fleet procurement. He said the payback period for renewable natural gas was less than five years and the greenhouse gas reductions versus the diesel baseline scenario were over 80 percent. Discussions with transit agencies in Southern California that had been running on renewable natural gas for many years indicated that maintenance and finance staff was very pleased with the results. He urged LTD to consider a renewable natural gas alternative, particularly from a municipal waste treatment plant; the Northwest Alliance for Clean Transportation was ready to support that work.

Bill Bradley, Springfield, represented Amalgamated Transit Union (ATU) 757, spoke about the past month of LTD operations from a union perspective. He said there had been about 45 members laid off due to the COVID-19 pandemic and those employees were anxious to return to work. He said he

realized there was currently a reduced level of service with reduced ridership and encouraged the Board to find a way to bring the employees back and perhaps serve the community in new ways. He asked the Board to direct LTD management to engage the union on ways to be creative, bring workers back and be productive in transporting the residents of Lane County during the economic reopening of the service area.

Mr. Bradley said there were articles about transit not being a factor in the spread of COVID-19 and it needed to be communicated to the public that LTD was part of the solution and that many safety precautions had been implemented. Confidence in the safety of LTD's buses had to be instilled in the community. He thanked LTD for its continuing efforts to keep transit safe, but encouraged staff to find ways to educate the public that its service was safe and part of the solution to reopening the economy.

Rachel Anderson, Eugene, Southeast Neighbors Transportation Committee member, commended LTD for its diligent work during this challenging time. She realized LTD was facing many challenges and thanked bus drivers and other employees for continuing to operate buses in such a safe manner and continuing to provide service to those who needed it. She said the committee wanted to be partners with the Board as it made plans for the future during uncertain financial times and changing service demands. The committee wanted to help develop a plan for the southeast neighborhood that would save LTD money and also keep neighbors linked to the downtown and extended Eugene-Springfield corridors.

Michael Graham, Portland area, representing the Columbia Willamette Clean Cities Coalition, said the nonprofit coalition specialized in alternative fuels. He said the organization had resources available to LTD as it conducted its fleet analysis.

Ms. Gandolfi stated that Eleanor Parrish Mueller had submitted written testimony that had been distributed to Board members.

PUBLIC HEARING — None.

BOARD MEMBER REPORTS — Ms. Reid reported on a recent Oregon MPO Consortium (OMPOC) meeting. She said an OMPOC summit to be held in Eugene in the summer of 2020 in coordination with a League of Oregon Cities conference had been postponed until the summer of 2021.

Ms. Secord reported that the Ad Hoc SPC Topics Committee had met twice and was recommending that the Strategic Planning Committee resume its regular meeting schedule in July and work on the strategic business plan for LTD, with the support of District staff. LTD staff would wordsmith the document after it was approved by the Board. The SPC would also be supported by staff for the long-range transit plan, mobility management plan and budget so there was a focused discussion about the strategic planning process. She said collaboration would be an ongoing process between the SPC and Board.

In response to a question from Ms. Secord, Mr. Yeh said the Board could determine if the ad hoc committee needed to be disbanded and whether a formal vote on its recommendations should be taken. This could occur during the item related to public meetings later on the agenda.

ITEMS FOR ACTION/INFORMATION

Consent Calendar — Mr. Skov pointed out that the Contract Committee had met and reviewed in depth the contracts that were included on the Consent Calendar. He said one of the contracts forwarded with a recommendation of approval was a $1.2 million contract for the purchase of vehicles that were not 40- or 60-foot buses. He said he raised the issue because it was occurring at the same time the Board would be approving a goal related to greenhouse gas emissions reduction. He asked if Board members wanted to pull the item from the Consent Calendar.

Ms. Reid said she had the concern, but the ad hoc committee that formulated the climate action policy committee did discuss cutaways and smaller vehicles in general and determined that the technology had not yet evolved fully for cutaways and other options were not available at this time. Staff had indicated that the age of the cutaway vehicles made replacement necessary at this time.

Mr. Yeh said he recognized the concerns about the contract and said it could be pulled from the Consent Calendar for additional discussion.

Mr. Nordin suggested reconvening the Special Transportation Committee.

Mr. Skov commented that LTD did not always have the options it wanted regarding climate action, so when there was an opportunity or a chance to create an opportunity it was important to seize it. He said the cutaway vehicles would be purchased, but that would not help achieve LTD climate goals.

Ms. Secord requested additional information on the two Consent Calendar items related to salaried employees' retirement funding and ATU pension funding. Ms. Jackson said those items could be pulled and staff could respond to questions or the items could come back to the Board as separate agenda items.

Ms. Secord said she preferred not to approve items on the Consent Calendar that had not been previously reviewed by the Board. Mr. Skov said he agreed.

MOTION Mr. Yett moved to pull the following items from the Consent Calendar: Contract No. 2020-19: Schetky Northwest Sales, Inc.; Updated Salaried Employees' Retirement Funding Policy; Updated Fund Balance and Budgetary Reserve Policy, and Updated LTD ATU Local 757 Pension Funding Policy. Ms. Secord provided the second.

VOTE The motion was approved as follows:
AYES: Nordin, Reid, Secord, Skov, Vargas, Yeh, Yett (7)
NAYS: None
ABSTENTIONS: None
EXCUSED: None

MOTION Ms. Vargas moved adoption of LTD Resolution No. 2020-06-17-030: It is hereby resolved that the Consent Calendar for June 17, 2020, 2020, is approved as amended. Ms. Secord provided the second. The Consent Calendar consisted of the Minutes of the May 12, 2020, Special Board Meeting; Minutes of the May 20, 2020, Regular Board Meeting; Delegated Authority Report-May; Contract No. 2020-133: SiteCrafting; and Annual District Boundary Reaffirmation.

VOTE The motion was approved as follows:
AYES: Nordin, Reid, Secord, Skov, Vargas, Yeh, Yett (7)
NAYS: None
ABSTENTIONS: None
EXCUSED: None

Elementary Lane Street Dedication — Facilities Project Manager Randi Staudinger said the dedication was related to the Santa Clara Transit Station project. It was a City of Eugene requirement during the early stages of planning for the planned unit development (PUD) on the property that LTD needed to build a through road from Green Lane north to Hunsaker Lane. Since LTD was only developing the southern three acres of the site it was necessary to construct the entirety of the road, only that portion from Green Lane to the northern end of the portion the District was developing. The entity that purchases and develops the remaining five acres would have responsibility for finishing the through road. For that purpose the public right-of-way needed to be dedicated to the City of Eugene and recorded prior to construction of the road; that would also include dedication to the City of a one-foot reserve strip on the north end of Elementary Lane. She said the agenda packet included a site plan showing the details.

Mr. Yett asked for an update to the Board on the Santa Clara Transit Station project with respect to schedule and budget at some point in the future.

MOTION Mr. Skov moved adoption of LTD Resolution No. 2020-06-17-037: It is hereby resolved by the LTD Board of Directors adopts the following:

1. The Dedication of Public Right-of-Way to the City of Eugene is authorized;
2. The Deed transferring a one-foot access restriction strip to the City of Eugene is authorized; and,
3. The General Manager is authorized to execute the Dedication of Public Right-of-Way and Deed, transferring interests to the City of Eugene, as set forth above.

Mr. Yett provided the second.

VOTE The motion was approved as follows:

AYES: Nordin, Reid, Secord, Skov, Vargas, Yeh, Yett (7)
NAYS: None
ABSTENTIONS: None
EXCUSED: None

Climate Action Policy Statement & Fleet Procurement Goals — Sustainability Program Manager Kelly Hoell presented the draft goals the Board's Ad Hoc Sustainability Committee had developed. She provided background and history of the issue and the Board's direction to the Sustainability Committee to develop recommendations for actions to address climate change by reducing carbon emissions. The committee has met regularly with a focus on two key areas:

- Developing guidance on Board-level policy for fleet procurement.
- Developing guidance on Board-level policy for intergovernmental collaboration.

Ms. Hoell said staff would begin a fleet procurement planning process to study vehicles, fuels and technology when the Board's policy was adopted. She reviewed the goals proposed by the committee:

> "LTD recognizes the urgency in addressing climate change and is committed to reducing community greenhouse gas emissions by taking steps to maximize public transit ridership and support low carbon active transportation modes. LTD is also committed to reducing the greenhouse gas emissions and consumption of fossil fuels from its fleet of vehicles as quickly as possible in a financially and socially responsible manner. LTD is committed to eliminating the use of fossil fuels in its bus fleet by 2035 and will develop plans to achieve that goal."

Goal 1 – Short-term
- 25 electric buses in 3 years

Goal 2 - Long-term
- 100% fleet turnover and phase out of fossil fuels by 2035
- 75% GHG emissions reduction by 2030

Goal 3 – Other considerations
- Deliberate exploration of emerging technology and fuels
- Joint community GHG emission reduction goals with partner jurisdictions
- Iterative process to review progress & goals annually

Ms. Hoell emphasized that the goals were entirely focused on the fleet. Under Goal 1, the committee's discussion focused on the fact that the 25 electric buses would be on contract, not necessarily on site and in operation during that time period.

Ms. Secord asked how the proposed goals related to the vehicle purchase contract with Schetky Northwest Sales that was pulled from the Consent Calendar for further discussion.

Mr. Skov said the purchase of the fossil fuel cutaway buses from Schetky seemed like a step in the wrong direction, it was outside of the longer-term framework Ms. Hoell presented. He said LTD was trying to do the right thing but lacked a complete framework at this time.

Mr. Johnson said electric technology for cutaway vehicles was still being developed and LTD was reluctant to invest in it at this point out of concern the vehicles would not serve the District well. It was necessary to purchase replacement vehicles at this time to continue to provide service to the community in a reliable manner. He said the vehicles had a seven- to eight-year life cycle and there would be more purchases in the future. He said the cutaways were for paratransit and Ride*Source* fleet and were not part of the fixed route system. He said the vehicles being replaced were well beyond their useful life and subject to breakdowns and expensive maintenance.

Mr. Yeh said the Contract Committee asked many questions during its review of this vehicle purchase in an effort to determine how it aligned with LTD's climate action efforts.

Ms. Hoell said the fleet procurement plan would be developed in two phases: the first would be for the 40- and 60-foot bus fleet and the second would address the paratransit fleet. The plan would look at all available technologies and biofuels.

Mr. Nordin asked if there was discussion of acquiring gas from Short Mountain or any other similar source. Ms. Hoell said as the fleet procurement plan process began all fuels and technologies available on the market, including renewable natural gas, would be considered for the 40- and 60-foot bus fleet.

Ms. Reid noted that renewable natural gas from Short Mountain was dependent on Lane County obtaining funding and building capacity to deliver that product. Building a fleet procurement plan around that specific source of renewable natural gas might not be prudent at this time, but she was confident staff would be alert to that possible opportunity.
Mr. Yeh thanked the Ad Hoc Sustainability Committee and staff for their work and goal of reducing greenhouse gas emissions. He said the policy appeared to be flexible enough to accommodate changing technologies over the next few years.

Mr. Johnson commented that LTD would be depending on discretionary funds that may or may not be available to purchase electric buses in the desired amount.

Mr. Skov pointed out that the policy was technology agnostic beyond the initial purchase of electric buses. The goal of greenhouse gas reduction could be achieved through a number of different fuel technologies and that flexibility was built into the policy and goal. He said there was no map for achieving everything set forth in the policy, but that was necessary as it was essential to have that level of ambitious goals for reducing greenhouse gas emissions. He pointed out that a 75 percent reduction by 2030 and 100 percent by 2030 was not as ambitious as some parts of the economy were being required to achieve. If LTD tried to achieve its goals faster it could require cuts to transit service and well used transit, regardless of the propulsion system, was low carbon transportation.

Ms. Reid expressed her appreciation for Ms. Hoell and the climate expertise perspective she brought to the world of transit.

Mr. Yeh said he felt the plan was ambitious and realistic, giving the District a chance to succeed in achieving its goals.

Ms. Reid said an important aspect of the policy and goals was that the committee and staff believed it was financially achievable.

Mr. Skov said an area where LTD could make the most difference was by encouraging more people to ride transit and that would involve other jurisdictions. That was called out in the policy under Goal 3.

Ms. Secord left the meeting at 6:30 p.m. Mr. Yeh said she had indicated her support of the motion.

MOTION Mr. Skov moved adoption of LTD Resolution No. 2020-06-17-038: It is hereby resolved that the LTD Board of Directors adopts the Climate Action Policy Statement and Fleet Procurement Goals as presented. Mr. Nordin provided the second.

VOTE The motion was approved as follows:
AYES: Nordin, Reid, Skov, Vargas, Yeh, Yett (6)
NAYS: None
ABSTENTIONS: None
EXCUSED: Secord (1)

Contract No. 2020-19: Schetky Northwest Sales, Inc. — Mr. Nordin asked if the vehicles to be purchased were the same as those already in service. Mr. Johnson said they were cutaway buses similar to those purchased in the past.

Mr. Nordin said he hoped that green technologies would be available in future purchases of that type of vehicle.

Mr. Skov said it was necessary to replace existing vehicles in order to continue to provide reliable service to those who needed it and new technologies were not yet available for the cutaways, which was unfortunate.

MOTION Ms. Reid moved adoption of LTD Resolution No. 2020-06-17-032: It is hereby resolved that the LTD Board of Directors acting as the LTD Contract Review Board, approves Contract No. 2020-19: Schetky Northwest Sales, Inc. as presented. Ms. Vargas provided the second.

VOTE The motion was approved as follows:
AYES: Nordin, Reid, Vargas, Yeh, Yett (5)
NAYS: None
ABSTENTIONS: Skov (1)
EXCUSED: Secord (1)

Public Meeting Schedule - Lane County Phase 2 of Reopening — Ms. Jackson reminded the Board that weekly meetings began in March as a result of the COVID-19 pandemic and the Board had maintained its regular monthly meeting to conduct District business. She said the Board had asked to revisit the schedule and determine how to best move through the months of July, August, and September. Lane County was now in Phase 2 of reopening, although that was not much different that Phase 1. She asked if the Board wished to continue its weekly meetings using a virtual format. She also asked if and when the Board felt that in-person meetings should resume. She said decisions on those questions would help the community understand how best to engage the Board.

Ms. Denmark said a recent order from the governor outlined procedures during Phase 2, which limited indoor gatherings to 50 people while maintaining social distancing.

Ms. Reid pointed out that the social distancing requirement equaled 35 square feet per person in a room.

Mr. Yett said he did not see in-person meetings as a realistic option at this time and preferred bi-weekly scheduling.

Ms. Reid said she agreed with Mr. Yett.

Mr. Yeh said now that the number of COVID-19 was rising again he felt the District had to remain nimble and while he was not opposed to moving to a bi-weekly schedule at some point, wanted to

remain on a weekly schedule. He stated he was comfortable with other LTD committees resuming their meetings as necessary. He also supported keeping the Board's meetings virtual.

Ms. Vargas said it was in LTD's best interest to either continue with weekly meetings or move to bi-weekly meetings if staff felt there was not sufficient new information to warrant a meeting each week.

Mr. Nordin commented that the weekly schedule should be maintained.

Mr. Skov said he also preferred to maintain a weekly meeting schedule. He stated he was open to an in-person meeting to test conditions with all appropriate measures in place.

Mr. Yeh said that while the Board would eventually return to in-person meetings, he felt it was too early at this point during the first wave of COVID-19 infections.

Ms. Reid said she was not opposed to weekly meetings if they were concise and as short as possible. She stated that she was not comfortable with budget discussions and action occurring in a special meeting; those should be conducted in a regular Board meeting.

Mr. Yeh said that he concurred that the special meetings should be reserved for learning about and taking action if necessary on emerging information. He suggested that the Board maintain weekly meetings and limit them to 30 minutes or less to receive updates and make any decisions necessary that were required and that LTD committees be allowed to conduct virtual meetings on non-urgent matters.

Mr. Nordin said he was in favor of weekly meetings that were succinct and short.

Ms. Reid suggested conducting the special weekly meetings during regular business hours.

MOTION Mr. Yeh moved that the LTD Board of Directors continue to hold weekly special meetings on Wednesdays from 4:30 p.m. to 5:00 p.m. to address COVID-19 issues, unless there was an emergency, and committee meetings to discuss other regular business matters could be held. All LTD meetings would continue to held virtually with audio or video technology. Ms. Reid provided the second.

VOTE The motion was approved as follows:
AYES: Nordin, Reid, Skov, Vargas, Yeh, Yett (6)
NAYS: None
ABSTENTIONS: None
EXCUSED: Secord (1)

Updated Salaried Employees' Retirement Funding Policy; Updated Fund Balance and Budgetary Reserve Policy, and Updated LTD ATU Local 757 Pension Funding Policy — Mr. Skov said the Board should consider discussion of the policies either at a work session or in an executive session. He said there appeared to be substantial changes with financial impacts that should be examined in greater depth.

Director of Finance Christina Shew stated that all three items were already incorporated in LTD's budget. She explained that LTD had two pension plans: a salaried pension plan, which was a closed plan for employees hired before 2012, and the ATU plan, which was an active plan. Every two-years an actuarial evaluation was performed and a contribution recommendation to keep the plans healthy was made. There was a pension committee for each plan and the pension trustees review the information from the actuary and approve the investment return and the contribution rate. Once approved it was sent to the Board for adoption and once adopted the policy was updated with the new contribution and return rates. She reviewed the specific changes and budget implications for each plan.

Ms. Shew said the Fund Balance and Budgetary Reserve Policy was reviewed annually. Historically the policy had called for a two-month reserve; other changes to the policy were the addition of the State

Transportation Improvement Fund (STIF) cash reserve and a notation that it was separate and not part of LTD's overall cash reserve, revising language from "routine" review to "annual" review to reflect actual practice, and revising "between two and six months" to "no less than two months" as there was no need to place a cap on the amount of reserve.

Ms. Reid noted errors in the numbers related to plan funding ratios. Ms. Shew said those would be corrected when the document came before the Board for approval.

Mr. Skov asked if delaying approval of the policies would slow down the process of finalizing the budget. Ms. Shew said the budget was scheduled for approval at the Board's June 24 meeting and could be approved as presented or amended, depending on the Board's acceptance of the proposed policy changes. She could revise the budget based on the Board's direction regarding funding of pensions. The actuary's recommendation was based on stock market assumptions over the next 20 years and that was re-evaluated every two years.

Mr. Yett said the District could pay a little now or much more later. If LTD did not fully fund pensions to the best of its ability now it would most likely create problems for Board members 15 to 20 years from now. He said the recommendations for both plan were intended to be more prudent and assume a lower return over time with larger contributions along the way instead of hoping the stock market returned more.

Mr. Yeh determined there was consensus to schedule the items on the Consent Agenda at the next regular Board meeting and direct staff to provide Ms. Secord with answers to questions she had asked about the policies.

WRITTEN REPORTS

Monthly Financial Report - April — There were no questions.

Monthly Cash Disbursements - May — There were no questions.

Quarterly Grant Report (presented in March, June, September, December) — There were no questions.

Monthly Performance Reports - April— Postponed for weekly ridership updates.

Monthly Department Reports - June — There were no questions.

Additions to the Agenda — Mr. Skov listed the following items for future discussion/action:

- General manager performance review
- Discussion of service model
- Discussion of ownership and operational authority transition for Bike Share system
- Education of public about measures being taken to make transit safe during COVID-19
- Appropriate response from LTD on racial justice issues, both what internal actions were being taken and externally listening to the community about rider experiences

Mr. Yeh said he agreed that it was important to address the general manager's evaluation in future meetings. He said that his concern was to address matters of concern to Board members, but avoid over-burdening staff during the current public health crisis. He said he would try to incorporate aspects of Mr. Skov's list in future Board meetings.

Ms. Reid said it would be helpful to receive information about the work plan for future meetings and more information about the new items that were being proposed for discussion at those meetings in order to determine how they could fit within the work plan.

ADJOURNMENT — Mr. Yeh adjourned the meeting at 7:35 p.m.

LANE TRANSIT DISTRICT: ATTEST:

_____ _____

Josh Skov
Board Secretary

Camille Gandolfi
Clerk of the Board

Date Approved:_____

MINUTES OF DIRECTORS MEETING

LANE TRANSIT DISTRICT

SPECIAL BOARD MEETING

Wednesday, July 1, 2020

Pursuant to notice provided in accordance with Oregon Revised Statute 192.640, the Board of Directors of the Lane Transit District held a virtual Special Board Meeting on Wednesday, July 1, 2020, beginning at 4:30 p.m., via ZOOM online.

Present:	Carl Yeh, President Kate Reid, Vice President Josh Skov, Secretary Caitlin Vargas Steven Yett A.J. Jackson, General Manager Kristin Denmark, General Counsel Camille Gandolfi, Clerk of the Board
Absent:	Don Nordin, Treasurer Emily Secord

CALL TO ORDER/ROLL CALL — Mr. Yeh convened the meeting and called the roll. He stated that virtual meetings were being conducted in compliance with Governor Kate Brown's stay-at-home orders and the weekly meetings allowed the Board to stay informed.

PRELIMINARY REMARKS BY BOARD PRESIDENT — Mr. Yeh praised the Board members, who were volunteers, for their commitment of time and expertise to the governance of Lane Transit District.

COMMENTS FROM THE GENERAL MANAGER — None.

ANNOUNCEMENTS AND ADDITIONS TO THE AGENDA — None.

RIDERSHIP AND OPERATIONS UPDATE — Assistant General Manager Service Delivery Mark Johnson said the governor had issued a new executive order extending the emergency order until September. He said that, fortunately, LTD had been requiring riders to wear masks for some time and he did not expect any difficulties in continuing to enforce the order. He said compliance had been good and masks would be made available to those without masks. The impact on businesses such as restaurants, and subsequently the payroll tax, remained a concern and staff was preparing for that.

Director of Planning and Development Tom Schwetz used graphs to illustrate Ridership, Passenger Loads, and RideSource Activity through June 30, 2020. He said conditions were fairly stable and there were no service changes or disruptions. He said there had been a slight increase in ridership over the past two months, with Sunday service continuing to experience an increase. Boardings after 8:30 p.m. remained steady. Overloads for 40-foot buses were lower than in previous weeks, but still occasionally occurred. He said 60-foot buses were typically running more frequently and overloads were quite low.

Mr. Schwetz said Ride*Source* indicated a similar pattern over the past four weeks. He compared the current ride volume to early March. In March on an average weekday there were 533 Americans with Disabilities Act (ADA) trips and almost 1,200 Non-emergency Medical Transport (NEMT) trips; current trips were about 50 percent of those totals.

Mr. Yeh asked if feedback from Ride*Source* users indicated the level of service being provided was sufficient. Mr. Schwetz said he had not heard of any complaints and riders were being advised to only make essential trips. There was a steady level of trips and there had not been the same increase in Ride*Source* as seen in regular service. Mr. Johnson said staff were available to take calls from anyone requesting service and while things continued to improve, people were not calling for typical rides; people were limited their requests to essential trips.

ADJOURNMENT — Mr. Yeh adjourned the meeting at 4:47 p.m.

LANE TRANSIT DISTRICT: ATTEST:

_____ _____
Josh Skov Camille Gandolfi
Board Secretary Clerk of the Board

Date Approved:_____

MINUTES OF DIRECTORS MEETING

LANE TRANSIT DISTRICT

SPECIAL BOARD MEETING

Wednesday, July 8, 2020

Pursuant to notice provided in accordance with Oregon Revised Statute 192.640, the Board of Directors of the Lane Transit District held a virtual Special Board Meeting on Wednesday, July 8, 2020, beginning at 4:30 p.m., via ZOOM online.

Present:	Carl Yeh, President Don Nordin, Treasurer Kate Reid, Vice President Josh Skov, Secretary Caitlin Vargas A.J. Jackson, General Manager Kristin Denmark, General Counsel Camille Gandolfi, Clerk of the Board
Absent:	Emily Secord Steven Yett

CALL TO ORDER/ROLL CALL — Mr. Yeh convened the meeting and called the roll. He stated that virtual meetings were being conducted in compliance with Governor Kate Brown's stay-at-home orders.

PRELIMINARY REMARKS BY BOARD PRESIDENT — Mr. Yeh commented on the defacing of a memorial plaque honoring Sam and Mattie Reynolds, two black Americans who had championed civil rights in the Eugene area. LTD had installed the plaque at an EmX station on West 11th Avenue in 2018 and yesterday it was vandalized with a racial slur. He described the Reynolds' efforts to fight discrimination when they arrived in the area in the 1940's. He said the vandalism was another reminder that there were still people in the community who did not welcome people who were not white or of European descent. Speaking for himself, Mr. Yeh said Black Lives Matter and acknowledged the Reynolds' contributions to the community. He thanked LTD staff for responding quickly to the matter.

Ms. Reid thanked Mr. Yeh for his statement. She said the dedication of the plaque in 2018 was beautiful and an amazing way to honor people who were very important to the Eugene community and whose legacy continues. She also thanked LTD staff for their swift response.

Mr. Skov expressed his appreciation for Mr. Yeh's comments and concurred with them.

COMMENTS FROM THE GENERAL MANAGER — Ms. Jackson recognized Tiffany Edwards, LTD's new governmental relations manager.

ANNOUNCEMENTS AND ADDITIONS TO THE AGENDA — None.

RIDERSHIP AND OPERATIONS UPDATE — Director of Planning and Development Tom Schwetz used graphs to illustrate the most recent Ridership, Passenger Loads, and RideSource Activity data. He said there had been a slight increase during the past few days, but that could well be a result of entering the summer season. He said there were no significant changes in any of the ridership trends. Overloads on 40-foot and 60-foot continued to follow similar patterns over the past week, with fewer overloads as a result of increased frequency. He said over the past two and a half months there had been a steady increase in ridership from about 8,500 to 11-12,000. He said similar patterns had occurred in Ride*Source* call volumes and trips.

Mr. Yeh said the same ridership and operations data had been presented to the Strategic Planning Committee (SPC) and while committee members were still absorbing the data, they recognized that they represented a wide range of community interests and had an opportunity to contribute useful feedback to LTD.

Mr. Schwetz said SPC members had questions regarding the demographics of current ridership and the steps LTD had taken with respect to service during the COVID-19 pandemic to provide context for the current data.

Mr. Skov said he was pleased the SPC was reengaged and looked forward to their input. He said LTD should continue to prompt health authorities to provide more information on what was safe with respect to transit. He said he had ridden the bus several times recently and would provide Board members with pictures of what a vehicle looked like close to capacity. Although Lane County did not have an extremely high infection rate, if a surge in infections happened the current capacity level of 19 riders on a 40-foot bus would not feel safe.

ADJOURNMENT — Mr. Yeh adjourned the meeting at 4:50 p.m.

LANE TRANSIT DISTRICT: ATTEST:

_____ _____
Josh Skov Camille Gandolfi
Board Secretary Clerk of the Board

Date Approved:_____

LANE TRANSIT DISTRICT
DELEGATED AUTHORITY REPORT
July2020

Contracts								
DATE EXECUTED	**CONTRACTOR**	**DESCRIPTION**	**CONTRACT TYPE**	**CONTRACT TERM**	**FREQUENCY**	**CONTRACT VALUE**	**SIGNER**	**NOTES**
6/30/2020	Bethel School District	Safe Routes to Schools	IGA	Oct 1, 2017 - June 30, 2021		$ 42,251.00	A.Jackson	
7/7/2020	SiteCrafting, Inc.	Website Maintenance	Fixed Price Labor Hour	June 26, 2020 - June 25, 2022		$ 40,000.00	A.Jackson	
7/8/2020	Moss Adams LLP	External Auditing Services	Personal Services	Oct 1, 2017 - June 30, 2021		$ 406,000.00	A.Jackson	
7/9/2020	Ninfa's Elite Janitorial Service	Services at Glenwood and RideSource Facilities	Professional Services	June 1, 2017 - May 31, 2021		$ 106,278.04	A.Jackson	Amendment 5
7/11/2020	Eugene 4J School District	Safe Routes to Schools	IGA	Oct 1, 2017 - June 30, 2021		$ 93,491.00	A.Jackson	
7/13/2020	Ninfa's Elite Janitorial Service	Services at Neighborhood Stations and Bus Shelters	Professional Services	Aug 31, 2017 - Aug 30, 2021		$ 160,204.32	A.Jackson	
7/13/2020	Ninfa's Elite Janitorial Service	Services at Glenwood and RideSource Facilities	Personal Services	June 1, 2017 - May 31, 2021		$ 106,278.04	A.Jackson	Amendment 7
7/13/2020	City of Eugene River House	Bike Safety Education	IGA	March 19, 2020 - March 18, 2023		$ 102,412.28	A.Jackson	
7/14/2020	Red Kite Employmet Law	Labor Law and Negotiations	Personal Services	July 14, 2020 - June 30, 2021		$ 25,000.00	A.Jackson	
7/22/2020	LCOG	STIF Administration/Keep Oregon Moving	IGA	july 1, 2018 - June 30, 2022		$ 270,000.00	A.Jackson	
Group Pass/Non-Profit Program								
DATE EXECUTED	**CONTRACTOR**	**DESCRIPTION**	**CONTRACT TYPE**	**CONTRACT TERM**	**FREQUENCY**	**CONTRACT VALUE**	**SIGNER**	**NOTES**

AGENDA ITEM SUMMARY

DATE OF MEETING: August 19, 2020

ITEM TITLE: PROPOSED BOARD PUBLIC ENGAGEMENT POLICY

PREPARED BY: Camille Gandolfi, Clerk of the Board

DIRECTOR: Aurora Jackson, General Manager

ACTION REQUESTED: Information and Discussion

PURPOSE: To request adoption of the Board requested Board Public Engagement Policy.

ROLE OF THE BOARD: The Board's role in this instance is to adopt a Policy.

HISTORY: At the December 18, 2019, Board Retreat, the Board of Directors requested that staff draft a policy to provide guidance and governance regarding Board member public engagement. Since that time, staff has researched best practices among other transit agencies and government agencies nationwide. Through that research, the attached proposed policy has been drafted for review and discussion.

CONSIDERATIONS: Based on research of industry best practices, public agencies provide Board members with standards for governance surrounding communications with the community, stakeholders, and process for handling community complaints and feedback. It has also been found that most agency Boards adopt governance regarding Board member messaging and representation of the full Board. These best practices have been included in the attached proposed policy.

ALTERNATIVES: N/A

NEXT STEPS: Staff will add the policy as an addendum to the Board Bylaws and the policy will take effect immediately.

SUPPORTING DOCUMENTATION:

1) Proposed Board Public Engagement Policy
2) Resolution No. 2020-08-19-047

PROPOSED MOTION: I move adoption of LTD Resolution No. 2020-08-19-047:

It is hereby resolved that the LTD Board of Directors adopts the Board Public Engagement Policy as presented [amended].

Board Public Engagement Policy

101. PURPOSE

The purpose of this policy is to establish procedures and guidelines for Board member communication with the community, public speaking engagements, and any other public engagement.

102. APPLICABILITY

This policy applies to members of the Board of Directors only.

103. PUBLIC SPEAKING ENGAGEMENTS

When speaking for the Board of Directors, Board members' statements shall be consistent with official actions taken by the full Board or Board majority. Individual Board members shall refrain from making commitments on behalf of the entire Board of Directors or LTD.

104. REPRESENTATION AT APPOINTED COMMITTEES

When serving as a committee member for another governing body as a representative of the LTD Board of Directors, individual Board members shall make reasonable efforts to make statement and vote consistent with the position of the full Board or Board majority.

105. REPRESENTATION AT NON-BOARD-APPOINTED ENGAGEMENTS

When testifying or making public statements at community events or meetings in which a Board member is not appointed because of his/her role on the LTD Board of Director, the Board members shall identify that statements are not representative of the LTD Board of Directors.

106. STAKEHOLDER ENGAGEMENTS

Individual Board Members shall have no legal status to act for the Board of Directors outside of a Board meeting unless specifically directed to do so by the Board majority or appointed by the Board president.

107. COMMUNITY COMPLAINT PROCEDURES

When complaints are sent to the Board of Directors, Board members may respond briefly to the community member to indicate the complaint will be forwarded for official handling. The Board member(s) shall forward the complaint to the Clerk of the Board or General Manager, and may request information related to resolution of each complaint. Board members may take unresolved complaints to the entire Board for consideration.

108. BOARD DECISION REPRESENTATION

When speaking for the Board of Directors, Board members' statements shall be consistent with official actions taken by the full Board or Board majority.

On matters that the Board of Directors has made an official decision, all Board member communications/statements must coincide with the Board consensus. On matters that are still in deliberation, it is permissible for individual Board members to express their individual opinions.

RESOLUTION NO. 2020-08-19-047

ADOPTION OF THE BOARD PUBLIC ENGAGEMENT POLICY

WHEREAS, the Lane Transit District ("District") Board of Directors ("Board") may create bylaws and policies and do such other acts or things as may be necessary or convenient for the proper exercise of powers granted to them as the governance of a mass transit district;

WHEREAS, the Board has established a Policy providing procedures for the Board's engagement with the public;

WHEREAS, when speaking for the Board of Directors, Board members' statements shall be consistent with official actions taken by the full Board or Board majority;

WHEREAS, individual Board members shall refrain from making commitments on behalf of the entire Board of Directors or LTD;

WHEREAS, when serving as a committee member for another governing body as a representative of the LTD Board of Directors, individual Board members shall make reasonable efforts to make statements and votes consistent with the position of the full Board or Board majority;

WHEREAS, when testifying or making public statements at community events or meetings in which a Board member is not appointed because of his/her role on the LTD Board of Director, the Board members shall identify that statements are not representative of the LTD Board of Directors;

WHEREAS, individual Board Members shall have no legal status to act for the Board of Directors outside of a Board meeting unless specifically directed to do so by the Board majority or appointed by the Board president;

WHEREAS, when complaints are sent to the Board of Directors, Board members may respond briefly to the community member to indicate the complaint will be forwarded for official handling. The Board member(s) shall forward the complaint to the Clerk of the Board or General Manager;

WHEREAS, Board members may request information related to the resolution of each complaint;

WHEREAS, Board members may take unresolved complaints to the entire Board for consideration; and,

WHEREAS, when speaking for the Board of Directors, Board members' statements shall be consistent with official actions taken by the full Board or Board majority.

NOW, THEREFORE, BE IT RESOLVED that the Lane Transit District Board of Directors passes a Resolution as follows:

- Adoption of the Board Public Engagement Policy

ADOPTED BY THE LANE TRANSIT DISTRICT BOARD OF DIRECTORS ON THIS 19th DAY OF AUGUST, 2020.

Board President, Carl Yeh

AGENDA ITEM SUMMARY

DATE OF MEETING: August 19, 2020

ITEM TITLE: PUBLIC MEETING SCHEDULE

PREPARED BY: Aurora Jackson, General Manager

DIRECTOR: N/A

ACTION REQUESTED: Discussion and Adoption

PURPOSE: To request that the Board establish a public meeting schedule during the coronavirus (COVID-19) pandemic period.

ROLE OF THE BOARD: The Board's role in this instance is to adopt a public meeting schedule.

HISTORY: On March 8, Governor Kate Brown declared an emergency due to the public health threat posed by the novel infectious COVID-19. On March 12, Governor Brown prohibited gatherings of 250 or more people. Then on March 17, Governor Brown prohibited gatherings of 25 or more people requiring LTD's Board President to cancel the March meeting of the LTD Board of Directors.

At the March 30 special Board meeting, the need for the Board of Directors to take action in the event of a significant threat to employees and public health was addressed.

At the April 8 special Board meeting, the Board passed Resolution No. 2020-04-08-019 adopting the following:

- Special Board of Directors' meeting be held weekly on weeks when there is not a regular Board of Directors' meeting;
- Committee meetings be held only to conduct urgent matters; and
- All LTD public meetings must be held via audio or video technology.

Since the April 8 meeting, the Board has been holding weekly special Board meetings to receive regular ridership updated during these first months of the COVID Pandemic. At its April 15, 2020, regular Board meeting, the Board revisited the public meeting schedule adopted at the April 8, 2020, special Board meeting. The Board determined that at that time:

- weekly special Board meetings would continue to be held weekly on weeks when there was not a regular Board of Directors' meeting;
- committee meetings could be held to discuss regular business matters; and
- all LTD public meetings must continue to be held virtually via audio or video technology.

CONSIDERATIONS: During this agenda item, the Board president will engage the Board of Directors in a discussion regarding amending the special Board meeting schedule going forward and any other public meeting adjustments that may be relevant since the adoption of Resolution No. 2020-04-08-019 throughout the COVID-19 pandemic period.

ALTERNATIVES: The Board may choose to defer a decision for another day,

NEXT STEPS: Based on the Board's decision, staff will make any necessary public meeting process adjustments.

SUPPORTING DOCUMENTATION:

1) Resolution No. 2020-04-08-019 – Adopted April 8, 2020
2) DRAFT Resolution No. 2020-08-19-048

PROPOSED MOTION: I move adoption of LTD Resolution No. 2020-08-19-048:

It is hereby resolved that the LTD Board of Directors approves the following as presented [amended]:

- Special Board of Directors' meeting be held _____ on weeks when there is not a regular Board of Directors' meeting;
- committee meetings may be held to discuss regular business matters; and,
- all LTD public meetings must continue to be held virtually via audio or video technology.

RESOLUTION NO. 2020-04-08-019

ADOPTION OF A PUBLIC MEETING SCHEDULE TO LAST THE DURATION OF THE CORONAVIRUS (COVID-19) PANDEMIC

WHEREAS, The Lane Transit District (LTD) Board of Directors (Board) holds public meetings in accordance with ORS 192.630;

WHEREAS, on March 8, 2020, Governor Kate Brown declared an emergency due to the public health threat posed by the novel infectious COVID-19 virus pandemic;

WHEREAS, On March 12, 2020, Governor Brown prohibited gatherings of 250 or more people;

WHEREAS, on March 17, 2020, Governor Brown prohibited gatherings of 25 or more people requiring LTD's Board President to cancel the March meeting of the LTD Board of Directors;

WHEREAS, On March 30, 2020, a special LTD Board meeting was held via video and audio technology (Zoom) to address the need for the Board of Directors to take action in the event of a significant threat to employees and public health; and

WHEREAS, the Board held a special Board meeting on April 8, 2020, to discuss a schedule for future public meetings to continue throughout the COVID-19 pandemic period.

NOW, THEREFORE, BE IT RESOLVED that the LTD Board of Directors, adopts a resolution establishing the following:

- Special Board of Directors' meeting be held weekly on weeks when there is not a Regular Board of Directors' meeting;
- Committee meetings be held only to conduct urgent matters; and
- All LTD public meetings must be held via audio or video technology.

ADOPTED BY THE LANE TRANSIT DISTRICT BOARD OF DIRECTORS ON THIS 8TH DAY OF APRIL, 2020.

_____

Board President, Carl Yeh

RESOLUTION NO. 2020-08-19-048

ADOPTION OF A PUBLIC MEETING SCHEDULE TO LAST THE DURATION OF THE CORONAVIRUS (COVID-19) PANDEMIC

WHEREAS, The Lane Transit District (LTD) Board of Directors (Board) holds public meetings in accordance with ORS 192.630;

WHEREAS, on March 8, 2020, Governor Kate Brown declared an emergency due to the public health threat posed by the novel infectious COVID-19 virus pandemic;

WHEREAS, On March 12, 2020, Governor Brown prohibited gatherings of 250 or more people;

WHEREAS, on March 17, 2020, Governor Brown prohibited gatherings of 25 or more people requiring LTD's Board President to cancel the March meeting of the LTD Board of Directors;

WHEREAS, On March 30, 2020, a special LTD Board meeting was held via video and audio technology (Zoom) to address the need for the Board of Directors to take action in the event of a significant threat to employees and public health;

WHEREAS, at its April 8, 2020, special Board meeting the Board passed Resolution No. 2020-04-08-019 adopting the following:

- special Board of Directors' meeting be held weekly on weeks when there is not a regular Board of Directors' meeting;
- committee meetings be held only to conduct urgent matters; and,
- all LTD public meetings must be held via audio or video technology.

WHEREAS, at its April 15, 2020, regular Board meeting, the Board revisited the public meeting schedule adopted at the April 8, 2020, special Board meeting determining that:

- weekly special Board meetings would continue to be held weekly on weeks when there was not a regular Board of Directors' meeting;
- committee meetings could be held to discuss regular business matters; and
- all LTD public meetings must continue to be held virtually via audio or video technology.

WHEREAS, at its August 19, 2020, regular Board meeting, the Board held discussion revisiting the public meeting schedule approved at its April 15, 2020, regular Board meeting.

NOW, THEREFORE, BE IT RESOLVED that the LTD Board of Directors, adopts a resolution establishing the following:

- Special Board of Directors' meeting be held _____ on weeks when there is not a Regular Board of Directors' meeting;
- committee meetings continue to be held to discuss regular business matters; and,
- all LTD public meetings must continue to be held virtually via audio or video technology.

ADOPTED BY THE LANE TRANSIT DISTRICT BOARD OF DIRECTORS ON THIS 19TH DAY OF AUGUST, 2020.

_____
Board President, Carl Yeh

AGENDA ITEM SUMMARY

DATE OF MEETING:	August 19, 2020
ITEM TITLE:	TRANSIT TOMORROW DECISION-MAKING PROCESS UPDATE WITH SPC RECOMMENDATION
PRESENTER:	Tom Schwetz, Director of Planning and Development
DIRECTOR:	Aurora Jackson, General Manager
ACTION REQUESTED:	Discussion and Adoption

PURPOSE: The purpose of this agenda item is to request the Board of Directors hold discussion regarding the approval of a resolution to resume the Transit Tomorrow Decision-Making process.

ROLE OF THE BOARD: The Board's role in this instance is to adopt a resolution.

HISTORY: The Board of Directors has been engaged in a future service model change referred to as Transit Tomorrow. On March 8, 2020, Governor Kate Brown declares a state of emergency due to the COVID-19 pandemic resulting in the cancelation of the Boards March 18, 2020, regular Board meeting. A request to advance a Transit Tomorrow network proposal forward for public engagement had been scheduled for the March 18, 2020, regular Board meeting. Further, the Board, at its April 8, 2020, special Board meeting, passed a resolution to put the Transit Tomorrow decision-making process on hold until COVID-19 restrictions are lifted.

Throughout this time, LTD developed the capability to conduct public meetings and processes in a virtual manner; including, the ability to accept public comment with a variety of virtual options for the community.

For reference, below is a timeline of Governor Brown's executive orders in response to the COVID-19 pandemic from March 8 forward:

- On March 8, Governor Kate Brown declared a state of emergency due to the public health threat posed by the novel infectious COVID-19.
- On March 12, Governor Brown prohibited gatherings of 250 or more people.
- On March 17, Governor Brown prohibited gatherings of 25 or more people requiring LTD's Board President to cancel the March meeting of the LTD Board of Directors.
- On June 5, 2020, Lane County entered Phase 2 of Oregon's Reopening Plan.

At its June 17, 2020, regular Board meeting, the Board approved resuming committee meetings virtually to discuss regular business matters. Therefore, the Board's advisory committee, the Strategic Planning Committee (SPC), resumed meeting on July 7, 2020. The SPC, at its August 4, 2020, meeting held discussions regarding resuming the Transit Tomorrow decision-making process.

CONSIDERATIONS: The SPC developed a recommendation at its August 4, 2020, meeting to provide to the Board of Directors. The SPC chair will be present at the August 19, 2020, regular Board meeting to verbally provide SPC's recommendation to the full Board of Directors.

ALTERNATIVES: The Board may choose to defer a decision to a future meeting.

NEXT STEPS: Based on the Board's decision, staff will either continue to pause Transit Tomorrow project activities or begin efforts to resume project activities.

SUPPORTING DOCUMENTATION:

1) Resolution No. 2020-04-08-020 – Adopted April 8, 2020
2) Resolution No. 2020-08-19-049

PROPOSED MOTION: I move adoption of LTD Resolution No. 2020-08-19-049:

It is hereby resolved that the LTD Board of Directors adopts a resolution to resume the Transit Tomorrow decision-making process as presented [amended].

RESOLUTION NO. 2020-04-08-020

ADOPTION OF THE DEFERMENT OF PUBLIC ENGAGEMENT AND DECISION OF LANE TRANSIT DISTRICTS FUTURE SERVICE MODEL FOR THE DURATION OF THE CORONAVIRUS (COVID-19) PANDEMIC

WHEREAS, The Lane Transit District (LTD) Board of Directors (Board) has been engaged in a future service model change referred to as Transit Tomorrow;

WHEREAS, on March 8, 2020, Governor Kate Brown declared an emergency due to the public health threat posed by the novel infectious virus COVID-19 pandemic;

WHEREAS, On March 12, 2020, Governor Brown prohibited gatherings of 250 or more people;

WHEREAS, on March 17, 2020, Governor Brown prohibited gatherings of 25 or more people requiring LTD's Board president to cancel the March meeting of the LTD Board of Directors;

WHEREAS, On March 30, 2020, a special LTD Board meeting was held via video and audio technology (Zoom) to address the need for the Board of Directors to take action in the event of a significant threat to employees and public health;

WHEREAS, LTD's focus has been on the health of its employees and the public;

WHEREAS, there is limited capacity to continue with a public engagement process for a future service model that was part of Transit Tomorrow;

WHEREAS, the current COVID-19 restrictions are not appropriate for effective communication of such an important decision;

WHEREAS, the Board held a special Board meeting on April 8, 2020, to discuss LTD's future service model;

WHEREAS, COVID-19 restrictions are anticipated to last through the end of April but could continue through May; and

WHEREAS, June or July may be the first opportunity to have a discussion at an in-person Board meeting.

NOW, THEREFORE, BE IT RESOLVED that the LTD Board of Directors adopts a resolution pausing the Transit Tomorrow process until COVID-19 restrictions are lifted.

ADOPTED BY THE LANE TRANSIT DISTRICT BOARD OF DIRECTORS ON THIS 8TH DAY OF APRIL, 2020.

_____

Board President, Carl Yeh

RESOLUTION NO. 2020-08-19-049

RESUMING TRANSIT TOMORROW DECISION-MAKING PROCESS

WHEREAS, The Lane Transit District (LTD) Board of Directors (Board) has been engaged in a future service model change referred to as Transit Tomorrow;

WHEREAS, on March 8, 2020, Governor Kate Brown declared an emergency due to the public health threat posed by the novel infectious COVID-19 virus pandemic;

WHEREAS, a request that the Board approve the advancement of a Transit Tomorrow network proposal be forwarded for public engagement had been scheduled for the March 18, 2020, regular Board meeting;

WHEREAS, the March 18, 2020, regular Board meeting was canceled due to the COVID-19 pandemic;

WHEREAS, At the April 8, 2020, special Board meeting, the Board approved a resolution pausing the Transit Tomorrow decision-making process was put on hold until COVID-19 restrictions are lifted;

WHEREAS, LTD developed the capability to conduct public meetings and processes in a virtual manner; including, the ability to accept public comment with a variety of virtual options for the community;

WHEREAS, at its June 17, 2020, regular Board meeting, the Board approved resuming committee meetings virtually to discuss regular business matters;

WHEREAS, the Board's advisory committee, the Strategic Planning Committee (SPC), resumed meeting on July 7, 2020;

WHEREAS, The SPC, at its August 4, 2020, meeting held discussions regarding resuming the Transit Tomorrow decision-making process;

WHEREAS, The SPC developed a recommendation at its August 4, 2020, meeting to provide to the Board of Directors;

WHEREAS, The SPC chair was present at the August 19, 2020, regular Board meeting to verbally provide SPC's recommendation to the full Board of Directors; and,

WHEREAS, at its August 19, 2020, regular Board meeting, the Board discussed resuming the Transit Tomorrow decision-making process.

NOW, THEREFORE, BE IT RESOLVED that the LTD Board of Directors, adopts a resolution resuming the Transit Tomorrow decision-making process.

ADOPTED BY THE LANE TRANSIT DISTRICT BOARD OF DIRECTORS ON THIS 19TH DAY OF AUGUST, 2020.

_____

Board President, Carl Yeh

AGENDA ITEM SUMMARY

DATE OF MEETING: August 19, 2020

ITEM TITLE: FISCAL YEAR 2019-2020 AUDIT PLAN

PRESENTER: Kevin Mullerleile and Ashley Osten Moss Adams, LLP

DIRECTOR: Christina Shew, Director of Finance

ACTION REQUESTED: None. Information Only

PURPOSE: To provide information to the Board on the audit plan for Lane Transit District for Fiscal Year 2019-2020 ending June 30, 2020.

ROLE OF THE BOARD: The Board's role in this instance is to obtain information for a future decision.

HISTORY: At the conclusion of each fiscal year, an independent audit of Lane Transit District's financial statements and internal controls are performed. The results of the independent audit, including the independent auditor's reports, are incorporated into the District's Comprehensive Annual Financial Report and Single Audit.

Kevin Mullerleile and Ashley Osten of Moss Adams, LLP will attend the August 19, 2020 Board meeting to make a presentation and answer any questions Board members may have about the audit plan currently in progress.

Moss Adams, LLP's last presentation to the Board was on February 19, 2020. At that meeting they presented the results of the District's Comprehensive Annual Financial Report and Single Audit for the fiscal year ending June 30, 2019.

CONSIDERATIONS: N/A

ALTERNATIVES: N/A

NEXT STEPS: N/A

SUPPORTING DOCUMENTATION: PRE-AUDIT PRESENTATION 081920 (002).PDF

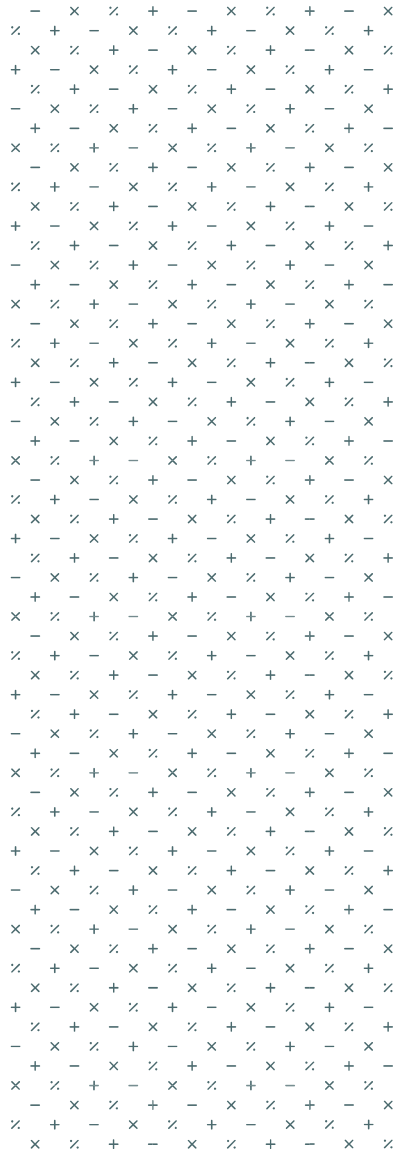
PROPOSED MOTION: None. Information Only

MOSSADAMS

Lane Transit District

2020 Audit Planning
Discussion with Board of Directors

Better Together: Moss Adams & Lane Transit District

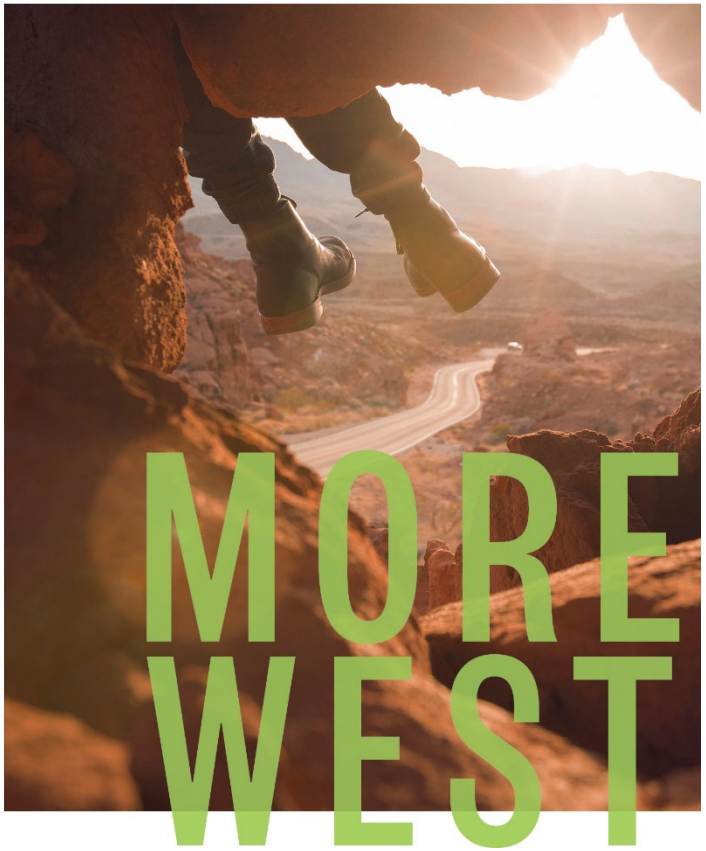


Board of Directors

Dear Board Members:

Thank you for your continued engagement of Moss Adams LLP, the provider of choice for state and local governments. We're pleased to present our audit plan for Lane Transit District for the year ending June 30, 2020. We'd also like to discuss current-year developments and auditing standard changes that will affect our audit.

We welcome any questions or input you may have regarding our audit plan, and we look forward to working with you.



Your Dedicated Team

Ashley Osten

Engagement Reviewer, Partner

Olga Darlington

Concurring Reviewer

Kevin Mullerleile

Audit Senior Manager and Delegated Engagement Reviewer

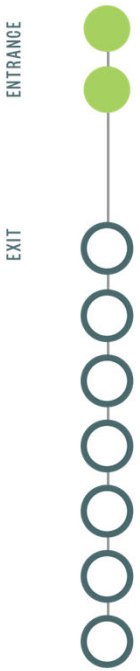
Julie Desimone

Technical Resource

Kelly Jones

Audit Manager

Required Communications to Those Charged with Governance



- Auditor's responsibility under U.S. generally accepted auditing standards
- Planned scope and timing of audit
- Significant audit findings
- Qualitative aspects of accounting practices
- Difficulties encountered in performing the audit
- Corrected and uncorrected misstatements
- Management representations
- Management consultations with other independent accountants
- Other audit findings or issues

Our Responsibility

Assess if the financial statements prepared by management with your oversight are fairly presented, in all material respects, and in accordance with US GAAP. However, our audit doesn't relieve you or management of your responsibilities.

Perform an audit in accordance with:

- Generally accepted auditing standards issued by the AICPA
- Government Auditing Standards issued by the Comptroller General of the United States

Design the audit to provide assurance about whether the financial statements are free of material misstatement.

Consider internal controls over financial reporting and compliance as a basis for designing effective audit procedures.

Communicate findings that are relevant to your responsibilities in overseeing the specific matters of financial reporting process and administering federal awards.

01

02

03

04

MOSSADAMS

T (858) 627-1400
F (858) 627-1401

4747 Executive Drive
Suite 1500
San Diego, CA 92121

February 12, 2016

To the Audit Committee of Organization
c/o Adam Jones
Senior Vice President & Chief Financial Officer
1234 Grant Street
Los Angeles, CA 12340

Re: Audit Services

Dear Audit Committee:

Thank you for the opportunity to provide services to Organization. This engagement letter ("Engagement Letter") and the attached Professional Services Agreement, which is incorporated by this reference, confirm our acceptance and understanding of the terms and objectives of our engagement, and limitations of the services that Moss Adams LLP ("Moss Adams," "we," "us," and "our") will provide to Organization ("you," "your," and "College").

Scope of Services – Audit

You have requested that we audit the organization's consolidated financial statements, which comprise the consolidated statement of financial position as of June 30, 2016, and the related consolidated statements of activities and cash flows for the year then ended, and the related notes to the consolidated financial statements. We will also report on whether the schedule of expenditures of federal awards, presented as supplementary information, is fairly stated, in all material respects, in relation to the financial statements as a whole.

