

# Metropolitan Transportation Authority



2022-2026 ridership and revenue impact assessment

July 2022

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## McKinsey & Company Analysis—Metropolitan Transportation Authority Financial Impact Assessment on 2022-2026 Revenue of COVID-19

In April 2022, McKinsey & Company was contracted to provide MTA with a detailed economic analysis of factors impacting ridership (the “Report”) which will assist management in assessing the financial impact of the COVID-19 pandemic on MTA operations. Before reviewing the Report, users are advised to carefully read the “Disclaimer” page of the Report in its entirety.

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# Overview of forecasting approach

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## Step 1 Key drivers

The key drivers impacting ridership were determined, including future of office work and consumer sentiment away from transit

## Step 2 Calibration

Parameters were calibrated to quantify each of the drivers to include as part of scenarios

## Step 3 Ridership scenarios

Scenarios were developed for the forecasting of ridership

# Ridership scenarios

The scenarios are designed to illustrate the range of outcomes possible

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## S1 Scenario 1

**Continued office return, limited mode shift from transit and limited economic disruption**

Workers continue to return to work in-person, with workers who can work from home working on-site an average of 3 days per week

Non-work ridership returns closer to pre-pandemic levels as confidence and safety perceptions improve, though still fewer trips than in 2019 (e.g., increase in e-commerce)

Riders who shifted to alternative auto or non-auto modes of transit largely shift back to public transit

Economy continues to rebound without major financial stress; increasing total employment at a steady rate (~0.7% p.a.)

## S2 Scenario 2

**Work-from-home remains at current levels, rider mode shift away from mass transit and sustained disruption to economy**

Return-to-office stalls at current rates of approximately 2 days a week on-site, for workers that have an ability to work from home

Drop in non-work ridership is larger and more sustained, given more ingrained nature of COVID behaviors; long-term trends in e-commerce and telehealth continue to reduce trips

Alternative modes of transit prove to be stickier as former riders make more permanent shift away from transit

Continued financial disruption leads to slower economic outlook; employment growth is slower (~0.2% p.a.)

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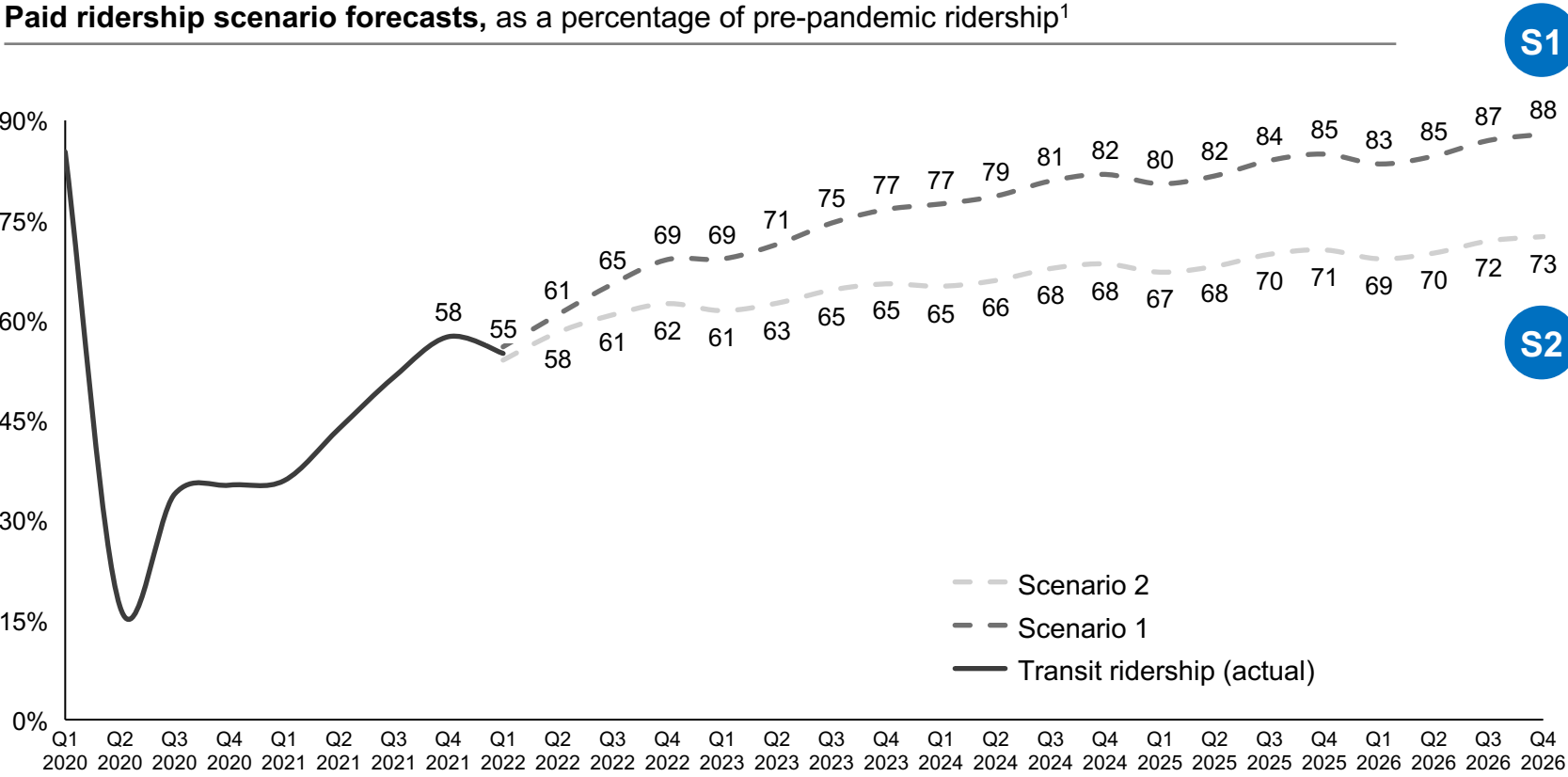
The analysis examines viable scenarios—each relying on the evolution of several key variables—showing a range of most likely outcomes