Scope of Services and Limitations

Our professional standards require that we remain independent with respect to our attest Organization, including those situations where we also provide non-attest services such as those identified in the preceding paragraphs. As a result, your organization must accept the responsibilities set forth below related to this engagement:

- Assume all management responsibilities.
- Oversee the service by designating an individual, preferably within senior management, who possesses skill, knowledge, and/or experience to oversee our non-attest services. The individual is not required to possess the expertise to perform or reperform the services.
- Evaluate the adequacy and results of the non-attest services performed.

Deliverables

- Report of Independent Auditors on the basic financial statements
- Report of Independent Auditors on Internal Control over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with *Government Auditing Standards*
- Report of Independent Auditors on Compliance with Requirements Applicable to Each Major Program and on Internal Control over Compliance in Accordance with OMB Uniform Guidance
- Schedule of Findings and Questioned Costs
- Disclosures and Independent Auditors' Comments Required by the Minimum Standards for Audits of Oregon Municipal Corporations
- Communications to those charged with governance
- Management Letter
- Reports of Independent Accountants on Applying Agreed-Upon Procedures

Audit Process

Internal Controls

Includes IT

Analytical Procedures

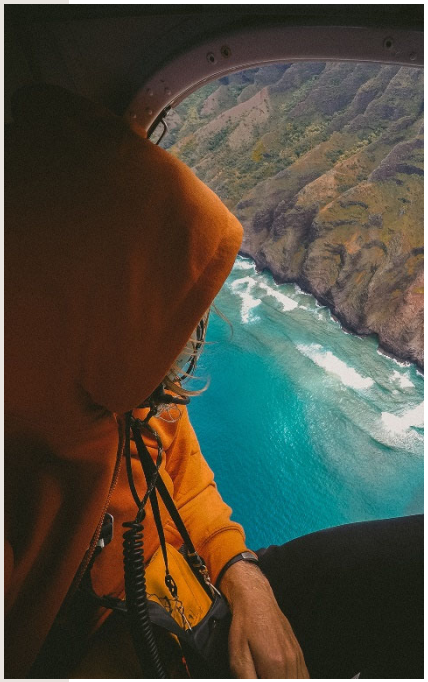
- Revenue and expenses
- Trends, comparisons, and expectations

Substantive Procedures

- Confirm account balances
- Vouch to supporting documentation
- Representations from attorneys and management
- Examine objective evidence

What's Materiality?

It's the amount of a misstatement that could influence the economic decisions of users, taken on the basis of the comprehensive annual financial report.

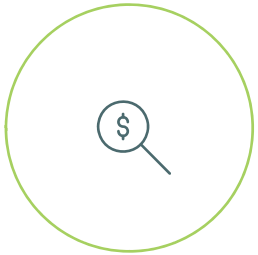


It's calculated using certain **quantitative** (revenue) and **qualitative** factors (covenants, expectations, or industry factors)

It identifies:

SIGNIFICANT RISK AREAS	NATURE, TIMING, EXTENT, AND SCOPE OF TEST WORK	FINDINGS OR MISSTATEMENTS

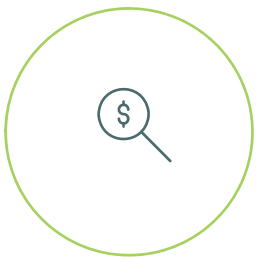
Significant Audit Areas



REVENUE RECOGNITION AND VALUATION OF RECEIVABLES

LONG-TERM DEBT

EXISTENCE AND VALUATION OF CAPITAL ASSETS



FINANCIAL CLOSE AND REPORTING

PENSION AND OPEB LIABILITY AND RELATED PENSION AND OPEB EXPENSE

COMPLIANCE WITH FEDERAL LAWS AND REGULATIONS AND OREGON MINIMUM STANDARDS

2020 Major Federal Programs

Anticipate auditing 1-2 major federal programs

CARES ACT FUNDING

FEDERAL TRANSIT CLUSTER - CFDA #20.500 & #20.507

POSSIBLY ONE ADDITIONAL PROGRAM IF EXPENDITURES ARE MORE THAN $750,000

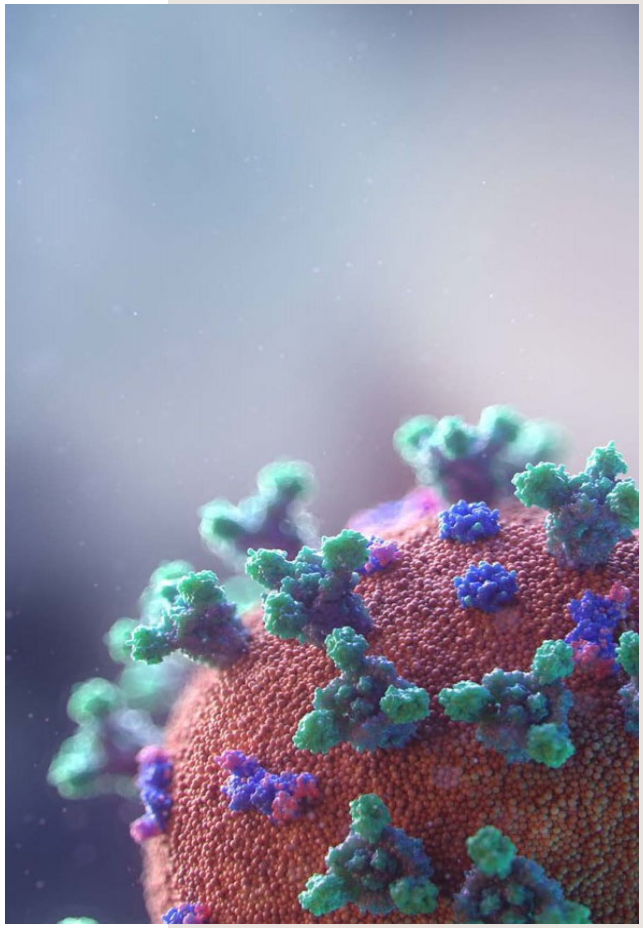
COVID-19

Audit and Risk Assessment Considerations

- Revenue decreases
- Deferral of deadlines
- Influx of dollars from the CARES Act with limited information regarding compliance requirements

COVID-19 Legislation and Resources:

- https://mossadams.com/covid-19-implications



Consideration of Fraud

AUDITORS MUST CONSIDER FRAUD TO "IMPROVE THE LIKELIHOOD THAT AUDITORS WILL DETECT MATERIAL MISSTATEMENTS DUE TO FRAUD IN A FINANCIAL STATEMENT AUDIT."

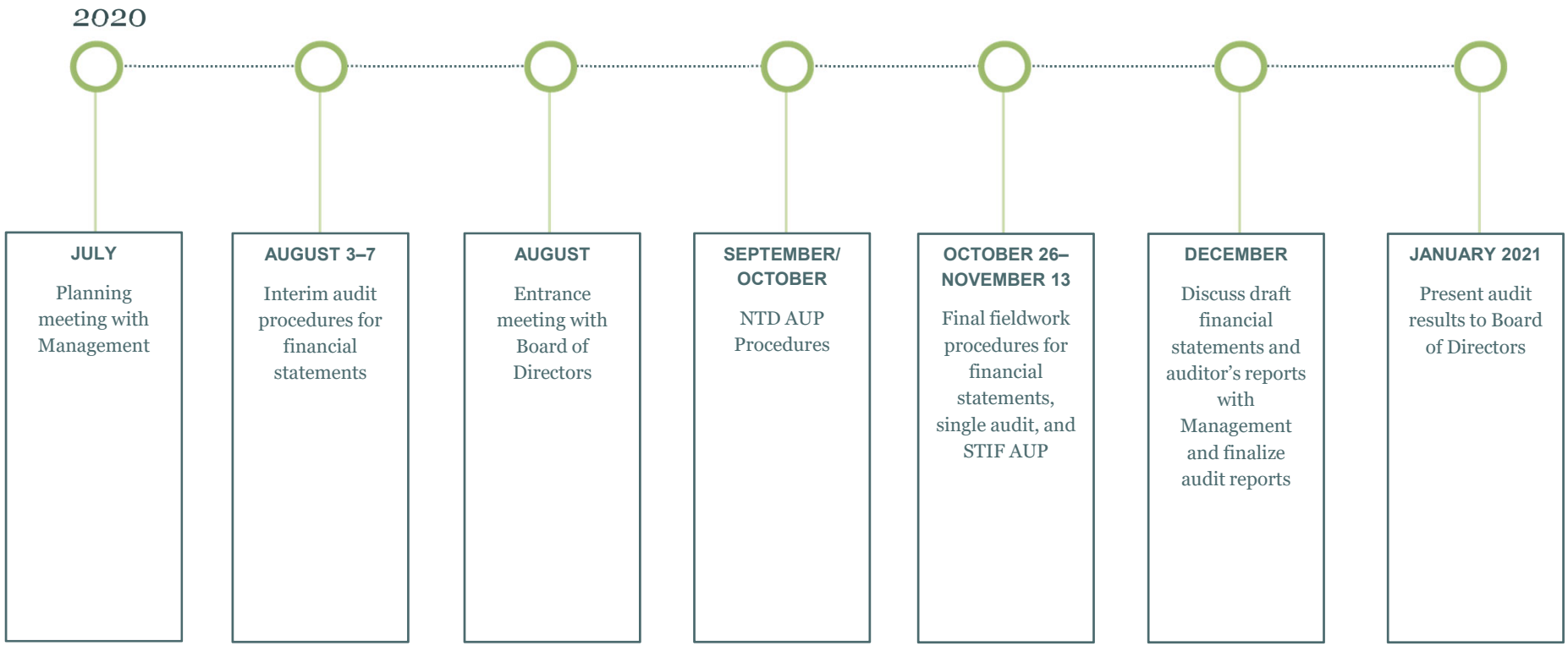
To identify fraud-related risks of material misstatement, we:

- Brainstorm with team
- Conduct personnel interviews
- Document understanding of internal control
- Consider unusual or unexpected relationships identified in planning and performing the audit

Procedures we perform:

- Examine general journal entries for nonstandard transactions
- Evaluate policies and accounting for revenue recognition
- Test and analyze significant accounting estimates for biases
- Evaluate rationale for significant unusual transactions

Audit Timing



Recent Accounting Developments

New Standards

Public-Private and Public-Public Partnerships and Availability Payment Arrangements [GASB 94]

Primary objective is to improve financial reporting by addressing issues related to public-private and public-public partnership arrangements (PPPs).

A PPP is an arrangement in which a government contracts with an operator to provide public services by conveying control of the right to operate or use a nonfinancial asset for a period of time in an exchange or exchange-like transaction. Effective for fiscal years beginning after June 15, 2022, and all reporting periods thereafter.

New Standards

Postponement of the Effective Dates of Certain Authoritative Guidance [GASB 95]

In light of the COVID-19 pandemic, GASB issued GASB 95, *Postponement of the Effective Dates of Certain Authoritative Guidance*, which is intended to provide relief to state and local governments. The proposal postponed the effective dates and provisions of the following pronouncements:

GASB 83, *Certain Retirement Obligations*

GASB 84, *Fiduciary Activities*

GASB 87, *Leases*

GASB 88, *Certain Disclosures Related to Debt, including Direct Borrowings and Direct Placements*

GASB 89, *Accounting for Interest Cost Incurred before the End of a Construction Period*

GASB 90, *Majority Equity Interests*

GASB 91, *Conduit Debt Obligations*

GASB 92, *Omnibus 2020*, paragraphs 6-10, 12

GASB 93, *Replacement of Interbank Offered Rates*, paragraphs 13 and 14

The pronouncements have been extended one year, except for GASB 87, which has been extended 18 months from the original effective dates

New Standards

Subscription-Based Information Technology Arrangements [GASB 96]

Defines accounting and financial reporting for subscription-based information technology arrangements (SBITAs) for government end users.

Results in a right-to-use subscription asset and a corresponding subscription liability.

Provides the capitalization criteria for outlays other than subscription payments, including implementation costs of a SBITA and requires note disclosures regarding an SBITA. Effective for fiscal years beginning after June 15, 2022, and all reporting periods thereafter.

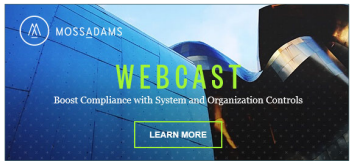
INDUSTRY FOCUS

An Array of Resources

In today's fast-paced world, we know how precious your time is. We also know that knowledge is key. These resources offer what you need to know, when you need to know it, and in the format that fits your life.

Articles & Alerts

Industry-specific insight and important tax and assurance updates



Webcasts

On demand and live sessions with our professionals on technical and timely topics

Reports & Guides

A more in-depth look at significant changes and subjects across the accounting landscape

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Assurance, tax, and consulting offered through Moss Adams LLP. Investment advisory offered through Moss Adams Wealth Advisors LLC. Investment banking offered through Moss Adams Capital LLC.

THANK YOU

AGENDA ITEM SUMMARY

DATE OF MEETING: August 19, 2020

ITEM TITLE: SOLAR POWER

PREPARED BY: Kelly Hoell, Sustainability Program Manager

DIRECTOR: Matt Imlach, Director of Fleet Management

ACTION REQUESTED: Board Consensus

PURPOSE: To provide information regarding a solar power cost analysis considered by the Board in 2017 and results from the District's 2019 BYD electric bus pilot project in order to request consensus from the Board if further research on investment in solar photovoltaic power on LTD facilities to power buses is desired.

ROLE OF THE BOARD: The Board's role in this instance is to provide staff with direction.

HISTORY: In 2017, the Board of Directors requested an analysis to determine if solar power would be a feasible energy source for LTD to power an electric-bus fleet. At the September 2017 Board meeting after receiving a presentation, the Board chose not to invest any further resources pursuing solar power for buses. Most recently, the Board asked for the topic to return to the Board for consideration. Staff provide here for Board review the solar cost information provided in 2017.

Beginning in Feb 2019, LTD put its first BYD all-electric bus into revenue service as part of a year-long pilot project to test this new technology. Between Feb 2019 and March 2020, LTD had two electric buses in revenue service and collected data on the associated GHG emissions from these buses, in comparison to the rest of the fleet.

In September 2019, LTD conducted its first greenhouse gas inventory of its operations and presented the findings to the Board of Directors. The top two findings from that analysis were that from a climate change perspective the best thing LTD can do to reduce emissions is invest in ways to grow ridership and the second area of focus should be reducing the emissions from its owned vehicles.

In June 2020, LTD's Board of Directors passed its first Climate Action Policy and Fleet procurement Goals, as follows:

"LTD recognizes the urgency in addressing climate change and is committed to reducing community greenhouse gas emissions by taking steps to maximize public transit ridership and support low-carbon active transportation modes. LTD is also committed to reducing the greenhouse gas emissions and consumption of fossil fuels from its fleet of vehicles as quickly as possible in a financially and socially responsible manner. LTD is committed to eliminating the use of fossil fuels in its bus fleet by 2035 and will develop plans to achieve that goal."

Goal 1 – Short-term

- 25 electric buses under contract in 3 years

Goal 2 - Long-term

- 100% fleet turnover and phase out of fossil fuels by 2035
- 75% GHG emissions reduction from fleet vehicles by 2030

Goal 3 – Other considerations

- Deliberate exploration of emerging technology and fuels
- Joint community GHG emission reduction goals with partner jurisdictions
- Iterative process to review progress & goals annually

CONSIDERATIONS:

Content from Sept 2017 Solar Cost Analysis:

Below are a list of questions that will help frame the discussion. This is not intended to be an all-inclusive list but are discussion points that may facilitate the board's process in making a decision or establish a future direction.

1. To what extent should LTD invest in solar energy?
2. How will this investment help LTD provide better service to our customers?
3. What is the Cost/Benefit of solar compared with using current utility energy?
4. Is an investment in solar energy the best use of LTD's limited resources?
5. Is solar the most cost-effective way to reduce LTD's carbon footprint?
6. What additional information does the Board need to make a decision?

SUB Electricity vs. Solar Electricity Cost Comparison

The table below summarizes the different estimated costs associated with charging LTD's expected ten all-electric 40' buses by either the Springfield Utility Board electricity (SUB) or by the installation of solar panels with energy storage facilities at LTD's Glenwood campus.

Criteria	SUB Electricity Cost Estimate	Solar Electricity Cost Estimate
Up-front Capital Costs	$0	$2,000,000
Annual cost of electricity	$107,000 – $54,000	$0
Payback in years		19 – 37 years

Up front Capital Costs: This includes the costs of the solar panels ($963K) and a rough estimate for site construction that has not been bid yet ($37K) as well as two MWH worth of electricity storage battery systems (ESS) ($500K per MWH). An on-site electricity storage solution would be required for night-time charging. This estimate does not include any land costs for ground-mounted solar assuming the solar panels could be installed on the roof of the Glenwood Administration Building, although this assumption has not been verified based on space and solar exposure considerations.

Note: Even if using SUB generated electricity, LTD may wish to purchase electricity storage battery systems for emergency response and risk management.

Annual cost of electricity: This includes an estimate of the electricity charges LTD is likely to incur from SUB for both energy costs (kWh consumption) and demand costs (kW peak electricity demand) for charging up to ten BYD K9 40' vehicles. The electricity charges are shown as a range. The differences in the range of cost estimates here is primarily based on differing assumptions of how LTD can manage its demand charges via when and how it chooses to charge its electric vehicles. To a much lesser extent, the range also differs based on how much of the daily charge each bus will expend on its route. This will depend on which routes the electric buses will run. Solar panels, once installed, would provide the electricity from the sun and therefore would have no ongoing electricity charges.

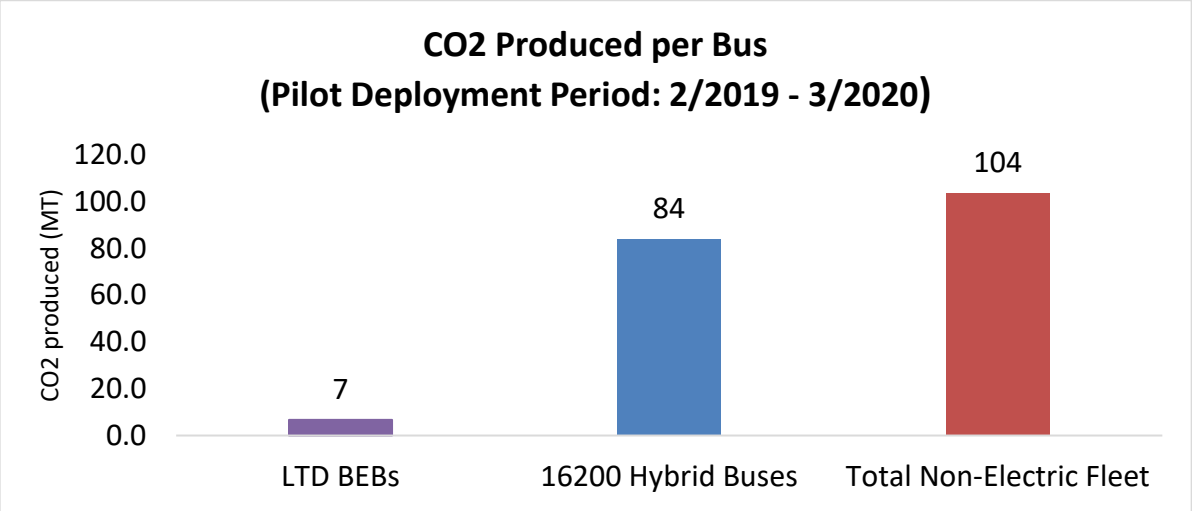
Note: SUB estimates that electricity will increase in cost by approximately 1.5-3% per year. This fee escalation rate is not included in the estimates here.

Payback in Years: This calculation simply takes the total up-front capital costs needed to install solar panels at LTD's facility and divides it by the two ends of the range of annual costs LTD would pay SUB for electricity to determine the range of the number of years in which the up-front costs of a solar installation would be paid back.

In 2019, LTD engaged in a pilot project to test electric buses in its service territory. Two 324 kWh BYD buses ran from approximately Feb 2019 until March 2020.

The figure below shows the greenhouse gas emissions associated with LTD's battery electric buses (BEBs) during the pilot compared to LTD's 2016 series of hybrid buses (the same manufacturing year as the electric buses) and the entire rest of the fleet. The total non-electric fleet includes approximately 40% diesel buses and 60% diesel hybrid buses. These GHG calculations use the utility-specific emissions factor for Springfield Utility Board as reported to the Oregon Clean Fuels Program.

Utilizing the grid mix from SUB, electric buses can already achieve a 93% reduction in GHG emissions compared to the rest of our existing fleet. On-site solar power to charge our buses would allow LTD to claim an emissions factor of zero and would get us the remaining 7% emissions reduction compared to using the SUB emissions factor.



ALTERNATIVES: There are several alternatives to investing in solar PV on LTD facilities for powering buses that could be lower in cost. These could include:

- Participate in renewable power programs offered by local utilities EWEB and SUB to invest in 100% Renewable Energy Certificates (REC) in order to support development of renewable power resources and ensure zero greenhouse gas emissions from our electric buses. These programs cost 1 cent per kWh at both EWEB and SUB. At approximately 45,000 kWh per bus, this green power premium would cost about $450 per bus per year.

- Given the fast-moving changes in prices within the solar industry, staff could seek to update the cost proposal from 2017 to provide current figures.

NEXT STEPS: Based on the direction provided by the Board, staff will pursue the requested information.

SUPPORTING DOCUMENTATION: N/A

PROPOSED MOTION: N/A

AGENDA ITEM SUMMARY

DATE OF MEETING: August 19, 2020

ITEM TITLE: GENERAL MANAGER PERFORMANCE EVALUATION

PRESENTER: Carl Yeh, Board President

DIRECTOR: N/A

ACTION REQUESTED: Information and Discussion

PURPOSE: Per the contract agreement between the LTD Board of Directors and the General Manger, Aurora Jackson, dated December 1, 2018, the Board shall provide an annual performance evaluation effective each July 1, 2020. This performance evaluation determines any merit increase that Ms. Jackson may receive.

ROLE OF THE BOARD: The Board's role in this instance to fulfill the process of the annual review of the general manager.

HISTORY: At the October 22, 2019, Board meeting, the Board approved the fiscal year 2019-2020 annual performance goals for the general manager. At this same meeting, the Board approved the dissolution of the Human Resources Committee and retained the responsibility of the general manager's annual performance evaluation to the full Board.

Due to the COVID-19 pandemic, the process of the general manager's annual review was delayed from the contracted completion timeline of each July.

CONSIDERATIONS: Board members are encouraged to reach out personally to their assigned community partner setting up either phone calls, or zoom meetings if feasible.

ALTERNATIVES: N/A

NEXT STEPS: The Board is to begin the process of the annual performance evaluation of the general manager. Once this is completed, the Board, in consultation with the general manager, will need to establish performance goals for fiscal year 2020-2021.

SUPPORTING DOCUMENTATION:

- General Manager's Fiscal Year 2019-2020 Performance Goals – Adopted October 22, 2019
- Community Partners Contact List
- Template E-Mail Script
- Template Survey Questions for Community Partners

PROPOSED MOTION: N/A

MEMORANDUM

DATE: October 22, 2019

TO: LTD Board of Directors

FROM: Aurora Jackson, General Manager

SUBJECT: **Fiscal Year 2020 Performance Goals**

As requested, this memorandum provides my recommendation for the development of fiscal year 2019-2020 goals. I look forward to further discussing these goals with the Board of Directors either individually or as the collective governing body.

GOAL #1 - Communication

The general manager will develop a plan for implementing the recommendations contained in the Board-adopted communications analysis report. The plan should include an explanation of the overall implementation strategy, description of solutions for each category of findings (branding, digital, media, and organizational management), timeline, and financial impacts.

Measurements:

The Board will rate Goal #1 based on timely submittal of an implementation plan that will be due within 90 days after adoption of this goal. The Board will also rate this goal based on the overall performance centered on adherence to the submitted implementation plan.

GOAL #2 – Project Management of Specific Deliverables

The general manager will ensure projects are managed in a cost-effective manner while delivering quality results to the community. The "Specific deliverables," are defined as agency priorities, already agreed to by the Board, and approved within the budget.

Measurements

The Board will rate Goal #2 as follows:

A. *TouchPass Implementation – In May 2019, LTD purchased an electronic fare payment system, TouchPass, which will enable passengers to pay their fare using a mobile App or smart card. TouchPass will be launched in multiple phases in order to support customers/customer groups to transition successfully, and to address any technological or process challenges.*

   In August 2019, LTD launched the first phase of implementation, the mobile App, while still offering customers the opportunity to continue using paper fare media during the

transition period. In November 2019, LTD will launch the second phase, smart cards (Tap cards) and once again will continue to offer paper fare media for customers who require more time to transition to TouchPass.

In January 2020, LTD will eliminate the use of paper fare media for customers who purchase one-day or monthly bus passes. Additional phases of TouchPass implementation will include Student Transit Passes, Low-Income Passes, Group Passes and UO Passes. Traditionally, fare payment systems are successfully implemented in 24 to 36-month periods. LTD's goal is to fully implement TouchPass in a 24-month period with key milestones completed in the first year of implementation. The general manager will ensure the first year's key milestones are met for TouchPass as follows:

Product	Usage Goal	Deadline
Monthly Passes	100% of customers paying with a monthly pass will use the TouchPass App or Tap card.	March 30, 2020
Low-Income Passes	100% of customers paying with a Low-Income Pass will use the TouchPass App or Tap card.	March 30, 2020
Student Transit Pass Program	75% of students who ride LTD will use the TouchPass App or Tap card.	June 30, 2020
Daily Fares	75% of customers paying with a one-day pass or single ride will use the TouchPass App or Tap card.	June 30, 2020
Group Pass Programs (non-UO or large employers)	50% of customers paying with a Group Pass will use the TouchPass App or Tap card.	June 30, 2020
Group Pass Program (UO and large employers)	100% of customers paying with a Group Pass will use the TouchPass App or Tap card.	June 30, 2021

B. *Mobility-on-Demand Pilots – Ensure the effective oversight of the Cottage Grove and EmGo pilots.*
    a. *Decision process: May 2020*
    b. *Pilots' conclusion: August 2020*
    c. *Potential Implementation of MOD: September 2020*

C. *Transit Tomorrow – Ensure the effective oversight of the communications, community outreach and management of Transit Tomorrow. Manage key deadlines for the project:*
    a. *Outreach: October 2019 – February 2020*
    b. *Board decision: February 2020*
    c. *Phased implementation process: September 2020*

D. *MovingAhead – Ensure the effective oversight of the communications, community outreach, and management of MovingAhead. The general manager will ensure a continued effective partnership with the City of Eugene for project communications, public outreach, and joint meetings. The general manager will assist the Board of Directors to navigate LTD's role in the decision-making process for the transit elements of MovingAhead.*
    a. *Decision process: Winter (February 2020)*
    b. *Next steps: Fall 2020 - Depending on the outcome of the decisions, work jointly with the City of Eugene staff.*

E. *Main Street Transit Study – Ensure the effective oversight of the communications and management of the Main Street Transit Study. The general manager will ensure a continued effective partnership with the City of Springfield for project communications, public outreach and joint meetings. The general manager will assist the Board of Directors to navigate LTD's role in the decision-making process for the transit elements of MovingAhead.*

F. *Santa Clara Transit Station – Ensure the effective oversight (on-time, within budget, and appropriately messaged) of the Santa Clara Transit Station to include:*
    a. *Begin construction: No later than May 2020.*
    b. *Completion of the construction phase: February 2021*

G. *Climate/Sustainability – Ensure the effective implementation of a policy or any direction set by the Board of Directors.*

H. *The general manager will submit a written quarterly report for the specific deliverables to the Board of Directors no later than December 31, 2019, March 30, 2020, and June 30, 2020.*

GOAL #3 – District's Internal Climate

The general manager will ensure the workplace environment is safe, productive, and inclusive. A high level of importance should be placed on ensuring employees' compensation is competitive; working conditions are safe and clean; and there is a good balance between accountability and recognition.

Measurements

The Board will rate Goal #3 based on an evaluation of employees' compensation, working conditions, employees' recognition programs and any related activities that impact the internal climate of the District. The general manager will ensure a quality of employment survey is performed no later than April 30, 2020. The general manager will be rated only on whether the report was completed. The content of the survey will not be utilized to gauge the general manager's performance. The Board may also request verbal updates regarding employee turnover within this rating period. The general manager will provide written reports to the Board as may be necessary to conduct a proper evaluation.

CONCLUSION

In closing, I look forward to receiving clear and cohesive direction regarding the Board of Directors' expectations for fiscal year 2019-2020.

Copy to: LTD Human Resource Department
LTD Legal Counsel, Kristin Denmark

LIST OF COMMUNITY PARTNERS TO CONTACT

				Assigned to:
Eugene Chamber of Commerce President	Brittany Quick-Warner	541-242-2354	brittanyw@eugenechamber.com	
Eugene City Manager	Sarah Medary	541-682-5510 Main Office: 541-682-5010	SMedary@eugene-or.gov	
University of Oregon, Athletics	Mike Duncan	O- 541-346-5326 C- 541-968-8144	duncan2@uoregon.edu	
University of Oregon, Student Affairs Dean	(Kris Winter) Matt Roberts – Senior Director, Community Relations	541-346-2121	mroberts@uoregon.edu	
Bethel School District	Chris Parra, Superintendent	541-689-3280	chris.parra@bethel.k12.or.us	
United Way, Executive Director	Noreen Dunnells	541-741-6000 x165	ndunnells@unitedwaylane.org	
Homes for Good Housing Agency, Executive Director	Jacob Fox	541-682-2527	jshaw@homesforgood.org	
Springfield Chamber of Commerce President	Vonnie Mikkelsen	541-746-1651	vonnie@springfield-chamber.org	
Coburg City Manager/Administrator	Anne Heath	541-682-7871	Anne.heath@ci.coburg.or.us	
Better Eugene-Springfield Transportation (BEST)	Rob Zako, Executive Director	541-343-5201	robzako@gmail.com	
Lane Council of Governments (LCOG), Executive Director	Brenda Wilson	541-682-4395	bwilson@lcog.org	
Lane Council of Governments (LCOG), Senior & Disability Services Director	Emily Farrell	541-682-4432	efarrell@lcog.org	
Eugene School District 4J, Superintendent	Dr. Gustavo Balderas	541-790-7707	balderas_g@4j.lane.edu	
Springfield City Manager	Nancy Newton	541-726-3792	nnewton@springfield-or.gov	
Springfield Public Schools, Superintendent	Todd Hamilton	541-726-3201	Todd.Hamilton@springfield.k12.or.us	
Lane Community College (LCC), Facilities Director or Student Affairs Dean	Dr. Margaret Hamilton, President	541-463-5200	hamiltonm@lanecc.edu	
	Associate Vice President, Academic Affairs	541-463-5306	freij@lanecc.edu	
NAACP, Executive Director	Eric Richardson, President	541-484-1119	president@naacplanecounty.org	

LANE TRANSIT DISTRICT

EVALUATION OF GENERAL MANAGER

FISCAL YEAR 2019-2020

Please help us evaluate Aurora "AJ" Jackson's performance in her role as General Manager of Lane Transit District for fiscal year 2019-2020. In the attached survey, please check the box that best fits your evaluation of AJ's performance.

If you feel that you have not worked closely enough with Ms. Jackson; seen enough of her work in that area; or do not have enough information, please feel free to check "**N/A"**. All rankings and comments will be provided to the Board of Directors. Please expect a Board member to reach out to you soon.

If you have any questions, please contact Clerk of the Board, Camille Gandolfi at 541-682-6103 or camille.gandolfi@ltd.org. Once you have completed this fillable .pdf, please email it to camille.gandolfi@ltd.org.

Thank you for taking the time to help with the evaluation of the General Manger.

LTD COMMUNITY SURVEY

GENERAL MANAGER EVALUATION

		Unacceptable				Average				Outstanding	Exceptional
	N/A	1	2	3	4	5	6	7	8	9	10
1. Under the General Manager's leadership, how is LTD doing?	○	○	○	○	○	○	○	○	○	○	○
2. How well does the General Manager interact with its community partners?	○	○	○	○	○	○	○	○	○	○	○
3. Under the General Manager's leadership, how well does LTD meet the mass transit needs of the community?	○	○	○	○	○	○	○	○	○	○	○
4. How is the General Manager doing in building relationships with the community?	○	○	○	○	○	○	○	○	○	○	○

Recommendations for and ways to improve LTD:

AGENDA ITEM SUMMARY

DATE OF MEETING: August 19, 2020

ITEM TITLE: 2020 PRELIMINARY FINANCIAL RESULTS

PRESENTER: Christina Shew Director of Finance

DIRECTOR: Mark Johnson, Assistant General Manager

ACTION REQUESTED: None. Information Only

PURPOSE: To provide an update on material changes to the preliminary report of the finances and administrative activities of the District presented on July 15, 2020, for the fiscal year which started on July 1, 2019, and ended on June 30, 2020 (FY 2020).

ROLE OF THE BOARD: The Board's role in this instance is to obtain information for a future decision.

HISTORY:

- Annually, in July, the LTD Board is provided a preliminary report of the finance and administrative activities of the District for the preceding fiscal year. This preliminary financial report is required to be submitted "within 30 days after the end of each fiscal year" (ORS 267.140). This report was provided as a presentation at the July 15, 2020, Board meeting for the fiscal year which started on July 1, 2019, and ended on June 30, 2020 (FY 2020).

- ORS 267.140 appears to exist to ensure that Boards get at least one financial report per year. However, LTD staff provides monthly financial reports to keep the Board informed throughout the year on the finances of the District. Given the short time between the end of the fiscal year and the due date for this required report, it is impossible for even the smallest of properties to provide audited or even final results. Therefore, LTD provides preliminary results within 30 days and follows-up with audited reports when the independent audit work has been completed.

There have been no material change to the preliminary fiscal year 2020 results since the July 15, 2020, Board Financial presentation. As anticipated, we are below budget for expenditures given the reduced level of service provided for March through June 30. Our revenues were higher than anticipated for July 1, 2019 through March 2020 due to a strong economy prior to COVID-19. We will know more about revenues for the period of April through June by the end of August.

CONSIDERATIONS: N/A

ALTERNATIVES: N/A

NEXT STEPS: N/A

SUPPORTING DOCUMENTATION:

1) Supporting documentation: 2020-07-15 Regular Board Meeting 2020-07-15 Regular Board Meeting FY2020 Preliminary Financial Report Presentation.pdf

PROPOSED MOTION: None. Information Only

Check History Listing - JUNE 2020

Check #	Date	Vendor		Check Amount
103858	06/04/2020	ALTERNATIVE WORK CONCEPTS		630.00
103859	06/04/2020	AMERICAN FAMILY LIFE		2,075.16
103860	06/04/2020	CANNON LAW ASSOCIATES		399.50
103861	06/04/2020	CHAPTER 13 TRUSTEE		346.16
103862	06/04/2020	CINTAS CORPORATION		1,769.33
103863	06/04/2020	CITY OF EUGENE		500.00
103864	06/04/2020	COMCAST		167.54
103865	06/04/2020	DISH NETWORK		123.04
103866	06/04/2020	EUGENE WATER & ELECTRIC BOARD		586.48
103867	06/04/2020	FASTENAL COMPANY		121.40
103868	06/04/2020	GUARANTY CHEVROLET	Repair accident damage for bus #6216	9,636.47
103869	06/04/2020	LIFEMAP ASSURANCE COMPANY		1,526.69
103870	06/04/2020	MID-STATE INDUSTRIAL SERVICE		525.75
103871	06/04/2020	NORTHWEST NATURAL GAS		2,003.49
103872	06/04/2020	SANIPAC		3,330.77
103873	06/04/2020	SHI INTERNATIONAL CORP		3,330.00
103874	06/04/2020	SPRINGFIELD UTILITY BOARD		1,376.17
103875	06/04/2020	TECH BENDERS, LLC		1,520.00
103876	06/04/2020	THERMO KING NORTHWEST, INC.		5,272.12
103877	06/04/2020	VERIZON WIRELESS	April & May ITS & AS	16,058.82
103878	06/04/2020	WESCO AUTOMOTIVE PAINT		1,009.08
103879	06/04/2020	WYATT'S TIRE COMPANY		528.00
103880	06/04/2020	1996 LLC		7,059.88
103881	06/04/2020	THE AFTERMARKET PARTS COMPANY LLC		3,835.28
103882	06/04/2020	BEDFORD FALLS, LLC	Public relations & public affairs consulting services	10,000.00
103883	06/04/2020	BUCK'S SANITARY SERVICE, INC.		896.05
103884	06/04/2020	CAIC PRIMARY		1,413.97
103885	06/04/2020	THE ENVIRONMENT CENTER FOR TRANSPORTATION AND		7,453.81
103886	06/04/2020	CHAVES CONSULTING, INC.		370.20
103887	06/04/2020	CONVERGINT TECHNOLOGIES LLC		3,836.00
103888	06/04/2020	CUMMINS NORTHWEST, INC.	Parts	28,341.99
103889	06/04/2020	GLORIA, J GALLARDO	May & June grant consulting	20,000.00
103890	06/04/2020	GILLIG CORPORATION	Parts	13,995.01
103891	06/04/2020	GRACE TOWING, LLC		80.00
103892	06/04/2020	JERRY'S HOME IMPROVEMENT CTR		97.29
103893	06/04/2020	KUHN INVESTMENTS, INC.	Florence Rhody Express	12,040.01
103894	06/04/2020	LANE COUNCIL OF GOVERNMENTS	Planning support	11,825.32
103895	06/04/2020	LTD & ATU PENSION TRUST		133,049.02
103896	06/04/2020	LTD EMPLOYEES FUND		154.00
103897	06/04/2020	LTD SALARIED EMP. PENSION PLAN		12,032.40
103898	06/04/2020	MODA HEALTH		18,969.14
103899	06/04/2020	NORTH COAST ELECTRIC		548.43
103900	06/04/2020	ONE CALL CONCEPTS, INC.		52.80
103901	06/04/2020	PACIFIC POWER GROUP, LLC	Bus parts & drive rebuild	13,473.05
103902	06/04/2020	PRE-PAID LEGAL SERVICES INC.		191.45
103903	06/04/2020	RICOH USA, INC.		846.73
103904	06/04/2020	ROMAINE ELECTRIC CORP		1,250.00
103905	06/04/2020	SMITH DAWSON & ANDREWS, INC.		2,500.00
103906	06/04/2020	STRAIGHT LINE AUTO BODY, LLC	ACCIDENT REPAIR FOR BUS #15102	14,396.02
103907	06/04/2020	THORP, PURDY, JEWETT, URNESS,		1,463.20
103908	06/04/2020	UNITED WAY OF LANE COUNTY		684.00
103909	06/04/2020	UPWARD, INC.	LANDSCAPE MAINTENANCE	11,807.00
103910	06/04/2020	WOODBURY ENERGY CO. INC.	DIESEL	49,317.63
103911	06/11/2020	A-1 FIRE PROTECTION		1,402.00

Check #	Date	Vendor		Check Amount
103912	06/11/2020	BARRETT BUSINESS SERVICES INC		3,960.00
103913	06/11/2020	CASCADE CENTERS		511.70
103914	06/11/2020	CINTAS CORPORATION		1,700.50
103915	06/11/2020	RICHARD LEE DIFFIN		735.00
103916	06/11/2020	EUGENE WATER & ELECTRIC BOARD		583.12
103917	06/11/2020	FASTENAL COMPANY		531.96
103918	06/11/2020	JIM BARR ENT, INC.		315.00
103919	06/11/2020	KARI JOHNSON		2,000.00
103920	06/11/2020	KAISER BRAKE & ALIGNMENT INC.		286.20
103921	06/11/2020	LANE COUNTY SCHOOL DISTRICT4J	JAN - MARCH SRTS COORDINATOR 4J	20,758.44
103922	06/11/2020	OFFICE WORLD		195.00
103923	06/11/2020	RG MEDIA COMPANY		856.25
103924	06/11/2020	SPRINGFIELD PUBLIC SD 19	JAN - MARCH SRTS COORDINATOR SPRINGFIELD	13,037.68
103925	06/11/2020	SPRINGFIELD UTILITY BOARD	UTILITIES THROUGH END OF MAY	15,847.03
103926	06/11/2020	THOMSON REUTERS - WEST		167.56
103927	06/11/2020	VERIZON WIRELESS		632.00
103928	06/11/2020	CENTRO LATINO AMERICANO		25.00
103929	06/11/2020	EUROFINS ANA LABORATORIES, INC		283.20
103930	06/11/2020	FIELDPRINT, INC.		12.50
103931	06/11/2020	GOTCHA MEDIA HOLDINGS, LLC		1,800.00
103932	06/11/2020	GRACE TOWING, LLC		80.00
103933	06/11/2020	GRAINGER INC		837.84
103934	06/11/2020	LANE COUNCIL OF GOVERNMENTS		7,502.25
103935	06/11/2020	LTD SALARIED EMP. PENSION PLAN		88,052.00
103936	06/11/2020	MODA HEALTH		2,380.18
103937	06/11/2020	MOHAVE AUTO PARTS, INC.		1,219.69
103938	06/11/2020	NINFA'S ELITE CORPORATION	MAY CLEANING	40,993.68
103939	06/11/2020	NORTH COAST ELECTRIC		52.60
103940	06/11/2020	OIL PRICE INFORMATION SERVICE		284.00
103941	06/11/2020	OREGON FIBER PARTNERSHIP		2,220.00
103942	06/11/2020	OXLEY & ASSOCIATES, INC.		5,000.00
103943	06/11/2020	PARKEON, INC.		2,590.00
103944	06/11/2020	PT3 INC.		5,775.00
103945	06/11/2020	STAPLES BUSINESS ADVANTAGE		359.50
103946	06/11/2020	TAC TRANSPORTATION, INC.	MAY DIAMOND EXPRESS & OAKRIDGE	16,952.03
103947	06/11/2020	TOUCHPOINT NETWORKS LLC		4,171.00
103948	06/11/2020	WANNAMAKER CONSULTING, INC.		760.00
103949	06/11/2020	WOODBURY ENERGY CO. INC.		387.60
103950	06/18/2020	ALTA PLANNING AND DESIGN, INC.		328.64
103951	06/18/2020	AMAL TRANSIT UNION #757		12,073.44
103952	06/18/2020	CANNON LAW ASSOCIATES		414.31
103953	06/18/2020	CHAPTER 13 TRUSTEE		346.16
103954	06/18/2020	CINTAS CORPORATION		1,693.41
103955	06/18/2020	CITY OF EUGENE		3,100.50
103956	06/18/2020	CROCKETTS INTERSTATE TOWING		250.00
103957	06/18/2020	EUGENE WATER & ELECTRIC BOARD		0.00
103958	06/18/2020	EUGENE WATER & ELECTRIC BOARD		7,489.94
103959	06/18/2020	HARVEY & PRICE COMPANY		9,940.32
103960	06/18/2020	HERSHNER HUNTER		168.00
103961	06/18/2020	INFO-TECH RESEARCH GROUP INC	IT RESEARCH , DIAGNOSTIC INFO AND WORKSHOP	31,012.59
103962	06/18/2020	LITHIA TOYOTA-SPRINGFIELD #65		260.00
103963	06/18/2020	MARKETING & TECHNICAL MATERIAL		574.22
103964	06/18/2020	MOTOR VEHICLES DIVISION		60.00
103965	06/18/2020	OFFICE DEPOT		468.73

Check #	Date	Vendor		Check Amount
103966	06/18/2020	SHI INTERNATIONAL CORP		8,566.25
103967	06/18/2020	STATE OF OREGON-EMP DEPT	UNEMPLOYMENT BENEFITS	23,324.02
103968	06/18/2020	SUNSHINE PLANT CARE		150.00
103969	06/18/2020	VALLEY CREDIT SERVICE, INC.		547.29
103970	06/18/2020	WHITE BIRD CLINIC		6,511.83
103971	06/18/2020	WYATT'S TIRE COMPANY		2,123.30
103972	06/18/2020	EAN HOLDINGS, LLC		6,532.00
103973	06/18/2020	JERRY'S HOME IMPROVEMENT CTR		46.96
103974	06/18/2020	LANE COUNCIL OF GOVERNMENTS		2,986.12
103975	06/18/2020	LTD & ATU PENSION TRUST		95,035.05
103976	06/18/2020	LTD SALARIED EMP. PENSION PLAN		11,797.36
103977	06/18/2020	MAGID GLOVE &SAFETY MFG CO LLC		51.15
103978	06/18/2020	NORTH COAST ELECTRIC		216.25
103979	06/18/2020	SECURANCE LLC		496.00
103980	06/18/2020	SITECRAFTING, INC.		400.00
103981	06/18/2020	THORP, PURDY, JEWETT, URNESS,		2,131.60
103982	06/18/2020	TRAPEZE ITS USA, LLC	TRAPEZE EAM 6/1/2020 - 5/31/2021	43,686.00
103983	06/18/2020	UNITED WAY OF LANE COUNTY		684.00
103984	06/25/2020	BARRETT BUSINESS SERVICES INC		2,920.00
103985	06/25/2020	BATTERIES PLUS		3,516.00
103986	06/25/2020	CARAHSOFT TECHNOLOGY CORP	OKTA FROM 6/28/20 - 6/27/21	8,830.61
103987	06/25/2020	CENTURY LINK		2,714.42
103988	06/25/2020	CINTAS CORPORATION		2,043.72
103989	06/25/2020	CITY OF EUGENE	RIVER ROAD TRANSIT IMPLEMENTATION PLAN DEC - MARCH ARCHITECT SERVICES	32,717.41
103990	06/25/2020	CROCKETTS INTERSTATE TOWING		550.00
103991	06/25/2020	EUGENE WATER & ELECTRIC BOARD		810.81
103992	06/25/2020	FASTENAL COMPANY		423.55
103993	06/25/2020	HARVEY & PRICE COMPANY		500.00
103994	06/25/2020	LIFEMAP ASSURANCE COMPANY		13,662.76
103995	06/25/2020	MED-TECH RESOURCES, INC.		441.50
103996	06/25/2020	OREGON STATE POLICE		151.75
103997	06/25/2020	OVERHEAD DOOR COMPANY		1,995.00
103998	06/25/2020	PACIFICSOURCE ADMINISTRATORS,		643.00
103999	06/25/2020	RECORDXPRESS OF CALIFORNIA,LLC		278.50
104000	06/25/2020	ROWELL BROKAW ARCHITECTS,PC	SCTS	19,332.32
104001	06/25/2020	SPRINGFIELD UTILITY BOARD		567.24
104002	06/25/2020	TFS-PORTLAND		281.24
104003	06/25/2020	WYATT'S TIRE COMPANY	NEW BUS TIRES	17,397.38
104004	06/25/2020	THE AFTERMARKET PARTS COMPANY LLC		3,236.87
104005	06/25/2020	THE ENVIRONMENT CENTER FOR TRANSPORTATION AND		4,041.01
104006	06/25/2020	CITY OF COTTAGE GROVE	Q4 SOUTH LANE WHEELS	23,343.75
104007	06/25/2020	GRAINGER INC		1,669.28
104008	06/25/2020	JLA PUBLIC INVOLVEMENT		319.45
104009	06/25/2020	LANE COUNCIL OF GOVERNMENTS	MAY TRANSPORTATION ASSESSMENTS	10,320.94
104010	06/25/2020	MEDICAL TRANSPORTATION MGT	MAY RIDESOURCE PROVIDER & ADMIN	606,774.73
104011	06/25/2020	MODA HEALTH		17,232.90
104012	06/25/2020	MOHAVE AUTO PARTS, INC.		1,260.16
104013	06/25/2020	MOTION & FLOW CONTROL PRD, INC		277.66
104014	06/25/2020	OGLETREE, DEAKINS, NASH, SMOAK		3,261.00
104015	06/25/2020	OREGON FIBER PARTNERSHIP		1,110.00
104016	06/25/2020	PACIFICSOURCE HEALTH PLANS		601,319.65
104017	06/25/2020	RICOH USA, INC.		1,533.00
104018	06/25/2020	AKA: SENIOR WHEELS, INC. SOUTH LANE WHEELS		2,498.85
104019	06/25/2020	STAPLES BUSINESS ADVANTAGE		223.90

Check #	Date	Vendor		Check Amount
104020	06/25/2020	THORP, PURDY, JEWETT, URNESS,		4,990.08
104021	06/25/2020	TRANSLOC INC.		2,000.00
104022	06/25/2020	TRAPEZE ITS USA, LLC	NOVUS SOFTWARE 4/1/20 - 3/31/21	54,513.00
104023	06/25/2020	UPWARD, INC.		8,749.00
104024	06/25/2020	VISION SERVICE PLAN		4,572.99
104025	06/25/2020	WOODBURY ENERGY CO. INC.		256.72
104026	06/30/2020	BATTERIES PLUS		1,599.80
104027	06/30/2020	WINONA J CARLSON		30.00
104028	06/30/2020	LLC FUSSY'S @ VALLEY RIVER PLAZA		4.35
104029	06/30/2020	MARCIA MOFFITT		112.00
104030	06/30/2020	OFFICE DEPOT		529.74
104031	06/30/2020	PETTY CASH - CASSIE MOSTERT		588.38
104032	06/30/2020	PNW SECURITY, LLC		8,158.39
104033	06/30/2020	SAFETY-KLEEN SYSTEMS, INC.		876.79
104034	06/30/2020	STOMMEL INC.	VEHICLE VIDEO SURVEILLANCE ON LTD NON-REV VEHICLES	8,751.76
104035	06/30/2020	THERMO KING NORTHWEST, INC.		7,767.91
104036	06/30/2020	USSC ACQUISITION CORP		9,250.00
104037	06/30/2020	THE AFTERMARKET PARTS COMPANY LLC		0.00
104038	06/30/2020	THE AFTERMARKET PARTS COMPANY LLC		12,359.51
104039	06/30/2020	CITY OF SPRINGFIELD	MAY MAIN-MCVAY CONCEPTUAL DESIGN	15,719.75
104040	06/30/2020	CUMMINS NORTHWEST, INC.	PARTS	74,802.46
104041	06/30/2020	GILLIG CORPORATION		0.00
104042	06/30/2020	GILLIG CORPORATION		9,349.03
104043	06/30/2020	JERRY'S HOME IMPROVEMENT CTR		121.30
104044	06/30/2020	MUNCIE TRANSIT SUPPLY		1,734.04
104045	06/30/2020	MYRMO & SONS		129.60
104046	06/30/2020	NEOPART TRANSIT LLC		44.48
104047	06/30/2020	PACIFIC POWER GROUP, LLC	PARTS	62,808.65
104048	06/30/2020	ROADRUNNER DELIVERY		514.40
104049	06/30/2020	SILKE COMMUNICATIONS SOLUTIONS		622.79
104050	06/30/2020	TYREE OIL, INC.		12,996.40
104051	06/30/2020	WOODBURY ENERGY CO. INC.		1,556.74
91070120	06/30/2020	BENEFIT PLANS ADMIN SVCS, LLC		37,354.00
92070120	06/30/2020	BENEFIT PLANS ADMIN SVCS, LLC		4,732.00
93061120	06/15/2020	BENEFIT PLANS ADMIN SVCS, LLC		24,691.76
93062020	06/24/2020	BENEFIT PLANS ADMIN SVCS, LLC		12,725.34
803634794	06/05/2020	VALIC %CHASE BANK OF TEXAS		95,814.83
803654534	06/19/2020	VALIC %CHASE BANK OF TEXAS		72,850.59
811084961	06/02/2020	BANK OF AMERICA		60.56
811084962	06/02/2020	BANK OF AMERICA		34.53
812192445	06/12/2020	INTERNAL REVENUE SERVICE-EFTPS		457.09
812566976	06/20/2020	OREGON DEPARTMENT OF REVENUE		449.59
812995461	06/22/2020	BANK OF AMERICA		16,381.36
814162570	06/05/2020	MASS MUTUAL FINANCIAL GROUP		3,059.90
814865898	06/11/2020	INTERNAL REVENUE SERVICE-EFTPS		12,207.47
818362873	06/19/2020	MASS MUTUAL FINANCIAL GROUP		3,214.55
823642733	06/05/2020	INTERNAL REVENUE SERVICE-EFTPS		218,284.79
824778752	06/12/2020	OREGON DEPARTMENT OF REVENUE		119.93
833326336	06/11/2020	OREGON DEPARTMENT OF REVENUE		2,921.14
841101879	06/20/2020	INTERNAL REVENUE SERVICE-EFTPS		2,127.69
846135552	06/19/2020	OREGON DEPARTMENT OF REVENUE		39,437.40
852622648	06/05/2020	OREGON DEPARTMENT OF JUSTICE		1,932.00
853232857	06/19/2020	OREGON DEPARTMENT OF JUSTICE		1,332.50
855853170	06/08/2020	INTERNAL REVENUE SERVICE-EFTPS		2,438.72

Check #	Date	Vendor	Check Amount
856357120	06/05/2020	OREGON DEPARTMENT OF REVENUE	54,888.68
872329619	06/19/2020	INTERNAL REVENUE SERVICE-EFTPS	154,187.59
894434560	06/08/2020	OREGON DEPARTMENT OF REVENUE	575.88
		219 **Checks**	$3,409,528.91

Check History Listing - JULY 2020

Check #	Date	Vendor		Check Amount
104052	07/02/2020	ADVANCED SECURITY, INC.	Increased April 2020 security coverage during COVID 19	12,132.25
104053	07/02/2020	AMERICAN FAMILY LIFE		1,842.98
104054	07/02/2020	CANNON LAW ASSOCIATES		444.88
104055	07/02/2020	WINONA J CARLSON		111.00
104056	07/02/2020	CHAPTER 13 TRUSTEE		346.16
104057	07/02/2020	CINTAS CORPORATION		1,780.35
104058	07/02/2020	LANE COMMUNITY COLLEGE		270.54
104059	07/02/2020	LIFEMAP ASSURANCE COMPANY		1,455.59
104060	07/02/2020	LITHIA TOYOTA-SPRINGFIELD #65		75.00
104061	07/02/2020	RANDI M. STAUDINGER		116.38
104062	07/02/2020	VALLEY CREDIT SERVICE, INC.		517.61
104063	07/02/2020	VERIZON WIRELESS		8,009.47
104064	07/02/2020	WILLAMETTE COMM HEALTH SOLUTNS		1,053.00
104065	07/02/2020	BUCK'S SANITARY SERVICE, INC.		896.05
104066	07/02/2020	CAIC PRIMARY		1,350.08
104067	07/02/2020	GRAINGER INC		208.06
104068	07/02/2020	LANE COUNCIL OF GOVERNMENTS		1,840.08
104069	07/02/2020	LTD & ATU PENSION TRUST		86,192.52
104070	07/02/2020	LTD EMPLOYEES FUND		148.00
104071	07/02/2020	LTD SALARIED EMP. PENSION PLAN		11,718.48
104072	07/02/2020	NORTH COAST ELECTRIC		131.88
104073	07/02/2020	ONE CALL CONCEPTS, INC.		64.80
104074	07/02/2020	PAVE NORTHWEST, INC.		1,950.00
104075	07/02/2020	INC. PBS ENVIRONMENTAL BLDG CONSULT		4,000.00
104076	07/02/2020	PRE-PAID LEGAL SERVICES INC.		191.45
104077	07/02/2020	SAIF CORPORATION	Workers Comp premium 7/1/20 - 7/1/2021	267,951.00
104078	07/02/2020	SPRAGUE PEST SOLUTIONS		115.00
104079	07/02/2020	TRAPEZE ITS USA, LLC	TransitMaster maintenance & upgrades 7/1/20 - 6/30/21	255,154.00
104080	07/02/2020	TYREE OIL, INC.	Diesel	37,949.22
104081	07/02/2020	UNITED WAY OF LANE COUNTY		684.00
104082	07/02/2020	WOODBURY ENERGY CO. INC.		1,576.00
104083	07/09/2020	AMERICAN PUBLIC TRANSIT ASSOC	APTA Membership dues 2020-2021	35,500.00
104084	07/09/2020	BABB CONSTRUCTION CO.	SCTS May DBA: Delta Contstruction	89,476.00
104085	07/09/2020	CINTAS CORPORATION		648.00
104086	07/09/2020	CITY OF EUGENE		2,663.50
104087	07/09/2020	COMCAST		164.94
104088	07/09/2020	DISH NETWORK		123.04
104089	07/09/2020	EUGENE AREA CHAMBER OF COMMERC		2,500.00
104090	07/09/2020	EUGENE WATER & ELECTRIC BOARD		1,151.89
104091	07/09/2020	FASTENAL COMPANY		163.59
104092	07/09/2020	FEI TESTING & INSPECTION, INC.		404.00
104093	07/09/2020	LLC FUSSY'S @ VALLEY RIVER PLAZA		50.65
104094	07/09/2020	IMPERIAL COLLEGE PROJECTS LTD	ABBG Membership 2020-2021	23,000.00
104095	07/09/2020	THE LAMAR COMPANIES		4,081.00
104096	07/09/2020	MARKETING & TECHNICAL MATERIAL		384.75
104097	07/09/2020	MED-TECH RESOURCES, INC.		2,159.48
104098	07/09/2020	MIDWEST BUS		489.41
104099	07/09/2020	NORTHWEST NATURAL GAS		308.40
104100	07/09/2020	OVERHEAD DOOR COMPANY		384.00
104101	07/09/2020	ROTARY CLUB OF SPRINGFIELD		200.00
104102	07/09/2020	SANIPAC		3,438.54
104103	07/09/2020	SHI INTERNATIONAL CORP	MICROSOFT ENTERPRISE AGREEMENT 7/1/20-6/30/21	127,216.57
104104	07/09/2020	SPRINGFIELD UTILITY BOARD		0.00

Check #	Date	Vendor		Check Amount
104105	07/09/2020	SPRINGFIELD UTILITY BOARD	June Utilities all stations/locations	17,769.49
104106	07/09/2020	SYSTEMS WEST ENGINEERS, INC.		8,501.00
104107	07/09/2020	THERMO KING NORTHWEST, INC.	Clutch assembly	51,042.31
104108	07/09/2020	THOMSON REUTERS - WEST		167.56
104109	07/09/2020	TRANS WATCH		1,369.50
104110	07/09/2020	UNITED PARCEL SERVICE		1,850.00
104111	07/09/2020	VB-S-1 ASSETS, LLC	RADIO TOWER SITE USER FEES 7/1/20 - 6/30/21	21,838.36
104112	07/09/2020	WYATT'S TIRE COMPANY		1,452.50
104113	07/09/2020	1996 LLC		6,613.90
104114	07/09/2020	BEDFORD FALLS, LLC		10,000.00
104115	07/09/2020	CUMMINS NORTHWEST, INC.		149.95
104116	07/09/2020	EUROFINS ANA LABORATORIES, INC		212.40
104117	07/09/2020	GLORIA, J GALLARDO	May grant services	10,000.00
104118	07/09/2020	GRAINGER INC		786.43
104119	07/09/2020	IVOXY CONSULTING, LLC.		2,200.00
104120	07/09/2020	KUHN INVESTMENTS, INC.		13,783.33
104121	07/09/2020	LANE COUNCIL OF GOVERNMENTS		744.00
104122	07/09/2020	MOHAVE AUTO PARTS, INC.		351.71
104123	07/09/2020	MYRMO & SONS		154.17
104124	07/09/2020	NINFA'S ELITE CORPORATION		40,740.02
104125	07/09/2020	OIL PRICE INFORMATION SERVICE		284.00
104126	07/09/2020	OXLEY & ASSOCIATES, INC.		5,000.00
104127	07/09/2020	PACIFIC POWER GROUP, LLC		68.08
104128	07/09/2020	PACIFICSOURCE HEALTH PLANS		515,630.09
104129	07/09/2020	PARKEON, INC.		2,590.00
104130	07/09/2020	RICOH USA, INC.		745.61
104131	07/09/2020	SEON DESIGN (USA) INC.	bus parts	16,547.50
104132	07/09/2020	SILKE COMMUNICATIONS SOLUTIONS		7,055.06
104133	07/09/2020	SMITH DAWSON & ANDREWS, INC.		2,500.00
104134	07/09/2020	AKA: SENIOR WHEELS, INC. SOUTH LANE WHEELS		2,894.35
104135	07/09/2020	TAC TRANSPORTATION, INC.		17,547.25
104136	07/09/2020	TOUCHPOINT NETWORKS LLC	VOIP support 2/29/20 - 2/28/21	17,276.00
104137	07/09/2020	WANNAMAKER CONSULTING, INC.		520.00
104138	07/09/2020	WOODBURY ENERGY CO. INC.		237.76
104139	07/16/2020	ADVANCED SECURITY, INC.	May 20 covid 19 additional security	16,484.00
104140	07/16/2020	AMAL TRANSIT UNION #757		11,883.54
104141	07/16/2020	BABB CONSTRUCTION CO.	SCTS June construction	406,913.00
104142	07/16/2020	BARRETT BUSINESS SERVICES INC		1,440.00
104143	07/16/2020	CANNON LAW ASSOCIATES		535.84
104144	07/16/2020	CHAPTER 13 TRUSTEE		346.16
104145	07/16/2020	CINTAS CORPORATION		2,773.64
104146	07/16/2020	EUGENE WATER & ELECTRIC BOARD		0.00
104147	07/16/2020	EUGENE WATER & ELECTRIC BOARD		7,170.08
104148	07/16/2020	EUGENE WATER & ELECTRIC BOARD		2,800.00
104149	07/16/2020	KIRK'S AUTOMOTIVE, INC.		1,595.00
104150	07/16/2020	LIFEMAP ASSURANCE COMPANY		11,370.72
104151	07/16/2020	MCKENZIE SEW-ON		415.00
104152	07/16/2020	OREGON STATE POLICE		41.25
104153	07/16/2020	ROWELL BROKAW ARCHITECTS,PC	June SCTS	18,565.76
104154	07/16/2020	RANDI M. STAUDINGER		116.38
104155	07/16/2020	VALLEY CREDIT SERVICE, INC.		544.58
104156	07/16/2020	WILLAMETTE COMM HEALTH SOLUTNS		8,897.00
104157	07/16/2020	1996 LLC	Bus wash roof replacement, green lane improvements and fiber vault & conduit installation	78,540.53
104158	07/16/2020	FIELDPRINT, INC.		12.50

Check #	Date	Vendor		Check Amount
104159	07/16/2020	GLORIA, J GALLARDO	June grant services	10,000.00
104160	07/16/2020	GRACE TOWING, LLC		200.00
104161	07/16/2020	JLA PUBLIC INVOLVEMENT		671.59
104162	07/16/2020	LANE COUNCIL OF GOVERNMENTS		974.61
104163	07/16/2020	LTD & ATU PENSION TRUST		45,852.17
104164	07/16/2020	LTD SALARIED EMP. PENSION PLAN		101,447.57
104165	07/16/2020	MODA HEALTH		2,003.26
104166	07/16/2020	OGLETREE, DEAKINS, NASH, SMOAK		711.00
104167	07/16/2020	PACIFIC ARMORED INC.		2,470.00
104168	07/16/2020	INC. PBS ENVIRONMENTAL BLDG CONSULT		5,955.13
104169	07/16/2020	SILKE COMMUNICATIONS SOLUTIONS		1,513.56
104170	07/16/2020	THORP, PURDY, JEWETT, URNESS,		7,797.12
104171	07/16/2020	UNITED WAY OF LANE COUNTY		684.00
104172	07/23/2020	A-1 AUTO GLASS		149.00
104173	07/23/2020	CENTURY LINK		2,749.88
104174	07/23/2020	CINTAS CORPORATION		1,107.26
104175	07/23/2020	CRAIG WALKER COMMUN. , INC.		237.00
104176	07/23/2020	ENO TRANSPORTATION FOUNDATION		3,400.00
104177	07/23/2020	EUGENE WATER & ELECTRIC BOARD		1,009.99
104178	07/23/2020	FASTENAL COMPANY		19.79
104179	07/23/2020	FOGMAKER NORTH AMERICA, LLC		6,144.98
104180	07/23/2020	PETERSON TRUCKS INC.		2,891.08
104181	07/23/2020	ROWELL BROKAW ARCHITECTS,PC		3,472.82
104182	07/23/2020	SPRINGFIELD UTILITY BOARD		2,103.96
104183	07/23/2020	STATE OF OREGON-EMP DEPT		355.10
104184	07/23/2020	SUNSHINE PLANT CARE		150.00
104185	07/23/2020	UNIVERSITY OF OREGON		2,900.00
104186	07/23/2020	UWORK.COM, INC.	SECURITY STRUCTURE CONSULTATION	20,400.00
104187	07/23/2020	VERIZON WIRELESS		7,810.38
104188	07/23/2020	WYATT'S TIRE COMPANY		8,641.36
104189	07/23/2020	THE AFTERMARKET PARTS COMPANY LLC		0.00
104190	07/23/2020	THE AFTERMARKET PARTS COMPANY LLC		14,607.42
104191	07/23/2020	AIVIA CORPORATION		699.00
104192	07/23/2020	ASSETWORKS, INC.		3,666.36
104193	07/23/2020	BPA VEBA-HRA SERVICES		229.00
104194	07/23/2020	CHAVES CONSULTING, INC.		370.20
104195	07/23/2020	CUMMINS NORTHWEST, INC.		0.00
104196	07/23/2020	CUMMINS NORTHWEST, INC.		6,489.95
104197	07/23/2020	DELERROK INC	TOUCHPASS CARDS AND AVL INTEGRATION	75,465.00
104198	07/23/2020	EAN HOLDINGS, LLC		6,200.00
104199	07/23/2020	GILLIG CORPORATION	BUS PARTS	53,398.87
104200	07/23/2020	GOOD COMPANY LLC		385.00
104201	07/23/2020	GRAINGER INC		1,552.28
104202	07/23/2020	JERRY'S HOME IMPROVEMENT CTR		78.45
104203	07/23/2020	LANE COUNCIL OF GOVERNMENTS		1,835.52
104204	07/23/2020	MODA HEALTH		50,030.60
104205	07/23/2020	MOHAVE AUTO PARTS, INC.		149.86
104206	07/23/2020	MUNCIE TRANSIT SUPPLY		143.94
104207	07/23/2020	NEOPART TRANSIT LLC		887.70
104208	07/23/2020	NORTH COAST ELECTRIC		128.40
104209	07/23/2020	THE PHILADELPHIA PIPE BENDING CO		11,120.00
104210	07/23/2020	STAPLES BUSINESS ADVANTAGE		293.45
104211	07/23/2020	WILLAMETTE COMM HEALTH SOLUTNS		826.00
104212	07/23/2020	WOODBURY ENERGY CO. INC.		213.10

Check #	Date	Vendor		Check Amount
104213	07/30/2020	2G CONSTRUCTION		9,200.00
104214	07/30/2020	ALTERNATIVE WORK CONCEPTS		1,441.00
104215	07/30/2020	BLUEBEAM,INC.		495.00
104216	07/30/2020	CANNON LAW ASSOCIATES		477.76
104217	07/30/2020	CASCADE CENTERS		452.20
104218	07/30/2020	CHAPTER 13 TRUSTEE		346.16
104219	07/30/2020	CINTAS CORPORATION		1,046.90
104220	07/30/2020	CITY OF EUGENE		16,562.19
104221	07/30/2020	DAVID COLLIER		164.90
104222	07/30/2020	CONSOLIDATED SUPPLY CO.		107.35
104223	07/30/2020	CROCKETTS INTERSTATE TOWING		350.00
104224	07/30/2020	EUGENE WATER & ELECTRIC BOARD		867.82
104225	07/30/2020	FASTENAL COMPANY		24.64
104226	07/30/2020	FEI TESTING & INSPECTION, INC.		577.25
104227	07/30/2020	FORMFOX, INC.		250.00
104228	07/30/2020	LANE COUNTY SCHOOL DISTRICT4J	APRIL - JUNE SRTS	23,806.23
104229	07/30/2020	MCKENZIE SEW-ON		976.00
104230	07/30/2020	MEYERS ENVIRONMENTAL SRVC, INC		180.40
104231	07/30/2020	DON NORDIN		330.40
104232	07/30/2020	OFFICE WORLD		2,416.21
104233	07/30/2020	DON ROSS		350.00
104234	07/30/2020	SPRINGFIELD PUBLIC SD 19		10,987.82
104235	07/30/2020	SPRINGFIELD UTILITY BOARD		103.21
104236	07/30/2020	SUNSHINE PLANT CARE		150.00
104237	07/30/2020	VALLEY CREDIT SERVICE, INC.		628.32
104238	07/30/2020	WHITE BIRD CLINIC		6,907.24
104239	07/30/2020	WYATT'S TIRE COMPANY		2,047.00
104240	07/30/2020	CHRISTENSEN, INC.	550 GALLONS OF ATF FLUID	15,368.65
104241	07/30/2020	GILLIG CORPORATION		34.54
104242	07/30/2020	GRACE TOWING, LLC		80.00
104243	07/30/2020	LANE COUNCIL OF GOVERNMENTS		10,159.57
104244	07/30/2020	LTD & ATU PENSION TRUST		45,341.50
104245	07/30/2020	LTD SALARIED EMP. PENSION PLAN		12,068.87
104246	07/30/2020	MEDICAL TRANSPORTATION MGT	June ridesource and Admin	840,402.91
104247	07/30/2020	MOTION & FLOW CONTROL PRD, INC		264.47
104248	07/30/2020	MUNCIE TRANSIT SUPPLY		265.07
104249	07/30/2020	NORTH COAST ELECTRIC		91.26
104250	07/30/2020	OGLETREE, DEAKINS, NASH, SMOAK		3,081.00
104251	07/30/2020	SITECRAFTING, INC.		400.00
104252	07/30/2020	UNITED WAY OF LANE COUNTY		684.00
104253	07/30/2020	UPWARD, INC.		9,125.00
104254	07/30/2020	VISION SERVICE PLAN		3,892.41
104255	07/30/2020	ZONES, INC.		2,619.20
91080120	07/31/2020	BENEFIT PLANS ADMIN SVCS, LLC		36,400.00
92080120	07/31/2020	BENEFIT PLANS ADMIN SVCS, LLC		2,520.00
93071820	07/22/2020	BENEFIT PLANS ADMIN SVCS, LLC		6,153.23
803673964	07/02/2020	VALIC %CHASE BANK OF TEXAS		71,703.18
803692496	07/17/2020	VALIC %CHASE BANK OF TEXAS		68,905.52
803710797	07/31/2020	VALIC %CHASE BANK OF TEXAS		66,281.71
804112362	07/22/2020	BANK OF AMERICA		19,920.71
804690109	07/02/2020	BANK OF AMERICA		71.84
804690110	07/02/2020	BANK OF AMERICA		20.09
806751744	07/17/2020	OREGON DEPARTMENT OF REVENUE		39,723.24
813115685	07/31/2020	MASS MUTUAL FINANCIAL GROUP		2,437.47

Check #	Date	Vendor	Check Amount
813291523	07/17/2020	MASS MUTUAL FINANCIAL GROUP	2,519.73
813661595	07/31/2020	INTERNAL REVENUE SERVICE-EFTPS	143,543.54
815811376	07/18/2020	INTERNAL REVENUE SERVICE-EFTPS	1,299.86
816370379	07/02/2020	MASS MUTUAL FINANCIAL GROUP	2,525.57
851892909	07/17/2020	OREGON DEPARTMENT OF JUSTICE	1,152.00
852829988	07/02/2020	OREGON DEPARTMENT OF JUSTICE	1,332.50
853662740	07/17/2020	INTERNAL REVENUE SERVICE-EFTPS	155,765.20
853867405	07/02/2020	INTERNAL REVENUE SERVICE-EFTPS	152,877.28
855459072	07/02/2020	OREGON DEPARTMENT OF REVENUE	39,041.84
857886208	07/23/2020	OREGON DEPARTMENT OF REVENUE	2,844.64
869601536	07/18/2020	OREGON DEPARTMENT OF REVENUE	323.00
880639488	07/24/2020	OREGON DEPARTMENT OF REVENUE	4,350.06
899211008	07/31/2020	OREGON DEPARTMENT OF REVENUE	36,880.57
		229 **Checks**	$4,700,160.84

OFFICE OF THE GENERAL MANAGER

Aurora Jackson, General Manager

EXECUTIVE OFFICE

Global Warming Commission:
The general manager, Aurora Jackson, participated in her first GW Commission which convened on July 28. Key takeaways were as follows:

- An update was provided announcing that a subcommittee of the GW Commission was working to develop an updated mission, vision and value. The last time these areas were updated was approximately 10 years ago.
- Consumption and Material Management

  Information was presented related to the 2015 Oregon consumption-based greenhouse gas emission by category and life-cycle stage. The production and use of vehicles, food and appliances (primarily for heating and cooling) are the largest types of consumption-based emissions. The presentation also included information regarding usage by income type. Households with incomes of $100k and higher have significantly higher consumption of GHG emissions as compared to households with incomes lower than $30k.
- Agency Implementation Plans for Executive Order 20-04

  Governor provided general directives to 16 state agencies and subsets of those agencies. The general directive requires those agencies to exercise their authority and discretion to prioritize and expedite processes and procedures to integrate climate change and climate impacts into their planning, budgets, investments and policy making decisions in order to accelerate reductions in GHG emissions. The GW Commission established a draft work plan. For July, the GW Commission focused on clarifying the Governor's charge and received information from five agency (Department of Forestry; Department of Agriculture; Department of Land Conservation and Development; Department of Fish and Wildlife; and, Department of Health Authority) staff regarding the work being done in their respective areas. The GW Commission voted to include the following six elements to the scope of work for meeting the Governor's directive:

  1. Create a technical and public engagement work plan.
  2. Establish methods for tracking emission, carbon storage, and sequestration from the land sector.
  3. Identify existing land sector inventory data and priority inventory improvements.
  4. Develop a baseline and a business-as-usual projection for land sector emissions.
  5. Identify potential policies, programs and practices that could be advanced to reduce emissions and increase carbon storage and sequestration on natural and working lands.
  6. Develop and finalize proposed goals and a process for including Natural and Working Lands for Governor Brown's consideration.

Santa Clara Station:
At the June Board meeting, a Board member asked about whether the Santa Clara Transit Center had a state mandate to utilize solar panels. The answer to the question was not known at the time of the meeting but after further research, staff identified a communication with legal counsel advising that the station was not required to utilize solar panels under Oregon law.

American Bus Bench Group (ABBG):
At the June Board meeting, a Board member requested a sample of the information staff was receiving from ABBG during COVID-19. Attached is a sample document.

Transition to audio minutes:
At the September 18, 2019, regular Board meeting, the topic of changing from written minutes to audio minutes and live streaming public meetings was brought to the Board to obtain a consensus on this public meeting process change. At that meeting, the Board gave a full consensus head-nod in agreement with moving forward.

Due to the COVID-19 pandemic and resulting priority changes and responsive action necessary, this process change was delayed for several months. However, staff have been able to regroup and again move forward with putting in place this new process. It is anticipated that the change to audio minutes only will take place September 2020.

Maintaining only audio minutes will support the following:

- Eliminate the expense of utilizing a minute-taker at all public meetings – approximately $20,000 per year.
- Increase staff time available for other tasks/projects.
- Improve transparency and access to information by the community, the Board, and internal staff.
- Streamline, improve, and modernize internal processes.

PLANNING AND DEVELOPMENT

Tom Schwetz, Director of Planning and development

At the July 15, 2020, meeting, Board member Don Nordin asked if there were any statistics to share from the "Other (specify)" box on question 3 of the 2019 Origin and Destination survey. Question 3 reads:

How did you get to the first bus stop?
In the "Other (specify)" box, 110 of the 7, 627 survey respondents specified how they got to the bus.

Results:
- 74 took another bus
- 1 took an ambulance
- 1 took U-Haul
- 1 hitch hiked
- 2 were in wheel chairs
- 3 used scooters
- 28 used skateboard/skates/longboards

SERVICE DELIVERY & ADMINISTRATION

Mark Johnson, Assistant General Manager

FINANCE

Christina Shew, Director of Finance

There is no report this month.

BUSINESS SERVICES

Collina Beard, Director of Business Services

There is no report this month.

INFORMATION TECHNOLOGY

Robin Mayall, Director of Information Technology & Strategic Innovation

There is no report this month.

HUMAN RESOURCES

David Collier, Director of Human Resources & Risk Management

There is no report this month.

ACCESSIBLE AND CUSTOMER SERVICE

Cosette Rees, Director of Customer & Specialized Services

There is no report this month.

Point2point (P2p)

Theresa Brand, Transportation Options Manager

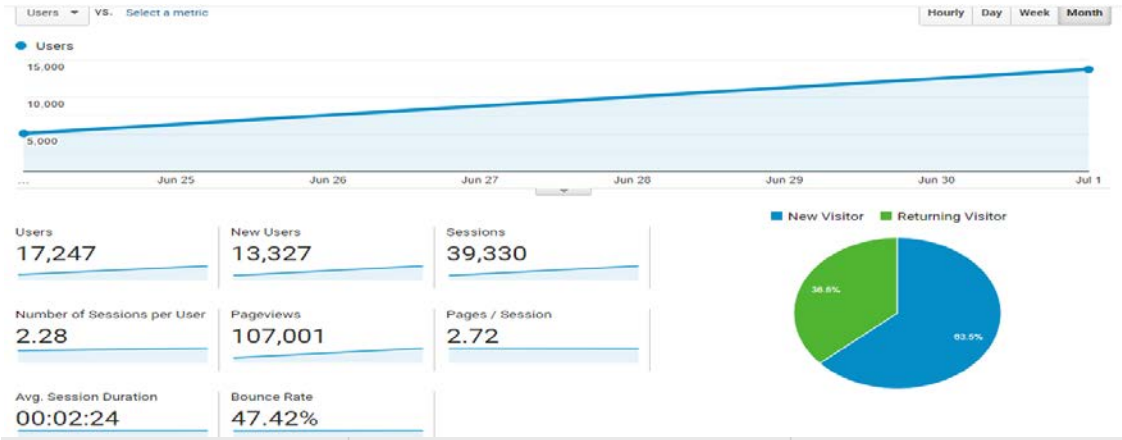
There is no report this month.

Marketing and Communications

Theresa Brand, Transportation Outreach and Marketing Manager

- The Marketing Team has been created communication materials over the last month for on bus and customer information giving updates on health and safety reminders and the requirements for face masks while riding.
- Staff has been actively coordinating communication plans for the re-opening of Customer Service, Fare collections, COVID-19 safety, Santa Clara Station grand opening, 50th Anniversary, and the re-start of Cottage Grove Connector.
- Student Transit Pass: Staff has been actively reaching out to school districts and working with them on their plans for transportation and the use of the Student Transit Pass and getting students signed up with TouchPass.
- Staff continues to work with Lamar the Bus Advertising contractor to help assess what bus advertising spaces are available for LTD internal usage along with ensuring that older expired ads are removed in a timely fashion.
- Staff are continuing to do cross training and documentation of key Marketing Department functions in preparation for the upcoming fall bid which will require all these duties such as bus destination signs, etc. to be updated with any new information.

Website and Digital Media Analytics:
Traffic on the website was up over the last month on a steady climb and 74% of the website traffic came from mobile users along with 26% from desktop or laptop users. There were 17,247 unique users on the website with 107,001 page views.



Device Category	Acquisition			Behavior		
	Users	New Users	Sessions	Bounce Rate	Pages / Session	Avg. Session Duration
	17,247 % of Total: 100.00% (17,247)	13,336 % of Total: 100.07% (13,327)	39,330 % of Total: 100.00% (39,330)	47.42% Avg for View: 47.42% (0.00%)	2.72 Avg for View: 2.72 (0.00%)	00:02:24 Avg for View: 00:02:24 (0.00%)
1. mobile	**12,383** (72.01%)	9,431 (70.72%)	31,721 (80.65%)	48.35%	2.61	00:02:25
2. desktop	**4,412** (25.66%)	3,628 (27.20%)	6,736 (17.13%)	43.48%	3.19	00:02:21
3. tablet	**401** (2.33%)	277 (2.08%)	873 (2.22%)	43.76%	3.08	00:02:20

Facebook Analytics for May 28, - June 27, 2020:

- Daily Reach = 26,060
- Engaged users (unique) = 1,596
- Impressions = 30,083
- Total Page Followers = 5,865
- Total Likes = 5,291

Transportation Options:

- Staff are continuing to use Point2point social media channels to communicate encouragement language around personal travel, health and telecommuting and will continue this effort over the next few months.
- Staff are working with ODOT partners to prepare for an online version of the Get there Challenge which will be held virtually in early October.

Vanpool:
Two (2) additional Valley Vanpool vans terminated operations, with 25 of the 41 remaining vans currently suspended. Twelve (12) of the suspended vanpools provide service in the Lane Transit District service area. In the month of June*, three (3) LTD vanpools were in operation, representing eight (8) riders (a 5% utilization rate) completing 198 passenger boarding's and traveling 12,266 passenger miles. For the next five (5) months, LTD will continue to provide financial subsidies to vanpools which are parked or have lost riders due to shelter in place requirements and teleworking.

*Vanpool reporting experiences a 30 day delay.

FACILITIES

Joe McCormack, Director of Facilities

There is no report this month.

MAINTENANCE

Matt Imlach, Director of Maintenance

There is no report this month.

TRANSIT OPERATIONS

Jake McCallum, Director of Operations

There is no report this month.

Public Safety & System Security

Frank Wilson, Public Safety & System Security Manager

There is no report this month.

Board Meeting Annual Working Agenda

Regular/Special Board Meetings				
Topic		Notes	Presenter	Agenda Time
August 19 - Regular Board Meeting **Materials Deadline: July 29**				Time (minutes)
Introductory Items				15
Employee of the Month				5
Public Hearing: None				
Board Member Reports			Camille Gandolfi	10
Items for Action:				
Consent Calendar:				5
1	*Minutes from the June 17, 2020, Regular Board Meeting*		Camille Gandolfi	
2	*Minutes from the July 1, 2020, Special Board Meeting*		Camille Gandolfi	
3	*Minutes from the July 8, 2020, Special Board Meeting*		Camille Gandolfi	
4	*Delegated Authority Report – July*		Collina Beard	
6	Proposed Public Engagement Policy		Camille Gandolfi	
Special Board Meeting Schedule			Director Yeh	10
Transit Tommorrow			Tom Schwetz	30
Items for Information/Discussion:				
Auditors Presentation: Audit Plan			Christina Shew/ Moss Adams	15
Solar Panels			Aurora Jackson	10
GM Evaluation			Director Yeh	25
Written Reports:				
Monthly Financial Report			Christina Shew	
Monthly Cash Disbursements			Christina Shew	
Monthly Performance Reports			Tom Schwetz	
Monthly Department Reports				
Executive Session:				
		TOTAL TIME (120 minute max)		125
August 26 - Special Board Meeting **Materials Deadline: August 21**				Time (minutes)
Ridership and Operations Update			Tom Schwetz	20
		TOTAL TIME (30 minute max)		20
September 2 - Special Board Meeting **Materials Deadline: August 28**				Time (minutes)
Ridership and Operations Update			Tom Schwetz	20
		TOTAL TIME (30 minute max)		20
September 9 - Special Board Meeting **Materials Deadline: September 4**				Time (minutes)
Ridership and Operations Update			Tom Schwetz	20
		TOTAL TIME (30 minute max)		20
September 16 - Regular Board Meeting **Materials Deadline :August 26**				Time (minutes)
Introductory Items				15
Employee of the Month			Board President	5
Public Hearing: None				
Board Member Reports			Camille Gandolfi	5
Items for Action:				
Consent Calendar:				5
1	*Minutes from the August 21, 2020, Regular Board Meeting*		Camille Gandolfi	
2	*Delegated Authority Report – August*		Collina Beard	
3	Procurement Policy Updates		Wendi Frisbie	
4	SPC Member Appointment			
5	Public Meeting Schedule			
6	Drug & Alcohol Policy Revision		David Collier	
West Eugene Property & fiber Franchise Fee agreement			Joe/Kristin	
Diversity Policy Update			David Collier/ Collina Beard	
Committee Assignments				
Items for Information/Discussion:				
Climate Action Update			Kelly Hoell	
Micromobility				
SCTS and Green Lane Corner Improvement Update			Randi Staudinger	10
Community/Businesss Feedback			Aurora Jackson	

Board Work Sessions			
Topic	Notes	Presenter	Agenda Time
August 19 - Board Work Session **Materials Deadline: July 29**			Time (minutes)
Future Agenda Items		Carl Yeh	30
COVID-19 Safety Protocols Communication		Cosette Rees	30
TOTAL TIME (60 - 120 minute max)			60
TENTATIVE: September 16 - Board Work Session **Materials Deadline :August 26**			Time (minutes)
Mobility as a Service	Requested at December Board Retreat	Mark Johnson	30
Finance Training	Requested at December Board Retreat	Christina Shew	30
American Bus Benchmarking (ABBG)		Mark Johnson	
Public Meeting Law Training	Requested at December Board Retreat	Kristin Denmark	60
TOTAL TIME (60 - 120 minute max)			120

Board Meeting Annual Working Agenda

Regular/Special Board Meetings			
Topic	**Notes**	**Presenter**	**Agenda Time**
Transit Tommorrow			
Written Reports:			
Monthly Financial Report - Verbal & Written		Christina Shew	
Monthly Cash Disbursements		Christina Shew	
Quarterly Grant Report		Christina Shew	
Monthly Performance Reports		Hart Migdal	
Monthly Department Reports			
FY19-20 Micropurchases		Wendi Frisbie	
Executive Session:			
		TOTAL TIME (120 minute max)	40
September 23 - Special Board Meeting **Materials Deadline: September 18**			**Time (minutes)**
Ridership and Operations Update		Tom Schwetz	20
		TOTAL TIME (30 minute max)	20
September 30 - Special Board Meeting **Materials Deadline: September 25**			**Time (minutes)**
Ridership and Operations Update		Tom Schwetz	20
		TOTAL TIME (30 minute max)	20
October 7 - Special Board Meeting **Materials Deadline: October 2**			**Time (minutes)**
Ridership and Operations Update		Tom Schwetz	20
		TOTAL TIME (30 minute max)	20
October 14 - Special Board Meeting **Materials Deadline: October 9**			**Time (minutes)**
Ridership and Operations Update		Tom Schwetz	20
		TOTAL TIME (30 minute max)	20
October 21 - Regular Board Meeting **Materials Deadline: September 30**			**Time (minutes)**
Introductory Items			15
Employee of the Month		Board President	5
Public Hearing: Community Investment Plan		Christina Shew	20
Board Member Reports		Camille Gandolfi	10
Items for Action:			
Consent Calendar:			5
1 *Minutes of the September 16, 2020, Board Work Session*		Camille Gandolfi	
1 *Minutes of the September 18, 2020, Regular Board Meeting*		Camille Gandolfi	
1 *Delegated Authority Report – September*		Collina Beard	
1			
1			
1			
authorize sale of surplus real property (310 Garfield)		Joe and Kristin	10
Adoption of Why Statement			
Items for Information/Discussion:			
Communications Analysis Progress Update		Cosette?	
Hold: Transit Tommorrow			
Written Reports:			
Monthly Financial Report		Christina Shew	
Monthly Cash Disbursements		Christina Shew	
Monthly Performance Reports			
Monthly Department Reports			
Executive Session:			
		TOTAL TIME (120 minute max)	65
October 28 - Special Board Meeting **Materials Deadline: October 23**			**Time (minutes)**
Ridership and Operations Update		Tom Schwetz	20
		TOTAL TIME (30 minute max)	20
November 18 - Regular Board Meeting **Materials Deadline: October 28**			**Time (minutes)**

Board Work Sessions			
Topic	**Notes**	**Presenter**	**Agenda Time**
TENTATIVE: October 21 Board Work Session **Materials Deadline: September 30**			**Time (minutes)**
		TOTAL TIME (60 - 120 minute max)	0
TENTATIVE: November 18 Work Session **Materials Deadline: October 28**			**Time (minutes)**

Board Meeting Annual Working Agenda

Regular/Special Board Meetings			
Topic	Notes	Presenter	Agenda Time
Introductory Items			15
Employee of the Month		Board President	5
Public Hearing:			
Board Member Reports		Camille Gandolfi	10
Items for Action:			
Consent Calendar:			5
1 *Minutes from the October 16, 2020, Regular Board Meeting*		Camille Gandolfi	
2 *Delegated Authority Report – October*		Collina Beard	
3			
4			
5			
Public Meeting Schedule		Aurora Jackson	10
Adoption: Community Investment Plan		Christina Shew	
Items for Information/Discussion:			
Written Reports:			
Monthly Financial Report		Christina Shew	
Monthly Cash Disbursements		Christina Shew	
Monthly Performance Reports		Hart Migdal	
Monthly Department Reports			
Executive Session:			
	TOTAL TIME (120 minute max)		45

Board Work Sessions			
Topic	Notes	Presenter	Agenda Time
		TOTAL TIME (60 - 120 minute max)	0

December 16 - Regular Board Meeting Materials Deadline: November 25			Time (minutes)
Introductory Items			15
Employee of the Month		Board President	5
Public Hearing:			
Board Member Reports		Camille Gandolfi	10
Items for Action:			
Consent Calendar:			5
1 *Minutes from the November 20, 2020, Regular Board Meeting*		Camille Gandolfi	
2 *Delegated Authority Report – November*		Collina Beard	
3			
4			
5			
Adoption: Board Committee Assignments		Director Yeh	5
Items for Information/Discussion:			
Proposed Board Communication Policy		Camille Gandolfi	5
Written Reports:			
Monthly Financial Report - Verbal & Written		Christina Shew	
Monthly Cash Disbursements		Christina Shew	
Quarterly Grant Report		Christina Shew	
Monthly Performance Reports		Hart Migdal	
Monthly Department Reports			
Executive Session:			
	TOTAL TIME (120 minute max)		45

TENTATIVE: December 16 Work Session Materials Deadline: November 25			Time (minutes)
		TOTAL TIME (60 - 120 minute max)	0

Imperial College London Projects

Transport Strategy Centre

How are the world's public transport providers and airport operators responding to the Coronavirus (COVID-19)?

Issue 10: 9th July 2020

Contents

How are the world's public transport providers and airport operators responding to the Coronavirus (COVID-19)?

The purpose of this document is to help transport providers in the metro, rail, bus, light rail and airport sectors optimise their response to the Coronavirus COVID-19 outbreak by sharing knowledge and experience from a wide range of organisations globally, including many of the largest operators in the world's major cities.

The first version was issued on 23rd March; since then, the report has been expanded to include some important additional considerations for transport organisations. These are the context for organisations dealing with the pandemic, particularly in terms of demand compared to first cases in cities or countries, and a future-looking section initially discussing how organisations are considering and planning for more intensive operations and management alongside Coronavirus COVID-19 and how they are starting to plan for the future beyond this.

Introduction

As one of the sectors most significantly affected by the Coronavirus COVID-19 outbreak, transport providers are having to make substantial changes to how they manage their organisations, and serve their customers, within a rapidly evolving and uncertain environment. For many, how they and their governments and authorities react and plan for the future is crucial for the sustainability of their businesses and the security of their employees, as well as having substantial implications for the societies and economies within which they operate.

Over 100, metro, rail, bus, light rail and airport operators participate in the international benchmarking groups run managed through the Transport Strategy Centre (TSC) at Imperial College London[1]. The majority of these are having to take significant actions to cope with the outbreak affecting virtually every aspect of how they conduct their business. The members of these groups have already been sharing valuable information within the individual benchmarking groups about how they are responding to the outbreak, including on the website discussion forums.

To maximise the benefit for all, the TSC have synthesised the information on how each of the benchmarking participants across all the different groups are responding to the situation and has anonymised this to respect confidentiality according to the protocols of each group. Hence this report contains the most comprehensive set of information available from across the individual modes at the time of writing, and from the different countries and cities around the globe.

The following pages highlight the key findings which are considered to greatest benefit to the benchmarking participants. The report is structured as follows:

- Context for Coronavirus COVID-19, including a review of how passenger demand has been affected across different modes and organisations as the pandemic has evolved
- How organisations are managing their Coronavirus COVID-19 response, covering strategic management, staffing, passenger and customer measures, operational changes, and cleaning
- Future planning, including business continuity and recovery and reform

It is worth noting that practices will be very different between modes and cities depending on the current rate of transmission and prevalence of Coronavirus COVID-19. The severity of practices and

[1] A list of organisations participating in each of the benchmarking groups is included in Appendix A. The information contained in this report was provided by the majority of these organisations. These have not been referenced in the report to respect confidentiality.

procedures is likely to be greater in cities/countries with a higher Coronavirus COVID-19 infection rate compared to others that have kept a low infection rate or where the situation has improved significantly.

As the situation continues to evolve, the TSC plan to continue to issue updates at regular intervals as further information becomes available and welcome feedback on how the team can provide the greatest value on this subject in future.

1. Key Findings

1.1. Context and demand

The transport sector is being severely affected by the Covid-19 pandemic. Over the last few months, Passenger demand on most systems fell to small fraction of normal, pre-pandemic levels. However, the way transport demand has been affected for an individual organisation, or in a certain city, depends on many factors including the extent of lockdown measures implemented, the local spread of COVID-19, availability of other modes, service reductions or cuts etc

The context section of this report considers how demand has changed following the first recorded cases of the virus and the implementation and removal of lockdowns, including how soon, and how quickly, passenger numbers fell, the level at which they typically stabilised, and early signs of recovery Differences between regions, cities and transport modes are also considered. Some early evidence of how demand is starting to recover is also assessed, based on data from cities affected earlier on in the pandemic. Key findings from this analysis include:

- Overall demand reductions have varied across modes, but have been substantial:
    - **Demand for rail modes (metros and railways) appears to have stabilised at a lower rate** (approximately 10% of normal demand) **compared to buses** (approximately 20% of normal demand)
    - **Rail modes (metros and railways) are more likely have shown a rapid decline in demand compared to buses,** potentially because of the availability of other modes around the system, a more significant decline in commuting trips, avoidance of discretionary travel, and concerns and perceptions of crowding both on trains and in stations
- Comparing levels of travel demand highlights that, in general, **demand response appears to have no direct correlation with the severity of the pandemic in a city.** The majority of transport operators experienced a high reduction in demand (<25% of usual demand), regardless of the rate of cases in the city. Therefore, the demand response is likely to be more related to specific lockdown restrictions, and fear of the virus, which may be imported from other contexts.
- On most metros, **demand started to fall long before lockdowns began on announcement of the first case**. In some cases, passenger numbers had already stabilised when the lockdowns were implemented; elsewhere lockdowns were implemented while demand was continuing to decline. Hence initial declines appear to have been **more closely related to the first case announcement dates than lockdown dates**.
- However, most cities only reach their lowest point of demand after lockdowns have been implemented, suggesting that enforced restrictions also have a significant impact on demand.

- In some cases, **demand appears to have started to reduce earlier than the first case dates,** potentially due to people avoiding travel expecting an outbreak in their cities, or cities/countries taking pre-emptive lockdown measures to prevent the outbreak.
- From the start of decline, it typically took nearly **10-14 days for demand to fall to the point at which it stabilised**. In some cities, however, demand fell more slowly over a period of up to 60 days.
- Generally, **demand reduced more slowly in cities where the first Coronavirus COVID-19 case was detected earlier** (e.g. January), potentially because government measures to control community transmission of the virus (incl. lockdowns) were imposed later or more slowly
- **Demand reductions are generally higher at weekends than on weekdays** as weekend demand is typically comprised of a higher proportion of discretionary trips that can be avoided altogether
- Some changes in the **distribution of demand** have also been observed. On two European metros, **the peak hour has moved earlier** as passengers try avoid heavily crowded conditions
- The **length of time at which demand stabilised before starting to recover has ranged from 5 days to over 100 days**. Operators who saw demand growth recover most quickly typically had no formal lockdown. Meanwhile many North and South American cities have experienced very long periods of lockdown (over 50 days), resulting in prolonged periods of stable, very low demand.
- Early evidence from cities that are 'ahead of the curve' shows that it has taken **between 30 and almost 180 days for demand to return to 50% of the pre-pandemic level (from the lowest point of demand)** depending on the relaxation of pandemic-control measures. However, transport systems that have already recovered to 50% of pre-pandemic demand are typically in cities that were affected less severely and so experienced lower overall declines in demand to begin with.
- A few cities have already experienced multiple periods of declining demand in response to second waves or new clusters of the virus, separated by periods of stabilisation or recovery.

1.2. Ongoing management, response and recovery

The table on p7-12 summarises the actions that organisations have taken during the peak of the pandemic and during more stable periods since the worst impacts were felt, as well as ongoing recovery actions being considered.

Decline	Stabilisation	Recovery
Section 3		**Section 4**
When demand declined significantly as the main impacts of the pandemic affected organisations, and organisations implemented a multitude of immediate management and mitigation measures	*When demand has settled at a steady figure and management and mitigation measures tend to be properly established and functioning. Measures may be developed to increase their scope or effectiveness*	*How organisations are adapting in the short, medium and long-term*

	Actions during Decline	Actions during Stabilisation	Actions during Recovery
Strategic Management			
Decision-making	• Formation or stepping-up of special committees for pandemic co-ordination at leadership/executive level with oversight or direction from safety functions (such as Chief Safety Officers) • Implementing key measures from contingency plans/business continuity plans • Enacting Pandemic Plans to guide organisational response	• Ongoing functioning of committees • Adherence to command and control structures • Updating and revising contingency plans/Pandemic Plans • Participating in regular briefings and cross-committee communications • Managing availability of management to ensure continuity of decision-making • Setup of daily ridership dashboards to monitor demand	• Monitoring and assessing the impact of the pandemic • Estimating the future financial impact and options to address this • Scenario planning to help formulate plans for recovery • Studying impact of past "shock" events • Conducting future demand forecasting • Planning and developing strategies and actions to stimulate demand and revenue growth (once safe to do so)
Relationship with stakeholders	• Formation or stepping up of multi-organisational working groups to communicate and co-ordinate with stakeholders (e.g. city, authority, government, ministries, emergency services, etc)	• Participating in regular briefings and cross-committee communications • Managing ongoing relations with the police, who gradually became more present on some agencies' networks to enforce necessary social distancing, wearing of masks, etc • Offering rent relief, discounts, postponed payments etc to third party retail	• Dialogue with government and key stakeholders to inform them of specific implications for the transport sector • Preparing wider cases demonstrating the value of public transport to cities/countries/economies, especially in terms of supporting and stimulating economic recovery
Information to staff	• Providing advice on staff health and safety • Implementing defined staff Communication Plans • Setting up dedicated phone lines for staff	• Operating day-to-day communications channels for staff • Running senior management/leadership sessions for staff to hear latest developments, updates and plans • Ensuring senior managers/leaders are visible to staff	• Providing information about future service levels and the factors that this depends on • Continuing to demonstrate visibility of leadership
Contingency management	• Testing and readying back-up facilities • Preparing alternative rooms for operational management • Developing satellite control centres • Identifying critical staff roles and single points of failure • Preparing a basic timetable option	• Ongoing testing of operational and organisational processes • Planning for manual operation of the system • Monitoring impact on the supply chain and third parties	• Implementing lessons learned within business continuity documents (including Pandemic Plans) • Preparing contingency plans to deal with possible further outbreaks • Refining procurement processes to enable quick delivery of equipment if outbreaks happen again in future

	Actions during Decline	Actions during Stabilisation	Actions during Recovery
Performance management	• Monitoring progress against KPIs and targets	• Specific monitoring of key targets including absenteeism, on-time performance, passenger safety, etc • Developing new data sources/analyses based on partial information • Developing new reporting/visualisation tools for data to inform decision-making	• Identifying targets/KPIs that will be affected by historical performance during the pandemic and adjusting for medium-long term performance • Considering wider impacts on performance-related pay
Staffing			
Staff safety	• Providing support for mental health and anxiety • Issuing Personal Protective Equipment (PPE), notably masks (in Asia) and hand sanitiser • Preventing vulnerable staff from working • Making medical professionals available to staff • Travel advice for staff (avoid high-risk regions) • Cancelling all meetings • Requiring rear-door boarding of buses	• COVID-19 testing of employees (including antibody testing in some cases) • Requiring temperature checks for all staff and visitors entering facilities • Implementing masks for staff on a more widespread basis (Europe and Americas) • Only allowing meetings to take place with maximum limits on attendance • Implementing barriers between bus drivers and passengers	• Continuing with practices that minimise team size (e.g. "bubbles") and staff overlap (e.g. remote handovers, staggered shift times, etc) • Move back to previous working conditions (incl. offices) under a phased approach • PPE for frontline staff • Longer-term remote working arrangements for non-essential staff • Planning for minimum staff contingents • Using protective barriers between staff and customers (e.g. bus driver barriers)
OCC staff safety	• Preventing non-critical staff from entering the OCC • Enhancing cleaning procedures that OCC staff are responsible for • Staff health checks when reporting for duty	• Operating the OCC with the minimum staff required to avoid overlap • Implementing physical barriers between workstations	• Continuing with practices that minimise team size (e.g. "bubbles") and staff overlap (e.g. remote handovers, staggered shift times, etc) • Continue to maintain alternative OCC facilities to split staff if necessary
Staff absenteeism	• Splitting teams into "bubbles" to avoid staff overlap • Providing increased spare staff (particularly train drivers) • Adjusting shift management – extending shift lengths, staggering start/end times, preventing shift changes, etc	• Implementing remote processes (e.g. sign on/off) • Ensuring employees can sign off at multiple locations • Reducing team rotations • Limiting cross-facility contact (e.g. depots) • Asking staff to take leave • Redeploying staff into more critical roles	• Robust understanding of service delivery that is possible under various staff absence scenarios • Consider additional staff intake to provide extra contingency for absenteeism
Staff training	• Cancelling training • Training and licencing additional staff to operate trains	• Identifying essential vs. non-essential training	• Resuming training activities in-person with significant mitigation measures

	Actions during Decline	Actions during Stabilisation	Actions during Recovery
		• Deploying PPE to frontline trainees so training can resume • Altering classrooms to maintain social distancing • Identifying opportunities for training while staff are not required in service (e.g. customer service)	• Retiming/re-planning training to account for lower capacity of training
Staff with Coronavirus COVID-19	• Requiring that the employee self-isolates • Taking assets out of service • Vacating buildings if an employee tests positive	• Staggering return-to-work procedures • Implementing special/enhanced cleaning procedures for equipment/workspaces • Providing welfare/wellbeing support to staff that are unwell • Reporting positive employee cases publicly	• Continue with effective management measures (requiring self-isolation, health checks, etc) recognising that the level of infected staff may decline in the medium-long term (depending on second wave of infections or seasonal variations in infections)
Staff administration	• Freezing recruitment and overtime • Offering "furlough" to staff	• Progressing with layoffs (some organisations only) • Hiring additional staff temporarily • Requesting or implementing short-term pay reductions • Offering pay premiums or incentives as recognition	• Potential widespread organisational restructures for cost efficiency • Potential impacts on performance-related pay
Passengers			
Fare-related measures	• Offering refunds on tickets and passes • Offering free travel in some cities (particularly for key workers)	• Continuing to provide refunds on tickets and passes and fare discounts • Offering discounts – e.g. off-peak fares all day	• Considering fares promotions to encourage customers to return once it is safe to do so
Passenger safety and PPE	• Communications on hygiene and social distancing • Advising passengers not to travel (some cities/countries) • Requiring that customers wear masks	• Implementing new signage (e.g. floor and seat signs) • Advising on where to board trains/buses and to distribute when waiting • Advising passengers to minimise interactions with staff • Updating passenger charter/conditions of carriage to stipulate that PPE is required • Enforcing PPE for passengers through own staff, refusal to enter the system or engagement with police	• Ongoing health monitoring of passengers (e.g. temperature screening) • Ongoing requirements for PPE while using the system (e.g. masks) • Implementing measures to spread peak demand and reduce crowding • Enacting crowd management plans

	Actions during Decline	Actions during Stabilisation	Actions during Recovery
		• Installing temperature monitoring points (particularly metros) • Requiring customers to scan a code to register personal information and track movements • Preparing emergency isolation kits in stations	
Passenger safety and PPE	• Communications on hygiene and social distancing • Advising passengers not to travel (some cities/countries) • Requiring that customers wear masks	• Implementing new signage (e.g. floor and seat signs) • Advising on where to board trains/buses and to distribute when waiting • Advising passengers to minimise interactions with staff • Updating passenger charter/conditions of carriage to stipulate that PPE is required • Enforcing PPE for passengers through own staff, refusal to enter the system or engagement with police • Installing temperature monitoring points (particularly metros) • Requiring customers to scan a code to register personal information and track movements • Preparing emergency isolation kits in stations	• Ongoing health monitoring of passengers (e.g. temperature screening) • Ongoing requirements for PPE while using the system (e.g. masks) • Implementing measures to spread peak demand and reduce crowding • Enacting crowd management plans
Ticketing	• Not accepting cash when buying a ticket/fare • Limiting staffed ticket booth hours	• Not accepting cash transactions unless at ticket machines • Strongly advising digital payments for fares	• Implementing a cashless system
Communications	• Implementing new messaging through audio announcements, screens, signs, stickers, remotely, etc • Enhancing visibility and accessibility of information	• Carrying out customer surveys to understand how they have used the service and what their expectations are	• Refreshing campaigns providing safety advice to customers • Working with customer teams, panels and advocates to develop responsive communications to passenger expectations • Considering marketing and advertising campaigns to encourage customers to return once it is safe to do so

	Actions during Decline	Actions during Stabilisation	Actions during Recovery
Travel demand management	• Advising passengers not to travel (some cities/countries)	• Presenting data via apps, e.g. crowding data, available space, services with high demand, etc • Restricting boarding at certain stations to limit crowding • Implementing crowd control to limit entries	• Ongoing monitoring of travel demand and patterns • Engagement with stakeholders and third parties to inform business strategies (working from home etc) that influence demand
Operations			
Service levels	• Implementing a range of service reductions, particularly frequency reductions, early closures and cancelling services (particularly buses) • Closing stations/stops • Developing phased service reduction plans or priority plans for reducing services in the event of staff shortage	• Implementing some additional services and repurposing vehicles (particularly buses) • Monitoring demand for dynamic service adjustments • Extending peak-hour service provision in response to peak demand spreading	• Ongoing dynamic service adjustments in response to demand/crowding where possible • Co-ordinating with stakeholders to manage demand through advice to use other modes (particularly sustainable modes) • Monitor wider determinants of demand (unemployment, fuel pricing, commuting patterns, etc) • Ensure accurate information on service levels is available to customers (e.g. where paper timetables would have been used) • Consider promotions to drive up demand if safe to do so
Additional services	• Route adjustments to serve essential journeys/workers (buses)	• Repurposing assets for wider community purposes (buses) e.g. grocery delivery, transport between healthcare facilities, operating mobile screening clinics	• Supporting regular services with on-demand options (buses)
Enforcement	• Use of staff to check whether journeys are essential; some early use of penalties where restrictions were stringent	• Use of staff and police to enforce wearing of masks (with some financial penalties) and to refuse access to the system if necessary	• Monitor ongoing requirements for passenger PPE, • Monitor rate of refusal onto public transport
Technical Actions			
Managing IT	• Implementing mandatory working from home policy for non-frontline staff	• Managing cybersecurity processes with remote working • Optimising internet bandwidths • Providing hardware to staff • Training staff how to use new systems • Rolling out e-learning/online training	• Consider enhancing capability to support continued widespread working from home

	Actions during Decline	Actions during Stabilisation	Actions during Recovery
Managing maintenance and asset management	• Halting ongoing works safely • Monitoring staff, materials and contractor availability	• Increasing maintenance in some cases (where lower service levels/passenger demand presents an opportunity), e.g. "shovel-ready" projects • Adjusting maintenance regimes based on use of assets (time/distance) • Continuing work while monitoring staff, materials and contractor availability • Work postponements and cancellations (major works, capital projects)	• Monitor long-term impact on investments (e.g. capital projects) that particularly contribute to demand and revenue growth (or wider economic benefits) • Identify and accelerate projects that stimulate economic recovery (in collaboration with governments where necessary) • Identify design changes needed for assets in the long-term to inform future procurement specifications (i.e. ease of "maintainability")
Ventilation	• Extending hours of ventilation • Using maximum ventilation volumes	• Implementing additional cleaning of ventilation infrastructure • Keeping windows open on trains/buses for fresh air	• Continuing to monitor effectiveness, including any wider information about spread of Coronavirus COVID-19 through airborne means
Cleaning			
Processes	• Increasing cleaning scope and frequency across assets • Increasing cleaning particularly of public-facing assets or assets that are regularly touched • Strategically targeting cleaning at airport stations or lines	• Optimising vehicle cleaning in/before depots – i.e. implementing a "pre-clean" after the terminal station before the train enters the depot • Testing new equipment (e.g. UV light, new cleaning products) • Requiring staff to be responsible for some aspects of cleaning (e.g. operational workstations) as well as dedicated cleaning staff	• Continuing with enhanced cleaning throughout networks

2. Context for transport organisations

First identified in December 2019 in Wuhan, the capital of China's Hubei province, Coronavirus has since spread across the globe. On 11th March 2020, the World Health Organisation (WHO) declared Coronavirus COVID-19 a global pandemic. As of 9th July, about 12 million people have been reported to have COVID-19.

At its peak, over half the world's population were under some form of lockdown to contain the spread of the virus. Borders were closed, business activities were restricted, and curfews and 'stay at home orders' were imposed, resulting in sharp reductions in transport demand. Beyond these immediate impacts, the Coronavirus COVID-19 outbreak is likely to have longer-term societal impacts on working habits, travel behaviour and lifestyle choices (see the Future Planning section of this report for further discussion).

Many countries are now beginning to ease lockdown restrictions, but the longer-term implications for public transport systems are still complex and uncertain. The last few months have seen a major decline in travel demand caused by behavioural change, and – most crucially – by restrictions and guidance from governments and employers. Some public transport operators are actively discouraging their own customers from travelling to allow social distancing on their services for essential workers. As countries adapt to the virus beyond the initial peak of infections, the relaxation of control measures in some cities has meant demand has started to recover. The pace of this recovery, and any further declines in travel demand in response to additional waves of the virus, should be carefully monitored as it will have important implications for future ridership and revenue.

2.1. Overview

This context section analyses demand data for various public transport modes (e.g. metro, bus, rail, light rail, etc.) across the world over recent months, focussing on demand decline, stabilisation and recovery. Data about ridership in relation to first COVID-19 cases, lockdowns, service changes and other contextual factors provide insight into how customers and operators are responding to this crisis.

The TSC will continue to document and record the periods of demand response and recovery throughout the crisis. The experience from places that are 'ahead of the curve' continues to provide valuable insight to those operators planning for future operational and financial scenarios.

Demand data shows that most cities have now started to recover from the point of lowest transport demand. This section explores the ongoing changes in travel demand across cities in relation to the following major events:

- The date when the first case of Coronavirus COVID-19 was detected in the city (or region)
- The date when the first Coronavirus COVID-19 related death occurred in the city (or region)
- The date of peak daily Coronavirus COVID-19 cases in a city (or region)
- The date of peak daily Coronavirus COVID-19 deaths in a city (or region)
- The dates when lockdown measures and/or states of emergency were declared
- The dates when lockdown measures and/or states of emergency began to be lifted

While mandatory restrictions on citizen movement are generally expected to have had the greatest impact on demand, infection rates (i.e. whether the peak is over or not) will also be a key contextual factor in the analysis, as cities (and countries) begin to recover from the outbreak. This analysis includes data about both imposed restrictions and peak daily COVID-19 deaths and cases to explore

the relationship between restrictions, the nature of the outbreak and public transport demand. However, it should be noted that this analysis can only demonstrate correlation, and cannot be used to speculate on causation between these variables.