In practice, a different mix of these variables will likely materialize, e.g., prolonged economic disruption (Scenario 2) but also stronger return to in-person work (Scenario 1)

As such, impacts may lie between these scenarios

# Transit ridership over time by scenario

**Paid ridership scenario forecasts, as a percentage of pre-pandemic ridership<sup>1</sup>**



S1

S2

Expected future ridership may be between 73-88% of pre-pandemic levels by Q4 2026

Ridership under scenario 2 is likely lower due to sustained current levels of working from home, continued higher consumer sentiment away from transit, and sustained reduction of non-work trips

Ridership under scenario 1 likely grows with a continued return to the office, a return of non-work trips and consumer mode shift back to transit

We may see reductions in ridership trends under both scenarios stemming from a COVID-19 variant with similar impact to Delta or Omicron; such month-to-month variations due to variants were not modeled in this analysis to focus on the macro ridership outlook

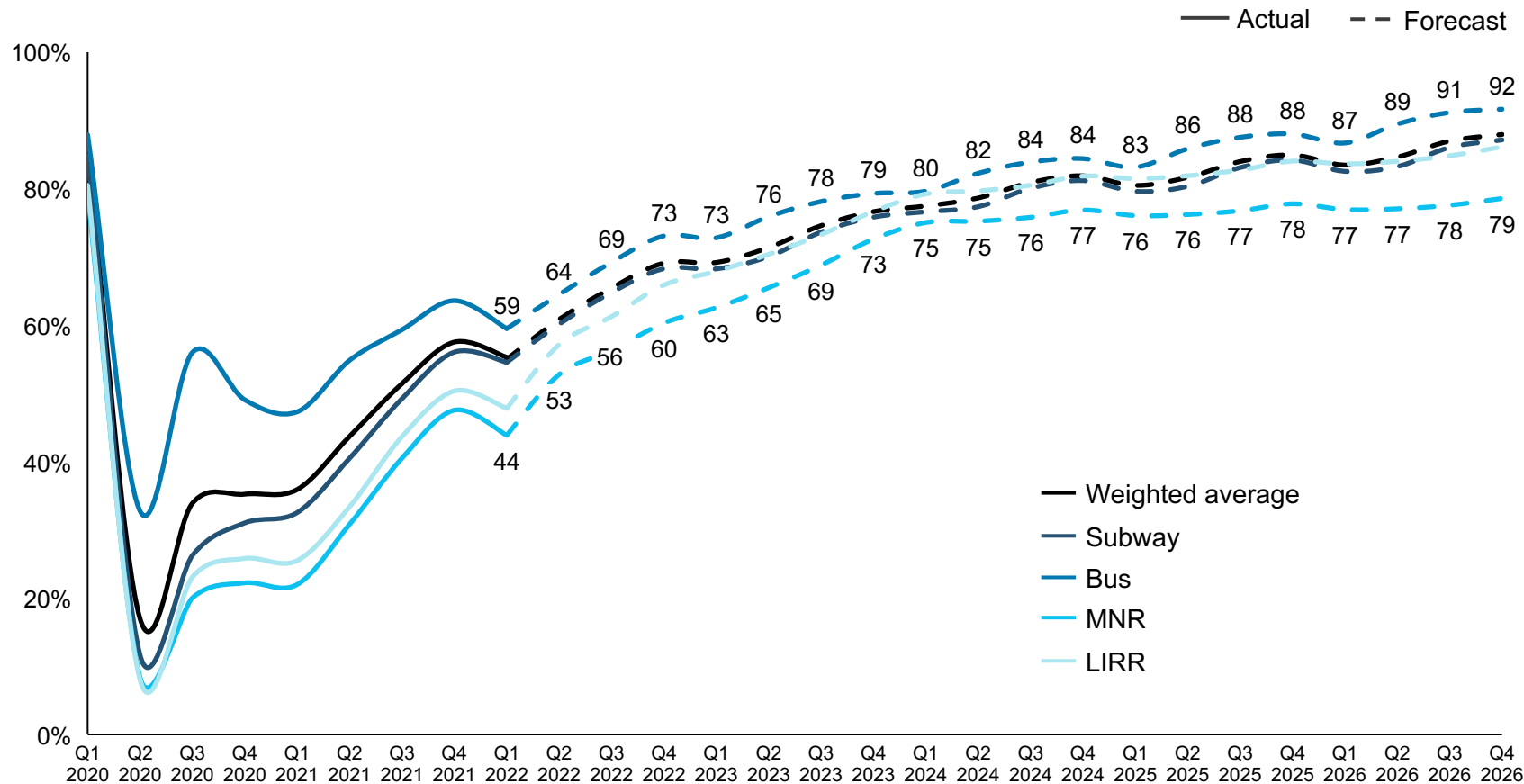
1. Ridership values reflect represent a percentage of current service

Source: U.S. Census American Community Survey (ACS), Oxford Economics, press search, expert interviews

# Scenario 1 – Transit ridership over time by mode

S1

Paid ridership scenario forecasts, as a percentage of pre-pandemic ridership



1. Ridership values reflect represent a percentage of current service

Source: U.S. Census American Community Survey (ACS), Oxford Economics, press search, expert interviews

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Increase of in-office work from those who can work from home from, on average, 3 days to 2 days, return of more non-work trips from virtual alternatives, and a closer return to pre-COVID consumer sentiment about transit, drives growth across modes