2.2. Data Sources

The following sources were used to collect the demand data:

- Benchmarking group website forum responses to Coronavirus COVID-19 related questions and other information provided by members to the TSC
- Organisations' own websites
- Transit app data: https://transitapp.com/coronavirus

The Transit app provides a dataset of demand reduction (in percentages) for mainly American organisations, but also for some in Europe and Australia, including metros, buses, light rail, and railways. The dataset includes daily demand reduction rates (%) from 15th February 2020 until 12th June 2020. The % change is measured by comparing demand with the previous year, adjusted for annual growth prior to the pandemic[2]. A list of operators which are members of a TSC benchmarking group, and for which demand data is available in this dataset can be found in Appendix C.

The following sources were used to collect data about COVID-19 cases and deaths over time in each city/region:

- Johns Hopkins University COVID-19 Case Tracker[3]
- New York Times COVID-19 data for Cities/regions[4]
- Regional and National Government Public Health Websites

Details about the start and easing of lockdown measures are collected through government webpages, official public health division/information webpages as well as news articles.

How does the severity of the outbreak affect travel demand?

- All member organisations confirmed the first cases of COVID-19 in their cities between early January and late March 2020 as the virus spread from Asia to North America, Europe and later to South America and Africa.
- The total number of cases in a city has no direct effect on the extent of travel demand declines. While the rate of COVID-19 cases and deaths varies widely from city to city, the majority of metro systems saw declines of over 80% in demand, while buses and LRT systems saw smaller declines.
- The order in which travel demand declines in relation to peak infection rates also varies from city to city, however, maximum falls in travel demand are commonly seen only after lockdown restrictions are imposed.
- It is likely that lockdown restrictions and exported fear of the virus contribute more to the decline profiles seen than the absolute infection rate in a city.

[2] The demand reduction (%) is measured by comparing the current demand with the same day of the week one year ago, averaged over three weeks and corrected for yearly growth for the corresponding organisation, region, or country. For example; the normal value for Tuesday 31st March 2020, is based on activity from 26th March, 2nd April, and 9th April 2019, all Tuesdays. Activity from these three days is then averaged and adjusted for year-over-year patterns.

[3] https://coronavirus.jhu.edu/

[4] https://www.nytimes.com/interactive/2020/world/coronavirus-maps.html

2.3. First Coronavirus COVID-19 Cases

Figure 1 shows the timeline of the first Coronavirus COVID-19 cases across 78 cities participating in the TSC benchmarking groups. After the initial outbreak in Wuhan, China, the first cases started to appear in Asian cities such as Bangkok (8th January) and Shenzhen (10th January). Seattle (North America) also had one of the earliest confirmed cases (19th January). From February, when most Asian cities had already experienced their first cases, the number of European and American cities reporting first cases rapidly increased. By late March, all cities in the benchmarking groups had confirmed cases of Coronavirus COVID-19.

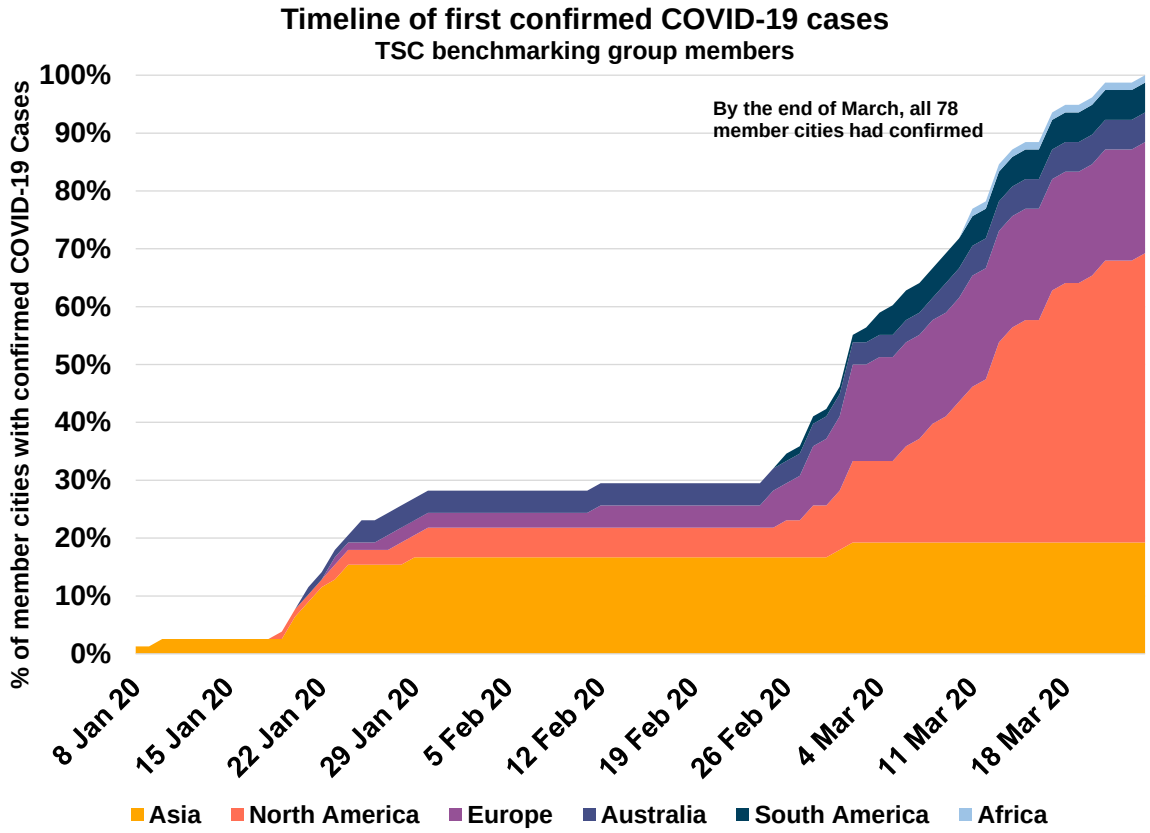


Figure 1: TSC benchmarking group member cities experiencing first cases of Coronavirus COVID-19 over time.

2.4. Total Coronavirus COVID-19 cases and deaths

However, since their first cases, cities and regions have experienced very different rates of infection. Figure 2 shows the variation in COVID-19 cases and deaths across a number of TSC benchmarking group member cities and regions. The number of confirmed COVID-19 cases and deaths to date has been normalised by population size to give an indication of the rate of infection.

Despite being the first cities to experience the virus, Asian cities have generally had very low rates of cases/deaths compared to the population. Outbreaks have been much more severe in European and American cities. However, it is difficult to compare the rate of infection across cities because the number of confirmed cases verses deaths that are reported vary significantly according to regional testing levels and reporting processes.

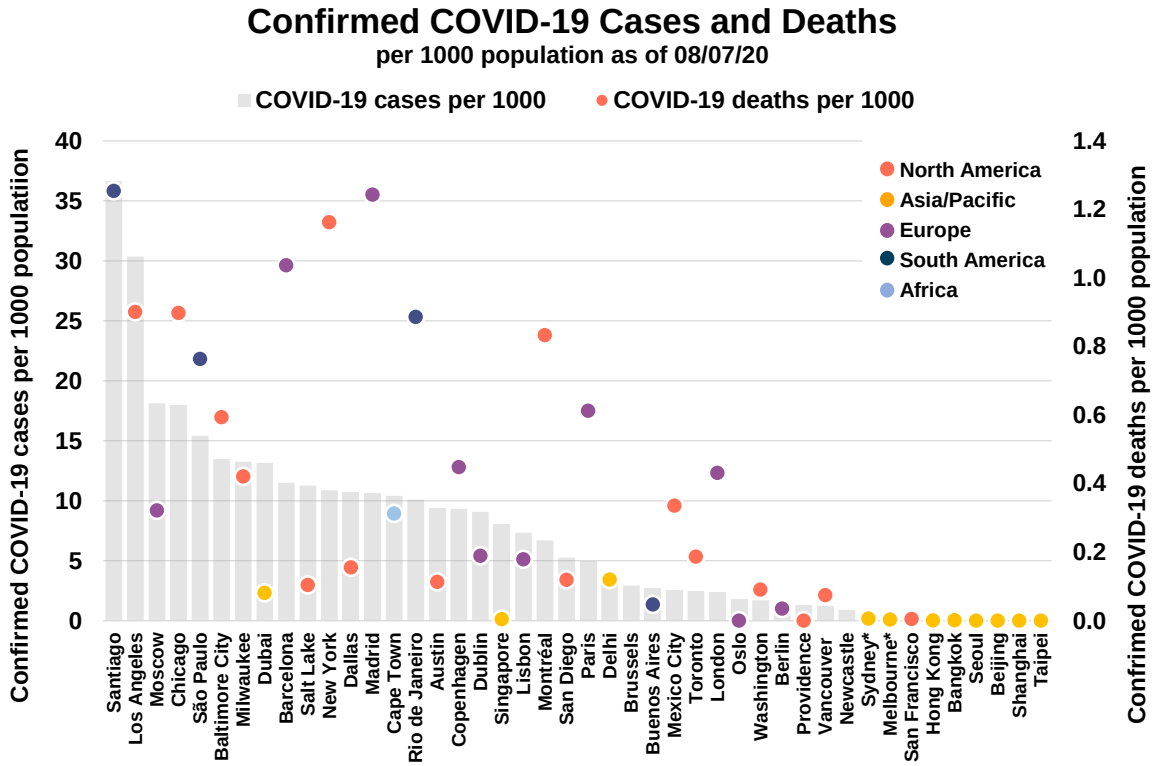


Figure 2: Rate of confirmed COVID-19 cases and deaths in selection of TSC benchmarking group member cities/regions

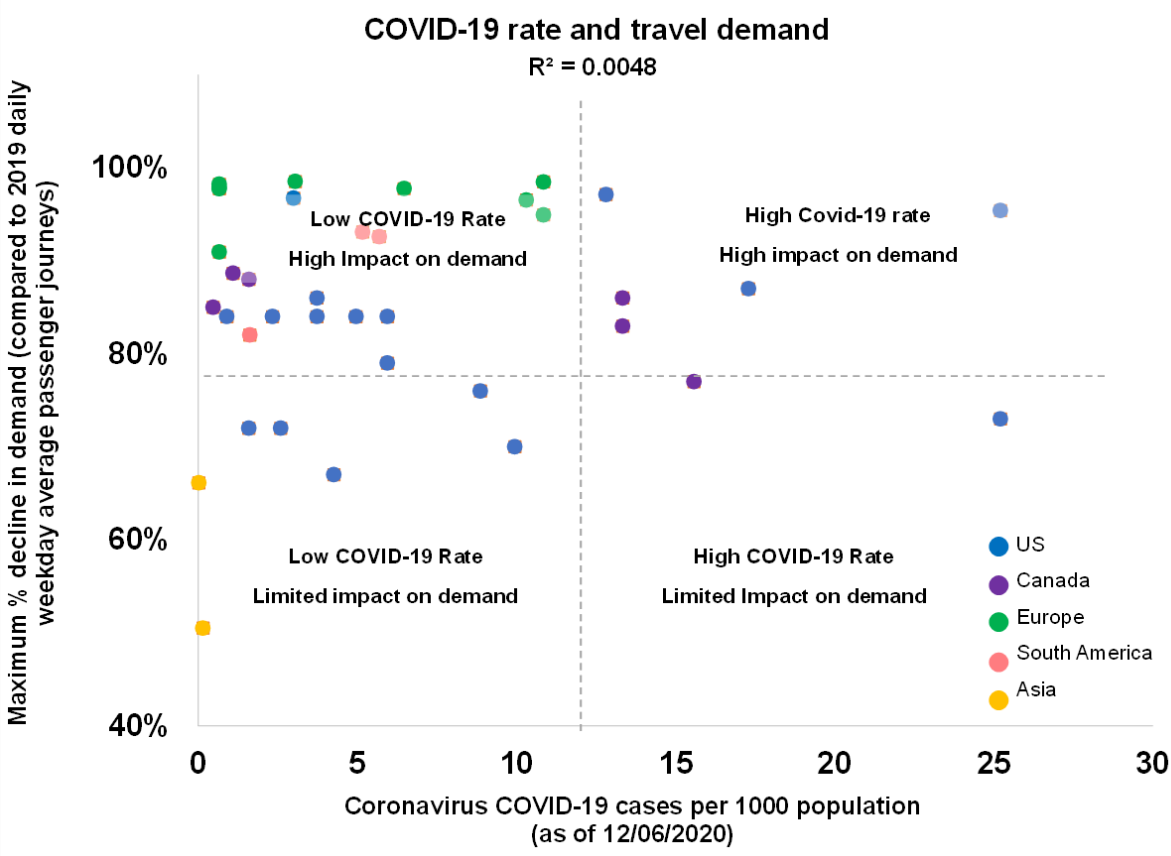


Figure 3: COVID-19 rate and impact on travel demand

2.5. Demand relative to the rate of infection

It might be expected that the extent of **travel demand declines depends on the severity of the outbreak in a particular city**. However, Figure 3 shows that the travel demand response has no direct correlation to the severity of the pandemic in a group of member cities. The majority of transport operators experienced severe reductions in demand (reaching a low point of <25% of pre-COVID-19 demand), regardless of the overall number of cases in the city. It is likely that both fear of the virus, reports of concentrated outbreaks and lockdown restrictions are more significant determinants of travel demand trajectories than the cumulative number of COVID-19 cases.

Figure 4 shows demand for a metro relative to peak daily COVID-19 deaths and peak daily COVID-19 cases. In this city, travel demand fell well before daily cases and deaths peaked at around day 50. Travel demand remains low despite small numbers of new COVID-19 cases in the city.

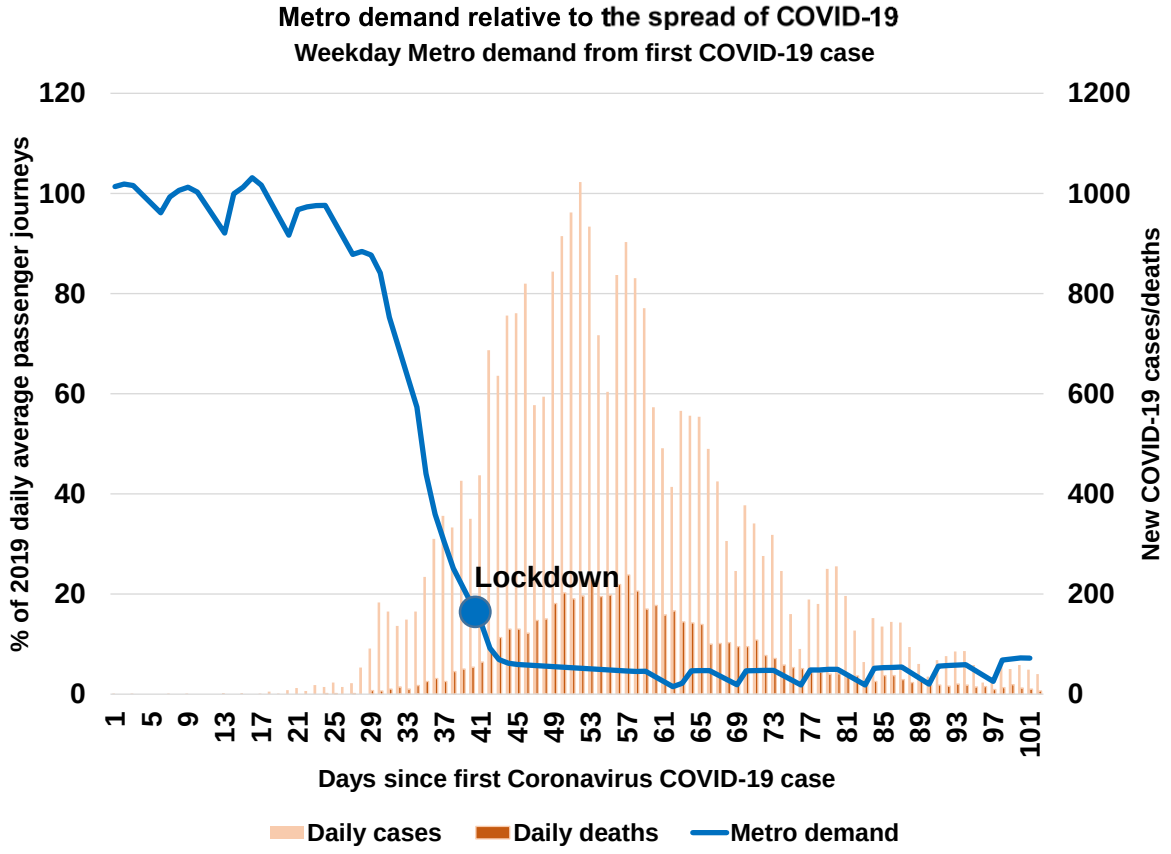


Figure 4: Demand profile for a metro relative to peak infection rate

Figure 5 shows a similar demand profile for a second metro system. From this graph it can be seen that the early decline in demand following the first case announcement (Day 1-6) significantly preceded the peak infection rate (Day 70). Although this data only tells us about correlations rather than causality, it can be postulated whether the growth in new COVID-19 cases from day 50 is likely to have spurred the second fall in demand as restrictions aimed to limit the spread of this new outbreak.

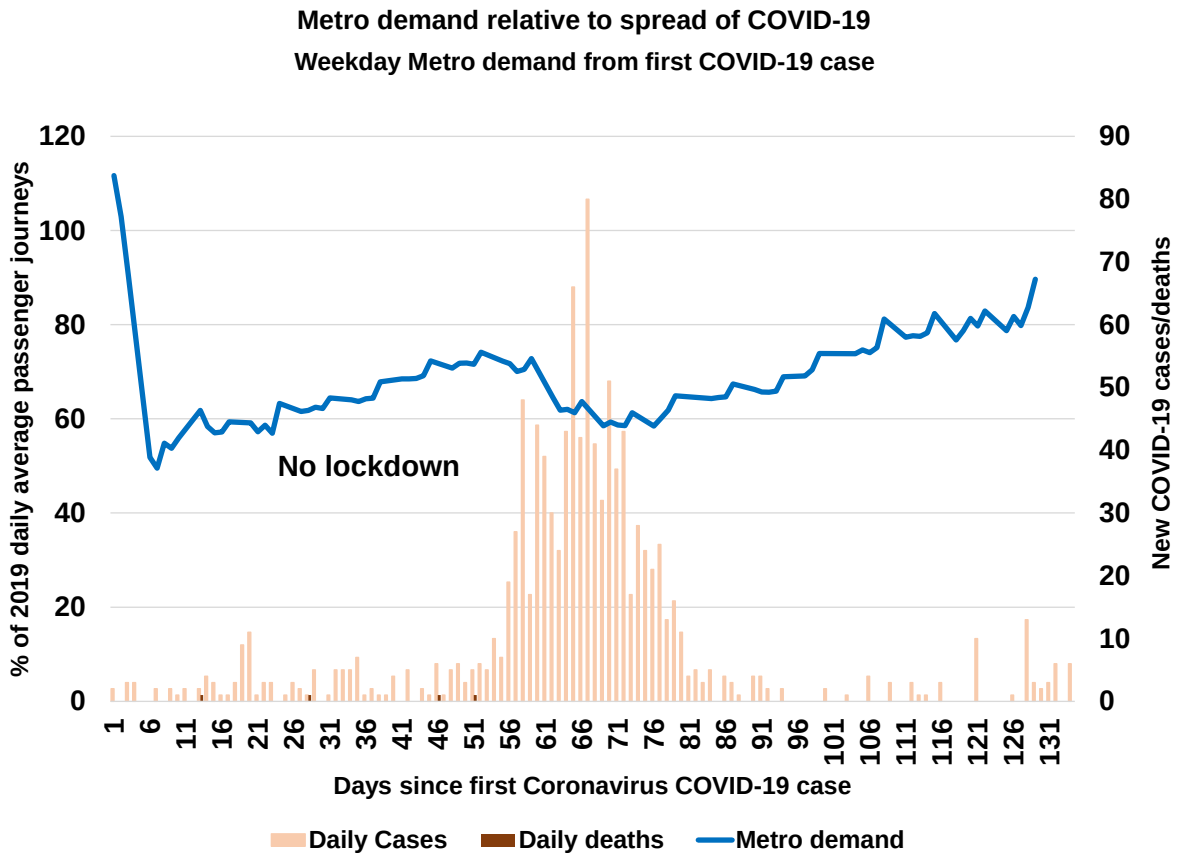


Figure 5: Demand profile for a second metro relative to peak infection rate

These examples show that the order in which travel demand declines and peak infection rates occur varies across cities and transport systems. Figure 6 shows when lockdown was introduced relative to peak daily COVID-19 cases and the point of lowest travel demand across a number of transport systems. Data points refer to the number of days since the first Coronavirus COVID-19 case in each city/region.

It is difficult to statistically verify any causality as lockdowns influence both the prevalence of the virus and travel demand simultaneously. In all but one North American city, the introduction of lockdown occurred prior to the peak infection (peak daily cases) and maximum fall in travel demand (lowest daily travel demand). In cities with no lockdown (Asian Metro 1 and Asian Metro 2 in Figure 6), ridership reached its lowest point significantly before the infection rate peaked suggesting that fear of the virus influenced travel demand more than actual infection rate.

On average, travel demand fell to its lowest point 51 days after a city's first COVID-19 case. This is an average of two and a half weeks before peak daily cases were recorded (Day 70). Many systems in Asia and South America saw ridership fall to its lowest point before the daily number of new COVID-19 cases peaked in the city. However other systems reached peak daily cases before travel demand had fallen to its lowest point, suggesting that people were still using public transport while infection rates were high. For example, North American Bus 3 in Figure 6 introduced a lockdown 20 days after the first case was confirmed. They then reached peak daily cases at day 38, but bus demand was still falling until day 95.

This variation suggests that mandatory lockdown restrictions on travel and fear of public transport were not always direct responses of peak infection rates, and they may have been influenced by what is happening in other cities, as well as many political factors.

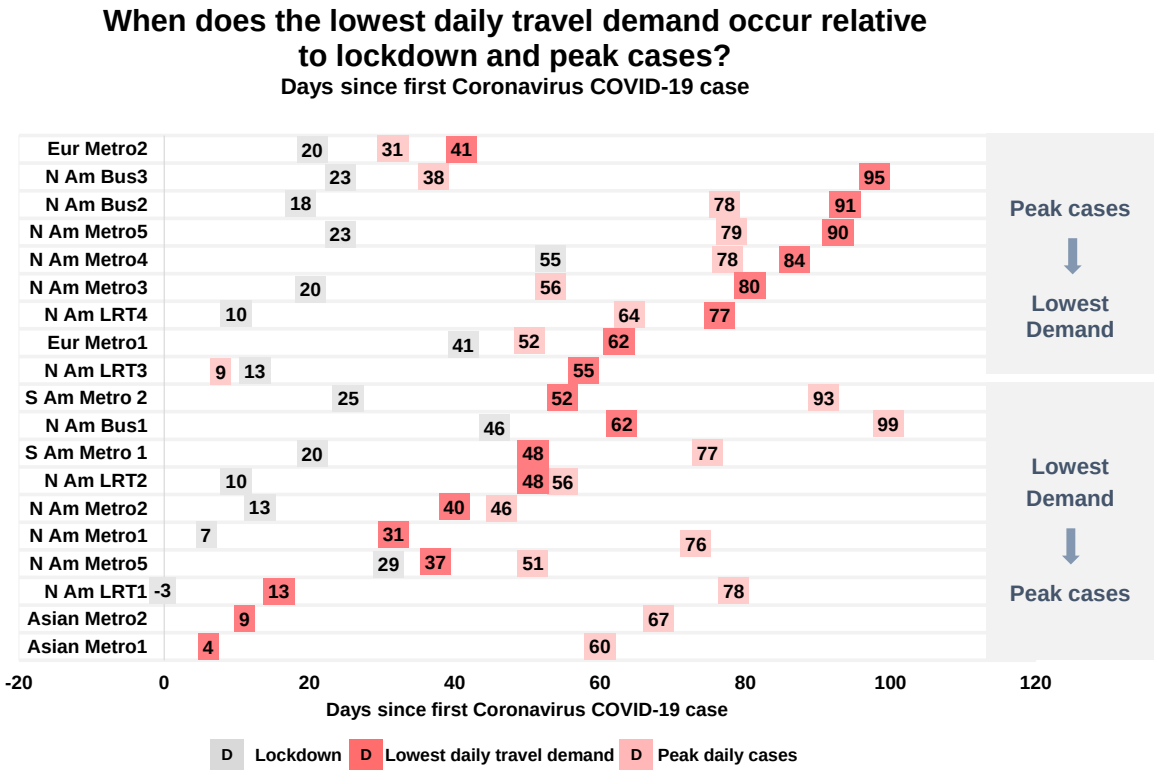


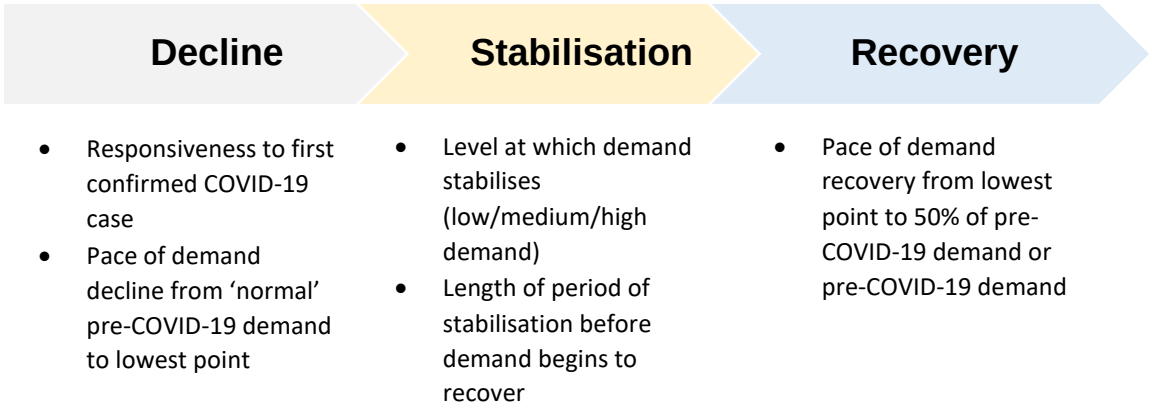
Figure 6: Lowest daily travel demand relative to peak COVID-19 deaths and cases across a number of Metro, Bus and Rail operators

2.6. Demand Trajectories

How do demand trends differ?

- All transport operators have seen transport demand (**(a) decline, (b) stabilise** and many are now beginning to see demand **(c) recover.**
- The pace, extent and duration of each of these phases differs across modes and regions, but a number of common demand patterns can be seen in response to the pandemic.
- These patterns can be grouped into **5 travel demand typologies (A1-D)** depending on the responsiveness of travel demand to the first case, the pace and extent of demand decline, the duration of stable low demand, and subsequent pace of recovery.
- It is useful to consider the demand trajectories of those cities that are 'ahead of the curve' as lockdowns begin to ease, and demand begins to recover. These demand curves might also repeat and continue to fluctuate should future waves of the virus occur.

All cities saw public transport demand fell over the course of the pandemic. Demand trajectories tend to consist of a period of decline, followed by a period of stabilisation and then recovery. The following section explores the timing and speed of each of these stages across member cities in relation to the first confirmed COVID-19 case.



2.6.1. Decline

The **responsiveness of demand to the first confirmed COVID-19 case** varies across cities. In general, the impact on demand occurs later in cities where the first Coronavirus COVID-19 case was detected earlier (e.g. January). Whereas in cities where the first case was reported more recently, rapid decreases in demand can be seen. This may be because in these cities, individuals were already aware of COVID-19, its spread and health impacts, and decided to change their behaviour earlier. Cities with a more immediate decline in demand typically implemented lockdowns closer to the announcement of the first case. Figure 7 shows the travel demand decline trends of a number of metro, bus, light rail and rail operators that have provided daily demand data. It can be seen that most operators saw demand start to decline from day 1- the day the first COVID-19 case was confirmed in the city. However, some operators- primarily Asian operators- didn't see demand start to fall until day 55, 8 weeks after the first case was confirmed.

There is also variation in the **steepness of the decline trend.** Many European and South American operators saw very sharp declines over the course of just 7-14 days. For example, one European metro operator saw demand fall from 99% to 6% of pre-COVID 19 demand over 8 days following the introduction of lockdown restrictions. As would be expected, cities with high infection rates and strict

lockdowns saw the sharpest declines in travel demand. In contrast, demand fell steadily from 101% to its lowest point at 25% over a period of 54 days in one American metro system. It is also notable that the first 5% decline in demand tends to happen quite slowly- this could reflect early behaviour change among a small group of the most vulnerable or elderly passengers before the rest of the population.

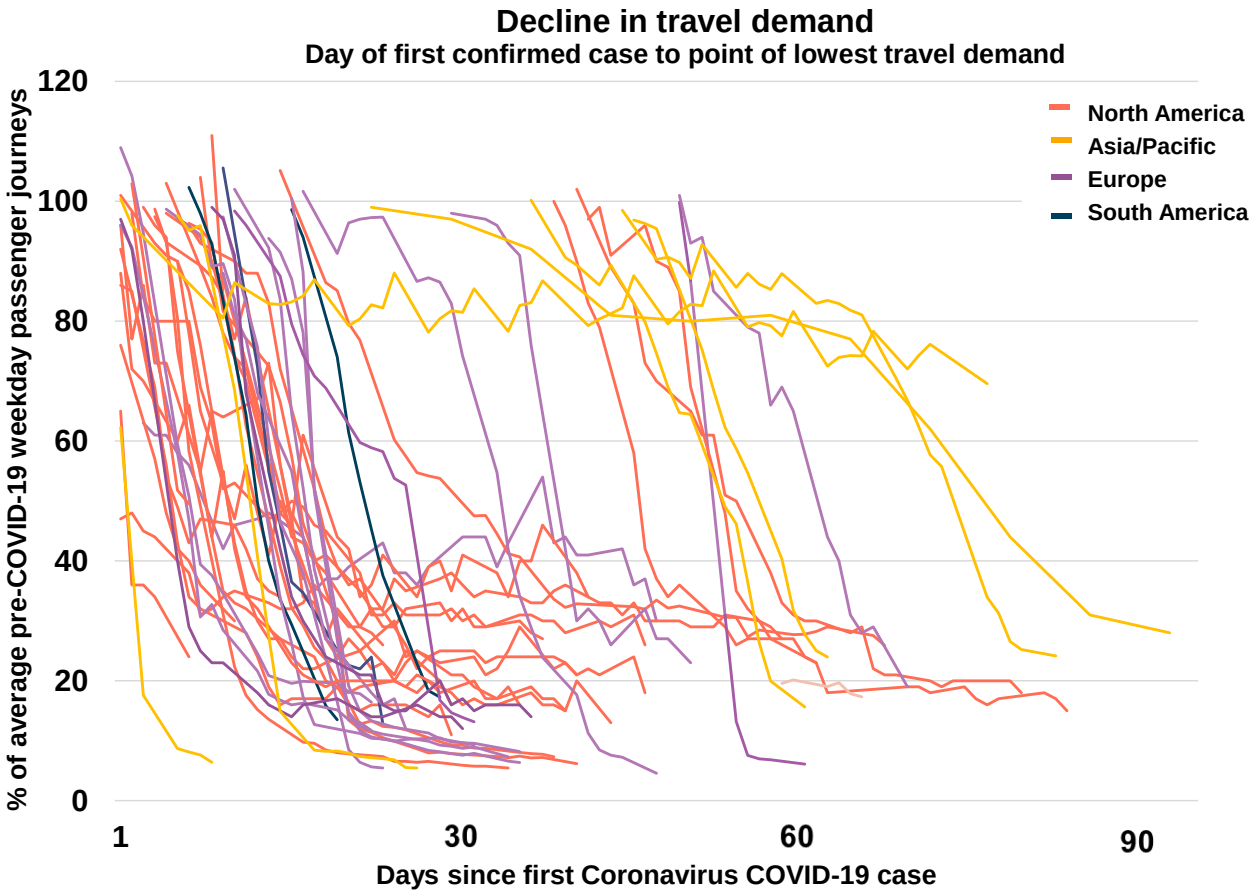


Figure 7: Demand reduction trends following the first confirmed COVID-19 case

Some operators have already seen **multiple periods of demand decline** as new virus clusters emerge, separated by periods of stable or recovering demand. Figure 8 shows one example of a South American metro system that has seen two separate waves of demand decline. Demand initially started to decline 10 days after the first COVID-19 case was confirmed and reached 17% of pre-COVID-19 demand by day 30. Demand recovered gradually over the subsequent month to 25%, before falling again to a new low of 15% on day 86. These declines suggest that the pace of future demand declines could also vary significantly if there are 'second waves' of virus contagion over the coming months.

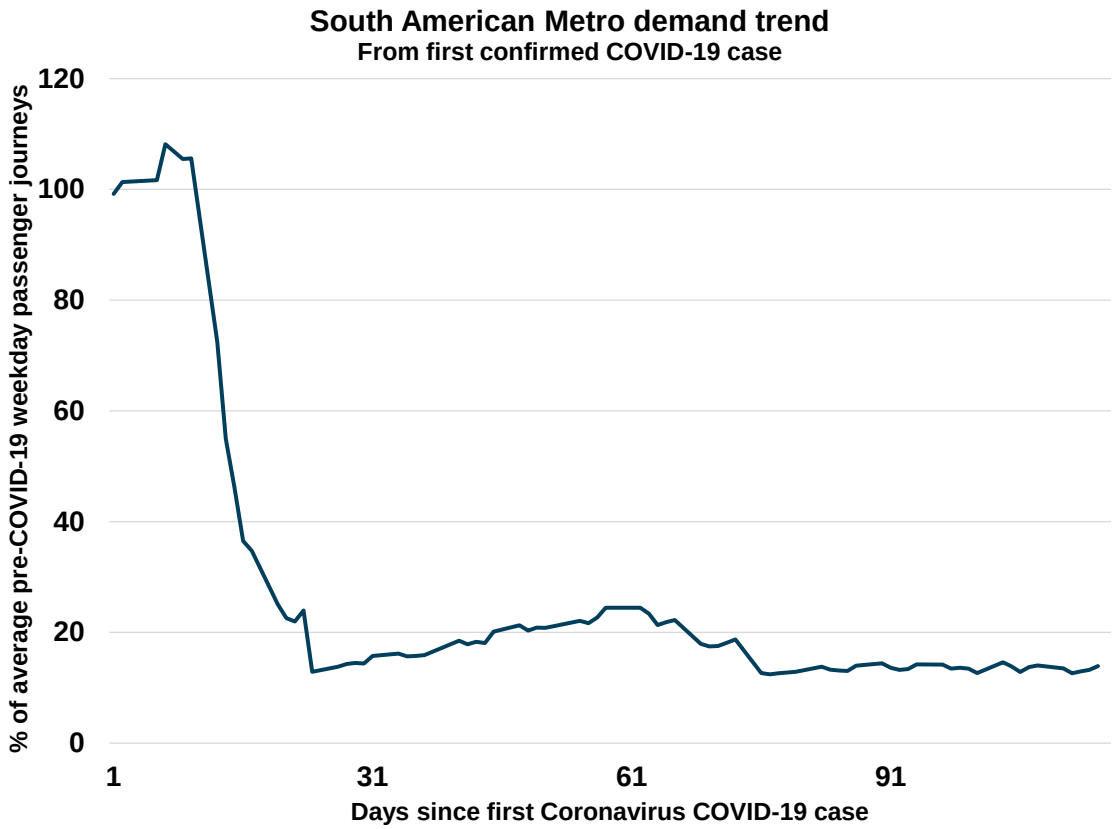


Figure 8: Demand reduction trend for a South American Metro experiencing two separate declines in demand

2.6.2. Stabilisation

Once demand had fallen, it typically stabilised at a low level of ridership. Figure 9 shows the stabilisation phase of a number of TSC benchmarking group members. The duration of this period of stable, low travel demand varied from just 5 days in the case of some Asian metro operators to over 100 days in the case of one US metro, where demand is still lingering at around 11%. Typically, those operators experiencing the greatest falls in demand also experience the longest periods of stabilisation at these low levels, while operators that saw smaller falls in demand typically recover more quickly.

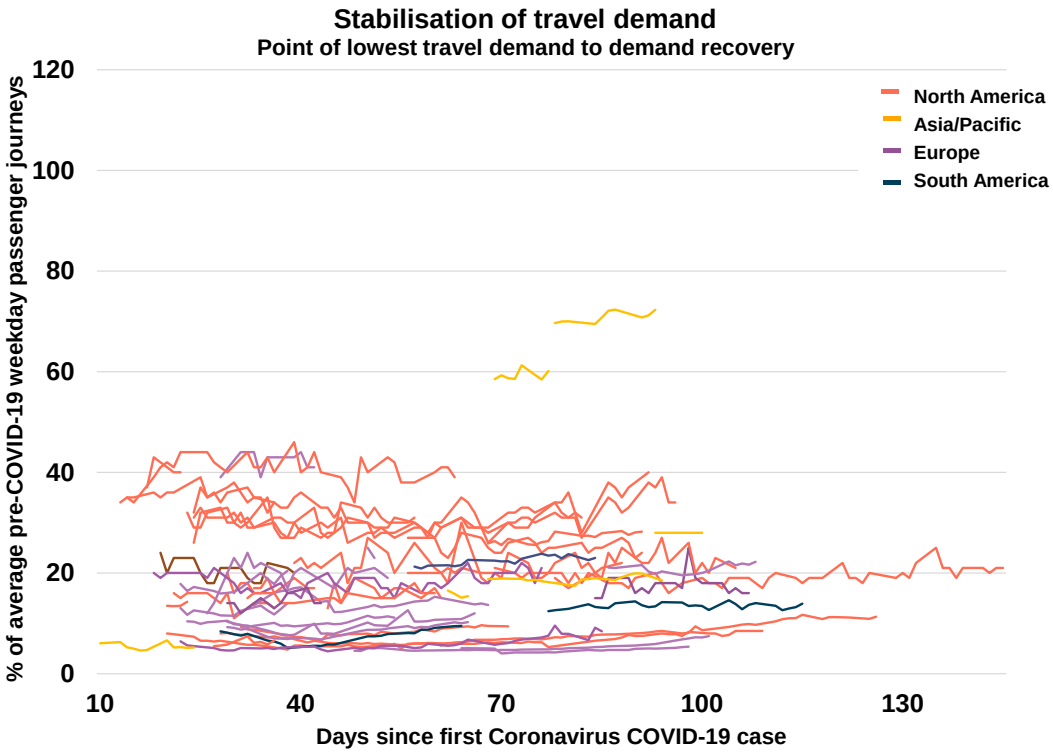


Figure 9: Demand stabilisation trends following the first confirmed COVID-19 case

The level at which demand stabilises varies significantly. Figure 10 shows the maximum declines in demand for a selection of bus, metro and American light rail transit (LRT) organisations which are members of the TSC-facilitated benchmarking groups. This graph shows the peak percentage decline in travel demand as a result of COVID-19 across modes, based on the lowest recorded ridership figures over recent months. Generally, it can be seen that metros experienced bigger declines in travel demand than buses, with some reaching just 4% of pre-COVID-19 weekday ridership at their lowest point.

There is also significant variation by region (Figure 11). European systems generally saw the largest falls in ridership at the lowest point. The ways in which demand changes over the course of the pandemic is explored in the following sections, together with analysis of some of the other factors that are likely to be contributing to the differences observed in Figure 10 and 11.

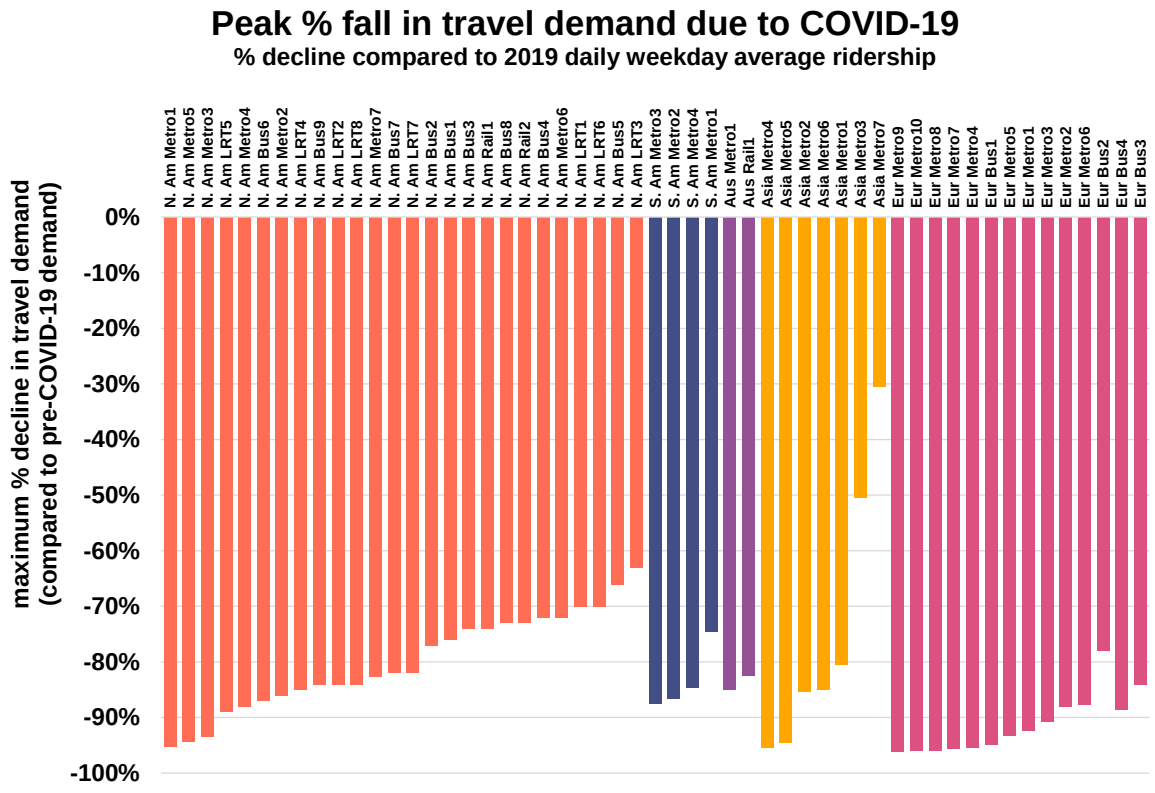


Figure 10: Peak percentage decline in LRT, Metro and Rail ridership caused by Coronavirus COVID-19

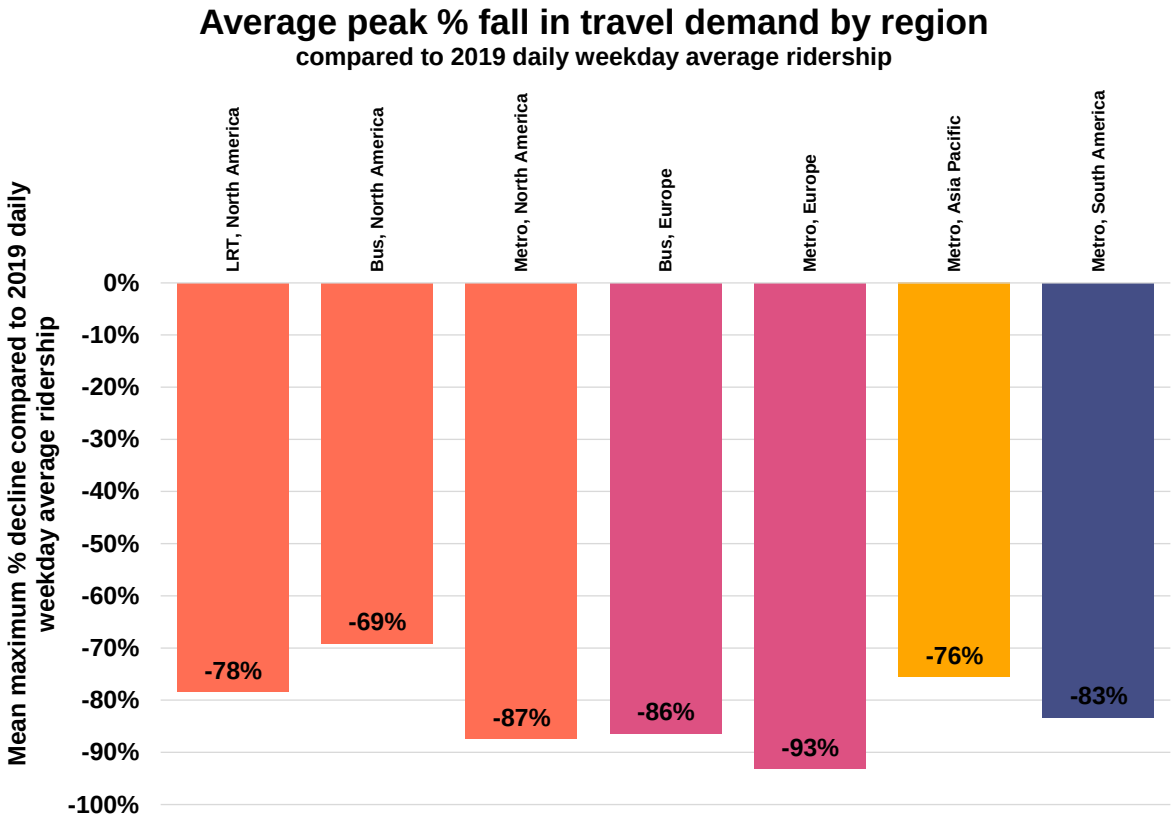


Figure 11: Peak percentage decline in LRT, Metro and Rail ridership by region

2.6.3. Recovery

As lockdowns continue to ease, passenger demand is now starting to recover in many cities. some operators have even introduced marketing and fares campaigns to regain their lost demand.

Figure 12 shows all 15 operators where demand has recovered to 50% of pre-pandemic levels. Some of these operators suffered declines of over 80% at their lowest levels of demand. Operators have recovered at different rates, with some recovering in just 30 days, and others taking over 5 months to return to 50% of pre-COVID-19 demand. Many other operators continue to see very low ridership months after demand hit its lowest point, despite the easing of lockdown restrictions.

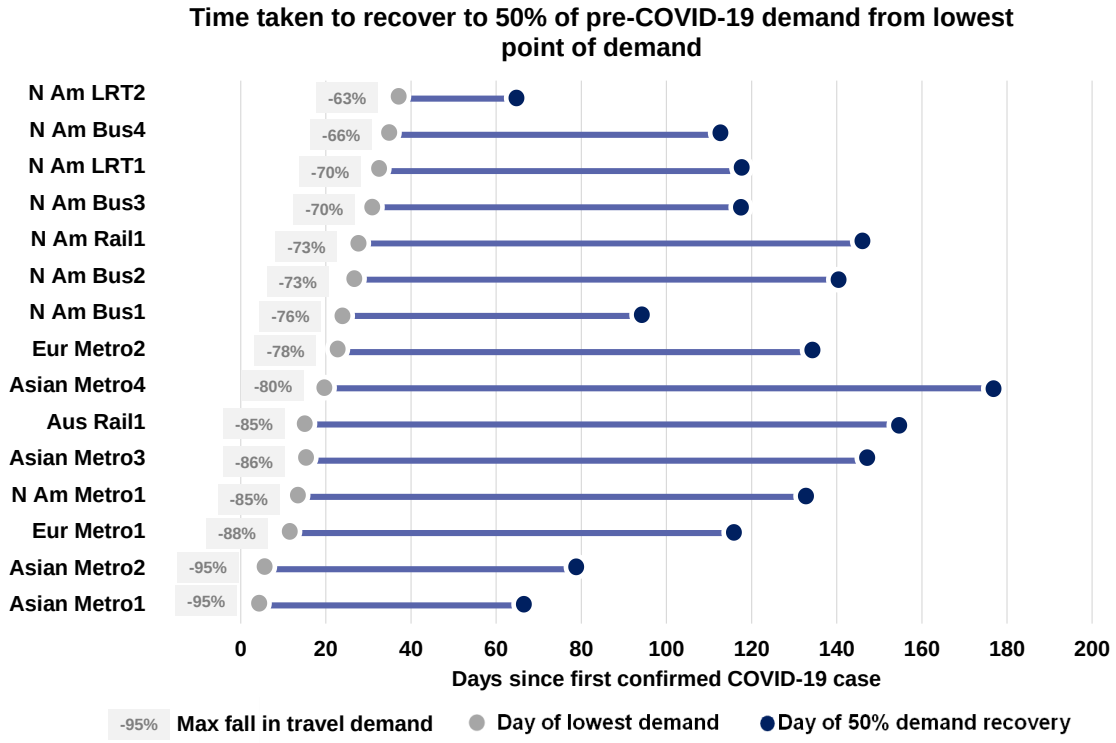


Figure 12: Timeline of recovery to 50% of pre-COVID-19 demand from day of lowest demand

2.6.4. Demand typologies

Looking at the decline, stabilisation and recovery stages together, travel demand trends can be grouped into five main typologies A1-D (Figure 13). These demand typologies show how travel demand trajectories vary depending on the speed with which public transport demand responded to the first confirmed COVID-19 case, the pace and severity of demand decline and the subsequent stabilisation and recovery of demand (Table 1).

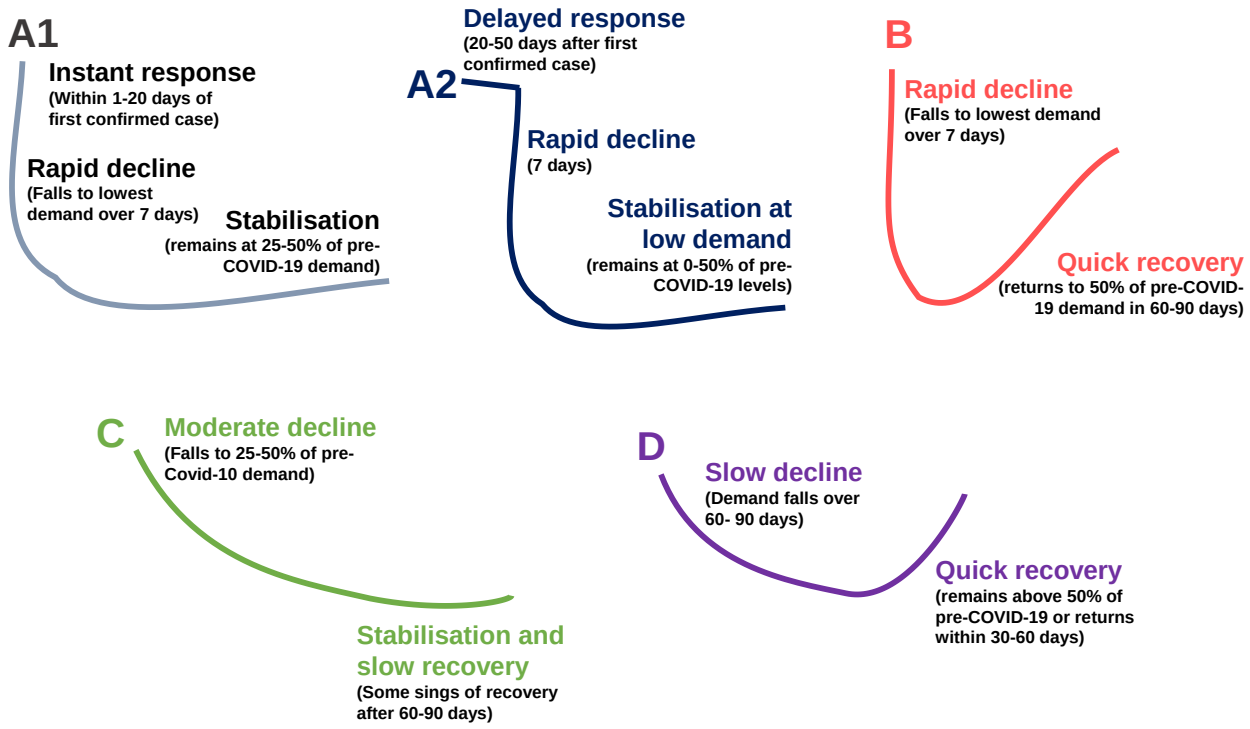


Figure 13: Demand Trajectory Typologies A1 -D

Table 1: Key features of five demand typologies

	Response to first case	Decline	Lowest demand	Recovery	Examples
A1	Instant (1-20 days after first confirmed case)	Rapid (7 days)	Medium/ Low (0-50%)	Long stabilisation (90 days+)	• Large cities with early confirmed cases and delayed lockdowns
A2	Delayed (20-50 days after first confirmed case)	Rapid (7 days)	Medium/ Low (0-50%)	Long stabilisation (90 days+)	• North and South American Cities. • Metros tend to reach lower demand levels than Buses and LRTs
B	Instant or delayed	Rapid (7 days)	Low (0-25%)	Quick recovery (recovery to 50% demand in 60-90 days)	• Large Asian and European Metros. • Cities with earlier, shorter lockdowns
C	Instant (up to 10 days after first case)	Moderate (30-60 days)	Medium (25-50%)	Slow recovery (60-90 days)	• Bus and LRT systems in smaller US cities. • Cities with later first confirmed cases
D	Delayed	Slow (60-90 days)	Medium (25-55%)	Quick recovery	• Asian Metros with fewer, earlier confirmed cases.

These five demand typologies are explored in more detail below (Figures 14-18). For each typology, the first data point on the graph is the date of the first detected Coronavirus case in the city/country ('Day 1'). The data series is the percentage (%) of normal weekday demand that was observed each day since the first case[5] (i.e. demand is indexed to a normal weekday demand = 100%). Weekends are excluded to better observe the impact on weekdays and avoid fluctuations.

Figure 14 shows operators who can be classified as **Typology A1** which is characterised by a steep decline in travel demand immediately following the announcement of the first COVID-19 case in the city/region. This is often combined with a quick introduction of lockdown restrictions (commonly within 25 days of the first case). Following this decline, demand tends to stabilise at around 5-25% of the pre-COVID-19 level.

[5] The advantage of showing demand reductions this way is that it is double normalised, providing better comparability, as well as ensuring confidentiality. Level of demand is reported as a % of that member's "normal" demand instead of absolute figures, and date of first case is reported as days since first case (Day 1, Day 2, Day 3, etc.) rather than using calendar dates.

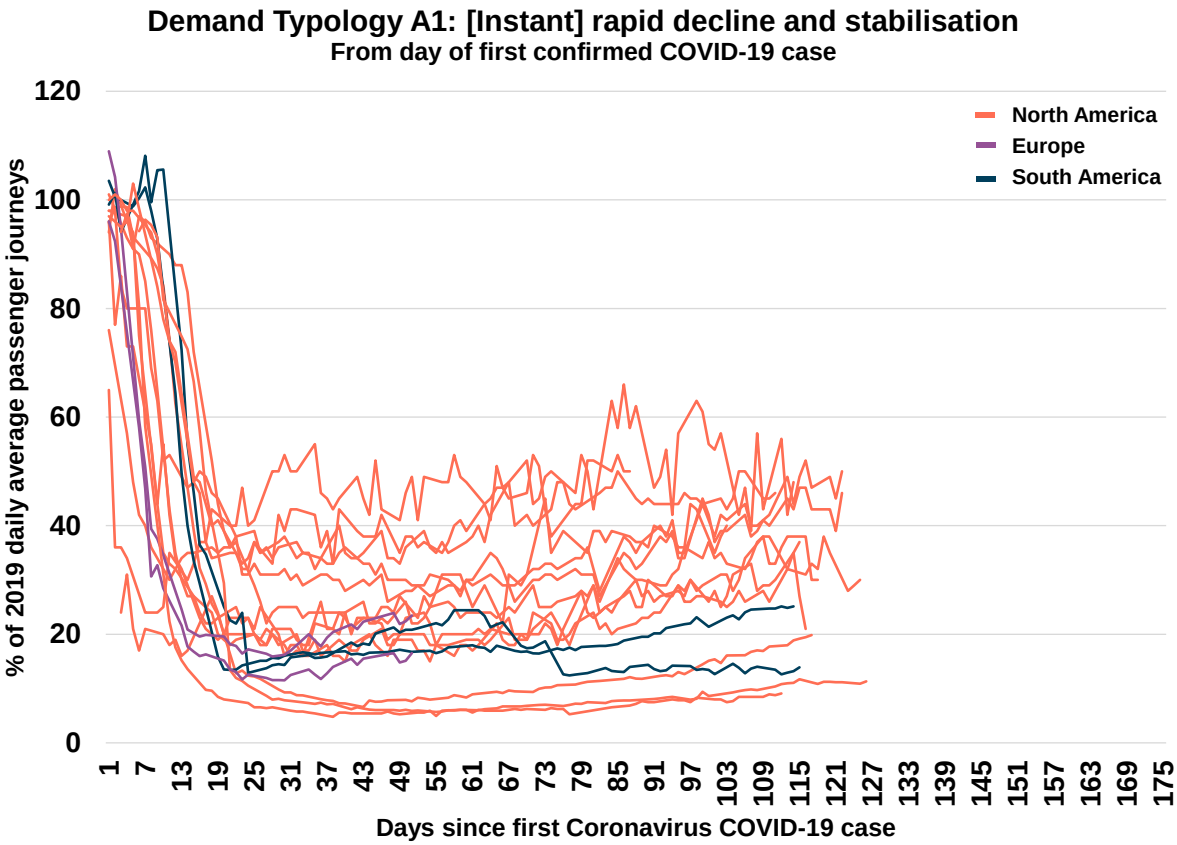


Figure 14: Demand Trajectory Typology A1

Typology A2 (Figure 15) shows a similar demand profile, but with a lag between the announcement of the first case and the rapid decline in travel demand. The operators in Figure 14 typically experienced stable or slightly reduced demand for the 30-40 days following the announcement of the first COVID-19 case in their cities before rapid demand declines spurred by lockdown restrictions. These operators have seen some slow recovery since.

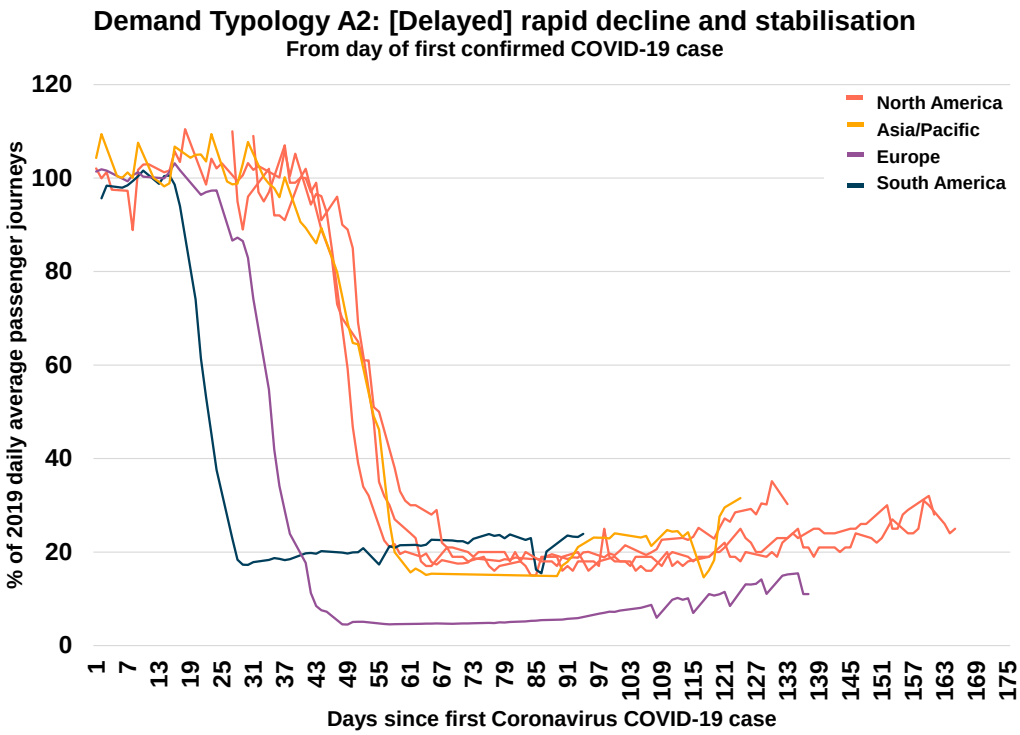


Figure 15: Demand Trajectory Typology A2

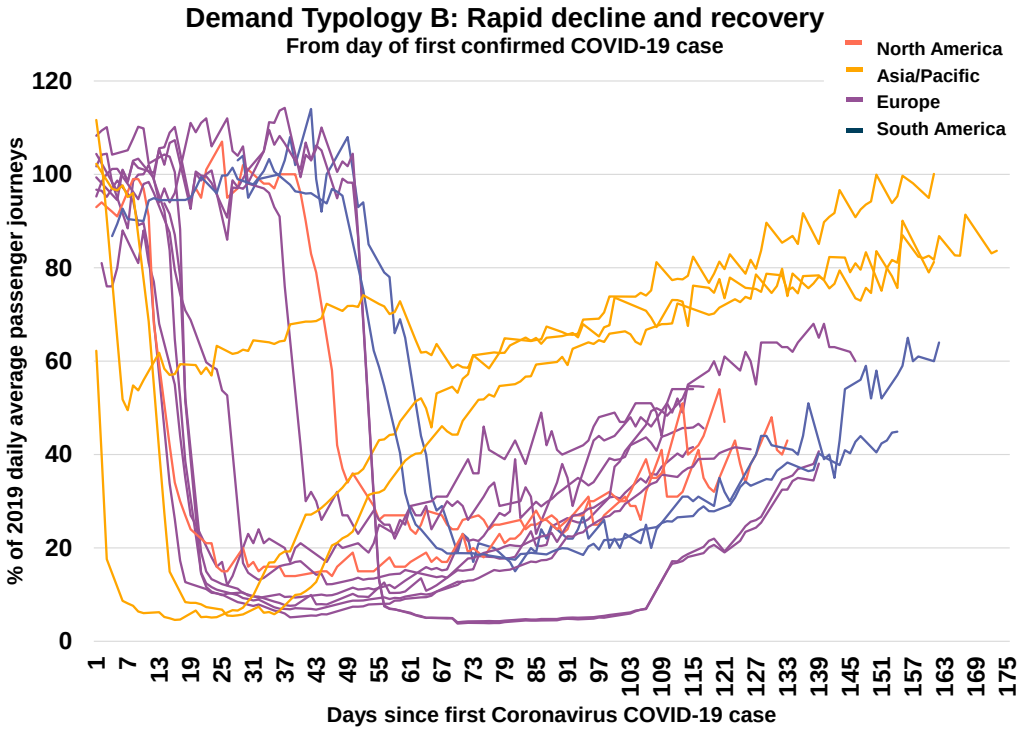


Figure 16: Demand Trajectory Typology B

Typology B, seen in Figure 16, shows organisations that experienced a similar rapid decline in demand. At some organisations, this rapid decline took place very quickly after the first COVID-19 case. Generally, those operators that experience instant decline recover more quickly than those that experience delayed decline.

However, some organisations experienced their rapid decline in demand some time after the first COVID-19 case (around 43-55 days after). Organisations categorised within Typology B all show a steady recovery in demand after this rapid decline, however, compared to Typology A2.

This pattern of demand is typically associated with low initial infection rates and more limited lockdown restrictions. Across these operators, steady recovery of demand can be seen over recent weeks, with most recovering to 50% of pre-pandemic demand within 3-6 months. It is notable that one Asian/Pacific metro system has seen two separate rapid declines and recoveries over this period (one at day 1 and a second at day 61). The same pattern could happen to other operators who recover quickly but then discover new clusters of the virus.

In contrast, **Typology C** (Figure 17) shows a more gradual decline in travel demand, which tends to start before the first local case is announced. These are generally operators in smaller cities, where in some cases lockdown restrictions have already been implemented due to outbreaks in the wider region or state. It is notable that all of these operators are within the US. This typology is also more typical for bus and LRT operators who saw smaller initial declines in travel demand- perhaps due to the lower number of discretionary trips made on these modes.

Finally, two Asian Metro operators have followed demand **Typology D** (Figure 18). This is generally characterised by slower and smaller initial declines in demand, followed by a very short period of stabilisation and a relatively fast recovery. The decline demand trends are particularly interesting as they both start slowly (loosing 20% of demand over 70 days), before speeding up. The decline period takes 90 days to the lowest point of demand, but the majority of that decline happens within the last 20 days. These cities both experienced a small number of cases very early on, and the slow initial falls in ridership may reflect the uncertainty surrounding the spread and severity of the virus at this point.

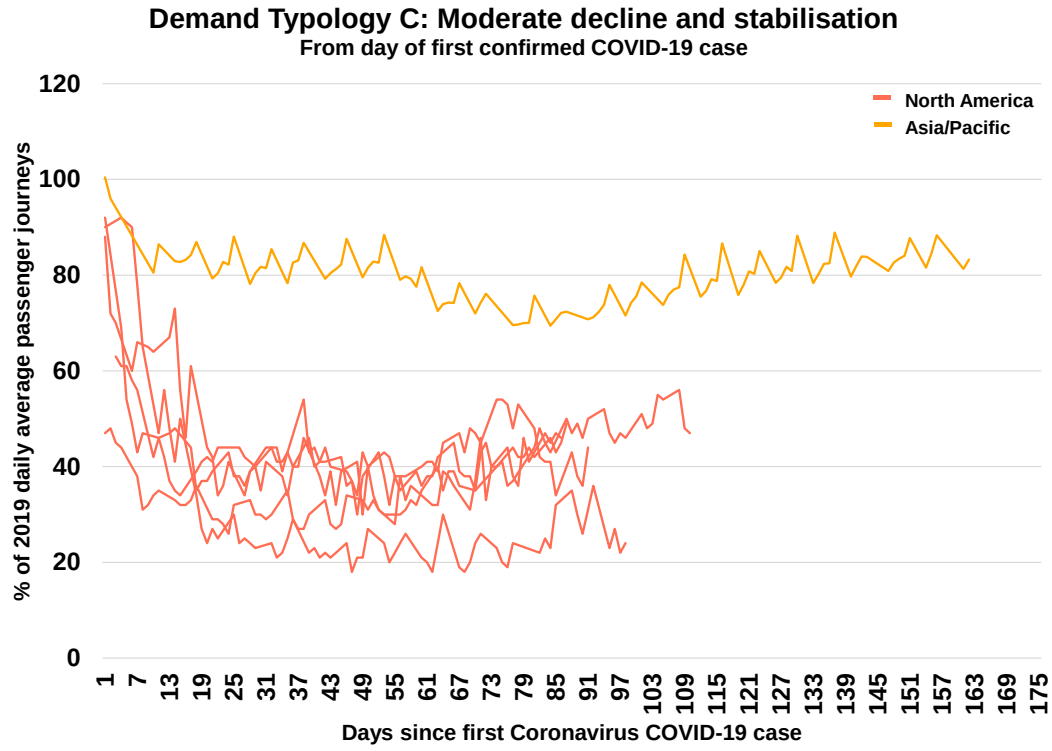


Figure 17: Demand Trajectory Typology C

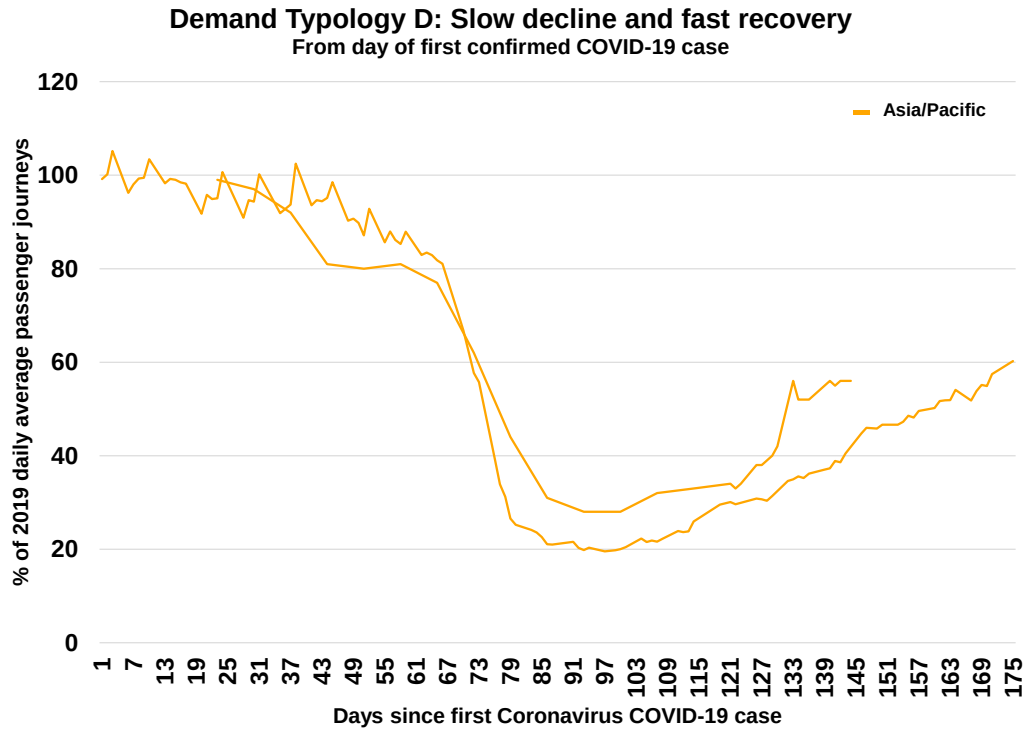


Figure 18: Demand Trajectory Typology D

2.6.5. Demand differences by mode and region

Demand reductions vary between modes (metro, bus, rail, light rail, etc.) as well as between countries and regions. Figure 19 shows the timeline of demand decline and stabilisation for a number of TSC members in relation to the first confirmed COVID-19 case. American organisations, including bus, metro and light rail operators typically show a more immediate demand fall compared to Australian and European operators, where first cases occurred much earlier. Many of these operators show the demand decline stage starting before or at 'day 1' – the first confirmed COVID-19 case. This may be due to the speed of virus transmission from the first case, learning from other cities and/or the timing of imposition of pandemic control measures.

Within American organisations, bus, metro and light rail operators show varied demand trends (Figure 20). Several factors could explain the difference between the demand decline rates among different modes:

- Metros are generally designed to serve much higher passenger densities than other modes and are generally located along the main commuting corridors in a city. Messaging about social distancing and avoiding congregations of people may have discouraged people from using metros, particularly for short trips. Buses offer an alternative which means passengers do not need to navigate station infrastructure (providing there is safe space to wait for a bus).
- Railways have also seen a dramatic decline in demand. Like metros, these are often designed as very high-density systems. Another possible explanation is that rail and metro services predominantly serve demand to/from dense agglomerations of service-sector employment activity which are more amenable to home-working.
- Bus services serve more local and non-work trips, operating as an 'essential service' to members of the community without private vehicle access (especially for ABBG members).

- Additionally, many bus organisations in the US (14 out of 24 agencies in the ABBG) have removed bus fares, making travel free and offering a potential additional incentive to use buses.
- Availability of alternative modes is also a likely driver of the residual level of demand observed by organisations. Passengers usually using a metro likely have good access to buses (in cities). However, passengers in cities without substantial rail systems are likely to retain their travel behaviour on buses if their trip is essential.

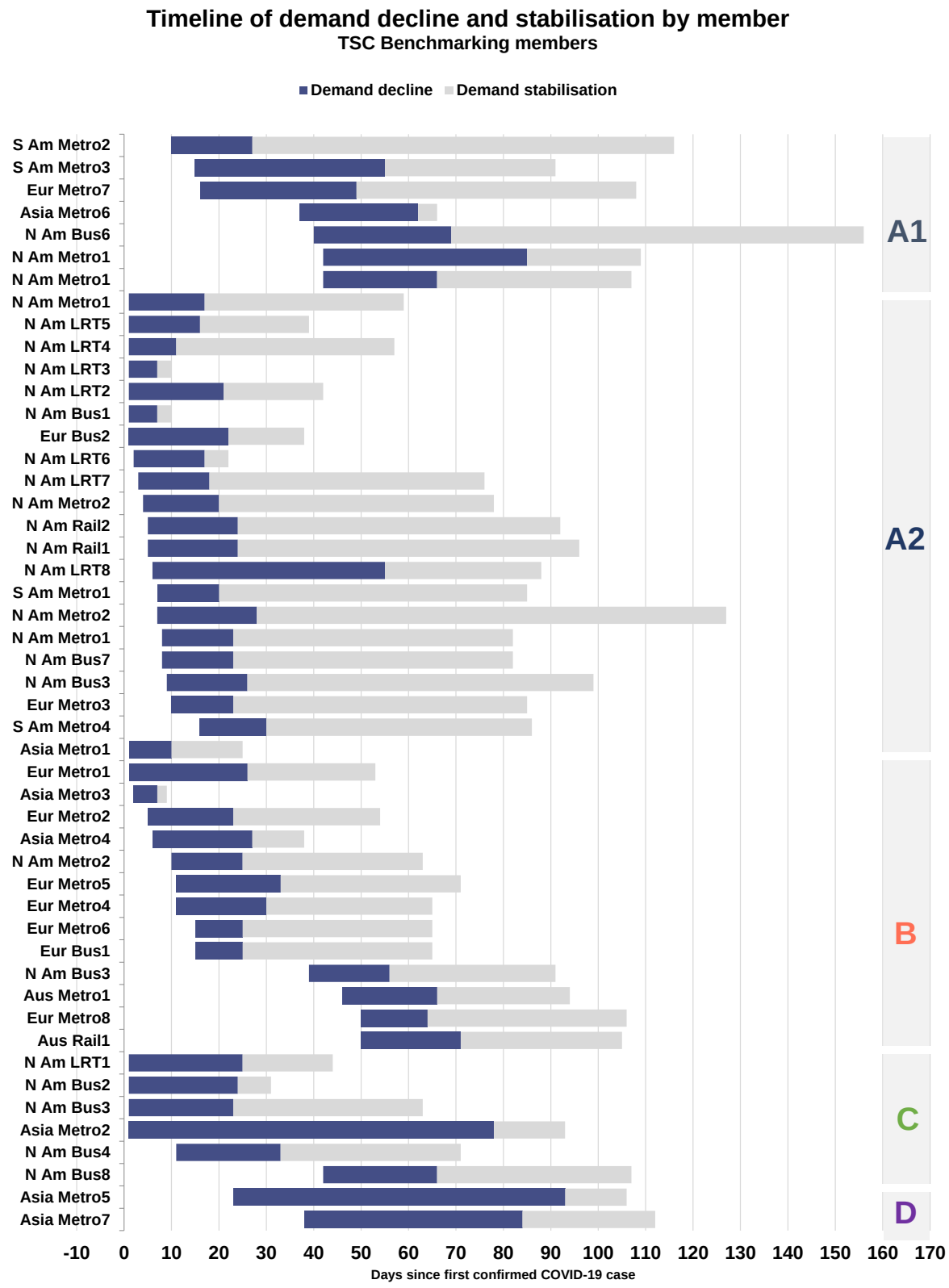


Figure 19: Timeline of demand decline and stabilisation by member

Figure 20 also shows that lockdown periods typically start much earlier after the first confirmed case in North America and in smaller cities with bus and LRT systems. In these cities, lockdown measures

preceded demand declines and stabilisation while on average, lockdown restrictions were imposed in European and South American cities after demand had already began to fall. The lockdowns almost certainly had the effect of retaining very low levels of demand for many weeks thereafter, whereas Asian cities, many of which had no official lockdown, demand stabilised and began to recover much more quickly.

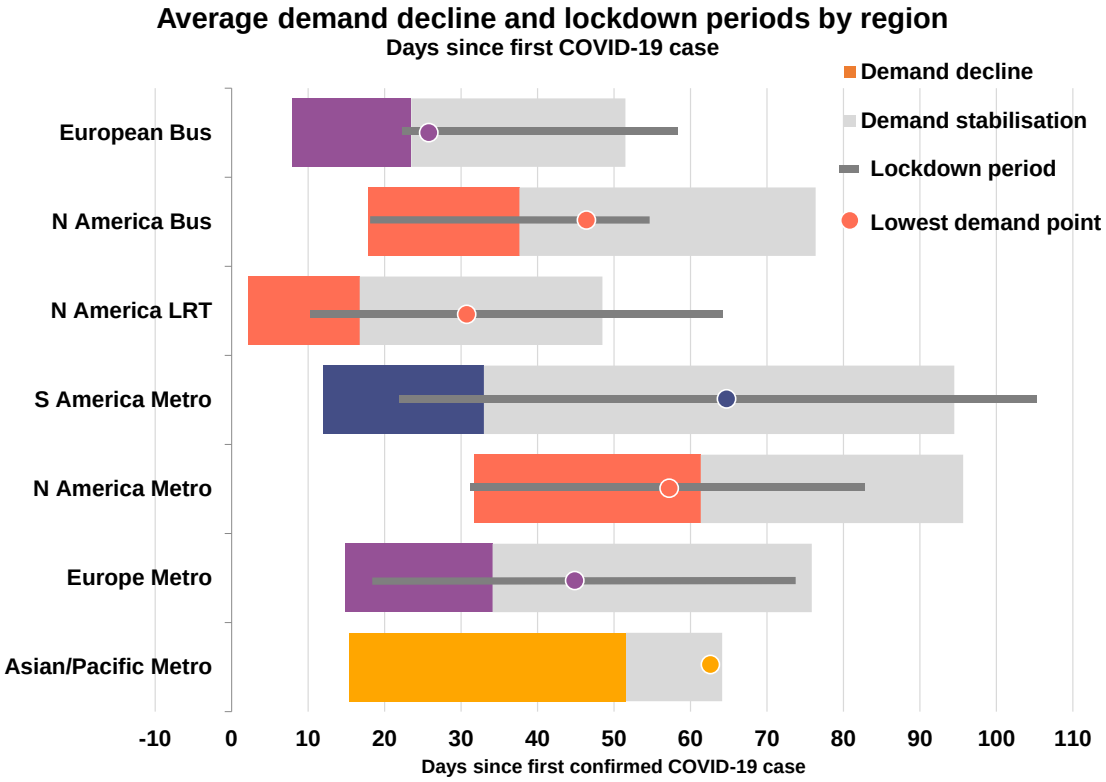


Figure 20: Timeline of demand decline and stabilisation by region

2.7. Impact of lockdown restrictions

How do lockdown restrictions impact travel demand?

- Variations of lockdown restrictions were imposed across the majority of member cities between the end of January and the end of April. By mid-April, 85% of cities were under lockdown.
- Some lockdowns were imposed pre-emptively before the first COVID-19 case was announced, while others were imposed in response to the domestic spread of the virus, and only implemented once travel demand had already started to fall.
- Most cities have now seen lockdown restrictions start to be lifted after an average of 50 days. However, some cities in South America continue to endure longer periods of lockdown as they experience later waves of the virus.
- Travel demand responded to the incremental lifting of lockdowns- but the pace of demand recovery varies significantly between cities.
- The implementation and removal of lockdown measures will continue to have a significant impact on travel demand, not only because of legal restrictions, but also because of the fear and new habits that will endure and continue to affect demand recovery.

2.7.1. Implementations of lockdowns

Around the world, countries and territories have enforced lockdowns of varying degrees to prevent further spread of the Coronavirus COVID-19 outbreak. The pandemic has resulted in the largest number of simultaneous shutdowns/lockdowns worldwide in history. By 26th March, 1.7 billion people worldwide were under some form of lockdown, increasing to 3.9 billion people at its peak during the first week of April — more than half of the world's population.

Member cities have seen varying degrees of lockdown restrictions. Some involve 'stay at home' orders where all movement is controlled, while others have enforced restrictions based on time or activities. As an overall definition, lockdowns refer to all regulations/legislation ordering people to stay at home or avoid non-essential face-to-face interaction. The lockdown dates used in this analysis are the effective dates when legislation was implemented. Please note that lockdown encompasses other interventions prior to official lockdown implementation such as:

- Case-based measures about self-isolation when showing COVID-19 symptoms
- Social distancing measures (e.g. recommendation for working from home, reducing the use of public transport, etc.)
- Banning public events and gatherings
- Closure of recreational venues and public places
- Closing of non-essential manufacturing and production facilities
- Closing of non-essential shops (shops apart from supermarkets, groceries, pharmacies, etc.)
- Closing of schools and kindergartens
- Curfews
- Quarantines
- Border Closures
- States of emergency
- Stay-at-home and shelter-in-place orders (mainly in the US)
- Total movement control

2.7.2. Lockdown dates and durations

Figure 21 shows the timeline of lockdown implementations across member cities. Typically, this follows the pattern with which first COVID-19 cases were announced, but many Asian cities had no official lockdown. By the end of April 92% of member cities had imposed some form of lockdown, with 100% of cities outside of Asia imposing these restrictions. Figure 22 shows the proportion of cities under lockdown at any time during this period, considering the lifting of lockdown restrictions too. In mid-April, almost 85% of member cities were under lockdown restrictions, tailing of to just 5% by the middle of June. The majority of lockdowns were implemented between mid-March and mid-April.

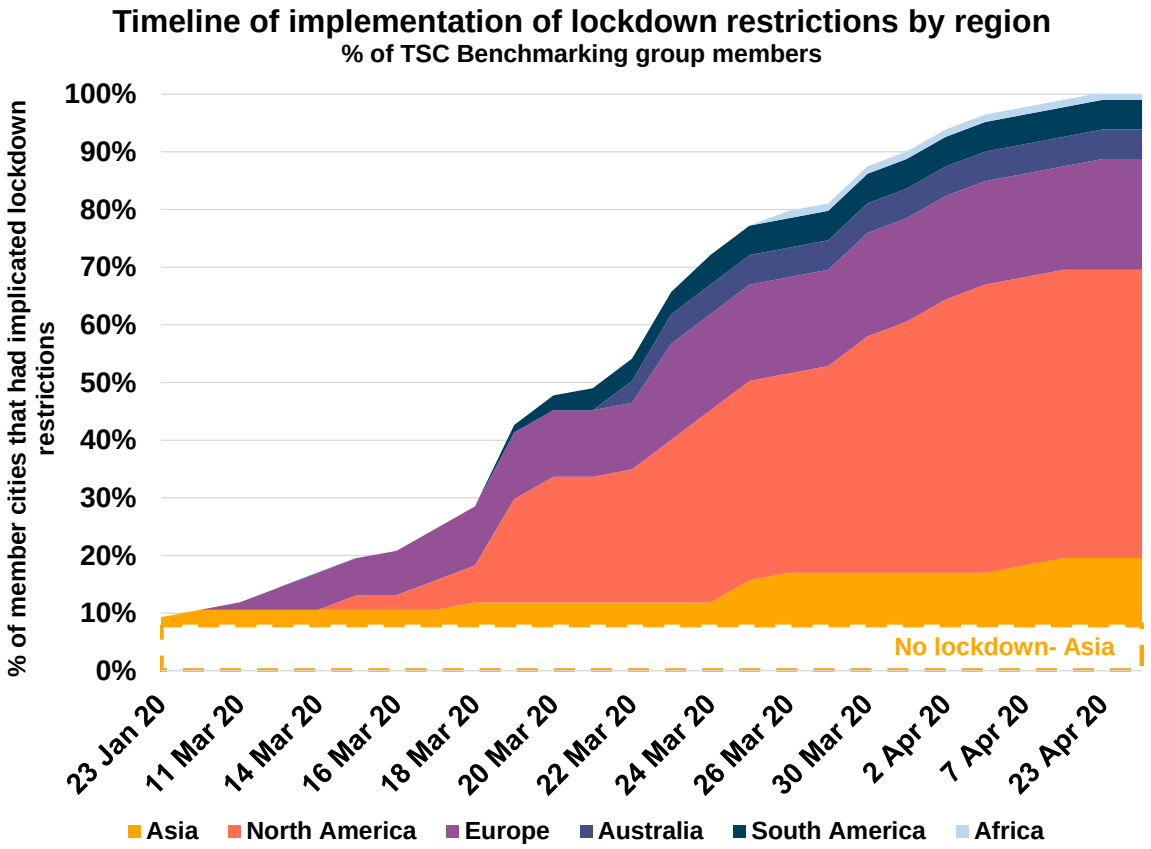


Figure 21: Timeline of TSC Benchmarking member cities entering lockdown

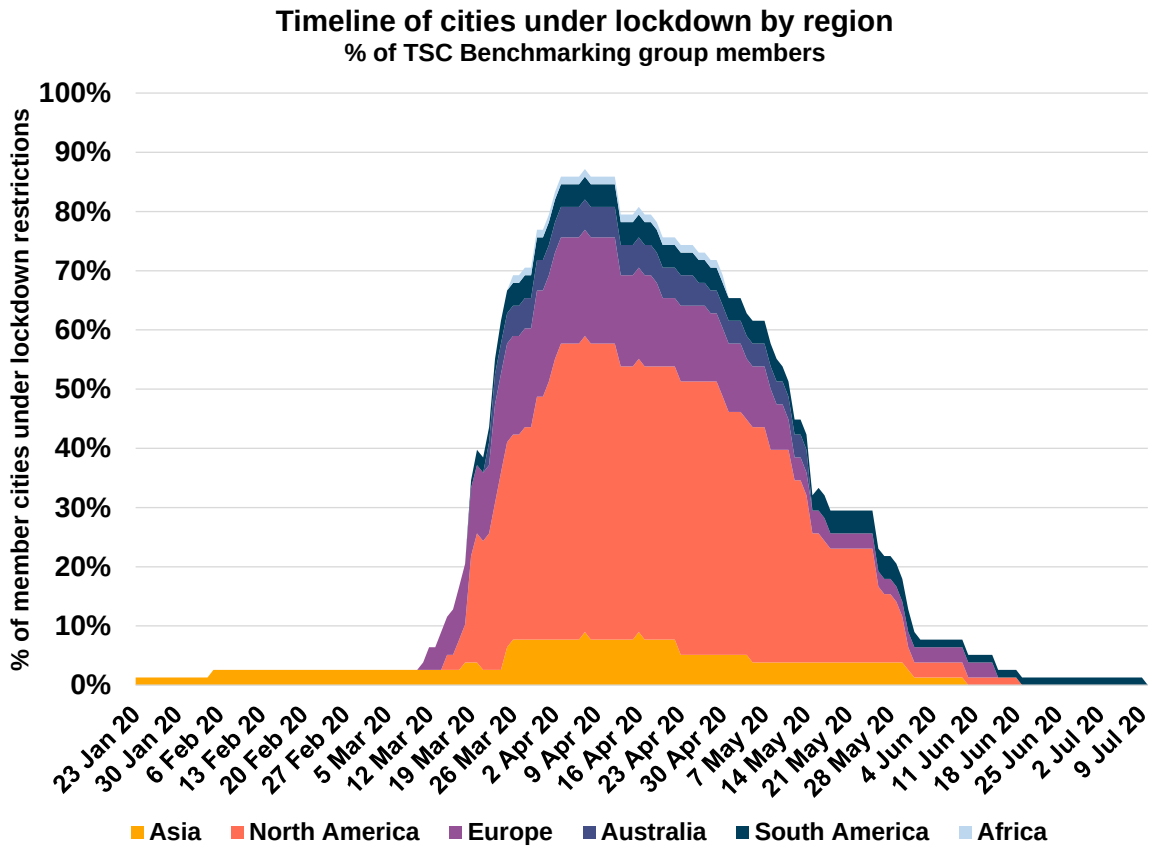


Figure 22: Timeline of TSC Benchmarking member cities under lockdown by region

Figure 23 shows the average duration between the announcement of the first COVID-19 case in a city and the implementation of lockdown for each region as well as the estimated lockdown duration. The majority of lockdowns are now being gradually eased, but some are ongoing in South America, where the longest lockdown periods have been observed.

As can be observed from Figure 23, lockdowns were implemented much later in regions where there was early detection of COVID-19 (e.g. Asia and Australia). For example, the first case in Australia was announced on 21st January (Brisbane), and a national lockdown was implemented on 22nd March, 62 days after the first case. On the other hand, the first COVID-19 cases in the US cities were announced in early March, and the average implementation of lockdown was 18 days later.

Some of the cities/states (e.g. Los Angeles) took pre-emptive lockdown measures to prevent the outbreak before cases were announced. On the other hand, some cities/states did not have any official lockdown measures (e.g. Iowa (US), Hong Kong, Seoul and Taipei). Figure 20 shows the variation in lockdown implementation and lifting across member cities. Significant variation can be seen, particularly in Asia where some shorter lockdowns were implemented much earlier on, while others did not start until 85 days after the first case. Clearly the implementation of lockdown measures will have a significant impact on travel demand, not only because of legal restrictions, but also because of the fear and new habits that endure.

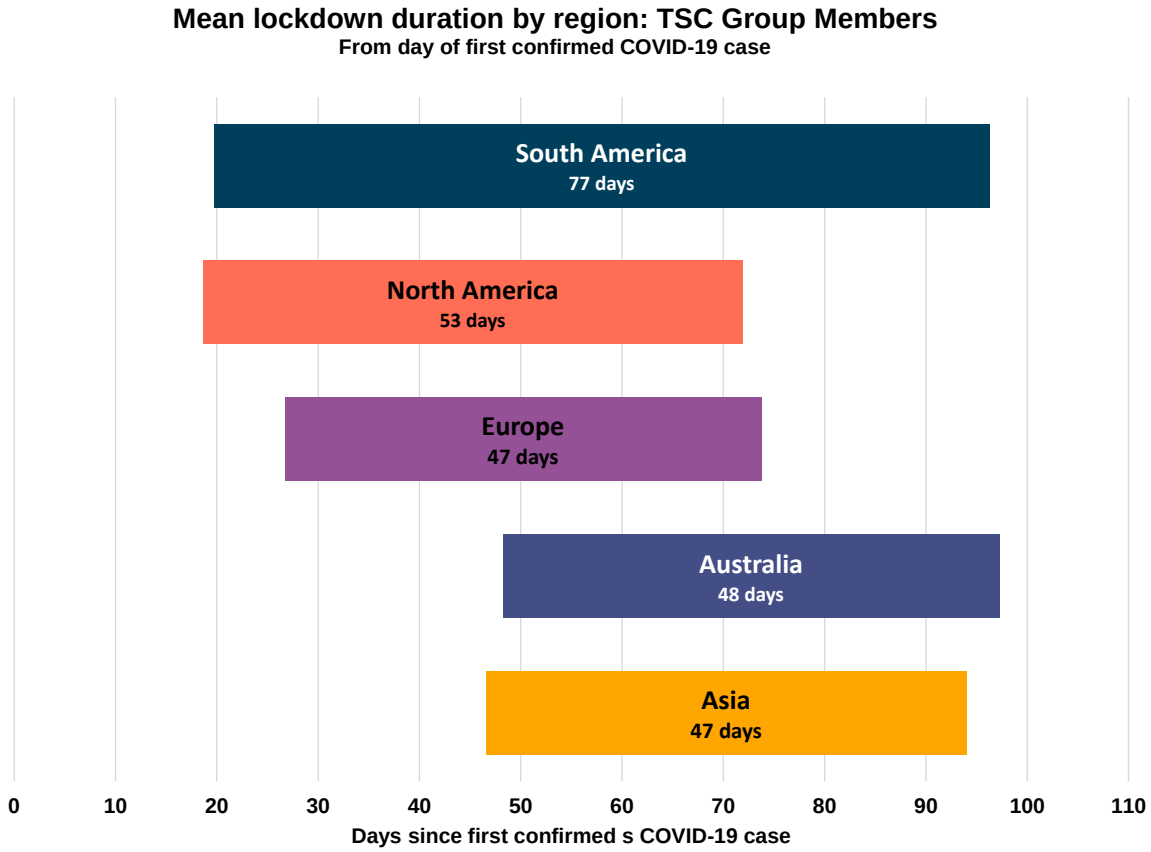


Figure 23: Timeline of TSC Benchmarking member cities entering lockdown

2.7.3. Impact on public transport demand

The timing and severity of lockdown restrictions have a significant impact on demand trajectories. Figure 24 compares bus and metro demand trajectories in a European city from the first COVID-19 case ('day 1'). While there are some closures of schools, shops and parks prior to the official lockdown, these restrictions have only a small impact on both metro and bus demand. The biggest decline in travel demand is seen immediately after stay at home orders are announced. This city's metro demand falls and stabilises at about 5% of normal ridership, while bus demand stabilises at around 15% of normal ridership. This city's bus demand also rises gradually throughout the lockdown period, while metro demand stays relatively stable. The beginning of lockdown easing on day 104 leads to a small immediate increase in demand across both modes.

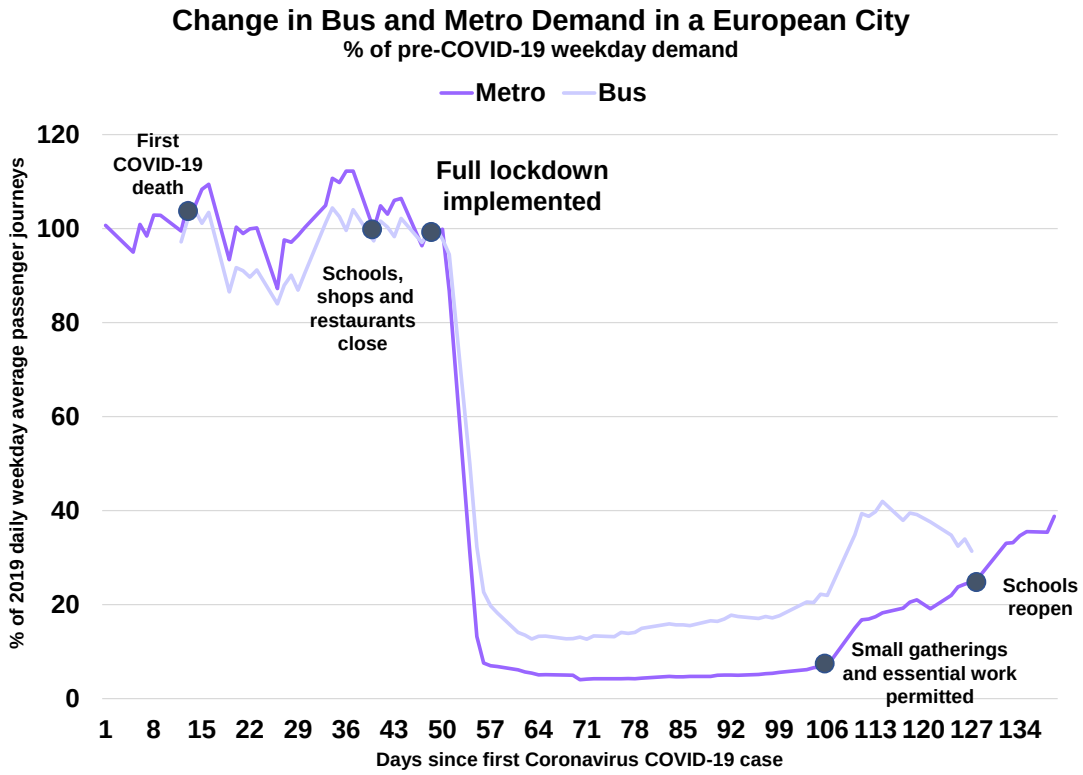


Figure 24: Bus and Metro Demand trajectories in a European city relative to Lockdown

In contrast, Figure 25 shows significant demand declines across both metro and bus systems in one American city prior to the implementation of lockdown restrictions. Metro ridership declined by 80% and bus ridership by 60% before lockdown was implemented on day 19 and only fell slightly during the first few days of lockdown. This city has only recently emerged from full lockdown with the opening of non-essential shops on day 99 leading to some slow but steady increases in demand.

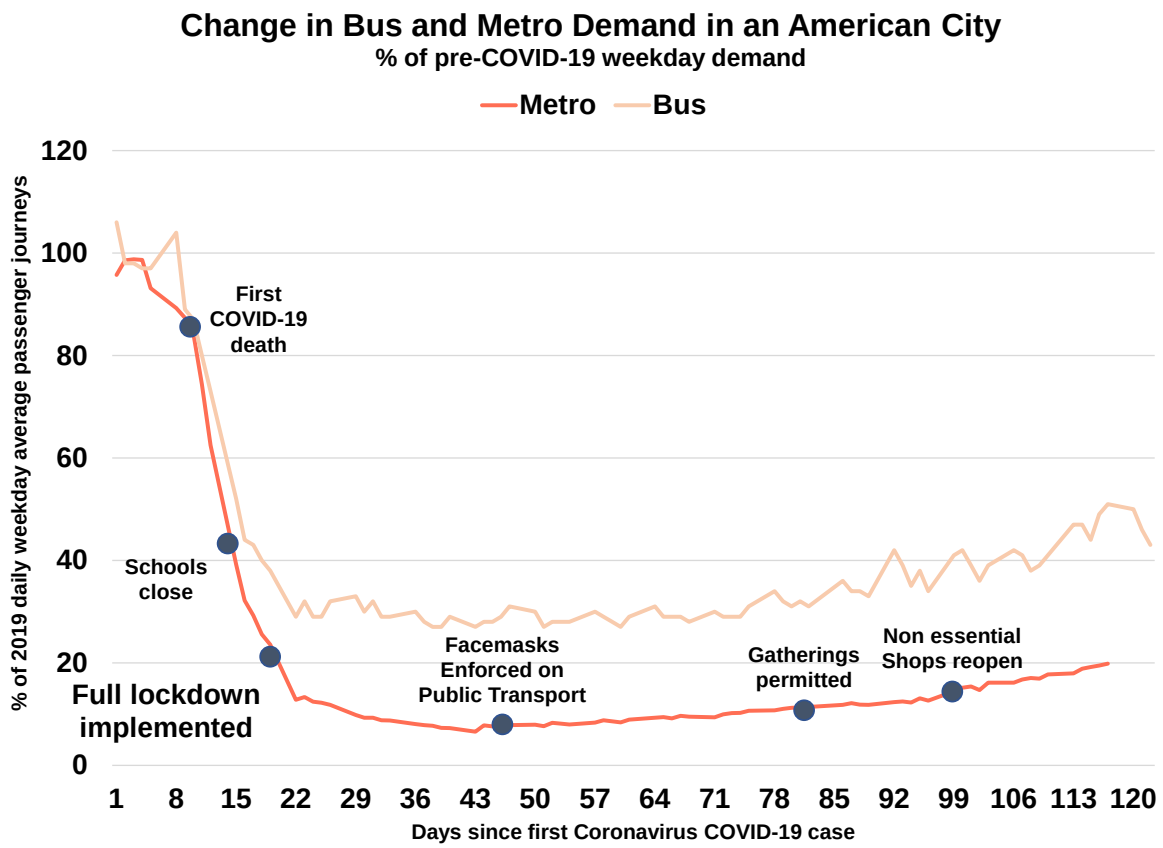


Figure 25: Bus and Metro Demand trajectories in a US city relative to Lockdown

Figure 26 compares travel demand in multiple cities immediately following the imposition or removal of specific events and lockdown restrictions or reopening. Each of these graphs starts from the relative 'day 1' of the ban on social gatherings, school closures, return to non-essential work and reopening of non-essential shops.

Variation in demand declines can also be seen following bans on social gatherings and school closures, which were implemented at different stages of pandemic and lockdown across cities- although typically enforced after demand had already stabilised or in the later stages of demand decline.

However, the lifting of lockdown restrictions (return to non-essential work and reopening of non-essential shops respectively) both succeed slow and steady increases in demand across all cities. Both measures are typically implemented when public transport demand is stabilised at its lowest point, and tend to precede slow, steady demand recovery (particularly for bus operators, whose services are likely to typically carry more travel for discretionary trips and non-essential work that cannot be carried out from home). While these graphs show demand trends relative to a common event, it is difficult to draw specific conclusions due to the multiple confounding factors and events in each city that affect the demand response.

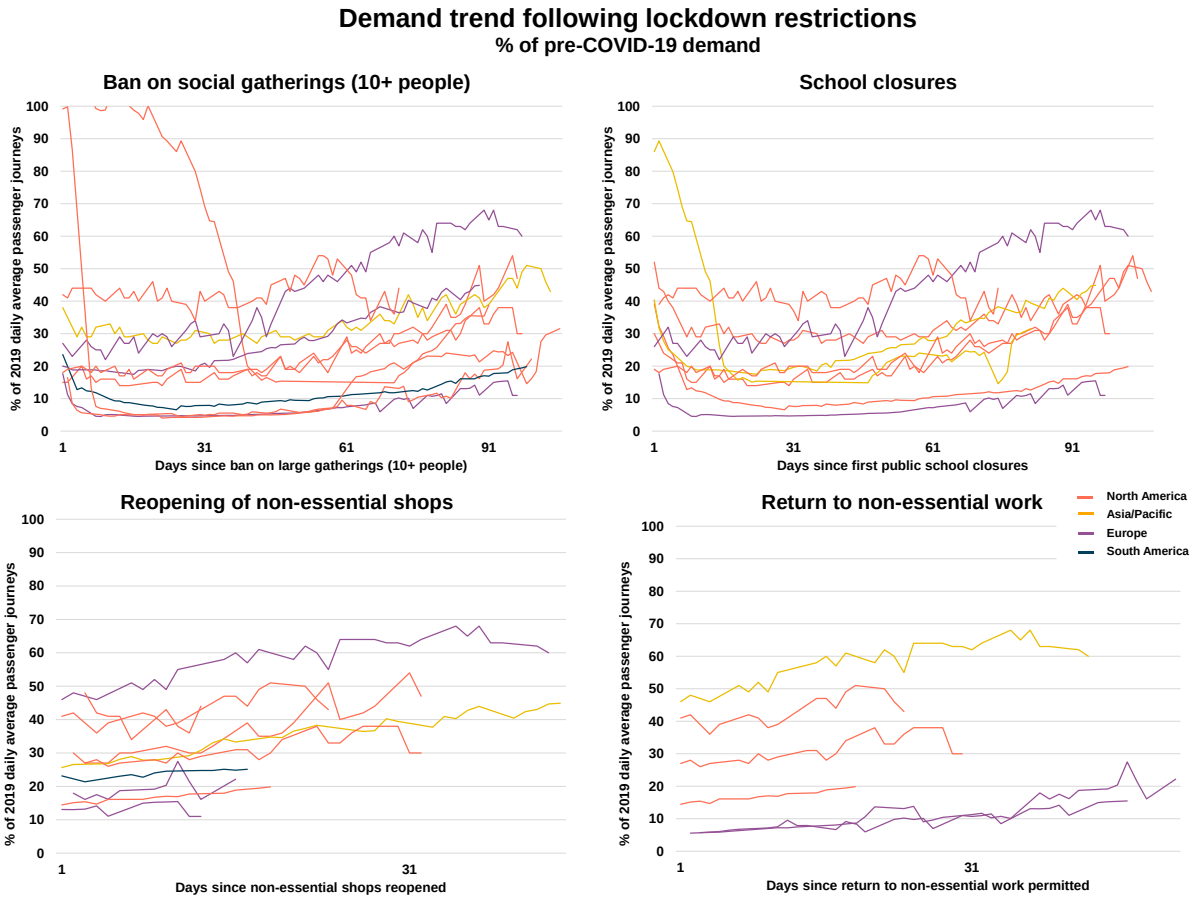


Figure 26: Weekday travel demand following introduction/removal of lockdown restrictions

3. Ongoing management and response to the pandemic

This section contains information about how transport organisations are managing their response to the Coronavirus COVID-19 outbreak. It focuses on current policies, practices and measures that support current day-to-day management and operation of transport systems.

Organisations began implementing their main prevention, management and response actions in approximately February-March 2020, with some earlier actions in Asia. Since this time, the situation has evolved and practices may have been retired or developed as demand stabilises (and the impact of the pandemic on the organisation becomes more certain in the short-term).

Decline	Stabilisation	Recovery
Focus of this section		**Section 4**
When demand declined significantly as the main impacts of the pandemic affected organisations, and organisations implemented a multitude of immediate management and mitigation measures	*When demand has settled at a steady figure and management and mitigation measures tend to be properly established and functioning. Measures may be developed to increase their scope or effectiveness*	*How organisations are adapting in the short, medium and long-term*

Each sub-section presents a summary of the key actions that were taken by transport organisations early in the pandemic (during decline) and as the situation has progressed (during stabilisation).

3.1. Strategic management

	Actions during Decline	Actions during Stabilisation
Decision-making	• Formation or stepping-up of special committees for pandemic co-ordination at leadership/executive level with oversight or direction from safety functions (such as Chief Safety Officers) • Implementing key measures from contingency plans/business continuity plans • Enacting Pandemic Plans to guide organisational response	• Ongoing functioning of committees • Adherence to command and control structures • Updating and revising contingency plans/Pandemic Plans • Participating in regular briefings and cross-committee communications • Managing availability of management to ensure continuity of decision-making • Setup of daily ridership dashboards to monitor demand
Relationship with stakeholders	• Formation or stepping up of multi-organisational working groups to communicate and co-ordinate with stakeholders (e.g. city, authority, government, ministries, emergency services, etc)	• Participating in regular briefings and cross-committee comms • Managing ongoing relations with the police, who gradually became more present on some agencies' networks to enforce necessary social distancing, masks, etc • Offering rent relief, discounts, etc to third party retail
Information to staff	• Providing advice on staff health and safety • Implementing defined staff Communication Plans • Setting up dedicated phone lines for staff	• Operating day-to-day communications channels for staff • Running senior management/leadership sessions for staff to hear latest developments, updates and plans • Ensuring senior managers/leaders are visible to staff
Contingency management	• Testing and readying emergency/back-up facilities • Preparing alternative rooms for operational management • Developing satellite control centres • Identifying critical staff roles and single points of failure • Preparing a basic timetable	• Ongoing testing of operational and organisational processes • Planning for manual operation of the system • Monitoring impact on the supply chain and third parties
Performance management	• Business-as-usual monitoring	• Increased monitoring of certain targets (e.g. absenteeism, on-time performance) • Some expected impacts on performance-related pay • Development of new analytic tools to support performance monitoring

3.1.1. Decision-making

Early in the pandemic, organisations needed to implement efficient, robust decision-making structures, generally outside the scope of their normal decision-making and reporting structures. The key actions for decision-making were taken early in the pandemic where the full impact on the organisation were uncertain. Over time, these decision-making actions are continuing to function and adhere to command and control processes.

Early in the pandemic, multiple organisations established **special committees for pandemic co-ordination**, command and decision-making. These committees generally operated at a leadership/executive level with oversight or direction from safety functions (such as Chief Safety Officers). These committees have various forms depending on the organisation, but most are cross-functional (bringing together multiple departments and decision-makers), with multiple departments represented even if they are not all actively making decisions about the pandemic response.

These committees appear to operate according to **common command and control structures**, including **regular meetings and briefings** (usually daily or multiple times per day, but more intensive weekly meetings are also taking place), **communications to wider staff**, and **implementing actions in individual business areas/functions.**

Key responsibilities of these committees include **owning and revising contingency plans** (one European metro); **implementing policies** for measures such as working from home, measures to **protect employee health**, overseeing shift re-organisations (one railway); **planning for fleet incidents** (one railway); and **auditing** the implementation of control measures frequently (one Asian metro).

As the pandemic has progressed and the impacts on transport organisations have stabilised, these committees appear to be continuing to function but likely at a less critical level. Command and control structures usually **de-escalate decision-making** when appropriate to do so.

Other key issues and actions taken early in the pandemic to support decision-making include:

- Ensuring **availability of staffing at the management level** to ensure continuity in decision-making (one railway)
- **Setting up a daily ridership dashboard** for executives/leadership to monitor operations (one railway)
- **Enacting Pandemic Plans (four metros)** to guide their wider organisational response.

3.1.2. Co-ordination with stakeholders

Early and ongoing co-ordination with stakeholders such as government and other transport providers has been critical to ensure that organisations understand the latest situation in terms of COVID-19 (number of cases, distribution of cases, status of public services, health impacts of Coronavirus COVID-19, etc) as well as ensuring effective management alongside other public service providers (transport organisations, emergency services, etc). This is also a common feature of operational management and transport organisations likely participate in several business-as-usual co-ordination functions when managing their networks and service provision.

Three organisations reported participating in **multi-organisation working groups**. Multi-organisational working groups and co-ordination ensure that multiple stakeholders receive and share the same information, hear a “single source of truth”, and can share best practices. Most organisations

reported working closely with their city, regional and national governments, relevant ministries and authorities. One American metro's working group involves planning and co-ordinating with local health authorities, while an Asian metro's working group focuses on communications with government.

Co-ordination activities such as briefings also ensure that timely, accurate information is received and shared by stakeholders. Several organisations raised that they are proactively co-operating and communicating with public agencies. Multiple examples across organisations were raised, including an American metro's "Daily Service Readiness Call" with the local public authority and other city agencies.

3.1.2.1. Engagement with third party partners/stakeholders

As the pandemic has progressed, the financial impact on wider third parties associated with transport organisations has become clearer. Third parties on transport networks (such as retail owners or workers) generally rely on passing traffic and have been substantially affected by changes to service, station and passenger management.

One metro commented that assisting third parties in stations is important as their closure would ultimately mean a long-term loss of non-fare revenue. Measures to support third parties operating on transport networks have generally been taken later in organisations' response and include:

- **Suspending the guaranteed annual minimum turnover for retail** (European metro)
- **Offering rent relief** (three metros) for a number of months
- **Suspending rent payments** (Asian metro) for a period of five months
- **Allowing retail owners to postpone rent payments** (Asian metro).

As well as these measures to help other third parties, one bus organisation reported that it has had its expiry dates for vehicle testing extended (and expects that licence renewals and medical requirements expiry dates will also be extended), in recognition of the difficulty carrying out such testing during the pandemic.

3.1.3. Information to staff

Information to staff has been crucial throughout organisations' response to Coronavirus COVID-19. Early in the pandemic, organisations were rapidly following the development of cases in their cities/countries and assessing how demand responded, resulting in the need for frequent communications to staff. Information about the spread of the Coronavirus COVID-19 (e.g. who is most at risk, what situations present more risk, etc) were also rapidly developing early in the pandemic, potentially affecting staff.

Issuing communications to employees is important to ensure they understand the impact on the company but also to **minimise rumours and fearmongering amongst staff.** Initially this may have been about the spread and dangers of Coronavirus COVID-19, but has the situation has progressed, speculation about organisational structure and job security may be issues that organisations wish to manage through official communications.

Initially, transport organisations focused on **providing information to staff across all modes about their own health and safety during the pandemic.** Key channels for communication included

websites/intranets, newsletters, depot signage, company emails and briefings. Supporting information and reminders are provided (e.g. maintaining good hygiene, offering specific advice about handwashing (frequency, process), ensuring proper social distancing with other staff members even if this means disregarding local customs such as handshaking or kissing) and with passengers).

More formally, one European metro enacted its defined **Communication Plan,** which set out different communications required according to the level of public health emergency, and communications required for specific departments and groups.

Other practices include:

- Setting up **dedicated phone lines** for staff (five organisations). These offer timely, accurate advice for staff from dedicated departments (one American metro) or medical staff (two organisations); specific advice for line managers (two organisations) for example about managing leave or self-isolating staff; supporting the city's official public phone line about Coronavirus Covid-19 (one European metro).
- **Ensuring senior leaders and management are highly visible to staff and proactive in their communications** during the pandemic. Examples include an online "employee town hall" event where staff are thanked for their work and questions answered live (two metros), and weekly President updates going to all staff (one metro).
- **Compiling emergency contact lists for departments** to circulate very urgent news if necessary (one Asian metro).