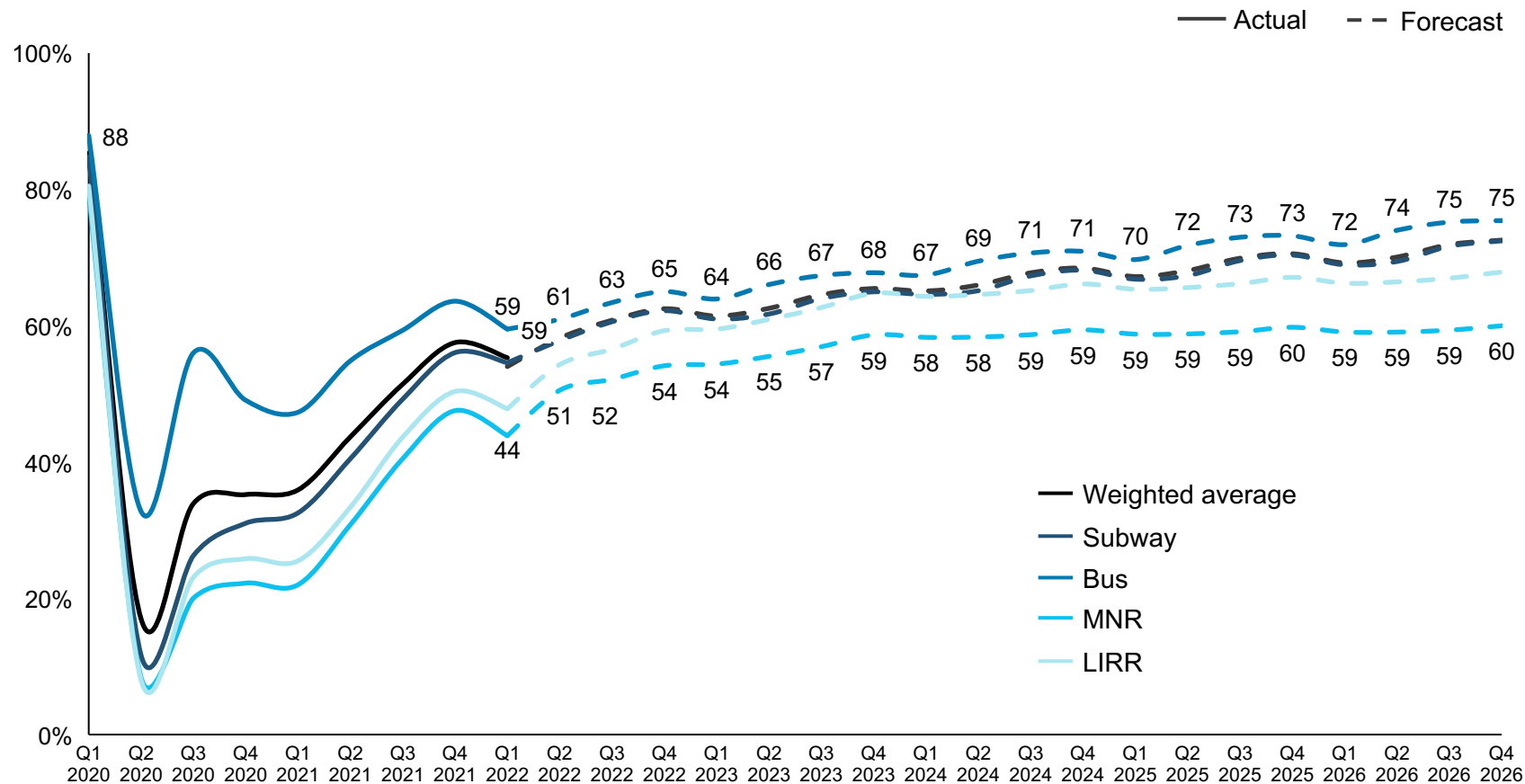
MNR likely recovers slower than subway and bus because it has a higher proportion of work trips, and work trips from workers who can work from home

LIRR recovery is likely boosted by increased ridership (+1 to +4%) from the opening of East Side Access

# Scenario 2 – Transit ridership over time by mode

S2

Paid ridership scenario forecasts, as a percentage of pre-pandemic ridership



1. Ridership values reflect represent a percentage of current service

Source: U.S. Census American Community Survey (ACS), Oxford Economics, press search, expert interviews