3.1.4. Contingency management (back up facilities etc)

Early in the pandemic, transport organisations began preparations for enacting contingency arrangements if they became necessary. Several organisations had pre-existing Business Continuity Plans or Contingency Plans laying out necessary steps (e.g. relating to staff, operations, infrastructure, etc) in the event of certain issues.

Several organisations began readying or creating new back-up facilities early in their pandemic response to ensure business continuity. These included measures such as:

- **Testing and readying emergency / back-up facilities** (five organisations)
- **Preparing alternative rooms for operations management** (American metro), where multiple departments (e.g. training and IT) worked to prepare emergency software systems and stock alternative rooms with radios, chargers, screens, etc
- **Developing satellite control centres at certain stations** (European metro) to be able to partially manage operations remotely
- **Identifying all critical roles in the business as well as single points of failure** (one bus organisation)
- **Preparing a basic timetable option** in OCC systems (one railway) that could be activated at short notice if the number of available drivers or other key personnel became too low
- **Testing operational and organisational processes** for any network disruption caused by Coronavirus COVID-19 (one railway)
- **Planning for manual operation of the system** (one metro). This metro operates driverless lines and options for manual operation are being prepared as an additional contingency measure.

More widely, as the pandemic progressed, three organisations reported seeing an **impact on supply chains** (e.g. parts), for example due to suppliers having a significant proportion of staff off work. One member reported that they experienced delays in the shipping of trainsets for their new fleet, and one bus organisation reported that the supplier for its replacement fleet closed its factory indefinitely (and it is further expecting its tyre supplier to be impacted). So far, organisations seem to be monitoring supply chains (including material and contractor availability) to identify any impacts on their plans.

3.1.5. Performance management (KPIs)

More recently as the pandemic has progressed, organisations have begun to assess whether their strategic and business objectives or targets are realistic as the pandemic has continued. Six metros are currently retaining their existing KPI targets at least in the short-medium term but are monitoring and focusing on specific aspects of performance that will be affected by the pandemic, notably **absenteeism, demand, on-time performance/service provided, service cancellations, maintenance actions, and passenger safety.** One metro so far has raised that performance during the pandemic (against targets set on historical performance) will likely affect financial bonuses offered to staff.

It is also worth noting that **performance in certain KPIs may be positively or negatively affected by the pandemic**. One metro raised that decreased train running times appears as positive performance, but this is a result of dramatically lower demand, so is not a true representation of "performance". Also, another metro raised that although targets are set based on historical and predicted performance, **it is not realistic that every performance target will be affected by Coronavirus COVID-19**, so there will likely be several targets in future that will not be affected by performance/trends during the pandemic.

The pandemic has also **limited organisations' ability to monitor and track their performance as they normally would.** Two metros raised that this has presented unique opportunities for the organisation:

- An American metro has improved its capability and analysis of demand estimation and prediction while traditional data sources (fare data, manual surveys) have been unavailable. This has been achieved through processing and scaling up partial APC data for buses and integrating this data into real-time visualisation tools. Metro demand models have also been adjusted and results have been used to inform schedule changes that are realistic based on demand and the need for capacity to maintain social distancing.
- An American metro believes the conditions caused by the pandemic have presented extreme cases (e.g. demand) that have exposed linkages and correlation between targets and KPIs that were not otherwise obvious.

The pandemic has also provided some opportunities to improve **internal communications relying on data and performance, such as:**

- An American metro has developed a new, daily, accessible report tracking unwell/self-isolating employees to support the monitoring of absenteeism
- An American metro has developed new tools to support customer communication teams (where information needs to be more dynamic as train service is not normal). The organisation has developed a dashboard summarising current typical headways on individual lines in different areas of the city to provide better expectations for service when communicating with customers.

3.2. Staffing

	Actions during Decline	Actions during Stabilisation
Staff safety	• Providing support for mental health and anxiety • Issuing Personal Protective Equipment (PPE), notably masks (in Asia) and hand sanitiser • Preventing vulnerable staff from working • Making medical professionals available to staff • Travel advice for staff (avoid high-risk regions) • Cancelling all meetings • Requiring rear-door boarding of buses	• COVID-19 testing of employees (including antibody testing in some cases) • Requiring temperature checks for all staff and visitors entering facilities • Implementing masks for staff on a more widespread basis (Europe and Americas) • Allowing meetings to take place with maximum attendance • Implementing barriers between bus drivers and passengers
OCC staff safety	• Preventing non-critical staff from entering the OCC • Enhancing cleaning procedures that OCC staff are responsible for • Staff health checks when reporting for duty	• Operating the OCC with the minimum staff required to avoid overlap • Implementing physical barriers between workstations
Staff absenteeism	• Splitting teams into "bubbles" to avoid staff overlap • Providing increased spare staff (particularly train drivers) • Adjusting shift management – extending shift lengths, staggering start/end times, preventing shift changes, etc	• Implementing remote processes (e.g. sign on/off) • Ensuring employees can sign off at multiple locations • Reducing team rotations • Limiting cross-facility contact (e.g. depots) • Asking staff to take leave • Redeploying staff into more critical roles
Training	• Cancelling training • Training and licencing additional staff to operate trains	• Identifying essential vs. non-essential training • Deploying PPE to frontline trainees so training can resume • Altering classrooms to maintain social distancing • Identifying opportunities for training while staff are not required in service (e.g. customer service)
Staff with Coronavirus COVID-19	• Requiring that the employee self-isolates • Taking assets out of service • Vacating buildings if an employee tests positive	• Staggering return-to-work procedures • Implementing special/enhanced cleaning procedures for equipment/workspaces • Providing welfare/wellbeing support to staff that are unwell

	Actions during Decline	Actions during Stabilisation
		• Reporting positive employee cases publicly
Staff administration	• Freezing recruitment and overtime • Offering "furlough" to staff	• Progressing with layoffs (some organisations only) • Hiring additional staff temporarily • Requesting or implementing short-term pay reductions • Offering pay premiums or incentives as recognition

Organisations have been extremely responsive about in their management of staffing levels, distribution of skills, contingency options, safety, and working practices. Overall, many of the earliest actions taken by organisations during the pandemic were in relation to staff, to ensure that staff absenteeism could be managed and to protect staff safety. Many of these actions have continued as the situation progresses; while many cities/countries are stable, several are still tentatively recovering and a significant outbreak amongst staff would still be extremely difficult to deal with.

The most widespread, earliest action taken in relation to staff in the pandemic was to **require non-essential staff to work from home**, using remote conferencing software to facilitate meetings and connectivity.

3.2.1. Staff safety

A number of measures have been implemented across transport organisations to keep their staff safe – either to prevent them becoming ill with Coronavirus COVID-19 or to help support them if they do catch it. It is worth noting that many of these processes will have been newly-developed and refined over time and that the organisation's ability to carry out its usual safety processes/duties may be significantly impacted by reduced staff availability.

This section covers these measures across staff health and wellbeing, protocols for staff found to have Coronavirus COVID-19, issuing Personal Protective Equipment (PPE), managing critical/frontline staff safety, and other preventative safety measures.

3.2.1.1. Health-related measures

Early in the pandemic, organisations were **communicating information to staff about their own health and safety**, offering advice about hygiene, social distancing and symptoms of Coronavirus COVID-19.

Organisations' capability to **test employees for Coronavirus COVID-19 or screen for symptoms** has progressed over time. Two metros reported performing tests directly on employees (particularly maintenance staff). Other measures include:

- **Launching an antibody testing programme** (two railways) where employees could access free antibody tests before they were more widely available
- **Deploying widespread temperature checks for employees** (multiple organisations):
    - **Using staff -** multiple organisations screen staff temperatures when arriving to work or when clocking in for shifts; one organisation deploys medically-trained staff at multiple

strategic locations to ensure that sick employees stay at home and to carry out other health checks
    - **Using self-assessment tools –** one Asian metro is encouraging staff to carry a thermometer and to carry out daily temperature checks.
- **Participating in contract tracing apps (several organisations)**. Contact tracing generally seems to be being led by governments/authorities rather than transport organisations providing localised contact tracing of customers. However, there are logistical challenges to managing contact tracing on public transport systems, such as staff participating in contact tracing (requiring a mobile device, which is not permitted by drivers or other frontline staff in some cities), or inconsistent mobile coverage across the network delaying or preventing synchronisation with the app.

The pandemic has also created new wellbeing, welfare and mental health challenges, caused by fear, isolation, disruption to normal routines, adjustment to working at home, etc. Transport organisations have also been supporting their staff through **support for mental health and anxiety** (multiple organisations), or example through access to webinars and counselling services. One bus organisation issued a **support video made by psychologists** to offer support. One bus organisation is providing support to employees who are over 65 and self-isolating, and who are not receiving any assistance from family or friends, in co-ordination with labour unions and volunteer organisations.

3.2.1.2. Protocols for staff found to have Coronavirus COVID-19 or who are self-isolating

Organisations have also had to develop new processes for staff testing positive for Coronavirus COVID-19. Initially, it is likely that government advice was followed and applied, but as the pandemic response has progressed, processes have become more detailed. One bus organisation raised that it developed its procedure in association with wider transport agencies to ensure the consistent management and reporting of suspected and confirmed cases.

When an employee tests positive, organisations are:

- **Requiring that the employee self-isolates** (multiple organisations) according to health advice
- **Isolating staff who have associated with the sick employee** (American metro) according to health advice
- **Requiring that the staff member notifies the organisation for contact tracing** (multiple organisations) to find any other individuals that may have contracted the virus. At some organisations, this is relatively formalised contact tracing, for example:
    - An American metro asks the employee's department to list all contacts who are likely to have been within a 2m distance of the employee that day
    - One railway requires its staff to complete a contact trace questionnaire and check their roster and time records. Once the list of contacts is compiled, the supervisor will notify other employees who may have been exposed, without disclosing the positive employee's name or confidential medical information. The Human Resources department coordinates notification to any other potentially exposed employees. All potentially exposed employees will be asked to request a test via a dedicated hotline within 24 hours, and be taken out of service. Employees must get tested through the hotline so that the railway receives immediate notification of their test results and, in the case of a positive result, can take further action as quickly as possible.

- **Implementing specific procedures for OCC staff found to have Coronavirus COVID-19** (American metro); this metro requires self-isolation of the staff member and their whole OCC crew if he/she has Coronavirus COVID-19. Depending on exposure, the crew they took over from, or handed over to, may also need to go into self-isolation.
- **Requesting a medical consultation for the staff member by phone** (American metro) with an in-person consultation if necessary in accordance with health authority requirements, and testing to determine that the staff member definitely has Coronavirus COVID-19.
- **Reporting positive cases of Coronavirus COVID-19 in its workforce publicly** (at least 12 American bus organisations).

When staff are ready to return to work, organisations are:

- **Requiring that the infected staff member has a negative test** before returning (one railway)
- **Requiring a medical clearance** to return to work (four railways)
- **Staggering return to work procedures** depending on testing and symptoms (one railway). At this railway, one of the following return to work options will apply:
    - If the employee was asymptomatic, once at least 10 days in isolation have passed from the first positive test and no symptoms have developed during this period;
    - If the employee was not treated in hospital, they will need to wait at least 10 days after symptoms began and have been free of symptoms for at least 72 hours;
    - If the employee was treated in hospital, they must wait 10 days after the hospital discharge and have been free of symptoms for at least 72 hours;
    - Once the employee has been fever-free for the previous 48 hours, there has been a resolution to any severe illness, 7 days have passed since the symptoms began, and they have returned a negative test result

Organisations are also taking pre-emptive action to ensure that facilities or assets used by staff who test positive for Coronavirus COVID-19 are safe for entry or reuse. Organisations are:

- **Taking assets out of service** (multiple organisations); for example, withdrawing trains from service, closing stations temporarily or retaining the bus in the depot
- **Implementing special cleaning processes for equipment/workspaces** (three metros) that the staff member is known to have used
- **Vacating buildings if an employee tests positive** (one bus organisation) if the affected member of staff has been present for the last 14 days. The building would need to be fully sanitised before being repopulated.

3.2.1.3. Personal Protective Equipment (PPE) for staff

Early in the pandemic, frontline transport staff were issued with key protective equipment including masks, gloves and hand sanitiser. So far, **all organisations are offering hand sanitiser** to staff individually and in stations, depots etc as a matter of course.

Bus drivers receive significantly more exposure to the general public than rail drivers (metros, railways and light rail) and so personal protective equipment is important. PPE distribution to bus drivers was implemented early in the pandemic and included basic at-work provision, but also in some cases distributing masks to employees' homes (one bus organisation) and equipping drivers with thermometers to monitor their own temperature (one American bus organisation).

As well as wearable PPE, organisations have also been offering equipment to staff to clean their personal work areas (e.g. wipes, paper towels, etc) either at a defined frequency or when they think it is necessary.

An American metro has assessed employees' level of risk to determine a plan for issuing the right equipment/supplies to staff (employee titles were assessed according to Exposure Risk, as per OSHA 3327-05R 2009). The risk categories are:

- **Very High and High** e.g. Occupational Health Service staff. Staff in this category include (for example) employees performing aerosol-generating procedures on known or suspected Pandemic patients, healthcare or laboratory personnel collecting or handling specimens from known or suspected Pandemic patients, or healthcare delivery and support staff exposed to known or suspected Pandemic patients, or medically transporting known or suspected Pandemic patients in enclosed vehicles
- **Medium** e.g. station staff: Employees with high-frequency contact with the general population
- **Low Risk** (Caution), e.g. office-based employees, maintainers, etc – these include employees who have minimal occupational contact with the general public and other staff.

3.2.1.4. Masks, gloves and gowns

Wearing masks as a preventative or protective measure against Coronavirus COVID-19 has been a topic of debate around the world. Early in the pandemic, only metros in Asia required their staff to wear masks, but as the pandemic has progressed and stabilised, masks have increasingly been viewed as a protective measure for other people rather than the individual wearing the mask (I.e. they protect others from catching Coronavirus COVID-19 from you).

This means that **most organisations have adopted the mandatory wearing of masks for frontline staff**. When the United States Center for Disease Control and Prevention (CDC) issued guidance recommending a cloth face mask to cover the mouth and nose while around others to protect other people, all American bus agencies either started distributing masks to frontline staff, preparing to do so, or even making them in-house. The MTA in New York (covering two ISBeRG railways and one metro) has issued advice on how to properly use and clean face masks.

Organisations that are <u>not</u> requiring staff to wear masks on a mandatory basis **are distributing them to staff to wear in specific situations** such as in the OCC, if prescribed by a doctor or if the staff member is dealing with a sick passenger (multiple organisations), or on a voluntary basis. Other organisations **are limiting mask use to only certain groups of staff.** This is to prioritise employees most at risk but also in response to limited supply of masks in many cities. For example, one railway has implemented a policy that only certain groups of employees should wear masks, including utility workers involved in cleaning and disinfection, police and a medical team.

"Face shields" or visors (which provide more facial coverage than a mask) are being used by frontline staff at four metros:

- One American metro is **distributing these to train conductors** (the second member of staff on-board a train responsible for opening and closing doors) for optional use as these staff have more

exposure to the public. If used, the face shield must be worn over mandatory safety glasses and a face mask

- One American metro provides a face visor to **staff carrying out cleaning duties**, **trainee drivers and trainers**
- One European metro requires face shields for **practical driver training** in the driving cab for both the trainer and the trainee as the configuration of the cabs makes it difficult to maintain social distancing.

Gloves are less commonly offered around the world and are mostly being offered on a voluntary basis. **Protective gowns** are also not generally offered routinely, but one bus organisation is requiring that their drivers wear protective gowns while driving to further reduce the risk of transmission.

3.2.1.5. Operational Control Centre (OCC) staff safety

For rail organisations in particular, many staff safety measures have been developed focusing on Operational Control Centre (OCCs), which is the key source of operational management for the network. Most measures were designed and implemented early and appear to be ongoing. They include:

- **Ensuring that only critical staff are allowed into the OCC** (seven metros) and managing this by barring all visitors to the OCC (11 metros) and suspending regular tours (two metros)
- **Enhancing cleaning procedures that OCC staff are responsible for** (multiple organisations), particularly when changing shifts
- **Requiring health checks for OCC staff:**
    - **Giving staff a health check when they report for duty** (Asian metro) to ensure they are fit for duty and
    - **Requiring temperature tests** (three metros) or for staff to take their own temperature before entering (three organisations)
- **Not allowing overlapping in OCC shifts** (two metros)
- **Delivering briefings / news updates in the OCC in writing rather than verbally** (European metro)
- **Operating the OCC with the minimum staff required** (European metro) or significantly reducing OCC team size (American metro); for example, this metro has 10 operators for 5 lines, and is now operating with 7 staff comprised of 5 traffic operators + 2 station operators
- **Implementing physical barriers between workstations** in the OCC (American metro).

3.2.1.6. Other preventative safety measures

Organisations have also taken proactive measures to protect their staff from Coronavirus COVID-19. In some cases, these measures were developed following government health advice, but several of these measures go beyond health requirements.

Preventative measures relating to staff health include:

- **Preventing staff in vulnerable categories from working** (multiple organisations) including those over 65 or 70, pregnant women, workers with very young children, or anyone with known health conditions
- **Making medical professionals available to staff** (multiple organisations). A European metro has deployed medical staff in OCCs to promote preventative actions (good hygiene, social distancing, etc) and monitor staff

- **Ensuring a list of authorised hospitals and clinics is available to staff** (Asian metro) for example within office buildings
- **Encouraging take-up of the organisation's regular flu vaccination programme** (four metros); one American metro has extended the hours when flu vaccinations are available

Wider advice to staff was also provided early in the pandemic and is likely to still remain in force as cities/countries situation with Coronavirus COVID-19 varies. Preventative advice to staff includes:

- **Advising staff not to travel to high-risk countries or regions**, with procedures required on return (three organisations). These procedures include:
    - Online declarations for staff to update their travel plans (one bus organisation)
    - Mandatory working from home after returning (one Asian Metro) and/or self-isolation after returning (one Asian metro)
    - Daily temperature recording (one Asian metro) and record-keeping after returning
    - Screening and monitoring when the staff member returns to work (two bus organisations)
    - **Declaring if family members have returned from high-risk countries** (one bus organisation)
- **Advising that staff may travel to work in their own vehicles** rather than company "carrier" vehicles with other employees (one railway)
- **Implementing signage at facilities** (American metro) such as electrical rooms instructing anyone entering that physical distancing is in effect and asking workers to knock before they enter.

3.2.2. Managing staff absenteeism

Several organisations have been dealing with staff absence due to Coronavirus COVID-19 or continuously preparing for higher levels of absence than is usual. Increased absenteeism will be caused by staff becoming ill with Coronavirus COVID-19 or staff preventatively self-isolating or quarantining (i.e. if they have been exposed to Coronavirus COVID-19 or are living with an infected individual).

The reductions that six metros have seen in staff availability are summarised in Table 2.

Table 2: Summary of staff absence at metros

American metro	**American metro**	**European metro**
60% availability at lowest point, availability has grown to 90% availability compared to 2019 but has plateaued at this level	53% availability at lowest point	60% availability of train drivers at lowest point, availability of train drivers has grown to 84% in May
European metro	**European metro**	**American metro**
88.2% staff availability compared to 92.6% availability in 2019	70% availability at lowest point, growing to 82% staff availability (of which 13% unavailability is COVID-19 related and 5% is other long-term absence) compared to 93% staff availability in 2019. Expecting 9.5% of staff to be absent until a vaccine because of underlying health conditions	10% of staff absent in "high risk" groups with no forecast of when they might return; 90% drivers available at lowest point

To manage increased staff absenteeism, organisations have developed measures spanning staff organisation and planning, logistical management (shifts, rotations, rosters, etc), and flexible deployment of staff. These measures were generally developed early in the pandemic to manage a sudden decrease in availability of staff, and continue to be in effect at most organisations. Early in the pandemic, multiple organisations reported preparing to provide a level of service using the minimum operational staff required, with one European metro highlighting that approximately 80% of its frontline staff were needed to provide a normal level of service.

This section covers measures taken to manage staff availability and absenteeism across organisations. Many of these measures are management actions that reduce team sizes or prevent overlap between staff to avoid transmitting Coronavirus COVID-19 between individuals.

3.2.2.1. Staff logistics (shifts, rotations, rosters, etc)

Logistical actions involve minimising team sizes, implementing processes that minimise or remove overlap between staff, removing the need for manual interactions (e.g. signing on/off with another member of staff), etc.

Multiple organisations have split teams into "bubbles" to reduce team size and interaction between staff. Where normal shift allocations would have moved staff between teams, these bubbles are generally fixed individuals that do not move to any other bubble. Examples of this in practice include:

- **Splitting OCC staff across different locations** (two metros)
- **Dividing OCC controllers into multiple groups** and allocating them to specific shifts (two metros, one railway) – one Asian metro divides OCC staff into two groups under an "AB" arrangement where the "A" group get one shift pattern, and the "B" group has another shift pattern
- **Creating additional shifts to split OCC staff across** and minimise the number of people in the OCC at any one time (American metro)
- **Reducing OCC staff rotations** (two metros) where OCC staff work more consecutive days in a row or where a small sub-group of OCC operators are scheduled for duty so that other OCC staff do not have to enter the OCC at all (and can be used as back-up staff)
- **Providing increased "extraboard"** (American light rail agency) by making an additional ten extra train operators available per day to cover absence
- **Deploying staff overtime where necessary** (American light rail agency) to allow for proper staff coverage on the network.

Several organisations have increasingly developed actions to manage how frontline staff are rostered and scheduled for work. Handovers to other staff are a key interface for the spread of Coronavirus COVID-19 so most organisations are managing shift organisation, rotations and rosters to minimise team sizes and minimise handover opportunities. Key examples include:

- **Changes to shift timings:**
    - Extending shift lengths (one Asian metro)
    - Staggering the start and end times of shifts (two metros) or retiming shifts to avoid overlap in communal areas and at clock on (two organisations)
    - Implementing alternate working (multiple organisations) where staff days on and off are altered
- **Minimising variation in shift allocation:**
    - Reallocating shifts so drivers do not have to drive different train units (one railway)
    - Preventing shift changes (swaps) between staff members (one railway) to minimise overlap between different staff (this was agreed in conjunction with the union)
- **Changes to shift sign on/off:**
    - Ensuring operational employees can clock off at multiple locations (European metro) to avoid employees congregating at the same clock off point when their shift ends.

As well as these staff management changes, one American light rail agency began operating the service without a fixed train crew schedule (roster), where staff are not pre-scheduled to work on specific trains or on specific "blocks" of work, and instead are assigned to trains or "blocks" of work when they arrive for their shifts. This agency considers that this makes managing staff absenteeism easier as it is more responsive to actual staffing situations.

3.2.2.2. Change in staff roles and use of spare staff

Service reductions have meant that, in some cases, spare staff have been available who would normally be involved in service delivery. This is not the case for all organisations, as staff absence because of Coronavirus COVID-19 (either preventatively isolating or isolating because of sickness) means that there are only enough staff available to run a reduced level of service. Having spare staff available (or less staff absenteeism than expected) has allowed transport organisations to either implement additional contingency/safety options for staff, or use staff flexibly in other roles to fulfil more valuable duties during the pandemic.

Solutions that transport organisations have used to manage excess staff include **placing them on standby** (four metros) in case of short-term absenteeism, **asking standby train crews to wait at home rather than on the network** (one railway), devising **new staff rotations** (three metros) to allow staff to work but less frequently and in smaller teams, and **asking staff to take leave** if possible (two metros).

Flexibility in deploying staff has likely been highly useful to transport providers facing staff shortages or where increased labour is needed for certain duties (such as cleaning) that have become more important during the pandemic. Roles that have been suitable to immediate redeployment of staff are less skilled roles (but ones that are highly critical to service delivery). In some cases, this has required transferring specialist knowledge and this flexibility will not have been available until later in the organisations' response.

Examples of flexibility in changing staff roles (or examples of building this flexibility) include:

- **Reallocating staff to cleaning trains** (two metros), for example from ticketing control while ticketing transactions are limited (European metro) and from office staff (American metro)
- **Reallocating temporary staff from other areas of the business to cover cleaning and maintenance** (American light rail agency); this is possible because the agency is a department of the municipality, so cleaners from other areas of the municipality can help cover the light rail operators' requirements
- **Backfilling staff absences with train drivers not required to operate additional services** (American railway)
- **Preparing OCC staff to take over other roles in the OCC if necessary** (American metro)
- **Training and licensing management staff to operate trains** (European metro)
- **Hiring additional temporary staff** (three organisations), for example for increased cleaning and maintenance
- **Rehiring retired staff temporarily** (one bus organisation).

3.2.3. Managing staff training

The earliest action taken in relation to staff training was to **cancel ongoing training activities** both for frontline and non-frontline staff. However, an ongoing deficit in training will lead to long-term issues for staff availability for certain tasks and skills, and investment in training until the pandemic may be at risk for particularly skilled roles requiring training (such as drivers) if they are postponed/cancelled indefinitely (as familiarity with training reduces).

As the pandemic has progressed, several organisations have implemented **remote training/e-learning** for non-critical courses or for staff that are working from home indefinitely.

Driver training has been identified as the key challenge for organisations to manage during the pandemic, as limited activities can be carried out remotely, but driver cabs/compartments are generally unsuitable for social distancing. One railway identified essential vs. non-essential elements of training to focus on essential training (needed to meet qualifications for example). As the pandemic has progressed, most driver training programmes are still on hold, but some organisations are implementing measures so that limited training activities can continue:

- **Ensuring trainee drivers and trainers wear masks or other PPE** (eight metros) and practice **social distancing within the cab** if possible

- **Altering classrooms to maintain social distancing** (two metros)
- **Ensuring trainee drivers carry cleaning kits** (one metro) with them at all times
- **Deploying online driver training** (three metros) or **video training** (one metro)
- **Considering a dividing screen in driving cabs** (one metro) to separate instructors from trainee drivers (e.g. a plexiglass or vinyl divider)
- **Using a sterilised train specifically for training** (one metro).

The decline and stabilisation periods of low demand have also offered opportunities for **additional training** while staff are not required in service. One bus organisation raised that it is working with contractors to identify and implement any **additional safety and customer service training** to use time that would have been spent in revenue service. Another bus organisation is planning to provide more **route training** as resources are freed up, to ensure more drivers are familiar with more routes. Lastly, one bus organisation has provided additional training **bus drivers for how to handle an emergency** and how to respond to passengers in the current circumstances.

3.2.4. Ensuring social distancing between employees

As well as implementing a number of measures to minimise team sizes and reduce overlap between individuals, organisations also need to manage their facilities to ensure that social distancing is possible between employees, possibly for a long period of time.

Early in the pandemic, contact was limited between employees by **cancelling all meetings** (multiple organisations), **limiting meetings to essential personnel only** (European metro) or **personal involved in pandemic management** (Asian metro) and ensuring that **meeting rooms had new maximum capacities** (to maintain a 1-2m social distance).

Over time, organisations have been altering their other facilities to provide more awareness of social distancing, to provide more space, or to remove contact between "bubbles" of people. Examples of this in practice in fixed facilities include **providing clear bus depot layout plans** (one bus organisation) to limit the movement and interactions between drivers and office staff and **separating frontline and non-frontline staff areas** (one bus organisation) for example separating washrooms, prayer rooms and rest areas. One bus organisation has **reformatted employee break areas** to allow social distancing and one metro has **identified additional rooms that can be used for employee breaks.**

Social distancing in smaller spaces is more difficult, however, and one European metro has **implemented a limit of two people per driver cab**, one European metro is **preventing any additional staff in driver cabs**, and one bus organisation has **relocated driver rest areas.**

3.2.5. Staff administration

Lastly, there are a number of administration activities that organisations have had to progress during the pandemic. Immediate actions focused on mitigating the impact of staff absenteeism and implementing logistical measures to minimise team sizes and overlap between staff. However, wider consideration for staff retention, employment and headcount size has also been an issue. The earliest action taken in the pandemic relating to staff administration was to **freeze new recruitment and overtime.**

Throughout the pandemic, most organisations have not initiated widespread layoffs or organisational restructures. Where it has been available, offering furlough (suspending staff employment while maintaining all or a large proportion of their pay, usually funded through government schemes) to staff who are not required because of service cuts has been a viable alternative to layoffs while the pandemic is ongoing. Several organisations have also indicated not laying off staff during the pandemic (13 bus organisations), suggesting that this is a longer-term issue.

Some organisations have implemented **short-term pay reductions** as an alternative to layoffs (although this may require union involvement and negotiation). One railway has implemented a 15% pay cut to drivers, one bus organisation offered drivers the opportunity to voluntarily lay off without pay and one railway has implemented a 10% pay cut for board members and officers for three months.

There are also examples of **increased staff recognition** during the pandemic. One bus organisation highlighted that it is developing a recognition campaign for frontline staff responsible for service delivery during the pandemic. Some organisations are **increasing staff pay temporarily** as a premium or incentive payment (four American bus organisations). This is in recognition of their work during the pandemic. Examples of this in practice include:

- One organisation is offering a **bonus to bus drivers who are still working** (in person) to the public during the pandemic (and one other bus organisation is considering this). This would be an additional form of recognition given the unique circumstances presented by the pandemic
- One organisation will be offering a **weekly bonus of USD 200 to employees who work their entire scheduled weekly shift**
- One organisation is offering a **USD 150 weekly bonus for full-time operational staff who cannot work from home**
- One organisation is offering **on-site or cleaning staff a 1.5x hazard/overtime pay premium**.

3.2.5.1. Employee leave

Employees may be cancelling leave voluntarily as wider travel restrictions are in place and working from home adjusts perceptions of work-life balance. This may cause a build-up of leave later in the year causing logistical issues and decreased staff availability when demand begins to recover. Organisations have therefore implemented leave policies as the pandemic has progressed to help mitigate leave being taken by multiple staff simultaneously later. These include:

- **Implementing a specific "Pandemic Leave Policy"** (one railway) recognising the specific circumstances presented by Coronavirus COVID-19. The policy gives employees access to additional paid leave once they have used their existing personal and/or carers leave and annual leave entitlement. It includes provision for 10 days of special leave if employees are required to quarantine, self-isolate or take carers' leave.
- **Implementing additional leave if a staff member cannot work from home** because of isolation, if a workplace is closed, or if a staff member has caring responsibilities (one bus organisation)
- **Offering automatic paid sick leave for staff with a medical condition** (one Euroepan metro) to prevent them coming into work
- **Implementing special leave reporting categories** (multiple organisations) to record leave attributable to Coronavirus COVID-19.

3.2.5.2. Return to offices

Although most non-essential employees are working from home, two railways are planning for up to 30% of its staff returning to offices in July, with an additional 30% to be returned to offices in subsequent months. Measures to manage this return to work include:

- **Staggered hours and split schedules** have with the aim of not having more than 15% of employees in the office at any given time
- **An A/B seating plan** with specific weekly schedules for employees within groups A and B
- **Permanent working from home for some employees**
- **Taking employees' temperature when entering the building** (some buildings only)
- **Guidelines for lift and bathroom occupancy**
- **Restricted access to break rooms and meeting spaces**
- **Social distancing signage** and **monitoring of social distancing**
- **Training** for all returning employees
- **Mandatory face masks** when social distancing cannot be maintained
- **Enhanced cleaning** with additional shifts and staff to monitor and disinfect work areas.

3.3. Passenger/customer measures

	Actions during Decline	Actions during Stabilisation
Fare-related measures	• Offering refunds on tickets and passes • Freezing fares	• Offering free travel temporarily • Postponing fare adjustments • Extending deadlines for penalty fares • Offering discounts – e.g. off-peak fares all day
Passenger safety and PPE	• Communications on hygiene and social distancing • Advising passengers not to travel (some cities/countries) • Requiring that customers wear masks	• Implementing new signage (e.g. floor and seat signs) • Advising on where to board trains/buses and to distribute when waiting • Advising passengers to minimise interactions with staff • Updating passenger charter/conditions of carriage to stipulate that PPE is required • Enforcing PPE for passengers through own staff, refusal to enter the system or engagement with police • Installing temperature monitoring points (particularly metros) • Requiring customers to scan a code to register personal information and track movements • Preparing emergency isolation kits in stations
Ticketing	• Not accepting cash when buying a ticket/fare • Limiting staffed ticket booth hours	• Not accepting cash transactions unless at ticket machines • Strongly advising digital payments for fares
Communications	• Implementing new messaging through audio announcements, screens, signs, stickers, remotely, etc • Enhancing visibility and accessibility of information	• Carrying out customer surveys to understand how they have used the service and what their expectations are
Travel demand management	• Advising passengers not to travel (some cities/countries)	• Presenting data via apps, e.g. crowding data, available space, services with high demand, etc • Restricting boarding at certain stations to limit crowding • Implementing crowd control to limit entries

3.3.1. Fare-related measures

Transport organisations implemented a range of fare-related measures fairly early in the pandemic to support passengers, particularly those making essential journeys. It is worth noting that two bus organisations **removed free or discounted fares** for school children, students, those with chronic illnesses and over 65s (to encourage these vulnerable groups to stay at home and ensure space was available for essential journeys). Early fare-related measures implemented include:

- **Offering free travel temporarily** (multiple organisations):
    - **For key workers and medical staff** (one bus organisation) and to staff at a mask manufacturer (one bus organisation)
    - **For all passengers** (multiple American bus organisations, one metro) for a limited period. The European metro offering free fares temporarily programmed fare gates to avoid taking a fare from customer tickets, but passengers still needed to go through a faregate so that they agency could monitor demand
- **Freezing fares** (one metro) until the end of June 2020
- **Revising fare structures** (one American bus agency) to reduce fares beginning in June and ending in September 2020
- **Offering lower off-peak fares at all times of the day** (two American railways)
- **Customer friendly fare-related measures, such as:**
    - **Extending deadlines for customers to pay penalty fares** (European metro)
    - **Offering refunds on tickets and passes** (eight metros). These refunds were generally applicable for limited-period tickets and passes (e.g. for particular days or short periods) but not on stored value (which generally has a long or unlimited validity).
    - **Extending the validity of annual season tickets** (one railway) to compensate for the period when customers were not able to travel.
    - **Offering free seat reservations** (one railway) through its mobile application.
    - **Allowing customers to sit in first class seats** without a first class ticket (one railway) to maintain social distancing.
    - **Suspending in-person eligibility interviews for paratransit services** (two American bus agencies).

As the main peak of the pandemic eases in some cities, fares are gradually being reinstated or raised back to normal levels. For example, 7 American bus agencies have reinstated their fares (with four more reinstating them in July) out of 17 organisations that suspended, waived or stopped enforcing fares. Ongoing fare offers are still in place at some organisations, including **revised fare structures** at one American bus agency (ending in September 2020) and **postponed fare adjustments** (one metro) throughout 2020.

3.3.2. Non-fare related measures: Safety, information, travel demand management, and campaigns

A wider range of non-fare related measures have been implemented by transport organisations to prioritise customer safety and awareness during the pandemic. Organisations initially issued widespread customer advice to avoid travelling (usually in co-ordination with government advice). Early information to customers also included **advice on good hygiene** (multiple organisations), such as advice on wearing masks, using hand sanitiser, and avoiding talking, and **advice on social distancing**

while using the system. Given the seriousness of the pandemic, one railway collaborated with its national institution for psychologists to assess how likely passengers are to notice new travel advice campaigns and follow their advice.

3.3.2.1. Specific advice to customers

Organisations have also been communicating a range of specific advice to customers for their health and safety. This includes advice on **safe travel behaviour** that maximises the opportunity for social distancing and protects both customers and staff. Examples include:

- **Advice on <u>when</u> to travel –** for example during off-peak hours (three metros) or avoiding trains/buses that seem too busy. One bus organisation is advising customers to avoid using paper timetables and instead refer to real-time information (as paper timetables do not reflect the level of service being offered during the pandemic); two American bus agencies have removed all paper schedules to reduce the potential spread of the virus.
- **Advice on <u>how</u> to travel –** for example asking customers to distribute themselves on platforms, inside trains and buses (multiple organisations); asking customers to avoid sitting side-by-side (two bus organisations), advising customers where to board trains or buses (American metro), asking passengers to choose a car at the rear or front of the train (which are usually less crowded than the middle) and avoid standing near doors.

Organisations have also issued wider reminders to customers such as **reminders not to travel if the passenger should be isolating** (one metro) with potential fines for customers between USD 3500 – 35,000 if they are found to be ignoring this advice and using the metro, and using staff to **remind customers about maintaining safe distances** (one bus organisation).

Also, multiple organisations have been asking customers to minimise their interactions with staff and to limit their use of assets/equipment wherever possible. This may be a significant difference for customers' experience of using the transport system. Examples include **asking customers not to ask for assistance from station staff** and to use intercoms (European metro), asking customers to **avoid using lifts if possible** (European metro) or **restricting use of lifts to vulnerable passengers only** (American metro). One European railway has deactivated lift control buttons, requiring customers to use the intercom to request staff to operate the lift remotely if required.

Lastly, one American metro has noted that an overnight closure has been implemented as an increased number of homeless people were sheltering in metro trains and stations. This metro has also announced **additional rules meaning that no person can be in a station for more than an hour** and that no **person can remain on a train after an announcement has been made that the train is being taken out of service.**

3.3.2.2. Means of communication and consultation with customers

As with most customer communication programmes, organisations have continuously been providing advice on safe travel during the pandemic through **public announcements,** through **screens, signs, stickers, posters and remotely** (via email, SMS or social media). Multiple organisations have developed a **dedicated website for communication** showing regular updates with current actions being taken by the organisation, key impacts (e.g. demand data) and any new advice. Several

organisations release **public-facing videos**. One American light rail agency's video[6] highlights the efforts the organisation is making, particularly in relation to cleaning.

Good practices identified to enhance communications with customers include enhancing the **visibility** of information relating to Coronavirus COVID-19 (such as near faregates or access points) and the **accessibility** of it (i.e. offering it in multiple languages).

As the pandemic has developed, organisations are increasingly **consulting with customers** on their experiences and expectations from services going forward. A European metro has stepped up its work with its customer insight panel to gain a greater understanding of passenger attitudes towards public transport throughout the pandemic. The metro wishes to understand the impact that restrictions have had on lifestyles and what their transport choices are likely to be going forward, to help model demand recovery. Seven American bus organisations are **carrying out/have carried out customer surveys** to understand how customers use the service with the adjustments that have been implemented to manage Coronavirus COVID-19, and to help inform how services are managed as city restrictions continue to be lifted and organisations move more clearly into the recovery stage.

Figure 27: Customer survey related to Coronavirus COVID-19 being run by OmniTrans (San Bernardino, United States)

3.3.2.3. Ticketing

Ticketing and fare payment transactions are a key interface between staff and passengers, and between passengers and assets (ticket machines, ATMs, fare gates, etc). Organisations have taken various approaches to cash transactions: some continue to accept cash as normal (two metros) while others limited their acceptance of cash early in the pandemic (to avoid customers needing to touch and transfer cash). For example, three metros are **only accepting cash at ticket machines** but not at booths (except for reduced fare tickets), one metro is **limiting ticket booth hours,** and one bus organisation has **introducing QR code tickets**, which can be purchased through an app and replace on-board single tickets. Multiple organisations continue to not accept cash at all.

[6] Hampton Roads Transit - https://www.youtube.com/watch?v=3QtM7hCuFys&t=9s

3.3.2.4. Masks

As with PPE provision for staff (see section 3.1.2.3 and 3.1.2.4), the requirement for passengers to wear masks has been variable across organisations, cities and countries. Pre-pandemic, passengers in Asia had a more normalised view of wearing masks in daily life than passengers in Europe and the Americas, and Asian organisations were among the first to stipulate that passengers wear masks as a condition of entry on their systems.

As the pandemic has progressed, **organisations across modes in Europe and the Americas have increasingly required passengers to wear masks to travel on their networks**. This is generally in accordance with wider government/public health advice. Two organisations (one metro, one bus) have **updated their customer charter/conditions of carriage to reflect that wearing of masks is mandatory as a condition of using the system.**

Some organisations are clear that surgical masks should be worn, while in several European and American cities, face coverings (e.g. cloth masks) are recommended to avoid using up stocks of medical-grade masks.

Requiring that customers wear masks is a measure that could possibly be relaxed as the situation with the pandemic eases. Early in the pandemic, an Asian metro had strict rules for wearing a mask on the system but rules have recently been updated to instruct that customers wear masks in two specific scenarios: firstly when entering the station, and secondly in situations where there is not sufficient room to maintain a 1.5m social distance.

3.3.2.4.1. Compliance with mask-wearing and enforcing wearing of masks

As the pandemic has progressed and mask-wearing has become either advised or mandatory, some **organisations are starting to monitor compliance with mask-wearing**. One metro is using staff to observe the number of passengers wearing masks on-board the train when it leaves the station. Compliance is shown to vary by day and time and normal commuting periods are seeing the greatest compliance but weekends and late afternoon compliance is lower. Overall compliance is around 90% but can drop to 70%.

However, a key challenge is also **how to enforce that customers wear masks on the network**, particularly where they are communicating that passengers are not allowed to enter the network without one. **The other key enforcement measure is to refuse travel to a passenger not wearing a mask**. At some organisations this may be opportunistic (i.e. if a member of staff happens to see a customer not wearing a mask), but in some cities police are responsible for refusing travel. Some organisations do have stringent enforcement measures, however:

- Passengers on one organisation's network can be fined approximately USD 145 if they travel without a mask or a company-issued authorisation to travel
- At one European metro, police and the metro's revenue controllers can issue immediate fines of approximately USD 270 for not wearing masks on the network
- Passengers at one American metro can be fined up to USD 3000 for not wearing masks (although the metro's first aim is to encourage mask-wearing through campaigns and staff intervention, and staff can request that police help to enforce the situation if it becomes necessary)
- A European metro previously had no penalties, but has implemented a penalty of approximately USD 55-560 if customers do not wear masks (in response to decreasing acceptance of wearing masks)

- Previously, at one Asian metro, passengers who refused to comply were not permitted to travel and could be fined up to approximately USD 500 for not wearing a mask
- One bus organisation's own security unit can also issue fines to customers without masks.

Figure 28: Passenger campaign in Berlin and Sao Paulo to encourage the use of masks

3.3.2.4.2. Providing masks to customers

Multiple organisations are providing masks or face coverings to customers directly. This is generally being managed through staff distributing the masks to customers. 10 American bus agencies and at least five metros are issuing free masks to customers to incentivise and remind customers to wear them, and two metros stated that masks are provided to customers attempting to use the metro without one rather than penalising them or refusing travel. One American metro has created a new communications campaign around making homemade masks in lieu of being able to hand them out.

Organisations are increasingly considering how to manage mask distribution on a network-wide scale. One option that has been explored as the pandemic has progressed is mask vending machines, which have been progressively implemented by at least four metros. One European metro has hired a third party to install, restock and maintain mask vending machines in every station, and customers pay EUR 4 for two wrapped surgical-grade masks. Another European metro has installed vending machines selling masks at its busiest station.

3.3.2.5. Hand sanitiser and other PPE

Masks are the key item of PPE that organisations have increasingly required their passengers to wear, and that some organisations are distributing themselves. Later in their pandemic response, **organisations have increasingly been offering hand sanitiser to passenger on their networks.** This is not universally the case, however, and several organisations have raised that they are not planning to offer hand sanitiser to passengers. Key issues **include the potential risk to staff and passengers if sanitiser were to spill and cause a slip hazard, the security of hand sanitiser units** (i.e. if they are vulnerable to vandalism or theft), the **difficulty finding a suitable location** on-board buses, and the **challenge of ensuring they are always properly filled** as usage levels vary. One metro has reported observing issues with customers trying to steal hand sanitiser and has developed a locked unit where the sanitiser is not on show to try and prevent this.

Two metros are offering hand sanitiser in their busiest stations (interchanges etc) (two metros), one metro is distributing 300 hand sanitiser across the network, one metro is installing contactless and battery-powered units, and one European metro is planning to provide hand sanitiser in every station (particularly in ticket halls, at interchanges and at platform entry points).

One other example of passenger PPE is from San Francisco BART[7], which has developed "personal hand straps" to customers to use on their trains and take home for cleaning after each trip, which cost USD 5 each. These are designed to avoid passengers needing to hold onto bars on the train that have been touched by other passengers.

Figure 29: Personal hand strap provided to customers on San Francisco BART's network

3.3.2.6. Passenger health monitoring and response

Organisations have also progressively implemented other operational practices to prevent and manage Coronavirus COVID-19. Early in the pandemic, the focus was on asking passengers to avoid travel and to monitor their own symptoms for Coronavirus COVID-19. Since then, organisations have implemented a variety of health monitoring measures to help customers that are showing signs of Coronavirus COVID-19 and avoid them travelling (even if they feel well).

A key measure that has been installed by at least nine metros is **temperature monitoring points at the entrance to stations,** to ensure their temperature is within normal range when they enter the station. These metros have operational procedures for isolating any passengers with raised temperatures, and these passengers would be offered medical assistance. Temperatures are most regularly screened at faregates or normal security points on entry to the station. One Asian metro has two types of passenger temperature monitoring:

- A handheld non-contact thermometer taking individual passengers' temperature as they enter the station
- Thermal imaging of customers, taking passengers temperatures while they move throughout the station. A warning sound issues if a passenger is detected with an abnormally high temperature, and they are taken to an isolation area for a second temperature check. An ambulance is called if necessary to treat the passenger.

Most organisations are not screening passengers' temperatures, although this may be increasingly required as they consider how to resume service safely in the future (particularly for metros and

[7] https://www.bart.gov/news/articles/2020/news20200526

railways where station infrastructure allows for more passenger separation and staff interaction than bus stops/stands/stations).

Two metros in Asia **require customers to scan a code in stations or train cars to register their personal information**. In one city, this is so that the passenger can be identified if they register a body temperature reading when entering the metro of over 37.3°C. In another city, this is so that passengers who have come into contact with another passenger who develops Coronavirus COVID-19 can be traced and isolated. This may have limited applicability outside of Asia, however.

Other practices to monitor and manage passenger health include:

- **Providing volunteer staff** (two organisations) to advise passengers to queue properly in stations, maintain social distance and to limit passenger flow (one Asian metro)
- **Redeploying staff from its national airline** who are grounded because of Coronavirus, to encourage safe social distancing throughout the network (one organisation)
- **Preparing emergency isolation kits in stations for staff to use if a passenger is likely to have Coronavirus COVID-19** (two metros). These generally include Personal Protective Equipment (PPE) such as masks, gloves and goggles, disinfectant and thermometers. Also, one bus operator is **identifying and preparing isolation rooms** wherever possible for readiness if a staff member or customer is symptomatic.

A European metro is also **considering reserving specific areas on trains** (European metro) for people at high-risk of severe illness from Coronavirus COVID-19 (e.g. elderly passengers, pregnant passengers, passengers with known health conditions). Most other organisations are currently not planning to offer such areas. There are three metros that have reserved cars for women and children already.

3.3.3. Managing travel demand and maintaining social distancing

Early in the pandemic, most organisations found that reductions in demand were sufficient for customers to adhere to local social distancing guidelines, and may have sustained this while demand stabilised at a low level. However, there are examples in multiple cities (see section 2) of demand stabilising at a relatively higher level where social distancing cannot be maintained. This is likely to be a growing issue as passenger demand grows following the lifting of the most significant restrictions on citizen movement. It is worth noting that mitigation measures could help raise effective capacity; for example, although only 10-15% of normal passenger numbers could be accommodated with 2m social distancing, effective capacity can be increased further by encouraging or requiring passengers to travel at different times of the day.

3.3.3.1. Use of technology and real-time information

As their pandemic response has progressed, several organisations have been developing measures to help limit passenger volumes on their systems with the primary aim of maintaining social distancing. Six metros have reported seeing **uneven distribution of passengers on trains despite advice to distribute on platforms and trains**; while this would be similar under normal conditions, it appears that it is still important to customers to maximise convenience on their journeys (for example boarding train cars that are closest to escalators or station exits).

Technology appears to be particularly useful here as real-time information on crowding and passenger volumes inform real-time information and passenger advice. Examples of presenting data to customers on travelling conditions include:

- Presenting **crowding data**:
    - One railway is relying on estimations of crowding from train braking systems to encourage passengers to take a later train, or pick a train car with less people on it, and is aimed especially at more vulnerable passengers
    - One metro is piloting screens that show the next train's estimated crowding using a scale of 1-5, where supporting information is provided to avoid boarding the train if the rating is higher than 4. Customers can also access this information via the metro's app before they enter the metro
    - One metro has implemented a real-time density level tool for customers on one line, which is available via the metro's app and on platform screens
    - One railway (San Francisco BART[8]) is indicating which trains are normally most crowded, with colour-coded levels
    - One railway (New York LIRR[9]) has upgraded its upgraded Train Time App to address customer needs during the pandemic, including real-time location and capacity information
- Offering **real-time alerts to customers that opt-in** (one metro) where customers can set up notifications they wish to receive about journey conditions
- Presenting the **temperature inside train cars (one railway)** to allow passengers to choose cooler cars if they wish
- Presenting **space available for passengers with reduced mobility** (one railway) to help these passengers choose their car effectively
- Showing **line sections experiencing high demand** (one metro) to provide customers with additional information beyond avoiding peak travel. When planning a journey using the metro's journey planner, passengers are informed about high demand on their specific journey and recommended to travel earlier or later to maintain social distancing. This information is not based on real-time information but is based on previous observations.

Also, being able to forecast how many passengers are going to be using the system at any one time is helping one organisation manage passenger volumes. One Asian metro has **implemented a trial pre-booking system to enter stations**, trialling customer reservations for the metro at two stations on two lines. Passengers can reserve a 10-minute slot to enter the metro system during the morning peak period (0630-0930) via their smartphones and use dedicated gates to access the metro if they have a reservation. Customers are not required to make reservations, however, and customers arriving at the stations can still take the metro as usual. It is hoped that this pre-booking system (if used and deployed on a widespread basis) could help to reduce crowding and passenger densities on the network (to maximise social distancing).

3.3.3.2. Restrictions on passenger entry

More conventionally, some organisations are relying on limiting entry to the network to reduce passenger volumes. Several organisations have implemented a maximum capacity utilisation on their trains and buses to ensure social distancing can be maintained. **On trains,** eight organisations have implemented a maximum capacity utilisation ranging from 1.3-2 passengers per m² and one European metro allows a maximum of 15 passengers per train car. Another European metro requires cars to be

[8] https://www.bart.gov/schedules/crowding
[9] https://youtu.be/bf6_TsAkJMg

utilised up to a third of their capacity. Railways are planning so that capacity ranges from 20%-50%. **On buses,** multiple organisations have maximum capacities of approximately 10-20 people per bus (based on eight American bus organisations), and are blocking off-seats, implementing signage and disabling the use of fold-down seats to ensure social distancing.

There are examples of other restrictions that likely **require greater involvement from staff.** These include:

- **Restricting boarding at certain stations** (two metros):
    - An Asian metro is restricting passenger entering stations a significant distance away from the busiest stations to reduce crowding before the busiest sections
    - An American metro is restricting access in different municipalities from the main city to reduce movement between city areas (essential workers are exempted)
- **Restricting the number of passengers on-board trains** (European metro) to 15 passengers per metro car with posters reminding passengers about this limit. One mainline railway operator has made advance reservation of seats compulsory on longer distance services to prevent overcrowding.
- **Allowing passengers into stations in groups** (one Asian metro) with holding points for passengers at the station entrance and at faregates
- **Limiting the number of people entering and waiting in stations** (two metros), for example by closing escalators to slow the flow of passengers to platforms and to maximise social distancing, or limiting the entry of passengers depending on the number of people already waiting at the platform
- **Creating detours for passengers** (Asian metro) to spread out their entry into the station

3.3.3.3. Limiting contact between staff and passengers

Social distancing between passengers has progressively been addressed through limits/restrictions on passenger volumes, maximum capacity utilisations and encouraging optimal use of public transport through real-time information to customers. However, social distancing is also important between staff and passengers for their own safety, and several organisations reported examples of **measures to limit contact specifically between staff and passengers**.

Customers are being advised by several organisations to limit interactions with staff wherever possible. Other examples include **blocking the first passenger door of every train closest to the driver** (two European metros) and **restricting the area between the driver cab and the first door** with tape/chain to prevent drivers needing to walk through passengers' saloons to access the cab; **preventing staff from taking tickets in-hand from passengers** (multiple organisations) and only **scanning tickets held out by passengers or banning ticket inspections** from taking place at all (European metro). The key impact of this last practice is that fare evasion may increase; one railway estimates that its fare evasion rate has increased from approximately 1% to 20% because of reduced ticket checks (despite most stations being gated).

3.3.3.3.1. Limiting contact with bus drivers

Contact with passengers is riskiest for bus drivers, who are significantly more exposed to the public than staff at metros and railways. The key measure to limit contact between passengers and staff on buses has been **requiring rear-door boarding of the bus** (multiple bus organisations). This was a

measure implemented early in the pandemic when options for separating bus drivers and staff effectively were limited. The key impacts of this measure were on fare intake and passenger counting.

As the situation stabilised, multiple bus organisations have **installed barriers or shields between the bus driver and customer** so that front-door boarding can be reallowed. At least 5 agencies have now installed some type of driver barrier in 100% of vehicles while 7 are actively either for the first time or expanding (4 already had them 100%, 3 had some already). Options considered by bus agencies include a barrier/shield made of polycarbonate material (lightweight and relatively inexpensive), adjustable plexiglass, clear vinyl material (on paratransit buses). which is light weight and much less expensive than others.

Other measures to encourage passengers not to interact with bus drivers include:

- **Suspending the sale of on-board tickets or prohibiting cash transactions** (four organisations)
- **Placing signs on buses** (multiple bus organisations) asking that customers stay away from the driver's cab after boarding and advising them that the ticket machine near the driver is out of use (to avoid them approaching the driver)
- **Closing bus driver cabs completely** (one bus organisation)
- **Delineating areas around the bus driver cab** so that passengers leave 1-2m between drivers and passengers
- **Preventing passengers sitting in the seats closest to the driver** (one bus organisation)
- **Installing temporary bulkheads to further partition customers away from the driver** (one bus organisation).

3.4. Operations

	Actions during Decline	Actions during Stabilisation
Service reductions	• Implementing a range of service reductions, particularly frequency reductions, early closures and cancelling services (particularly buses) • Closing stations/stops • Developing phased service reduction plans or priority plans for reducing services in the event of staff shortage	• Implementing some additional services and repurposing vehicles (particularly buses) • Monitoring demand for dynamic service adjustments • Extending peak-hour service provision in response to peak demand spreading
Additional services	• Route adjustments to serve essential journeys/workers (buses)	• Repurposing assets for wider community purposes (buses) e.g. grocery delivery, transport between healthcare facilities, operating mobile screening clinics
Enforcement	• Use of staff to check whether journeys are essential; some early use of penalties where restrictions were stringent	• Use of staff and police to enforce wearing of masks (with some financial penalties) and to refuse access to the system if necessary

Early in the pandemic, the main operational changes implemented by organisations across all modes were **service reductions.** This was primarily in response to declines in demand, but also to assist governments in preventing people from travelling unless necessary and in response to staff availability.

However, throughout the pandemic, organisations have had to carefully balance reducing service with maintaining enough capacity for social distancing, which in some cases has required more capacity than would normally be offered.

Early examples of planning for service reductions and changes included **developing a priority plan** for reducing/closing lines and services in the event of staff shortage (one European metro), **prioritising drivers and trains on lines serving hospitals** (one European metro) or **routes serving customers with limited resources** (two bus organisations) and **developing a phased service reduction plan (**one bus organisation).

3.4.1. Service reductions

Buses have been significantly more flexible in terms of adjusting services to respond to changes in demand or requests from wider authorities. For example, earlier in the pandemic, three bus organisations raised that drivers were instructed to notify the bus operations centre if they observed overcrowding, and this triggers dynamic service adjustments (such as dispatching additional buses on the route).

The key operational changes organisations have been implementing to reduce service levels include:

- **A full system shutdown** (three organisations) where no services operate at all
- **Cancelling services** (multiple organisations), particularly overnight or additional peak services that would normally provide extra capacity, or special bus services such as airport shuttles and school services.
- **Early closures** (11 organisations) where revenue service hours are reduced
- **Frequency reductions** (multiple organisations); for many organisations this means operating weekend service levels on weekdays
- **Always stopping at all stops** (bus organisations only); for example, three bus organisations are ensuring buses stop at all stops (i.e. passengers do not need to press stop buttons)
- **Line/route closures** (multiple organisations)
- **Station closures** (three metros)
- **Facility closures** (multiple organisations); both specifically related to transport provision and also wider amenities (such as customer service centres, ticket sales desks and retail outlets in stations).

However, from these significant reductions in service levels, several organisations have **either increased their service levels** from significant reductions during the immediate crisis, or **are planning to ramp up service levels** as the pandemic progresses and restrictions are lifted. For example:

- Two American bus agencies have restored service to normal with 7 currently returning to normal (increasing service/reinstating routes etc.) (out of 21 that made reductions)
- Three American bus agencies have increased service on routes with high demand
- Two railways noted that they are planning for service levels to be restored at 100% in the next few weeks
- One railway (which has shut down completely during the pandemic) is resuming service using a phased approach, with full service expected to be resumed in August.

3.4.2. Additional services and repurposing assets

Multiple organisations have provided <u>additional</u> services or activity during the pandemic. Again, buses are more flexible than rail-based modes in their ability to do this and one bus operator was running a reduced level of service overall but prioritised resources towards early morning services that were critical to key workers. In many cases, additional services appear to be **complementary** or **assisting particular key workers/journeys.** For example, several bus operators have been providing extra services for healthcare workers, or running services to healthcare facilities, one metro raised that free bus and for-hire vehicles are being provided for essential workers while the metro is closed overnight, and one European metro made its on-demand ridesharing service free of charge to medical staff, care staff and rescue workers overnight between 2100-0800 (covering night and morning shift changes), extending the service's area coverage to accommodate this. Other examples include:

- **Operating grocery delivery services** (eight American bus organisations) using drivers and vehicles not currently required for passenger service (in partnership with local agencies)
- **Operating mobile screening clinics** (one bus organisation) from buses not being used in passenger service. Once the morning peak is over, drivers position the buses in the areas identified by the local public health agency, and at the end of the day buses are fully cleaned and disinfected before returning to depots.

- **Using paratransit vehicles as mobile Wi-Fi hotspots** (one American bus agency) particularly for students
- **Using buses to transport Coronavirus COVID-19 patients between healthcare or community care facilities** (one bus organisation). These are smaller, retrofitted vehicles offering more flexibility to passengers needing transportation between health facilities
- **Transferring individuals arriving from overseas and who are required to self-isolate/quarantine between the airport and a range of hotels** (one bus organisation)
- **Launching a programme for essential workers who are reliant on bus services** (one American bus agency). The programme offers a kerb-to-kerb (i.e. all the way to/from their home/employment) service using ridehailing or shared services such as Uber, United Taxi, etc when employees are not able to reliably get to or from work.

3.4.3. Impacts of service changes

Changes to service have also had impacts on other areas of operational management. For example, **operational changes have limited data that organisations usually collect about demand and use**, and limiting staff handling of tickets may **increase fare evasion.** Buses in particular are affected by passengers using rear doors only to board as typical fare payment points are not in use. Measures taken to ensure organisations can estimate demand accurately include:

- **Carrying out manual surveys** (one bus organisation) and collecting data from driver button presses
- **Cross-referencing automatic passenger counters (APC) data with farebox data** (one bus organisation) to account for passengers who boarded but did not pay a fare
- **Using counting cells** (one bus organisation), which can distinguish between boarding and alighting passengers at doors.

3.4.4. Enforcement on networks

Several organisations have reported **police being more active on their networks as the pandemic has progressed** (six metros). Early in the pandemic when travel restrictions were very stringent (particularly in Europe), police were verifying that journeys were essential and advising that customers stay at home if possible. One American metro reported that there are sanctions for passengers who do not observe a 2m social distance with other passengers. **However, in general organisations seem relatively limited in their ability to enforce social distancing measures or to prevent non-essential trips, particularly given that fewer staff may be present on the network.** Examples of police enforcement of customer behaviour include:

- One European metro's police force required that passengers carry a certificate issued by employers if they are using public transport to get to work (indicating that they cannot work from home or travel to work by another mode), with a fine for not carrying this certificate
- One American metro reported that there are sanctions for passengers who do not observe a 2m social distance with other passengers.

3.4.5. Other operational measures to support health and safety

As well as these passenger-focused measures, organisations have also been taking other operational measures to enhance health and safety throughout the pandemic, such as:

- **Making automated door opening compulsory** (three metros, one railway) and **ensuring automated capabilities are fully working** (European metro, one railway); one European metro is

ensuring that its remote monitoring facilities of escalators, lifts, moving walkways and train doors are fully operational, and one railway is ensuring all lifts can be controlled remotely from the control centre

- **Closing office canteens** (multiple organisations), **limiting the number of staff in canteens at any one time** (American metro) or **limiting canteens to takeaway food only** (European metro) and requiring staff to eat in their offices. A European metro has installed plexiglass screens between canteen servers and staff
- **Staggering office working hours, including lunch hours** (Asian metro) in main office buildings
- **Restricting office access** (two organisations) such as to non-employees, or by restricting office access to one entry road.

3.5. Technical Actions

	Actions during <u>Decline</u>	**Actions during <u>Stabilisation</u>**
Managing IT	• Implementing mandatory working from home policy for non-frontline staff	• Managing cybersecurity processes with remote working • Optimising internet bandwidths • Providing hardware to staff • Training staff how to use new systems • Rolling out e-learning/online training
Managing maintenance and asset management	• Continuing where possible • Halting ongoing works safely • Monitoring staff, materials and contractor availability	• Increasing maintenance in some cases (where lower service levels/passenger demand presents an opportunity), e.g. “shovel-ready” projects • Adjusting maintenance regimes based on use of assets (time/distance) • Continuing work while monitoring staff, materials and contractor availability • Work postponements and cancellations (major works, capital projects)
Ventilation	• Extending hours of ventilation • Using maximum ventilation volumes	• Implementing additional cleaning of ventilation infrastructure • Keeping windows open on trains/buses for fresh air

There are also a number of technical areas that organisations have had to manage and optimise throughout the pandemic. These span Information Technology (IT), maintenance and asset management, and ventilation on networks.

3.5.1. Managing Information Technology (IT)

Most organisations implemented a mandatory working from home policy for their non-essential staff very early in their pandemic response. It is worth noting that **this was the first time that many of these organisations have had to deploy such remote working policy and supporting set of systems**.

Organisations with an existing working from home policy may not have planned for the intensity of use that has been observed. There are also organisations who have not implemented a working from home policy (two Asian metros).

For those organisations that have rolled out widespread working from home, **a challenge has been additional pressure on IT systems** with the large influx of new, simultaneous users. Throughout the pandemic, organisations have been optimising their IT systems and providing continuous support to staff to adjust to working from home.

The key issues reported by organisations in relation to IT include:

- **Informing staff how to use new systems** (American metro) through email bulletins, for example how to access IT services from home, what teleconferencing systems to use, how to access work phones and voicemails etc
- **Service desk calls** (four metros) despite lower staff availability in IT teams and an increase in requests coming when service desks are also being moved to remote working
- **Managing cybersecurity** (three metros); two metros have reminded their remote staff to maintain information security; one metro was concerned about more cybersecurity incidents, but this threat has not materialised. One metro highlighted that hostile parties may be exploiting wider fears around Coronavirus COVID-19 in relation to cybersecurity
- **Managing information security and data protection** (American metro); one metro has identified several instances of employees potentially risking information security and reminders have been issued to employees particularly around information security and data protection.
- **Internet bandwidth** (three metros) preventing fast connections/access. One European metro doubled its bandwidth to ensure staff could use systems reliably.
- **Provision of hardware to staff** (two metros) where delivery times have been increased due to increased demand (one metro)
- **Managing shared systems and folders** (one metro) to ensure that staff have full access to the resources they need to work
- **Ensuring proper licensing of software** (one metro) so that working from home is easy and productive
- **Roll-out of e-learning/online training** (one metro) to support staff learning to use working from home tools.

3.5.2. Managing maintenance and asset management

Immediate impacts on maintenance and asset management do not appear to have been widespread across transport organisations, and multiple organisations (12 rail, four metros) have reported that maintenance activities are continuing as normal.

However, this is an issue that seems to have progressively developed during organisations' response. **Staff, materials and contractor availability, as well as advice for staff safety may be increasingly affecting maintenance and capital works.** Staff availability appears to be the most critical issue affecting organisations. One railway for example has noted that less than 20% of maintenance staff have been available for work during the pandemic. Working practices may also affect the metro's ability/efficiency to carry out maintenance: one Asian metro for example has drastically reduced the

number of staff at depots (one member of staff during the day shift and 2-3 staff at night). Key issues that have emerged include:

- One metro stated that **outsourced maintainers are finding it difficult to provide their usual technical services** and troubleshooting
- One railway noted that contractor availability has been an issue, but the key impact has been **delays in delivery** rather than non-availability of personnel.

Key limiting factors to carrying on with usual maintenance regimes include staff availability and rules around social distancing affecting the formation, efficiency and productivity of works. However, two railways have provided an example of **adjusting their maintenance regimes primarily based on current levels of use** rather than these wider limiting factors.

Organisations may also see the lower levels of passenger use across their networks as **an opportunity for increasing maintenance** if they are able to. Examples of increased maintenance activities include:

- **Addressing previously deferred work, modifications and cosmetic enhancements** (one railway)
- **Planning for "shovel ready" projects** that can be used to stimulate the economy in the near future (one railway)
- Investigating whether reduced train lengths mean that **major maintenance cycles can be brought forward on spare rolling stock** (one railway)
- **Accelerating work wherever possible** (multiple organisations), e.g. track renewal work (one railway)
- **Focusing on essential infrastructure projects** (one railway) that are usually very disruptive to passengers or that would normally only be achievable during overnight hours
- Using additional train hours in depots to **search for causes of recurring failures** (American metro) and investigate issues such as trains using more energy than is expected.

However, some organisations have also needed to **postpone and cancel works** because of wider staff, material and contractor availability. One American light rail agency has postponed **major works** (e.g. work requiring bus replacement services); one American light rail agency has postponed **capital projects** where they are carried out by third parties (one American light rail agency). In terms of ongoing maintenance, two railways have seen a decrease in **preventative maintenance** (except for works deemed strategic, basic or an emergency at one railway), two railways are reducing **rolling stock maintenance** and one railway has highlighted that wider supporting practices such as track possessions have been cancelled.

Lastly, there are examples of **adjusting regular maintenance regimes to respond to the current circumstances.** One railway has **switched to a distance-based maintenance regime** for preventative, routine and heavy maintenance, given that trains are much less intensively used. Fleet routine and preventative maintenance have been reduced by the same percentage reductions in car mileage. One railway has **moved to a time-based regime** for intercity trains that have not been running during the pandemic, one railway has **increased maintenance intervals,** and one American light rail agency is using **reduced operating hours** to start maintenance work earlier in the evening.

3.5.3. Ventilation

Ventilation has been highlighted as an important area for technical management, given that Coronavirus COVID-19 is primarily an airborne-spread virus. This has placed **additional importance on the functioning, maintenance and cleanliness of ventilation infrastructure**.

Several organisations (including four metros and six bus organisations) are continuing to use air conditioning as they did before the pandemic, as this level of ventilation appears to be safe. One metro assessed the ventilation of their system and has found that the air movement inside its new trains, air movement in tunnels and mechanical ventilation in tunnels, stations and other facilities are sufficient to minimise the spread of the virus without additional ventilation measures.

Measures that organisations have taken to provide additional ventilation include:

- **Extending hours of ventilation** (Asian metro) to 22 hours a day
- **Opening doors during turnback** (Asian metro) to ensure proper ventilation
- **Using maximum ventilation volumes** (two Asian metros) or **increasing them where possible** (European metro)
- **Increasing the frequency of fresh air intake on ventilation systems** (Asian metro)
- **Keeping windows on trains open** (one railway) to ensure fresh air circulates.

One bus organisation has **separated driver and customer air conditioning/refreshing** for additional safety. This bus organisation has installed a negative pressure system and HEPA filter to clean air in passenger areas of some of their buses, while the driver compartment has its own independent air-conditioning system to prevent cross-contamination.

3.6. Cleaning

	Actions during Decline	**Actions during Stabilisation**
Processes	• Increasing cleaning scope and frequency across assets • Increasing cleaning particularly of public-facing assets or assets that are regularly touched • Strategically targeting cleaning at airport stations or lines	• Optimising vehicle cleaning in/before depots – i.e. implementing a "pre-clean" after the terminal station before the train enters the depot • Requiring staff to be responsible for some aspects of cleaning (e.g. operational workstations) as well as dedicated cleaning staff
New options	• Testing new equipment (e.g. UV light, new cleaning products)	

Cleaning procedures have been substantially enhanced across organisations to minimise the likelihood of Coronavirus COVID-19 being transferred between staff and passengers. Cleaning measures were among the earliest actions that transport organisations implemented during the pandemic and regimes have generally increased in frequency and scope throughout the pandemic.

Several organisations rely on third parties/contractors to carry out cleaning across their networks. Three organisations stressed that **communicating with cleaning sub-contractors to ensure a consistent approach is important**, and they are being reminded to focus additional cleaning on contact surfaces (e.g. handrails). One metro raised that staff and third party operators (e.g. retail staff) across the network must keep good records on cleaning practices for auditing purposes.

3.6.1. Frequency of cleaning

Multiple organisations began increasing the frequency of their cleaning early in the pandemic to ensure that the spread of Coronavirus COVID-19 was limited as much as possible. Key examples include:

- **Increasing frequency of surfaces that are regularly touched**
    - Things touched often by customers cleaned more regularly
    - Frequently used equipment cleaned at least daily
    - Driver cab cleaned at every crew change (European metro)
    - Public washrooms being cleaned on a 90-minute cycle (American metro)
    - Escalator handrails cleaned very frequently, e.g. 2-3 times per day (American metro), at least four times a day (European metro), once every four hours (Asian metro)
- **Increased frequency particularly in public areas**
    - Public areas of stations disinfected twice a day (Asian metro)
    - Public areas of stations disinfected five times a day (Asian metro)
- **Increased frequency at busier stations and facilities**
    - Key interchanges cleaned more regularly (European metro)
- **Increased attention to biohazards** (passenger sickness or spillages) (one railway).

3.6.2. Scope of cleaning

Organisations have been addressing a wide range of equipment types and surfaces that are frequently touched and therefore particularly key for regular cleaning. These include **handrails, escalators and staircases, lift and door buttons, faregates, grab handles and poles, electronic devices, door handles, telephones and ticket machines**. Three metros stated that enhanced cleaning of driver cabs has been implemented.

Early in the pandemic when new cases of Coronavirus COVID-19 were at risk of being imported via international travel, **two metros strategically targeted additional cleaning measures at airport stations or lines**. One European metro provided hydroalcoholic wipes at airport stations and any stations connecting with long-distance passenger transport or international connections, and one Asian metro used stronger 2% cleaning solutions at airport stations.

Tickets and smartcards are also handled frequently by both staff and customers. Several organisations do not offer reusable ticketing products and any ticket will only be handled by an individual customer, and several organisations do not recirculate smartcards if they are returned by a customer. **In terms of enhanced cleaning of ticketing products:**

- Two Asian metros offer single journey tokens and these are undergoing an enhanced cleaning process before they are made available to customers, as they are recirculated after single uses. At one metro, used tokens are sent back to a centralised ticketing centre for cleaning and disinfection before being redistributed to stations. Approximately 1.8 million tokens are cleaned per month using soap and bleach. Another metro sprays tokens with alcohol or disinfectant every night before being resold at ticket machines or offices.
- One railway stated that smartcards bought at non-railway facilities (e.g. in newsagents) are pre-packaged in plastic.

Vehicles have been critical assets to keep clean given their handling of multiple passengers, and typical cleaning practices do not allow for cleaning at the end of single routes (e.g. a terminal-terminal journey). Early in the pandemic, organisations raised that they increased the frequency of train, car and bus cleaning:

- For **train and station cleaning**, one Asian metro ensures that all trains are planned for end of service cleaning; depending on the service this will be in the depot, at a turnback, or at the line departure station. Another Asian metro cleans and disinfects all stations at least twice a day. One further Asian metro cleans and disinfects cars at least once a day and an American metro's trains are undergoing a full sanitisation every 24 hours with additional cleaning overnight as overnight service is currently suspended
- For **bus cleaning**, two organisations remove buses from service if they have transported a customer testing positive for Coronavirus COVID-19. The buses are quarantined for 24-72 hours for cleaning and disinfection, and one bus organisation keeps the bus quarantined for another 24 hours after cleaning before re-entering service. Another bus organisation raised that buses receive additional cleaning and disinfection at the before they reach the depot to minimise risk to cleaners waiting at the depot.

Five organisations specifically mentioned enhancing their **cleaning of air conditioning infrastructure** (such as filters) in stations and trains. One railway noted that this is a complicated procedure requiring a high level of protection for staff. One Asian metro now replaces air filters every week, and one railway will be increasing the frequency that it changes air filters but this is still under discussion. One railway will be carrying out a fogging process on air conditioning ducting. One metro is **ensuring additional disinfection on air filters after cleaning.**

3.6.3. Equipment and use of technology

Organisations requiring staff to carry out basic cleaning duties (for example of their own workstations) are providing widespread hand sanitiser, disinfecting wipes/spray and masks. One American light rail agency is providing their staff with chemical splash safety goggles and single-use nitrile gloves.

There are also examples of **organisations adopting technology to help manage and improve cleaning**, such as:

- One Asian metro has installed an automatic handrail steriliser on escalators and is installing thermal cameras at major interchanges
- Two organisations are using **hygiene backpacks** for spraying disinfectant quickly and safely
- Hong Kong MTR has deployed a "**Vaporised Hydrogen Peroxide Robot**" (developed in conjunction with a third party) to **conduct deep cleaning and decontamination in train compartments and stations**. By automatically spraying hydrogen peroxide solution that is atomised to a specific concentration, the VHP Robot ensures that disinfectants penetrate in the small gaps that are difficult to reach during normal cleaning work. When there is a need to conduct disinfection, the operator can preset the VHP Robot to operate automatically by pre-setting the floor plan of the designated area, or remotely control the robot manually with a mobile device within 20 metres. It takes about 4 hours to complete the cleaning of an 8-car train in automatic mode.[10]

[10] Further information about the Vaporised Hydrogen Peroxide Robot can be found here - http://www.mtr.com.hk/archive/corporate/en/press_release/PR-20-020-E.pdf

Most organisations are not using UV light technology for disinfection, but there have been some trials of it amongst members. One American metro and one railway trialled UV light but will not pursue it further. One railway reported that it is not suitable for use in its environment because bulbs need to be kept clean and any build-up of dust or airborne deposits rapidly decrease the bulb's effectiveness; the bulbs must have close proximity to the surfaces being disinfected to deliver the appropriate UV "dose"; the bulb must have direct line-of-sight to the surfaces being disinfected (shadows disrupt disinfection); and there is a need for hard wiring and mounting the UV device.

There are three examples of UV light being used to enhance cleaning:

- One European metro uses it on its older trains at the depot while its new trains have UV lights installed in the ventilation system and the air is disinfected while the train is in service
- One American bus organisation is using UV light to clean high traffic areas, vehicles and rooms with highly sensitive electronic equipment, on buses that are removed from service and disinfected, and in office spaces to enhance other cleaning procedures
- One American metro is using UV light inside train cars and buses using 150 dual-headed mobile devices

No organisations have reported using ozone sterilisation as a cleaning method. Ozone sterilisation was used as a cleaning treatment during the SARS pandemic and is used in hospitals to sanitise equipment.

3.6.4. Cleaning chemicals

Organisations are using a multitude of cleaning products to manage the spread of Coronavirus COVID-19. The US Environmental Protection Agency (EPA) has also published a list of disinfectant products for Coronavirus COVID-19. These include:

- **Bleach solutions** (multiple organisations at various concentrations), including:
    - 0.05% bleach water solution for frequently-touched surfaces every four hours
    - An 0.1% bleach water solution for passenger trains and buses
    - 0.5% bleach water solution for fleet cleaning and disinfection
    - 1% bleach water solution for frequently-touched surfaces every two hours
    - 10% bleach solution for frequently-touched surfaces daily and floors.
- **Alcohol-based cleaners** (multiple organisations)
- **Ammonia-based cleaners, such as:**
    - Bellquat (quaternary ammonium) (two metros) which requires approximately 20ml per train car
    - Bleach + quaternary ammonium mixture (one metro) which requires 400ml per train car
    - INSETIZAN cleaner (one metro), which is vaporised inside trains before service
    - Ammonium chloride (American light rail agency) sprayed across vehicle interiors nightly
- **Abluo** (American metro) which is wiped on surfaces
- **Virex II 256** (two bus organisations), a disinfectant cleaner and deodorant
- **Zoono's Microbe Shield Z-71** (one European metro and one European railway) to disinfect stations and trains. The product is described as harmless to humans and animals but deadly to a wide variety of bacteria, fungi, yeasts and viruses including the Coronavirus COVID-19. Testing according to European standard EN14476 showed 99.99% efficacy after 5 minutes. It is being

applied weekly on this metro's network on critical surfaces (those that are frequently-touched) and the effectiveness of the not affected by routine cleaning.

- **PQ60** (European metro), which is a concentrated chlorine cleaner. This metro has found that it uses one litre of PQ60 per six-car train
- **84 disinfectant** (two metros), which requires 160ml per train car
- **Lotus Pro, Suma Bac and Oxivine** (one metro), which is wiped onto surfaces
- **I-INST** (Asian metro) which is both sprayed and wiped on the train, requiring 2 litres per train (at a ratio of 20ml per 1l of water. The cleaning agent is applied and wiped an hour later.
- **EP50** (American metro), which is a hydrogen peroxide-based disinfectant and sprayed onto surfaces.
- **Titanium Silver Oxide** (Asian metro) on handrails, strap-handles for disinfection
- **Oxivir TB wipes** (American metro) for frequently-touched surfaces such as keyboards, telephones, steering wheels, photocopiers, workstations, desks, etc
- **Pinesol and Lysol** (one bus organisation)
- **Re-Juv-Nal** (one bus organisation)
- **Innuscience DR-100 (American metro)** particularly for escalator handrails**.**

Metros and light rail operators are also trialling/considering new cleaning chemicals such as:

- **Chlorine dioxide** (two light rail operators) for its antimicrobial properties
- **Virustat DC Plus** (one light rail operator), which is didactyl dimethyl ammonium chloride at a concentration of 1:256
- **Microbial coating gas** is currently under investigation (American metro), although this requires a drying time of one hour after application.

4. Future planning: Business continuity, recovery and reform, and lessons learnt

The earlier sections of this report are primarily focussed on how organisations have been responding to the pandemic in terms of day-to-day operational and management issues.

Decline	Stabilisation	Recovery
Section 3		**Focus of this section**
When demand declined significantly as the main impacts of the pandemic affected organisations, and organisations implemented a multitude of immediate management and mitigation measures	*When demand has settled at a steady figure and management and mitigation measures tend to be properly established and functioning. Measures may be developed to increase their scope or effectiveness*	*How organisations are adapting in the short, medium and long-term*

Lockdown measures have already been lessened in many places with governments attempting to enable economic activity to resume. However, while restrictions on citizen movement and business activities have been lifted in many cases, social distancing and other measures to prevent the spread of the pandemic normally remain, even if in a lesser form. It is still uncertain when these remaining measures can be lifted and it is likely that many will continue to be in place for months. Perhaps even more uncertain is how travel demand might be affected in the medium to longer term even once the remaining restrictions are eventually removed.

Organisations thus face two distinct challenges in relation to future planning:

- **How best to continue to operate for an extended period with some restrictions on travel and/or social distancing measures in place** and while many passengers may return, demand is likely to remain considerably below pre-pandemic levels.
- **How to plan for an uncertain future in the longer term** where there may be some long lasting impacts and where travel pattern may not necessarily return to the pre-pandemic situation.

The aim of the section is to highlight the key issues which organisations are starting to face in these areas and to share knowledge and best practices on how they are being addressed.

Organisations are already indicating that many measures introduced during the initial stages of the pandemic (as detailed elsewhere in this report) are expected to continue for some time, some even indefinitely. However, other issues are starting to occur, both while restrictions continue to apply during the recovery period once these are lifted.

As the initial challenges were addressed and management and operational procedures have been adapted to meet the short-term needs, **organisations are now looking further ahead**, especially in terms of **financial challenges** arising from a situation where demand and revenue is expected to remain supressed for some time.

There is a much speculation on wider socio-economic impacts in the medium to longer term and on how these might affect people's travel patterns and public transport. Some permanent **changes to society and the economy** are being predicted, including how these may affect the transport sector. The ensuing economic downturns may guarantee lower passenger demand in most cities whereas

longer term societal changes such as homeworking are much more difficult to predict. This means that transport providers will increasingly need to **proactively plan for the recovery stage under a range of different scenarios** which is likely include some **elements of reform**. Many organisations are already considering how these longer-term impacts are likely to affect them and how they should respond. This includes both high-level strategic planning and more detailed operational planning.

The final part of this section covers Lessons Learnt. Information will be added here as organisations move beyond the current stage of the pandemic and start to review and assess how they responded. Such reflection may be invaluable for reacting to second waves of the pandemic, should they occur.

4.1. Strategic management and planning for the future

Many of the **strategic management measures implemented during the early stages of the pandemic are still in place**, and will **continue at least while restrictions on citizen movement remain, and some also for the longer term**. Organisations are therefore continuing with activities and procedures implemented earlier, including committees for pandemic coordination, measures and polices such as working from home, protection for employee health, operational changes and redundancy (in the context of having back-up staff) at management level.

As organisations move into the recovery stage, some elements are increasingly becoming of key importance from a strategic management perspective, including:

- **Increasing services and reopening** including adaptations to operating practices and preparedness to resume services after a prolonged period of limited operation.
- **Continuing to protect staff and customers** including planning for the continuation of increased requirements and expectations and helping to prevent further outbreaks of the pandemic. This also includes the adoption of further measures to increase confidence.
- **Considering how demand and revenue can be regained** within the above constraints, to ensure the long-term sustainability of the transport systems to meet socio-economic needs.
- **Addressing financial challenges** to ensure business continuity despite dramatic revenue loss from fares and other commercial income. Initially, operators may require both accessibility to debt financing as well as cash flow support from government; longer term operators must secure appropriate levels of sustained funding sources.
- **Mitigating longer term consequences of short-term actions and changes** to ensure that necessary actions taken in the short term do adversely affect organisations in the longer term, such as postponement of maintenance activities and investment (at least where this can be avoided).
- **Reforms to reflect changed circumstances** including possible permeant changes in the operating environment to ensure efficiency, effectiveness and sustainability in the longer term.

It may also be helpful to distinguish between emerging issues and accumulating issues from a strategic management perspective and future planning perspective:

- **Emerging issues** (or “perishable” issues): These are issues which emerge during the restricted conditions, and need to be dealt with at the time, but will not have long term impacts beyond the current phase
- **Accumulating issues**: These are issues which do not *need* to be addressed in the short-term, but will start to build up and will need to be dealt with later (e.g. non-safety critical maintenance and staff training). Many of the accumulating issues will need to be addressed in the recovery stage,

but to prevent the backlog becoming increasingly unmanageable, organisations also need to ensure that issues which can feasibly be dealt with in the shorter term are not unnecessarily put on hold.

To deal with all the above types of issues, organisations need to ensure that they are able to devote sufficient management attention to future planning while still maintaining focus on the current situation. This may involve establishing specific teams or committees focused on recovery, including, for example, customer and marketing experts as well as operations and safety departments that may have been involved at an earlier stage.

Looking further ahead, organisations will need to consider whether **more fundamental longer term changes** are needed if the risk, actual or perceived, of pandemics remains significant. This may include design changes such facilitating social distancing, assets which are easier to clean, as well as ongoing operational changes such as separation of staff between teams. Sudden shocks and periods of enforced change can also provide an **opportunity for reforms** which have wider benefits; some of the fundamental change which organisations have made out of necessity in the short term may also be beneficial in the longer; this may include changes to staff roles to focus better on customer needs and incorporation increased resilience to other forms of disruptive event.

4.1.1. Scenario planning

Some organisations are using **Scenario Planning** to help formulate plans for recovery, which reflects the current uncertainty about the future and the unprecedented nature of the current situation. Some organisations are also **studying the impact of past "shock events"** including earlier pandemics (incl. SARS) and major terrorist attacks to help understand the longer-term impacts. Many organisations are conducting future **demand forecasting**, sometimes as part of the scenario planning. For example:

- One railway is developing scenarios based on two key uncertainties: time (how long will demand take to recover) and impact (recession, behavioural impacts, etc.) Currently the 'sombre but realistic' estimate is recovery to pre-Covid levels of demand about 2025.
- One European metro completed a piece of work in April which set out the implications of Covid-19 and looked at alternative future scenarios, including exploring new positive opportunities Covid-19 presents and uncertain implications of city planning scenarios.
- One railway is currently undertaking passenger demand forecasting analysis based on several local economic factors, including employment, to understand the demand evolution in the immediate, short, medium and long term.
- One metro is modelling potential demand trajectories in the short-term (into 2021) and also until the end of their concession in the 2030s. These demand trajectories are particularly considering events that have been shown to affect specific periods, and possible economic impacts in the wider country following Covid-19.

Dialogue with government and other key stakeholders is vital during the recovery stage, to ensure that these stakeholders are fully aware of the specific implications for the transport sector and to help **avoid inappropriate or impractical requirements and expectations** being placed on transport providers. Organisations are also heavily **reliant on governments** for decisions on reopening and social distancing requirements, e.g.:

- Factors affecting organisations' ability to plan for post-pandemic conditions include wider governmental plans for reopening the economy or economic recovery (stated by two metros).

4.1.2. Role of public transport

Some organisations are also considering **how the role of public transport may change in the aftermath of the pandemic**. Transport is a key facilitator of economic activity and by ensuring services can support they economy in the most effective manner organisations may be able to **make a stronger case to governments and other key stakeholders** for increased financial and other forms of support. Many public transport systems lost demand to the private car during the pandemic and there are concerns (supported by some evidence from surveys) that not all of this demand may return to public transport. Hence it will be **increasingly important to make the case for public transport in terms of the wider socio-economic, safety and environmental benefits** which it provides. Ensuring passengers return as soon as it is safe to do so will also help to make the case of increased funding as the value of the services will be more apparent (convincing governments to continue to support services carrying only very small passenger volumes may be more challenging).

4.2. Addressing funding and financing challenges

With demand remaining far below normal levels on most systems, even where recovery has begun, fare revenue will continue to be severely affected while restrictions remain in place, and possibly for considerably longer. This **affects organisations that receive a high proportion of their income from fares most significantly**, although there are already pressures on subsidies as governments and public finances are impacted. In addition to the loss of revenue, some of the changes needed to deal with the pandemic in the longer term may also lead to increased costs, such as addition protection for staff, enhanced cleaning regimes, pressures to provide increased capacity to enable social distancing, etc. **Benchmarking may help organisations demonstrate the scale and nature of government support** that is likely to be required.

Organisations are attempting to estimate the financial impact on their operations, both for the current year and in the longer term. As well as for internal planning, this is also providing input for negotiations with government. For example:

- One railway has been asked by their government to provide an updated 10-year financial forecast.
- One bus organisation began tracking the additional cost increases incurred as a result of the pandemic in April 2020. Examples of the most significant additional costs are on cleaning regimes and equipment, and payments to drivers who are called in at short notice to replace drivers that are self-isolating.
- One railway is developing budget and marketing plans; currently, the assumption is that it will take five years for demand to recover to pre-Covid levels. The recovery strategy is focused on different customer segments – tax discounts on season tickets for commuters and discounted fares for intercity trips.

Transport operators, especially for rail-based modes which are “asset-heavy”, typically have a very high proportion of fixed costs (as much as 2/3 of total cost) which cannot easily be reduced in the short term.

4.2.1. Actions to reduce costs

- Some organisations are already considering **actions to reduce cost**
    - Workforce layoffs and organisational restructures are being discussed, but most organisations have not yet initiated major headcount reduction programmes. This is also

likely to be an increasing pressing issue if demand and revenue remains low for an extended period.

- It is likely that **staff restructuring and headcount reductions will need to be studied** in-depth when the immediate operational response to manage the pandemic is over. 13 bus organisations, for example, indicated that they are not considering laying off staff during the pandemic.
- If demand does not return to pre-pandemic levels there may be opportunities for savings in operating cost, at least in the short to medium term. One European railway is reviewing whether the increase in train km which was previously planned as part of a new timetable will still be needed.

4.2.2. Additional funding and financial support

- Organisations are increasingly seeking **additional funding and other forms of financial support from governments/authorities, including government-backed borrowing** Agreements have already been made in some cases, with many other organisations in discussion with their funders. This is becoming increasingly important as demand continues to remain well below pre-pandemic levels for an extended period and to ensure that organisations are able to recover effectively. There are **a range of different mechanisms which are being used to provide financial support**:
  - Many organisations are negotiating **additional funding via conventional subsidy sources and mechanisms, sometimes with additional conditions**. E.g.:
    - One authority has brought forward the timing of their Public Service Obligation (PSO) payments to support a railway's cash flow (which represents a significant proportion of this railway's revenue).
    - One railway's government will allocate "availability support" for (all) public transport companies, covering 93% of the additional costs/shortfall, with the other 7% to be covered by cost savings within the public transport companies.
    - One American metro has received government emergency assistance being provided to transport operators across their region aimed to promote a return to normal in terms of public transport.
    - Transport for London agreed a c. £1.6bn (max £1.9bn) funding and financing agreement with the UK Department of Transport in May. Details of the agreement are outlined in the TfL Board papers from 2 June: http://content.tfl.gov.uk/board-20200602-agenda-and-papers-supplentary.pdf .
    - One railway is in discussions with their national authorities who fund operations and infrastructure asset management.
    - Some organisations are receiving grant funding (two metros), where conditions are attached to funding to ensure wider risks to revenue and the business are managed as far as possible (one metro) as well as conditions concerning future fares policies, accompanied by increased government scrutiny and control in the future.
    - Another metro's grant funding is supporting key financial shortfalls such as revenue losses, repaying debt and protecting its capital programme (which has wider impacts on jobs and future revenue).
    - While some organisations have received short term agreements on financial support for the current year, **longer term agreements on funding are often still**

to be negotiated. For example, one railway has received additional funding for July to December 2020, but funding beyond this has yet to be agreed.

- Some organisations are receiving **dedicated funding for specific costs directly attributable to the pandemic**:
  - One bus organisation is being reimbursed by their transport authority for additional costs incurred during the outbreak (revenue losses, absenteeism, overtime, expenses due to increased cleaning frequency, etc).
  - Two railways are receiving specific funding from government to cover additional cleaning costs.
  - One metro is receiving concessional loans from government to fund the purchase of protective equipment (PPE).
- Some organisations are being granted **temporary exemptions from payments and charges normally due under the operating contracts**:
  - One European railway has been granted a temporary suspension of their track access charges to their infrastructure manager and for payments to government normally required as part of their operating contract.
  - One bus organisation has had government fees and charges frozen for 12 months (e.g. business licence fees, company registration fees, work pass application fees).
  - One bus organisation has contractual provisions with its authority removing penalties on supply level, regularity and other service quality indicators (under a "force majeure" provision).
- **Wider government funding (not specific to transport)** is also being used in some cases:
  - Several governments have created temporary schemes to pay part of the salaries of staff that the organisation cannot employ ("furlough" schemes). One European railway and one European metro have utilised these schemes for some staff not required during reduced service levels.
- Some organisations are seeking to raise additional funding though **commercial loans and bonds**:
  - One European railway is considering commercial loans as a means to cover what is being considered as likely to be a one-off fall in revenue.
  - One railway is issuing bonds and commercial papers to secure necessary cashflow to operate the business. This is being done alongside operational cost reductions.

- Actions to **increase sources of revenue and subsidy**
  - As demand returns to the networks, organisations are also restoring some fares which were temporarily withdrawn during the peak of the pandemic.
  - Several organisations are implementing or planning marketing campaigns and promotions, including promotional fares, to encourage passengers to return once it is safe to do so (see examples below under "Regaining passenger demand and revenue").
    - The disruptive scale of the crisis may make it easier for transport authorities and governments to implement reforms to the funding of public transport: for example through hypothecated road congestion charging, variable workplace hours of work and more dynamic pricing of demand to make better use of office and transport capacity.

- **In the United States there are some specific funding mechanisms** which have been put in place to assist public transport operators**:**
    - The Federal Transit Administration (FTA) has initiated an Emergency Waiver Process offering relief from certain prohibitions and obligations on transit agencies because of Coronavirus COVID-19. Two bus organisations reported potentially seeking relief under this process, for example requesting a greater share of federal funding (vs. local funding), releasing obligations to hold public hearings and process public comments about service and fare adjustments to implement changes more rapidly, and extending reporting dates to wider authorities.
    - Coronavirus Aid, Relief, and Economic Security (CARES) Act funding is available to public transport agencies to help prevent, prepare for and respond to Coronavirus COVID-19. Several American bus agencies are planning to draw on this funding as follows:
        - Reimburse operating costs to maintain the highest service level (2 American bus agencies)
        - Procuring rearward facing securement stations to reduce driver contact with passengers that use wheelchairs (one American bus agency)
        - Implement a contactless fare payment system (one American bus agency)
        - Implementing a package including sanitary supplies, specialised cleaning including labour, outfitting of buses with plexiglass shielding and signage, grocery delivery service partnerships and supplementary sick leave (one American bus agency).

4.2.3. Impacts on investments

The impacts on government finances may also affect ongoing **investment** in the transport sector, especially as transport infrastructure investment in particular has long lead times. While there will undoubtable be pressures on funding, it is important that the longer term implications of short term decisions are sufficiently well understood.

- For example, one railway has stated that they are concerned about the **longer term negative impact of deferring capital investment funding on capability support longer term growth**, noting how demand has on previous occasions returned to growth after severe recessions.
- Three railways are currently reviewing their previous plans for fleet expansion and expect that the requirement for new trains may be reduced.

In the medium-term, some economies will continue to be supported by near-zero interest rates (especially if government-backed) which may offer an opportunity for more affordable levels of reinvestment to sustain a long-term continuity in service quality. There is evidence that some governments are considering transport investments as an important element in assisting economic recovery more broadly.

- One railway has been specifically asked by their government to **assist stimulate the economic recovery by infrastructure investment** (funded by government).

As well as income from fares and from subsidy, **organisations are also considering how impacts on other (non-fare) commercial revenue can be mitigated** including by engagement with third party partners/stakeholders.

4.3. Regaining passenger demand and revenue

While social distancing rules and restrictions on business activities remain in place in most countries, even if in a more limited form, demand will continue to remain well below pre-pandemic levels. As shown earlier in this report, this can often mean organisations are carrying only around 10% or less of their normal demand during peak periods, although a higher effective % could be accommodated with demand management. Even where restrictions have been eased, demand is still well below previous levels.

Demand is therefore unlikely to recover to anywhere close to pre-pandemic levels until all restrictions are lifted, and – probably – until immunity in the population is established. While – based on evidence from previous events - the majority of this demand is can be expected to return following the pandemic and in some cases is already doing so, organisations are starting to consider both **how long it might take for demand to recover** and – more crucially, **whether some demand may not return**. Organisations are at an early stage in predicting how quickly demand may return, with a wide range of time periods being estimated, reflecting the considerable degree of uncertainty. For example:

- One railway is **estimating that demand will take five years to return to pre-pandemic levels**
- One metro is **predicting the majority of passengers to come back within a few months**
- One metro's central scenario predicts that demand will return to 70% of pre-pandemic levels.

These impacts would clearly have major repercussions on the financial position of the organisations. Even relatively small longer-term demand reductions will have serious financial implications for most organisations. Where demand has started to return, this is so far only to around half to two-thirds of previous levels - see the Context section of this report for examples). Organisations are also identifying specific points when demand is expected to return:

- One bus operator is planning for increased demand as schools and colleges come back in September.

Even where demand is returning, organisations are **actively planning for possible further reductions if there are new outbreaks of the virus**. For example:

- One bus organisation is conducting contingency planning for further virus outbreaks and the onslaught of usual winter cold and flu season. They consider that this is particularly concerning; current views are that after initial testing everyone will need to isolate for two days until a second test. In addition, anyone they have been in contact with will also isolate. This has the potential to severely disrupt operations and is the focus of planning and contingency.

There is already considerable discussion within the transport sector (and governments, media etc) more widely on the potential **longer term impacts on travel demand**. However, most of this is little more than speculation at present as so many uncertainties remain. Factors mentioned include (but not limited to):

- Impact of economic downturn and increased unemployment.
- **Increased remote working (working from home)** (which could perhaps also encourage longer distance commuting in the longer term).

    - One railway is developing different scenarios for future commuting demand based on workers initially returning to the office 2-3 days per week and including a 'New normal' scenario for 2021 with an average 2 days working from home. They are also engaging with businesses to find out about their plans (e.g. new ways of working, reducing office footprint, etc.).
    - One railway is also planning for an increase in working from home in the future and expecting the impact of this to vary by day of the week. Another railway noted they are expecting more variety in travel patterns in the future (rather than passengers taking the same train five days per week).
- Greater use of and innovation in **video conferencing** and similar technologies leading to reduced business travel.
- **Reduced international travel and tourism** (due to health concerns, higher airfares, reduced incomes).
- **Decline in the retail and hospitality sectors** reducing demand for leisure travel to city centres and other key destinations. This may include an increased trend towards online shopping and other activities being undertake online or at home (e.g. food delivery services rather than going out to restaurants).
- **"Fear factor"** preventing people engaging in non-essential activities outside their how, including visiting crowed destinations for leisure activities (restaurants, theatres, sporting events etc.) and of using public transport.
    - Some market research is suggesting around 10-20% of previous customers may continue to avoid public transport for an extended period, especially for more discretionary leisure purposes.
- **Government policies to encourage people to avoid public transport and use alternative modes**, including walking and cycling for shorter journeys
    - E.g. for one European metro's government is encouraging people to use their own car (for long distances) and walk or bike for short trips (max. 2 km) and leave public transport to people who have no alternative. To promote cycling and walking in the city centre (and hence discourage car traffic and limit the number of passengers on buses) speed limits are being reduced to 20km/h on the roads for all vehicles except trams, and additional space allocated to pedestrians and cyclists.
- **Increased use of private cars** due to any or all of: perceived lower infection risk, reduced congestion as a result of recession and/or overall reduced travel demand/lower fuel prices
    - One railway has found that demand is proving slow to return, and an increase in second-hand car sales has be recorded in the region as people appear to be avoiding public transport. While rail demand is about 30-35% of pre-Covid level, road traffic is already above pre-Covid levels.

4.3.1. Findings from customer surveys

To address these challenges, **organisations are starting to estimate how and when demand might return and to consider how they could actively encourage this once it is safe to do so.** Some organisations are conducting surveys of customers to try to determine how many people expect to return, and how quickly. For example:

- One metro has participated in a national survey to understand how individuals feel about public transport in light of the impacts of the pandemic. While organisations may be actively trying to dissuade travel on their networks, it is important to know how customers may be planning to travel again to properly prepare. Key findings from this survey included:
    - **During Coronavirus COVID-19:**
        - City residents who used public transport during the main pandemic felt moderately comfortable (rating their satisfaction approximately 5.5/10). 64% said that their travel experience went as planned and 24% said it was better than expected. Satisfied passengers mainly cited the limited number of people on board (72%), the cleanliness of vehicles (71%) and the ability to maintain social distances (67%) as a reason for satisfaction.
        - The experience was more negative than expected for 13% of city residents. The causes were anxiety about being contaminated (58%) and difficulty keeping physical distance (55%).
    - **Before lockdowns were lifted nationally**, around 10% of people said they no longer wanted to use public transport and just over a quarter said they wanted to use it less frequently. The main cause cited was the risk of contamination (67%). 38% of respondents said that they would be ready to adapt their travel time by public transport depending on crowding levels.
    - **In the future, the metro expects that working from home will become more normal** (for approximately 50% of city residents), and that city residents are less likely to plan to travel as often as they did before (29%), less often to go out to restaurants (32%) and less often to visit family (14%). As long as there is no vaccine, 28% of people plan to stop using public transport.
    - **Regarding mode shift,** About 20% of city residents stated that they intend to replace their non-essential public transport journeys with bicycle journeys, while 30% plan to replace them with journeys by car.
    - **The most important mitigation measures in stations** according to city residents are:
        - Intensive daily cleaning of facilities (62%)
        - Providing free masks (57%)
        - Uniformity of measures across different transport companies (55%)
        - Respect for physical distance (52%)
        - Checking compliance/enforcing measures (52%)
    - **The most important mitigation measures for travelling** according to city residents are:
        - Wearing a mandatory mask (61%)
        - Limiting the number of people in vehicles (50%)
        - Respect for physical distance (50%)
        - Checking compliance with the measures (49%, significant difference from average)
        - The marking of seats and the ban on sitting next to someone (47%)
    - **The highest-priority expectations for service quality** according to city residents are:
        - Wearing a mandatory mask (67%)
        - Free provision of masks (58%)
        - Providing higher trip frequencies (53%)
        - Extending peak hours (44%).

- In the UK the consumer body Transport Focus has been conducting weekly surveys to ask people about their current travel behaviour and attitudes to travel in future during the coronavirus outbreak. Key findings from surveys conducted in late May 2020 included:
    - 34% of respondents stated they would not use public transport again until they feel safe, compared to 26% who said that they would only use it "when the government no longer advises avoiding public transport". This suggests that safety rather than Government advice is seen as the greatest factor preventing people travelling at present.
    - 26% were travelling by car rather than using public transport, 22% were walking instead and 4% cycling.
    - The proportion of people saying that they would be happy to use public transport once restrictions are lifted have risen slightly, but remains low (23%).
    - 43% of people said that they would be more likely to drive for journeys where they previously used public transport once restrictions are lifted.

4.3.2. Impacts of previous "shock events"

Some organisations are also **analysing how passenger demand was impacted following previous "shock events"** such as earlier pandemics (e.g. SARS) terrorist attacks and major economic recessions.

- Demand for one Asian metro took around 9 months to recover following the SARS pandemic in 2003.
- Demand on one European metro took 1.5 years to recover after a major terrorist attack
- One railway saw demand take almost 10 years to recover following the financial crash in 2008, but then saw demand continue to grow rapidly beyond pre-recession levels.
- After the London bombings in 2003, demand on (primarily commuter) rail services around London fell by around 2% for the affected quarter, compared to the previous year, but had already grown above previous levels by the following quarter (+3% year-on-year)
- After the 9/11 attack, IATA estimated that although there was no long term impact from fear, the extra time and hassle of air travel as a result of the additional security measures lead to a 7% reduction in demand for domestic air travel in the US in the longer term.

The TSC at Imperial College London also conducted a review of the impact of previous shock events on travel demand, including the 2008 recession, SARS and major terrorist attacks. Key findings included:

- All the previous events reviewed had a significant impact on travel demand. However, in **no case was this to the same extent as the reductions in demand which the Coronavirus is currently causing**. In most cases, the fall in demand was no more than around 50%. The only, partial, exception to this was US aviation directly following 9/11 when all flights were suspended initially, but for a much shorter period. This difference may have implications for the recovery phase and longer term impact of the current crisis.
- The evidence from Taiwan suggests that the impact may be directly related to the scale of the event. Academic research found the demand reduction on the Taipei metro during the SARS pandemic to be **directly related to the number of reported cases**. However, demand data presented elsewhere in this report shows that demand on rail and metro networks has fallen by a similar proportion in most countries (typically by 90% to 95%) irrespective of the level of the virus, although there is some early evidence that demand may be returning more quickly in those places less severely affected.

- Evidence from the London Bombings in 2005 suggests that **discretionary demand is likely to be affected significantly more than peak / commuting demand as a result of public fear** – the impact on weekend demand in London was almost three times greater than that on weekday demand. There is also some evidence that the impact on public transport may be greater where there are more available alternatives.
- The term impact on rail from the examples reviewed was from the 2008 recession in the Republic of Ireland and Spain (suburban services), where rail **demand did not return to previous levels for around 10 years or more**.
- In the case of SARS and the terrorist attacks, there were noticeable impacts into the tens of percent in the short term, but very little observable impact beyond 3-6 months. The only observable long term impact on demand has was on the US airline industry, but here the research concludes that this impact was due to the increased time and hassle caused by the additional security measures, not because of any lasting impact of public perception of risk (fear).
- Once the risk from the virus is reduced, there may also be an opportunity to "promote" overall safety of public transport (e.g. in comparison with driving). Research from 2001, hypothesised that *"if Americans substituted driving for flying following 9/11, the number of car passengers and pedestrians killed as a result of the added traffic after September 11 would be greater than the number of airline passengers and crew who were killed by the terrorists that day"*.

4.3.3. Promotions to increase demand

Some organisations are implementing, or considering, **fare promotions and marketing** to build-up traffic following the pandemic safely:

- One Asian rail operator is introducing discounted promotional fares from July to help encourage passengers to return to the system (and to assist those how have been adversely affected by the economic consequences of the pandemic). This includes special fare relief measures (e.g. 20% train fare rebate), rewarding frequent users with shopping coupons, and encouraging family travel through a special fare scheme for children.
- An airport is considering marketing initiatives and promotions for when passengers return.
- One railway is offering promotional tickets as part of a campaign in association with government to promote domestic tourism and thus support the economy. This includes a discounted ticket for one week of unlimited rail travel during the school holidays and discounts for tourist attractions.
- One railway will implement a 30% discount in off-peak fares to encourage demand to try and spread demand.
- An American bus organisation is discounting fares by 40%, and providing free travel on Sundays, until September.

A key decision for organisations is whether to focus on increasing demand, or maximising revenue (e.g. per passengers) in the short term. This is especially important to take into account when considering fares promotions. Two railways have stated that they are **focussing initially on getting passengers back on to the system, including by offering some cheaper promotional fares**. Once demand has increased, they will then aim to increase yield (fare revenue per passenger).

In addition to impacts on overall demand, the **distribution of demand** throughout the day (and week) is likely to continue to differ. As noted earlier in this report, two European metros have observed that the **peak hour has moved earlier** as passengers are trying to travel during the least crowded conditions. One European railway also noted that demand decreases early in the morning (e.g. 0600) are less than later in the peak hours as more **essential journeys are being made at earlier times**. This will have implications for capacity, as described below. Some governments are also discussing the possibility of encouraging staggered working hours for employees to actively encourage this (related issues of capacity and social distancing are covered below).

As well as the distribution of commuters over the day, the extent to which demand returns for different journey purposes will also affect the overall level of demand. For example, while peak capacity may continue to be limited due to social distancing measures, there may be greater opportunities to encourage leisure trips during quitter times of day, or at weekends, which could help increase fare revenue without compromising safety.

4.4. Managing capacity with social distancing

As social distancing is likely to continue in the longer term on many systems, either because governments keep it in force or because people voluntarily choose avoid crowed situations, there will continue to be **severe impacts on the capacity of transport systems** which by nature involve large numbers of people being in close proximity. Many systems were already operating close to maximum capacity during peak times prior to the pandemic, so options to increase capacity are limited.

One of the main challenges organisations are already experiencing is **how to maintain proper social distancing when restrictions are eased and demand begins to rise**. Transport organisations understandably want to avoid contributing to a second rise in infection rates. However, it is important to consider that **social distancing also affects many of the travel demand "attractors"** in a similar manner. While social distancing remains in place, offices, meeting venues, shopping centres, restaurants, theatres, sporting events and similar activities are all severely affected and are – in most cases - not be able to accommodate the anywhere near same numbers of people as before and are not be able to operate in their previous form while social distancing is required. For example:

- Two European railways have indicated that the capacity of their own offices is only be 30% - 50% of normal under social distancing requirements. This is likely to be similar in other office buildings.
- One European metro is going to eliminate "hotdesking" to minimise staff contact with multiple surfaces, but this will impact the overall capacity of office buildings.
- Research by Manchester Metropolitan University in the UK found that shops may only be able to accommodate one customer per $10m^2$-$12m^2$ of floor space in an environment where people are moving around.

This means that **a scenario where transport systems are faced with pre-pandemic levels of demand while still being impacted by social distancing is unlikely,** however, **even much lower levels of demand will be severely challenging to accommodate with social distancing in place**.

For transport operators, it is likely to be the return of larger number of people to the workplace, especially to office-based employment where adapting to social distancing requirements might be most feasible. However, office-based employment is one of the sectors where the feasibility of

working from home is greatest, so it is questionable how much of this demand will return while other restrictions are in place.

Organisations are **not be able to transport their full level of demand while maintaining social distancing** between passengers. For example:

- A typical 20m long metro or suburban railway car may be designed to carry around 200 people in crowded conditions, but if passengers are required to keep a minimum of 2 metres apart then capacity would be reduced to around 20 people per car – **i.e. as little as 10% of "normal" capacity.**
- Similarly, a typical 10-metre-long single decker bus could no more than around 5-10 people, with a similar social distancing requirement, i.e. no more than around 10% of normal capacity.

Organisations are making **different assumptions about social distancing requirements on-board vehicles**, although in many cases these will be the result of government legislation and guidelines. While safety will be the primary concern, it is important to **ensure governments and other stakeholders fully understand the implications of differing social distancing requirements** on capacity. This is especially important where government are proposing "blanket" rules on passengers per vehicle, irrespective of vehicle size and design (as is the case for one European bus operator). Many organisations have stated that they are **awaiting decisions from government** on continued social distancing rules within their networks as economic activities are resumed.

- Many are assuming 2m, others 1.5m or (in at least two cases) as little as 1m. These differences will have a substantial impact on potential capacity. With a 1m spacing, an American rail operator is estimating that they will be able to carry up to 32 people per car.
- One railway has had the social distancing requirements reduced from 2m to 1m, which they have stated enables all seats to be occupied as the 1m distance is measured between passengers' faces.
- On one Asian metro, government recommendations on social distancing require 1m outdoors and 1.5m indoors, however, if all passengers wear face masks in the proper manner, these recommendations do not need to be adhered to. On one European railway, a distance of 1m is required on board train if passengers are wearing masks.
- One American metro is currently operating with up to 2 passengers per m^2 as service levels have also been reduced significantly as demand has fallen; although this is a higher level of crowding than currently permitted on many other systems, it is well below the metro's normal passenger density.
- Another American metro is currently adopting a standard maximum of 2 passengers per m^2 but the future viability depends government guidelines for reopening of economic activities. They are also developing announcements asking passengers to use less crowded parts of the train (e.g. end cars).
- One European metro is currently required to operate at only 30% of capacity utilisation, but are expecting this to be increased to 50% as the lockdown is eased.
- Two bus organisations are aligning their social distancing measures with national guidance on social distancing as lockdown relaxation begins.

Overall, recent information from several organisations – especially railways - suggests that many are expecting social distancing requirements to be reduced (e.g. from 2m to 1m, or when wearing masks), and estimating that trains may be able to carry closer to 50% of normal capacity. It is notable that this is close to the proportion of capacity which is being estimated to available in offices (see above).

Some organisations are adopting **reservation systems to manage capacity** on their networks and/or on-board services.

- As stated earlier in this report, one Asian metro is allowing passengers to "reserve" slots to enter the system.
- One European railway has made reservations mandatory on both regional and intercity trains (these are free) but there is no social distancing on-board trains. Staff have been instructed to fine passengers without a reservation.
- Another European railway has been considering options for seat reservations on their services, and has conducted surveys with passengers to seek views, but have decided not to implement this option at present.

4.4.1. Determinants of maximum capacity

However, for **rail-based systems in particular, the maximum capacity of a system under social distancing conditions will not only be dictated by vehicle/train capacity** (which could potentially be increased on some systems in the short or medium-term depending on available technology and the ability to adapt wider maintenance regimes or timetables).

Maximum system capacity under social distancing conditions will also be determined by wider design constraints that are potentially more difficult to change in the short or medium term. For railways, and especially metros and underground stations, station design and **passenger flow within stations will be a particular constraint**, including around ticket gates, lifts and escalators and on platforms. The distribution of demand throughout vehicles and along trains will also affect its effective capacity. Capacity of bus systems will in some cases be restricted by **space around key bus stops**, and check-in and security screening areas have been highlighted as a major constraint by airports. However, a *temporal* re-distribution or spreading of demand throughout the day, within these constraints, through demand management measures, may allow operators to increase their effective capacity.

Figure 30 illustrates a framework for the factors which will inform maximum capacity on rail-based systems, especially high-density metro and suburban rail systems with physically constrained station environments. **Figure 31** shows a similar framework for bus systems. Future versions of this report will include examples of key issues for addressing some of most critical factors.

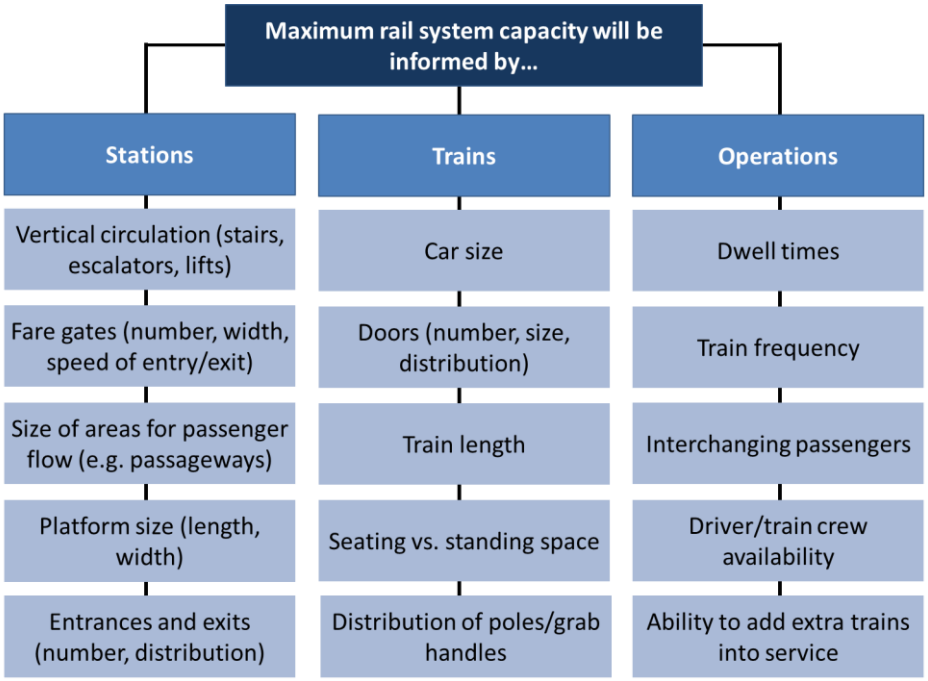


Figure 30: Example framework for assessing the maximum capacity of a rail-based system under social distancing

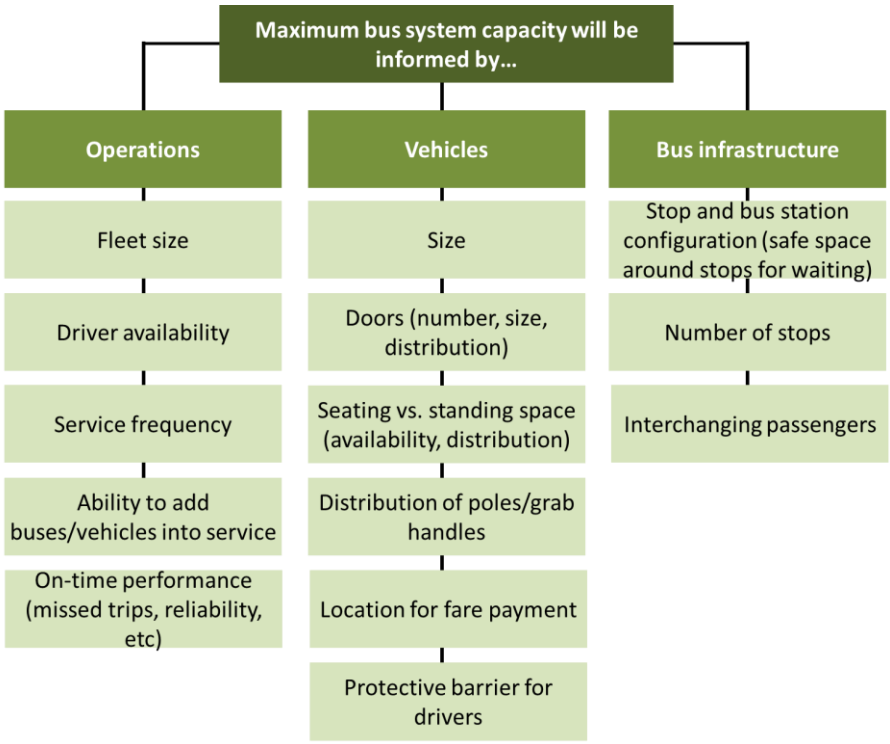


Figure 31: Example framework for assessing the maximum capacity of a bus system under social distancing

Dwell times at stations (or bus stops) are a particular issue when passenger numbers increase while social distancing rule remain in place (formally, or informally if people choose to maintain a greater distance from others even once regulations are relaxed. Two railways have specifically noted that dwell times have increased due to social distancing:

- One railway noted that dwell times have increased by about 30 seconds in some key interchanges, with marshals being used to manage crowds. (Passengers on the platform are held there while passengers alight, then these passengers are allowed to board. In some cases passengers have to be held for the next train.)
- One railway noted that they expect that when they get to about 30-35% of capacity they will be unable to meet their timetabled dwell times without relaxing social distancing requirements. They considered implementing a one-way system on-board their trains (one door for entry and another for exit) but simulation showed this would be difficult to manage if a small number of passengers do not comply

Organisations are considering the **mitigating factors that help transport systems maximise capacity under social distancing conditions**, and whether **additional measures** might be beneficial, including those which have already been adopted elsewhere. These are covered in the next section. At a later stage, this ability for people to prove immunity by means of "antibody passports" may help.

4.5. Protecting and supporting customers and staff

Many of the changes to staffing made in the early stages of the pandemic are **remaining in place**, and are likely to do so for some time. This includes the provision of personal protective equipment (PPE), changing staff roles and locations to minimise person-to-person contact and separation of teams (as described earlier in this report).

However, as well as continuing with many existing measures, some organisations are implementing, or at least considering, **additional equipment and processes**, both while social distancing continues and also to **provide increased confidence to staff and customers** in the longer term.

- One bus operator is working on initiatives for the new normal to safeguard the health and safety of the workforce and commuters as more people resume their daily activities. For example, they are exploring initiatives such as Perspex separators for offices/canteens, thermal cameras, etc
- Two American railway are adopting a 13-Point Action Plan developed by their authority for a safe return of passengers. This plan includes, for example, hand sanitizer dispensers in stations, decals, directional arrows and new signage system-wide, and deployment of police, station personnel and cleaners throughout the system to ensure employee and customer safety, among other initiatives. Other specific examples include the production of hand sanitizer dispensers and the deployment of PPE vending machines.

Key considerations include:

- **Mandatory wearing of masks** (and potentially other PPE) and **temperature screening** on entry to stations may **enable social distancing requirements** – e.g. minimum separation distance – to be reduced.
    - Evidence from practices in Asia (particularly China) suggests temperature screening, mandatory wearing of PPE (masks, gloves, hand sanitiser) by passengers and staff may be beneficial for other organisations to adopt. One factor that makes the temperature screening successful in China is that passengers using some systems need passengers to register their details - this may be less feasible in countries with stricter privacy laws.

- Introduction of **active measures to spread peak demand** and distribute journeys throughout the day (by changing ticketing eligibility/conditions).
    - At one Asian metro, passengers can **pre-book a 10-minute slot** to enter some two stations as a trial project to limit the density of passengers inside the station.
    - Two metros are **controlling access to stations at entrances and faregates** for example according to the number of people already waiting on platforms (Asian metro).
- **Minimising interactions** and avoiding the need for passengers to do anything that makes them "loiter", including:
    - Using **cashless payments** and advance payment systems (e.g. mobile phone tickets/payments) to improve hygiene, remove transactions and **reduce contact with ticket machines**. American bus agencies for example are now mostly offering mobile or contactless payments (and have accelerated plans to offer this where necessary). However, implications for all types of passengers need to be considered (e.g. low income, elderly) as this is less inclusive than having multiple fare payment options. Where required, on-board ticket validation by staff can be adapted to contactless means (e.g. bar code scanning), as one railway is already doing.
    - **Remote and automated systems for passenger information and** assistance, including additional automated help points and online solutions. However, alternative **options for assisting passengers** need to be found (particularly disabled passengers – as there is potentially large impact on accessibility)
- **Crowd management plans** for inside / outside stations, probably in conjunction with police or security
    - One European metro is considering **designating specific cars to passenger at higher risk** of Coronavirus infection to protect them from other passengers. In future, rail and metro operators may be able to consider separate cars for passengers proven to be immune.
    - Planning for increased and **ongoing working from home for office-based staff** ensuring the necessary equipment and procedures are provided to ensure employees and work safely and productively. This may include ensuring that appropriate business continuity plans are to enable staff to be evacuated from offices and other premises at short notices if further outbreaks occur.

Where increased and continued use of PPE is planned, organisations will need to ensure that they have **suitable procurement and distribution processes for PPE** in place to purchase and manage supplies.

Examples of current measures likely remain in force to protect staff as passenger numbers and service levels increase:

- **Personal Protective Equipment (PPE) for frontline staff** (eight organisations), such as distributing masks and hand sanitiser. Also, additional equipment for specific roles (such as disposable suits or safety glasses) are likely to be offered at several bus organisations
- **Processes for staff health** (Asian metro) such as temperature checking staff before work and during their shift
- **Planning for a minimum staff contingent** (Asian metro) to allow more staff to stay at home

- **Discontinuing types of fare payment** (two metros) such as “smart tokens” in one Asian city, and requiring customers to use contactless fare cards instead; one European metro is planning to continue to refuse cash payments
- **Avoiding placing station staff on platforms** (European metro)
- **Using a protective barrier**, such as plexiglass barriers or glass shields (multiple bus organisations) between bus drivers and passengers.
- **Only opening one half (one leaf) of bus doors** (one bus organisation) to limit passenger flow

Organisations are indicating that a phased return towards previous staffing arrangements is likely:

- Two American metros state that they expect the move from the current split teams to **occur gradually**, reflecting government strategies to end the quarantine and resume economic activities.
- One Asian metro has moved from split teams to normal schedule for **office staff initially**. These staff are being provided with medical masks (which they are encouraged to wear in the office), recommended to measure their body temperature every morning, and advised avoid unnecessary social interaction by making use of **online meetings**.
- One organisation has developed a plan for the return of employees to workplaces. Webinars and recommendations/materials about safety culture and wellbeing have been shared with employees, including work-from-home best practices, physical distancing for employees in the workplace (tips for both employees and supervisors/managers).

As restrictions on staff movement and activities remain in place for a longer period, and organisations try to keep staff at home where possible, some **additional issues will start to emerge which cannot be put on hold indefinitely**, including training. Two metros stated that starting driver training for new recruits will be more challenging than continuing training for existing trainees (with mitigation measures in place), as requirements such as medical testing cannot be delivered safely. As previously mentioned in this report, measures that are being taken relating to training include ensuring trainee drivers and trainers wear PPE and practice social distancing, dividing driver cabs to separate trainers and trainees, and altering classrooms to maintain social distancing.

Ensuring staff wellbeing and recognition will be important as many staff continue to work under challenging conditions for an extended period, including to minimise any consequences for absenteeism. Some organisations are offering additional financial compensation for staff to reflect the additional requirements placed upon them, although such initiative will necessarily need to be balanced in light of wider financial pressures and funding constraints. As noted earlier in this report some organisations have already been offering incentive payment and weekly bonuses to staff, although these may pose challenges for affordability if such measure were to continue in the longer term.

4.6. Mitigating longer terms impacts on maintenance and asset management

While many organisations are continuing to conduct maintenance regimes as normal, some have indicated that they are reducing or postponing some maintenance activities in order to protect staff, or because of staff shortages (due to illness and/or isolation). Others are also being affected by supply chain issues.

- For example, one American metro has reduced preventive maintenance by 50% to allow social distancing in the depot. This is leading to a maintenance backlog and they are now **evaluating alternatives to address the backlog**.
- On another American metro, a backlog of corrective maintenance is building up and some preventative maintenance is also being postponed. Although this is partly as a result of staff shortages, social distancing is also having an impact, meaning that alternative plans will need to be developed to address the shortfall in maintenance capacity if restrictions continue for a longer period.

Key issues reported by organisations in relation to maintenance include:

- **Planning is difficult** due to changing situations with staff availability and inability to maintain social distancing (American light rail agency)
- **Gaining track access or possessions** is more challenging (one railway) as freight paths may be prioritised to ensure food or other essential supplies are transported
- **Ensuring staff can be in the right place at the right time** (one railway) may be challenging as different jurisdictions/areas have varying medical requirements for residents, meaning that staff movement between their homes and work sites in different jurisdictions can be difficult logistically
- **Adjusting long-term maintenance plans** is challenging (one railway) as this work is typically planned many months in advance
- **Decreasing maintenance work may impact staff incomes** (one railway). This railway is continuing its maintenance levels so that suppliers and contractors continue to have an income stream.

Similar to investment, where maintenance has been postponed, this will create a backlog from which it may be more difficult to recover from at a later stage due to financial constraints and if restrictions of staffing remain in place for a longer period. Some organisations are using systematic approaches to determine which projects can continue, which is helping to ensure such backlogs are minimised where possible:

- One American metro has systematically classified projects into three categories by mean of a list drawn up by the Engineering & Major Projects, Finance and IT executive departments:
    - Projects to be paused
    - Projects at the planning and preparation stage which can continue, but at a reduced pace with deadlines pushed back.
    - Projects which can continue as planned. These represent the majority of projects in progress, including line extensions.
- Another American metro has been prioritising maintenance on capital/investment projects, using risk assessment to determine which projects can be progressed safely.

As noted earlier in this report, **some opportunistic additional maintenance has also been taking place while reduced services are operating**. Organisations should consider whether there are maintenance activities which can be brought forward, even if others have to be postponed, as this will help balance maintenance resources and expenditure over the longer term and help enable backlogs in certain areas (where postponement is necessary) to be overcome more easily. Longer timescales may also be a risk for work that is ongoing but being affected by staff, contractor and/or materials availability issues, which might have further knock-on impacts to future projects.

As well as managing or adjusting maintenance regimes, organisations are working on mitigation and contingency planning, such as:

- **Planning for longer implementation timescales** (one railway) because of worker isolation rules
- **Monitoring materials availability** (three organisations) as suppliers become affected by wider supply chain issues
- **Preparing an emergency maintenance regime** (three organisations) to be deployed if staff or depots are affected
    - One railway's emergency maintenance regime has been developed using a **risk-based reduction of maintenance approach** so that tasks and intervals still prioritise safety and reliability
    - One railway's emergency maintenance regime plans for **staff reductions of 10%, 25% and 50%** with actions, controls and restrictions identified for each level of reduction
- **Planning for reductions in available workforce** (one railway) to carry out critical preventative maintenance and corrective maintenance
- **Ongoing review of maintenance works** (one railway) to identify any that will be affected as early as possible
- **Undertaking special risk assessments for tasks that need to be carried out at less than the recommended minimum social distance** (one European metro).

In terms of **planned spend on maintenance,** so far organisations are not able to clearly indicate how much of their 2020 budgets for asset management will be under or overspent because of the pandemic. Two metros have been able to provide indicative spend levels. One railway also expects that maintenance and capital works will reduce overall by approximately 5-10% in 2020.

    - One Asian metro expects a small reduction in maintenance and asset management costs of 1% in 2020
    - One American metro is expecting operating maintenance spend to reduce by 8% and capital maintenance spend to reduce by 30%.

Longer term implications of providing additional PPE to maintenance staff and of conducting more stringent cleaning regimes for an extended period (e.g. **impacts on depot capacity, staff requirement and fleet availability**) also need to be considered.

- For example, one Australian railway now cleaning trains twice per day with crew cabs disinfected every night when in depots and stabling yards. Maintenance staff are provided with PPE equipment and are to keep social distancing where possible.

4.7. Ongoing and future operational changes during the recovery stage

Some of the operational changes already introduced during the pandemic (as described earlier) are likely to continue for some time. It is likely that organisations (particularly rail organisations that are less flexible) will need to increasingly manage service dynamically rather than on a fixed basis to respond to levels of crowding and demand. Some organisations are also implementing or **planning for additional operational changes as service levels are increased**, e.g.:

- One Asian metro is planning for measures such as drivers being allowed to **skip stations if platforms are too crowded** and also planning to operate variable frequencies

- A European metro is planning to have **standby trains ready to enter service at short notice in case of a sudden increases in demand**.
- An American metro has **closed around 20% of their stations** (those with low demand) to enable them to **increase train frequency at the high demand stations** and reduce crowds.
- One bus organisation reported that in the medium to long term they are looking at changing some of their operating principles, such as **limiting buses to seated passengers only**.
- One bus organisation is considering supplementing existing services with private coaches or on-demand services, although this is principally being considered to support children returning to school at the moment.

Organisations are also looking at the factors they will need to consider when making decisions on increasing service levels. For example one American bus organisation noted the following factors for deciding on their service levels as demand returns:

- Unemployment numbers
- Fuel pricing
- The prevalence of remote working / telecommuting and working hours
- New extended social distancing requirements
- Government funding
- Possible new commuting patterns.

4.8. Cleaning regimes

Increased cleaning regimes are likely to remain in place for some time following the pandemic, both to help prevent further outbreaks and to provide increased confidence to staff and customers. The latter being a key element in facilitating and encouraging demand to return.

- Organisations are already indicating that they plan to **continue cleaning regimes adopted during the pandemic** (rather than being scaled back) (four metros)

Organisations will need to understand the **cost and resource implications** of continuing more intensive cleaning regimes for a longer period, although cleaning costs are typically no more than about 2% of total operating cost. As noted earlier in this report, some organisations are taking trains or buses out of revenue service for longer period to allow more intensive, or more frequent, cleaning. While this is possible while services are operating at reduced levels, organisation will need to **consider how increased vehicle cleaning regimes can be managed once service levels are increased** further. Stations cleaning will also become more challenging as passenger numbers rise. It will be important to **ensure that government and other stakeholders understand the financial and resource implications of increased cleaning regimes** over an extended period.

4.9. Communications

Organisations are **planning future communications to staff** about increasing service levels and demand, but for several organisations, this depends on a number of factors. Many are still not clear on what their "return to normal" will look like (for example phased approaches, service levels, level of staff absenteeism to be expected, etc.). Communications to customers also require careful planning particularly if there are continued restrictions which may differ from those in place already.

Influencing travel behaviour through communication campaigns and travel demand management is likely to be necessary. Previous benchmarking on communications with passengers has highlighted that keeping messaging creative and frequently updated is important so that crucial messaging around social distancing, good hygiene and personal responsibility is understood by passengers. Travel demand management to encourage travel behaviour that distributes trips could include existing measures being taken by organisations such as **encouraging passengers to shift their journeys to off-peak periods** wherever possible, **using the entire length of the platform when boarding trains**, asking passengers to **wait for the next bus or train when there are too many passengers on board,** and reminding customers to buy tickets/fares from **ticket machines or apps** where possible.

As more passengers return, continuing to ensure passenger received such messages will be increasingly important and may provide a challenge due to potential information overload. In some cases wider, national, campaigns covering multiple public transport operators might be effective.

- The Association of German Transport Companies (VDV) has prepared a short video for students returning to school after the lockdown to explain how to safely use public transport during the pandemic. (www.youtube.com/watch?v=NJnF6xBBPyc&feature=youtu.be). This includes aspects such as:
    - Keep your distance and cover mouth and nose
    - Be on platforms and stops on time
    - If possible, please take your journey much earlier

Figure 32: Association of German Transport Companies video for students returning to school

One American metro is currently planning an internal communication plan for when demand increases again. Standard communication channels will be used, such as: e-mail, posters, videos and WhatsApp (which they have found to be a very effective means of communication during this period). During the quarantine period videos were made with the CEO, which proved very effective, and they are planning to continue to use this method, which has included a live video session where the employees could send questions to clarify their issues with the CEO.

It is also important that organisations continue to promote the benefits of using their services (once it is safe to do so). Some organisations have noted some positive impacts of measures implements during the pandemic which could be promoted:

- One railway noted that punctuality is at an historic high due to good weather, increased rolling stock maintenance (perhaps even too much maintenance) and lower patronage.

- Two railways noted that they have received compliments from customers about the improved maintenance and/ or cleanliness of the trains due to enhanced regimes being implement due to Covid-19.

4.10. Other changes in the medium and longer term

Organisations could expect some passenger behaviour change after the pandemic that may help avoid a second peak in infections. For example, **wider public health advice means that passengers may wear masks and use hand sanitiser on a much wider, more consistent basis**. Since SARS, it has been commonplace in Asia for citizens to wear facemasks when exhibiting normal flu and cold symptoms; a similar trend may now occur elsewhere in the world.

4.11. Lessons Learnt

Organisation are starting to consider lessons for the future. While the primary focus is on the current situation and future planning, it is also important that organisations ensure that experience from the pandemic is sufficiently well recorded and analyses to enable them to optimise their response to any similar future events. Some organisations have noted that they are drawing on past experience from previous events (SARS, terrorism etc – see above) to help with their responses to the current pandemic, which highlights the value of having such information available. It may also be good practice for organisations to undertake continuous development of business continuity plans for the future, based on lessons being learnt now, which knowledge is still "fresh", rather than having to look at this situation retrospectively.

- Four organisations are compiling lessons learnt for the future, such as:
  - **Potentially purchasing a stock of medication for staff** (antivirals etc) if such an outbreak were to happen again (American light rail agency) in conjunction with state and local authorities
  - **Planning promotions and events** (one airport) to drive traffic after the pandemic.

Appendix A: List of benchmarking groups and members

The benchmarking groups administered by the Transport Strategy Centre at Imperial College London include:

- CoMET and Nova (metro benchmarking)
- ISBeRG (suburban rail benchmarking)
- IBBG (international bus benchmarking)
- ABBG (American bus benchmarking)
- GOAL (North American light rail benchmarking)
- IMRBG (mainline rail benchmarking)
- RIAMBG (railway infrastructure asset management benchmarking)
- ABG (airports benchmarking)

A list of members in each group follows.

Community of Metros (CoMET)

Beijing Mass Transit Railway Operation Corp. (BMTROC – China)
Berliner Verkehrsbetriebe (BVG – Germany)
Delhi Metro Rail Corporation Ltd (DMRC – India)
Guangzhou Metro Corporation (GMC – China)
MTR Corporation Limited (MTR – Hong Kong)
London Underground Limited (LUL – United Kingdom)
Sistema de Transporte Colectivo (STC – Mexico City)
Metro de Madrid (Madrid)
Moscow Metro (MoM – Russia)
MTA New York City Transit (NYCT – United States)
Régie Autonome des Transports Parisiens Métro (RATP Métro – France)
Régie Autonome des Transports Parisiens RER (RATP RER – France)
Metro de Santiago (Santiago – Chile)
Seoul Metro (Seoul – South Korea)
Shenzhen Metro Operation Corp. Ltd (Shenzhen – China)
Singapore Mass Rapid Transit Corporation Ltd (SMRT – Singapore)
Shanghai Shentong Metro Group (SSMG – China)
Companhia do Metropolitano de São Paulo – Metrô (MSP – Brazil)
Taipei Rapid Transit Corporation (TRTC – Taiwan)
Tokyo Metro Co., Ltd. (Japan)

Community of Metros (Nova)

Metrovías (Buenos Aires – Argentina)
Bangalore Metro Rail Corporation Limited (BMRC – India)
Bangkok Expressway and Metro Public Company (BEM – Thailand)
Transports Metropolitans de Barcelona (TMB – Spain)
Société des Transports Intercommunaux de Bruxelles (STIB – Belgium)
Roads and Transport Authority (RTA – United Arab Emirates)
Docklands Light Railway (DLR – United Kingdom)
Metro Istanbul San. Ve Tic. A.S. (Metro Istanbul – Turkey)
Syarikat Prasarana Negara Berhad (RapidKL – Malaysia)
Metropolitano de Lisboa (ML – Portugal)
Société de transport de Montréal (STM – Canada)

Tyne and Wear Metro Nexus (United Kingdom)
Nanjing Metro Operation Corp. (China)
Oslo Sporveien (Norway)
Ottawa-Carleton Transportation Commission (OC Transpo – Canada)
Rio de Janeiro (Metrô Rio – Brazil)
Bay Area Rapid Transit (BART – United States)
Sydney Metro (Australia)
Sydney Trains (Australia)
Toronto Transit Commission (TTC – Canada)
SkyTrain (BCRTC – Canada)
Washington Metropolitan Area Transit Authority (WMATA – United States)

International Suburban Rail Benchmarking Group (ISBeRG)

Ferrocarrils de la Generalitat de Catalunya (FGC – Spain)
Queensland Rail (Australia)
S-Tog, Danish State Railways (DSB – Denmark)
PRASA – Metrorail (South Africa)
MTR Hong Kong (East Rail, West Rail, Ma On Shan & Tung Chung Lines – Hong Kong)
MTA Long Island Rail Road (LIRR – United States)
London Overground – London Rail (United Kingdom)
Metro Trains Melbourne (Australia)
MTA Metro-North Railroad (United States)
S-Bahn Munich, Deutsche Bahn (DB) Regio (Germany)
Commuter Rail, Vygruppen (Vy – Norway)
Bay Area Rapid Transit (BART – United States
Sydney Trains (Australia)
East Japan Railway Company (JR East - Japan)

International Mainline Rail Benchmarking Group (IMRBG)

Danish State Railways (Denmark)
Irish Rail (Ireland)
Nederlandse Spoorwegen (NS – Netherlands)
SNCB (Belgium)
NSWT (Australia)
V/Line (Australia)

Benchmarking Group of North American Light Rail Systems (GOAL)
Niagara Frontier Transportation Authority (NFTA – Buffalo, NY)
Maryland Transit Administration (MTA Maryland – Baltimore, MD)
Calgary Transit (C Train – Calgary, AB)
Charlotte Area Transit System (CATS – Charlotte, NC)
Dallas Area Rapid Transit (DART – Dallas, TX)
Edmonton Transit System (ETS – Edmonton, AB)
Hampton Roads Transit (HRT – Norfolk, VA)
Ottawa-Carleton Transportation Commission (OCTranspo – Ottawa, ON)
Pittsburgh PAAC (The T – Pittsburgh, PA)
Tri-County Metropolitan Transportation District (TriMet – Portland, OR)
San Diego Metropolitan Transit System (MTS – San Diego, CA)

Sound Transit (ST– Seattle, WA)
Toronto Transit Commission (TTC – Toronto, ON)
Utah Transit Authority (UTA – Salt Lake City, UT)

International Bus Benchmarking Group (IBBG)

Transports Metropolitans de Barcelona (TMB – Spain)
Société des Transports Intercommunaux de Bruxelles (STIB – Belgium)
Dublin Bus (Ireland)
IETT Isletmeleri Genel Müdürlügü (Turkey)
Rapid Bus Sdn Bhd (RapidKL – Malaysia)
Carris Lisboa (Portugal)
London Buses (United Kingdom)
SUE Mosgortrans (Russia)
Société de Transport de Montréal (STM – Canada)
MTA New York City Transit (United States)
Régie Autonome des Transports Parisiens (RATP – France)
King County Metro Transit (Seattle, United States)
SMRT Buses (Singapore)
State Transit (Sydney, Australia)
Coast Mountain Bus Company (Vancouver, Canada)

American Bus Benchmarking Group (ABBG)

Capital Metropolitan Transportation Authority (Cap Metro – Austin, TX)
Niagara Frontier Transportation Authority (NFTA – Buffalo, NY)
Charlotte Area Transit Systems (CATS – Charlotte, NC)
Pace Suburban Bus (Pace – Chicago, IL)
Greater Cleveland Regional Transit Authority (GCRTA – Cleveland, OH)
Des Moines Area Regional Transit Authority (DART – Des Moines, IA)
Greater Dayton Regional Transit Authority (GDRTA – Dayton, OH)
Lane Transit District (LTD – Eugene, OR)
Mass Transportation Authority (MTA – Flint, Michigan)
Foothill Transit (San Gabriel Valley, LA County, CA)
Trinity Metro (Fort Worth, TX)
Hampton Roads Transit (HRT – Hampton, VA)
Jacksonville Transportation Authority (JTA – Jacksonville, FL)
Milwaukee County Transit System (MCTS – Milwaukee, WI)
Orange County Transportation Authority (OCTA)
Regional Transit Service (RTS – Rochester, NY)
Rhode Island Public Transit Authority (RIPTA – Providence, RI)
Omnitrans (San Bernardino, CA)
San Joaquin Regional Transit District (RTD – Stockton, CA)
Pinellas Suncoast Transit Authority (PSTA – St. Petersburg, FL)
Spokane Transit Authority (STA – Spokane, WA)
Utah Transit Authority (UTA – Salt Lake City, UT)
Clark County Public Transportation Benefit Area (C-TRAN – Vancouver, WA)

Railway Infrastructure Asset Management Benchmarking Group (RIAMBG)

Queensland Rail (Brisbane, Australia)

Public Transport Authority Perth (Perth, Australia)
Sydney Trains (Sydney, Australia)

Airport Benchmarking Group (ABG)

Amsterdam Schiphol International Airport (Amsterdam, Netherlands)
Aéroport de Paris – Charles de Gaulle Airport (Paris, France)
Hong Kong Airport Authority (Hong Kong)
Los Angeles World Airports (Los Angeles, United States)
London Heathrow Airport (United Kingdom)
Munich International Airport (Munich, Germany)
San Francisco International Airport (San Francisco, United States)
Sydney International Airport (Sydney, Australia0
Toronto Pearson International Airport (Toronto, Canada)

Appendix B: TSC Member Data available through Transit App Data

Member	City	Group
Montreal STM	Montreal	Nova
Capital Metro	Austin	ABBG
WMATA	Washington	Nova
Maryland Transit Administration	Maryland	GOAL
Queensland Rail	Brisbane	ISBeRG /RIAMBG
NFTA	Buffalo	ABBG
Calgary Transit	Calgary	GOAL
Pace Bus	Chicago	ABBG
GCRTA	Cleveland	ABBG
DART	Dallas	GOAL
GDRTA	Dayton	ABBG
Edmonton Transit	Edmonton	GOAL
Hampton Roads Transit (HRT)	Hampton	ABBG
Foothill Transit	Los Angeles	ABBG
OCTA	Los Angeles	ABBG
Omnitrans (San Bernardino)	Los Angeles	ABBG
MCTS	Milwaukee	ABBG
MTA - NYC Subway	New York	CoMET
MTA - NYC Bus	New York	IBBG
OC Transpo	Ottawa	Nova
RATP Bus	Paris	IBBG
RATP Metro	Paris	CoMET
Pittsburgh PAAC	Pittsburgh	GOAL
TriMet	Portland	GOAL
RIPTA	Providence	ABBG
BART	San Francisco	ISBeRG /Nova
UTA	Salt Lake City	GOAL
San Diego Metropolitan Transit System (MTS)	San Diego	GOAL
King County Metro	Seattle	IBBG
Sound Transit	Seattle	GOAL
Toronto TTC	Toronto	Nova
C-TRAN	Vancouver	ABBG

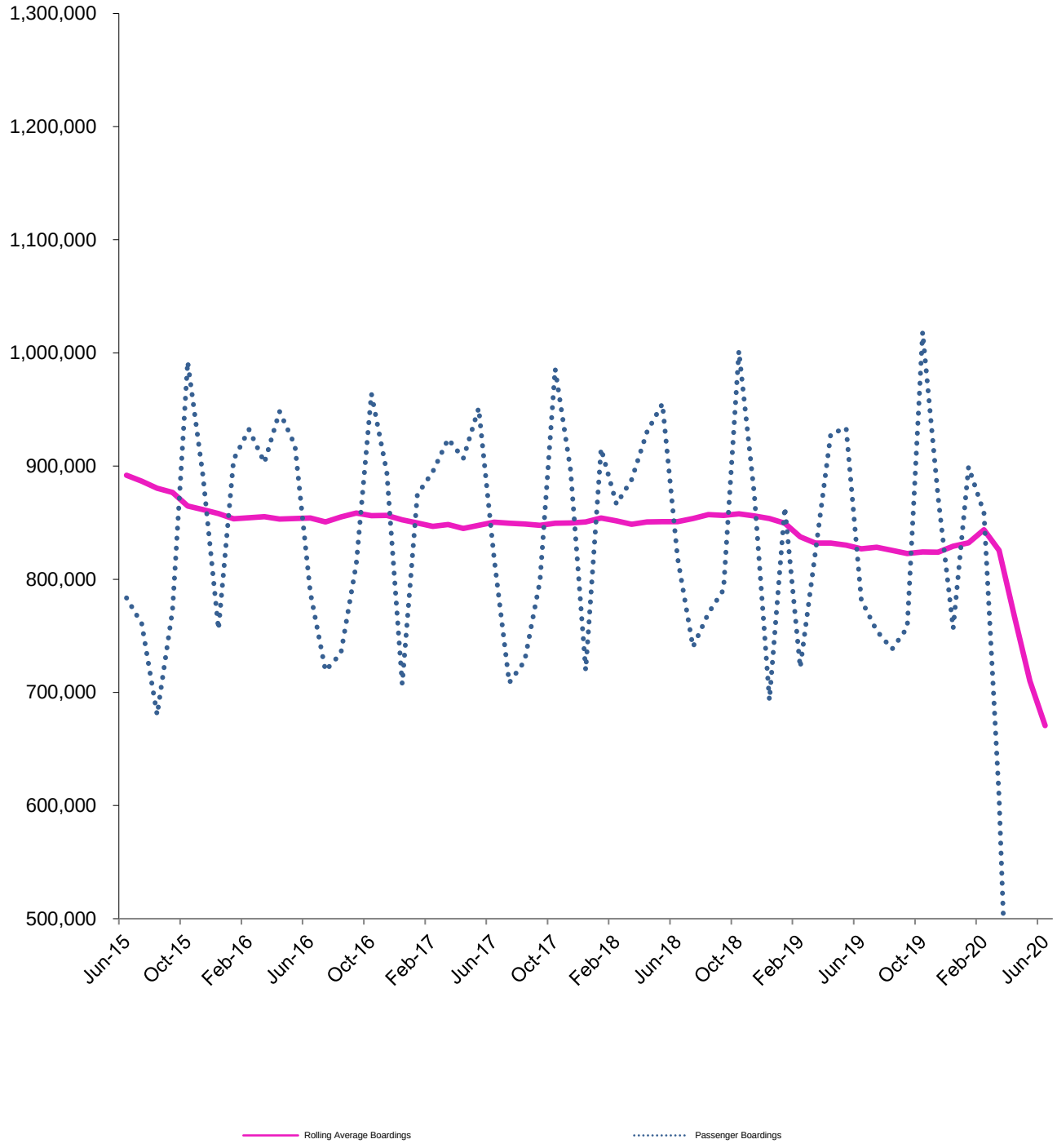
LANE TRANSIT DISTRICT

May 2020 Performance Report

Performance Measure	Current Month	Prior Year's Month	% Change	Current Y-T-D	Previous Y-T-D	% Change	Current 12 Month	Prior 12 Month	% Change
Fixed Route Service									
Passenger Boardings	**307,961**	781,595	- 60.6%	**8,047,918**	9,923,771	- 18.9%	**8,047,918**	9,923,771	- 18.9%
Mobility Assisted Riders	**5,338**	12,720	- 58.0%	**135,395**	155,495	- 12.9%	**135,395**	155,495	- 12.9%
Average Passenger Boardings:									
Weekday	**-**	31,657	- 100.0%	**24,399**	33,161	- 26.4%	**24,399**	33,161	- 26.4%
Saturday	**-**	17,983	- 100.0%	**13,107**	18,004	- 27.2%	**13,107**	18,004	- 27.2%
Sunday	**10,265**	11,709	- 12.3%	**11,126**	11,799	- 5.7%	**11,126**	11,799	- 5.7%
Monthly Revenue Hours	**13,148**	22,848	- 42.5%	**248,190**	283,835	- 12.6%	**248,190**	283,835	- 12.6%
Boardings Per Revenue Hour	**23.4**	34.2	- 31.5%	**32.43**	34.96	- 7.3%	**32.43**	34.96	- 7.3%
Weekly Revenue Hours	**3,068**	5,331	- 42.5%	**4,862**	5,484	- 11.3%	**4,862**	5,484	- 11.3%
Weekdays	**-**	20		**184**	250		**184**	250	
Saturdays	**-**	5		**43**	54		**43**	54	
Sundays	**30**	5		**127**	58		**127**	58	
Passenger Revenues & Sales									
Passenger revenues will be be presented in the finance report.									
Fleet Services									
Fleet Miles	**187,900**	311,898	- 39.8%	**3,420,369**	3,896,512	- 12.2%	**3,420,369**	3,896,512	- 12.2%
Average Passenger Boardings/Mile	**1.64**	2.51	- 34.6%	**2.35**	2.55	- 7.6%	**2.35**	2.55	- 7.6%
Fuel Cost	**$46,267**	$176,430	- 73.8%	**$1,680,022**	$2,256,354	- 25.5%	**$1,680,022**	$2,256,354	- 25.5%
Fuel Cost Per Mile	**$0.246**	$0.566	- 56.5%	**$0.491**	$0.579	- 15.2%	**$0.491**	$0.579	- 15.2%
Repair Costs	**$293,001**	$334,014	- 12.3%	**$3,853,559**	$3,552,359	+ 8.5%	**$3,853,559**	$3,552,359	+ 8.5%
Total Repair Cost Per Mile	**$1.559**	$1.071	+ 45.6%	**$1.127**	$0.912	+ 23.6%	**$1.127**	$0.912	+ 23.6%
Preventive Maintenance Costs	**$24,228**	$40,065	- 39.5%	**$389,214**	$434,433	- 10.4%	**$389,214**	$434,433	- 10.4%
Total PM Cost Per Mile	**$0.129**	$0.128	+ 0.4%	**$0.114**	$0.111	+ 2.1%	**$0.114**	$0.111	+ 2.1%
Mechanical Road Calls	**14**	39	- 64.1%	**277**	418	- 33.7%	**277**	418	- 33.7%
Miles/Mech. Road Call	**13,421**	7,997	+ 67.8%	**12,348**	9,322	+ 32.5%	**12,348**	9,322	+ 32.5%
Medical Transportation Management									
MTM Rides	**3,969**	12,795	- 69.0%	**119,367**	160,236	- 25.5%	**119,367**	160,236	- 25.5%

LANE TRANSIT DISTRICT

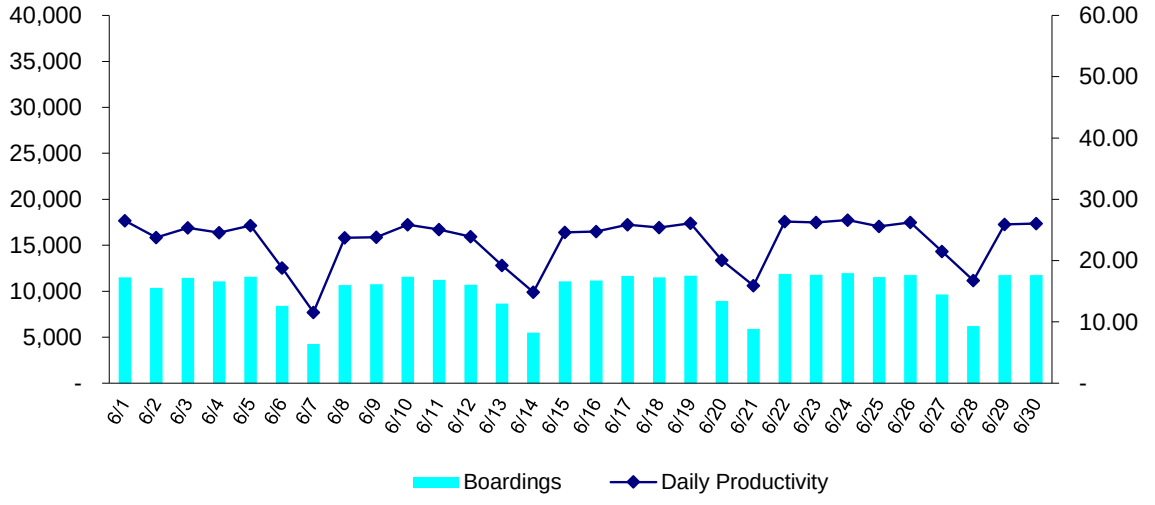
Five Year History of Passenger Boardings

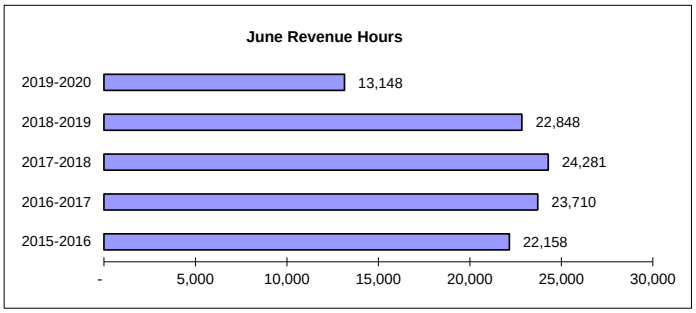


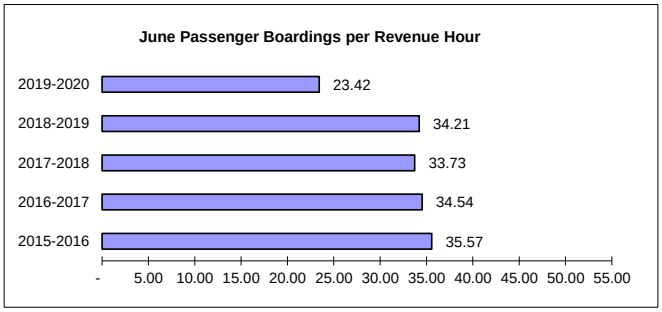
Daily Ridership Recap

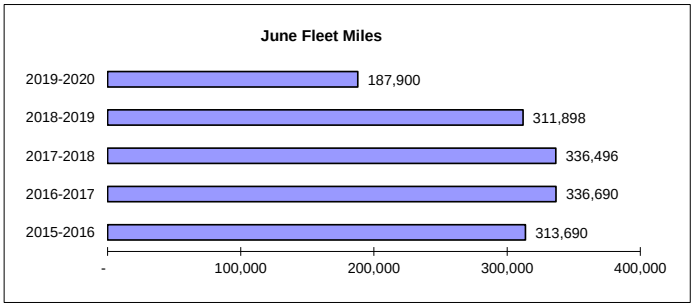
June 2020

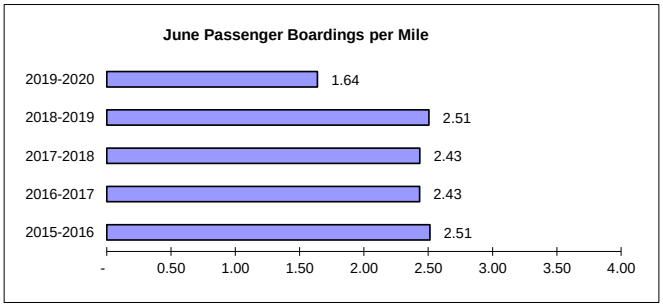
Date	Day	Service	Boardings	Mobility Assisted Boardings	Revenue Hours	Daily Productivity
6/1/2020	Monday	Sunday	11,500	251	434	26.50
6/2/2020	Tuesday	Sunday	10,365	192	436	23.77
6/3/2020	Wednesday	Sunday	11,434	255	451	25.35
6/4/2020	Thursday	Sunday	11,079	224	451	24.57
6/5/2020	Friday	Sunday	11,579	195	450	25.73
6/6/2020	Saturday	Sunday	8,401	189	447	18.79
6/7/2020	Sunday	Sunday	4,245	41	367	11.57
6/8/2020	Monday	Sunday	10,666	187	450	23.70
6/9/2020	Tuesday	Sunday	10,757	206	452	23.80
6/10/2020	Wednesday	Sunday	11,565	243	447	25.87
6/11/2020	Thursday	Sunday	11,227	264	448	25.06
6/12/2020	Friday	Sunday	10,711	161	448	23.91
6/13/2020	Saturday	Sunday	8,654	112	450	19.23
6/14/2020	Sunday	Sunday	5,514	67	371	14.86
6/15/2020	Monday	Sunday	11,071	165	450	24.60
6/16/2020	Tuesday	Sunday	11,159	167	451	24.74
6/17/2020	Wednesday	Sunday	11,657	207	451	25.85
6/18/2020	Thursday	Sunday	11,511	205	453	25.41
6/19/2020	Friday	Sunday	11,709	206	449	26.08
6/20/2020	Saturday	Sunday	8,937	156	446	20.04
6/21/2020	Sunday	Sunday	5,898	81	371	15.90
6/22/2020	Monday	Sunday	11,886	209	451	26.35
6/23/2020	Tuesday	Sunday	11,773	182	449	26.22
6/24/2020	Wednesday	Sunday	11,979	216	450	26.62
6/25/2020	Thursday	Sunday	11,538	157	451	25.58
6/26/2020	Friday	Sunday	11,769	189	449	26.21
6/27/2020	Saturday	Sunday	9,657	125	449	21.51
6/28/2020	Sunday	Sunday	6,225	73	372	16.73
6/29/2020	Monday	Sunday	11,745	200	453	25.93
6/30/2020	Tuesday	Sunday	11,750	213	451	26.05
Totals			**307,961**	**5,338**	**13,148**	**23.22**

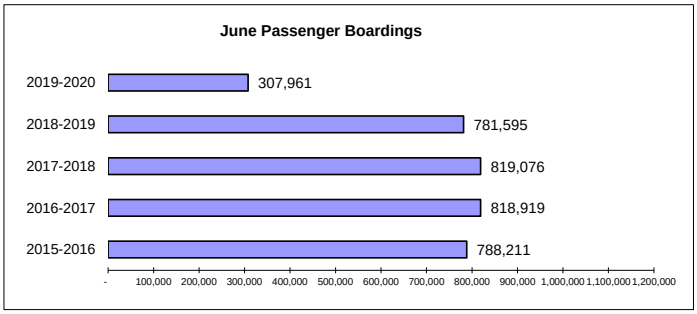


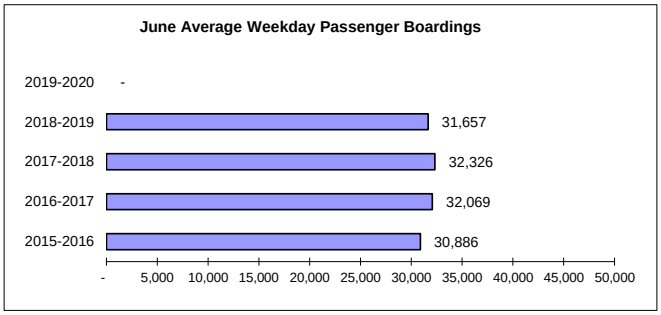

June Revenue Hours
2019-2020
13,148
2018-2019
22,848
2017-2018
24,281
2016-2017
23,710
2015-2016
22,158
-
5,000
10,000
15,000
20,000
25,000
30,000


June Passenger Boardings per Revenue Hour
2019-2020
23.42
2018-2019
34.21
2017-2018
33.73
2016-2017
34.54
2015-2016
35.57
-
5.00
10.00
15.00
20.00
25.00
30.00
35.00
40.00
45.00
50.00
55.00


June Fleet Miles
2019-2020
187,900
2018-2019
311,898
2017-2018
336,496
2016-2017
336,690
2015-2016
313,690
-
100,000
200,000
300,000
400,000


June Passenger Boardings per Mile
2019-2020
1.64
2018-2019
2.51
2017-2018
2.43
2016-2017
2.43
2015-2016
2.51
-
0.50
1.00
1.50
2.00
2.50
3.00
3.50
4.00


June Passenger Boardings
2019-2020
307,961
2018-2019
781,595
2017-2018
819,076
2016-2017
818,919
2015-2016
788,211
-
100,000
200,000
300,000
400,000
500,000
600,000
700,000
800,000
900,000
1,000,000
1,100,000
1,200,000


June Average Weekday Passenger Boardings
2019-2020
-
2018-2019
31,657
2017-2018
32,326
2016-2017
32,069
2015-2016
30,886
-
5,000
10,000
15,000
20,000
25,000
30,000
35,000
40,000
45,000
50,000

RESOLUTION NO. 2020-04-15-022

RESUMING TRANSIT TOMORROW DECISION-MAKING PROCESS

WHEREAS, The Lane Transit District (LTD) Board of Directors (Board) holds public meetings in accordance with ORS 192.630;

WHEREAS, on March 8, 2020, Governor Kate Brown declared an emergency due to the public health threat posed by the novel infectious COVID-19 virus pandemic;

WHEREAS, on March 12, 2020, Governor Brown prohibited gatherings of 250 or more people;

WHEREAS, on March 17, 2020, Governor Brown prohibited gatherings of 25 or more people requiring LTD's Board President to cancel future in-person meetings of the LTD Board of Directors;

WHEREAS, on June 5, 2020, Lane County entered Phase 2 of Oregon's Reopening Plan.

WHEREAS, LTD has developed the capability of conducting public processes in a virtual manner; including, board meetings and Strategic Planning Committee meetings with public comment; and,

WHEREAS, The LTD Board has been satisfied with receiving public comment through a wide variety of methods; including mail-in, phone, email, online, and virtual public testimony;

NOW, THEREFORE, BE IT RESOLVED that the LTD Board of Directors, adopts a resolution resuming the Transit Tomorrow Decision-Making Process.

ADOPTED BY THE LANE TRANSIT DISTRICT BOARD OF DIRECTORS ON THIS 19TH DAY OF AUGUST, 2020.

_____

Board President, Carl Yeh

Transit Tomorrow Update

August 19, 2020

Lane Transit District

LTD.org

Study Milestones – Where We've Been

May 2018	Choices Report published
June - August 2018	Community Engagement, Phase 1
January 2019	Scenarios Report published
January - February 2019	Community Engagement, Phase 2
March 2019	Board Resolution
August 2019	Draft Network Plan published
August 2019	Board Resolution
January – March 2020*	Community Engagement, Phase 3
April & June 2020	Board Resolution & Motion

**Outreach activities paused in March 2020 due to pandemic*

Board Resolutions & Motions

March 20, 2019 - Direction of Developing a Proposed Network

- Direct staff to develop a fixed-route service scenario for the Eugene/Springfield metropolitan area that focuses 80-85% of the metro area resources on High Ridership with up to 5% of metro resources being focused on non-fixed route mobility options.

August 21, 2019 - Direction on the Proposed Network & Implementation Planning

- Advance the proposed network for further study and implementation planning.

April 8, 2019 - Direction on Service Planning during Pandemic

- Maintain at least a minimal level of service to provide vital community transportation for essential trips during COVID-19 public health concerns, unless state or appropriate authority orders us to cease operations; and if further developments occur, the Board of Directors will be reconvened to address the elevated issues.

April 8, 2019 - Direction of Transit Tomorrow Process during Pandemic

- Pause the Transit Tomorrow process until COVID-19 restrictions are lifted.

June 17, 2019 – Motion Passed Regarding Public Meetings

- Board of Directors should continue holding weekly special meetings on Wednesdays to address COVID-19 issues, unless there is an emergency; committee meetings could resume to discuss other regular business matters; and, all LTD meetings would continue to be held virtually with audio or video technology.

Impacts of Pandemic

Ridership productivity is not the goal at this time.

- We need to make sure that we are providing a ‘useful’ level of service - one that meets the demands we are observing during this period; and
- We need to run enough frequency to avoid too many people on a bus at one time.

“Public Health First” approach - safely operate the minimum level of service that can be provided for essential trip making in the region.

LTD is adhering to health agency guidelines & best practices to reduce the spread of COVID-19, including:

- Regularly sanitizing buses
- Limiting 40-foot buses to 20 passengers & 60-foot buses to 30 passengers
- Moving the white line back from driver & using rear-door boarding for most customers
- Requiring all staff & passengers wear face coverings while on LTD property or vehicles
- Suspending fares
- Installing protective shields for buses (Sept – Oct)
- Continuous monitoring

Impacts of Pandemic

How has LTD Adapted…

- **Monitored & adjusted service** to address changing trip demand & load management
- **Deployed a multimedia approach to communicate service changes** to staff, riders and the public
- **Adapted to a virtual public meeting format** with the ability to accept public comment through a variety of virtual options
- **Adjusted LTD's business to function with fewer resources**
  - Internal - Change in staff and project priorities
  - External - Change in service hours LTD can deploy

Fiscal Year	Revenue Vehicle Hours
2019	279,425 (actual)
2020	288,904 (projected pre-COVID)
2020	246,586 (actual due to COVID)
2021	159,237 (if LTD maintains the same level of service as today)

Impacts of Pandemic on Service

Reflect Health-First Priorities in Current Operations

- Monday through Saturday – Modified Sunday Service
  - 10 to 15 minute service on EmX routes
  - Hourly service on most routes
    - Some spot frequency to address overloads & peak hour demands
  - Most rural routes operate 2 trips per day
  - Span of service is 7:30 a.m. to 10:30 p.m.
  - Some routes are suspended until further notice (27, 33, 55, 73, 78, 79x, 81, 82 and 85)
    - Routes that serve LCC and UO
    - Routes that normally do not run on Sunday schedule
- Sunday service is the same as pre-COVID

Impacts of Pandemic on Service Planning

Focus on LTD's Core Routes

Core Routes include the frequent transit network and routes that run on arterials. They provide access to the most number of people, with a focus on communities of concern; serve major activities centers and essential services in the region; and have the highest ridership.

- Step 1: Add span to core routes
- Step 2: Add spot frequency – based on ridership & load capacity (COVID/max loads)
- Step 3: Shift service in response to school re-opening (timing remains uncertain)
- Step 4: Add limited peak service frequency - *may not be feasible with current budget*
- Step 5: Add all-day frequency – *is not feasible with current/anticipated budget*

Anticipate adjustments for Santa Clara Transit Station to leverage investment

- Monitor to identify when changes to River Road routes should be made

Context Looking Forward

Significant uncertainties about the future remain…

- Duration and form of COVID pandemic
- Pace and form of economic recovery
  - Impacts to payroll tax & LTD finances
  - Size & structure of mobility market
- Who will LTD riders be in the short-, medium-, and long-term
  - Jobs – Which industries will recover? When?
  - Schools – When will schools re-open? What schedule model(s) will be used?
  - Remote – How long will remote work/school continue? Where will people “work” & “study”?
  - Types of Trips – “essential” trips, commute trips, personal trips

Pivoting to the new normal…

- LTD cannot operate the network that existed pre-COVID in the near-term
- LTD does not have the resources to implement the level of service proposed in Transit Tomorrow
- LTD needs to make changes to service incrementally within the confines of budget & pandemic-response

Board Discussion

Should staff resume the Transit Tomorrow decision-making process or continue to pause project activities?

- SPC Chair to share committee members' discussion on this question.
- If directed to resume, staff would present an updated plan of action and schedule for the Board to consider at its September regular meeting.
- If directed to remain paused, staff would continue making adjustments to service, as needed, to maintain a Public Health First approach (safely operate the minimum level of service that can be provided for essential trip making in the region) & continue to regularly report performance metrics to the Board.