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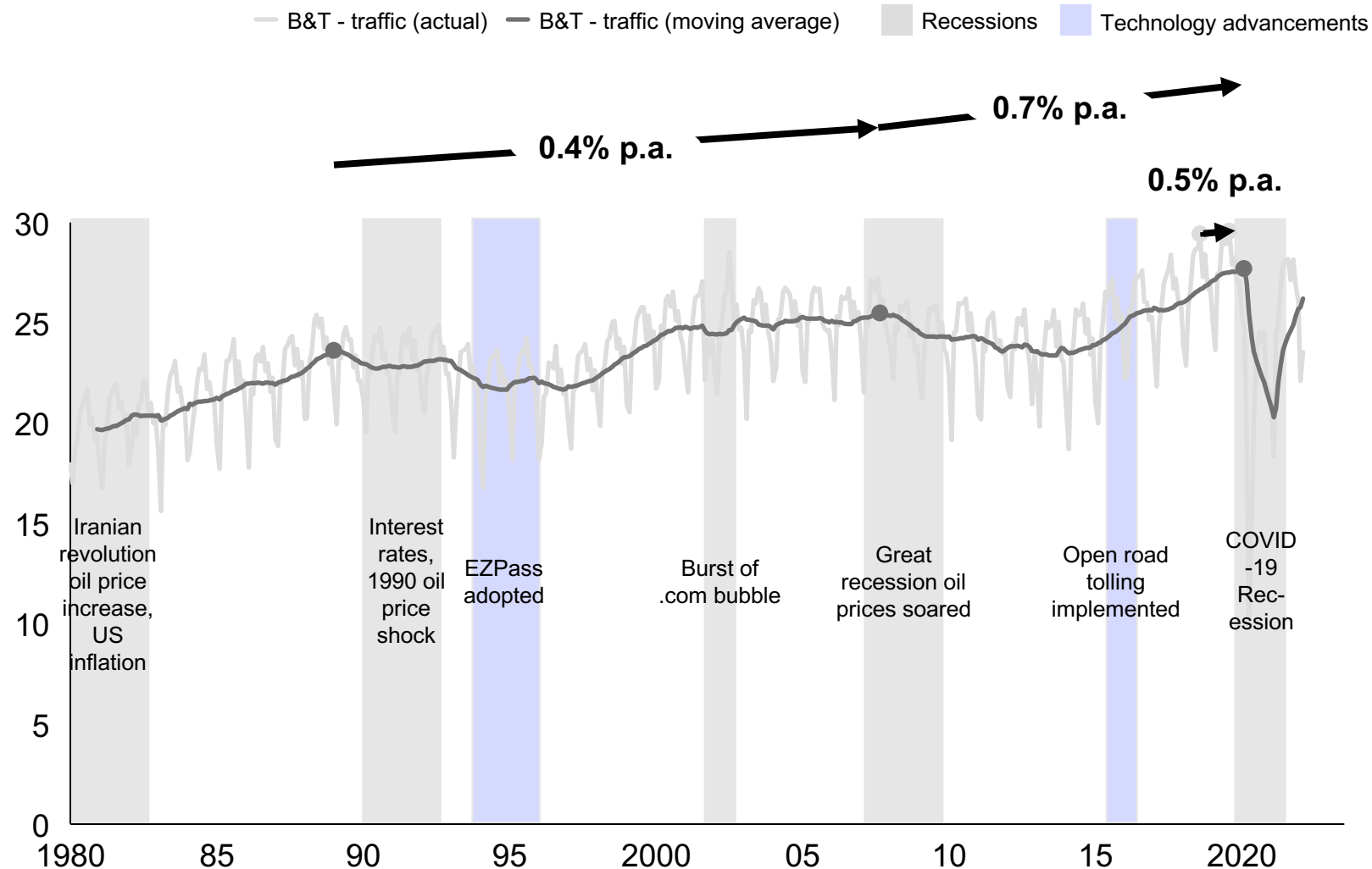
Work-from-home (WFH) assumptions of scenario 2 relative to scenario 1 (3 days per week instead of 2 days per week of those who have jobs able to WFH) drive decreases across modes

More limited impact on bus trips, where only 35% of trips are for work purposes, and a moderate impact on subway trips, where 59% of rides are for work

MNR and LIRR, with 85% and 64% work ridership respectively, are likely disproportionately affected and experience a slower recovery

Ridership may recover beyond 2024, as some work and non-work trips return and employment decline slightly decreases; however, overall ridership might not exceed ~80% of pre-pandemic ridership given lasting behavioral changes

# Historical Bridge and Tunnel (B&T) traffic trends



B&T traffic since 1980 followed a cyclical pattern with historical long-run growth between 0.4-0.7% p.a.

Technological advancements and improvements in how tolls are captured (e.g., replacement of cash collection booths with EZ pass, ORT) have enabled increases in capacity in a largely fixed arterial and feeder network

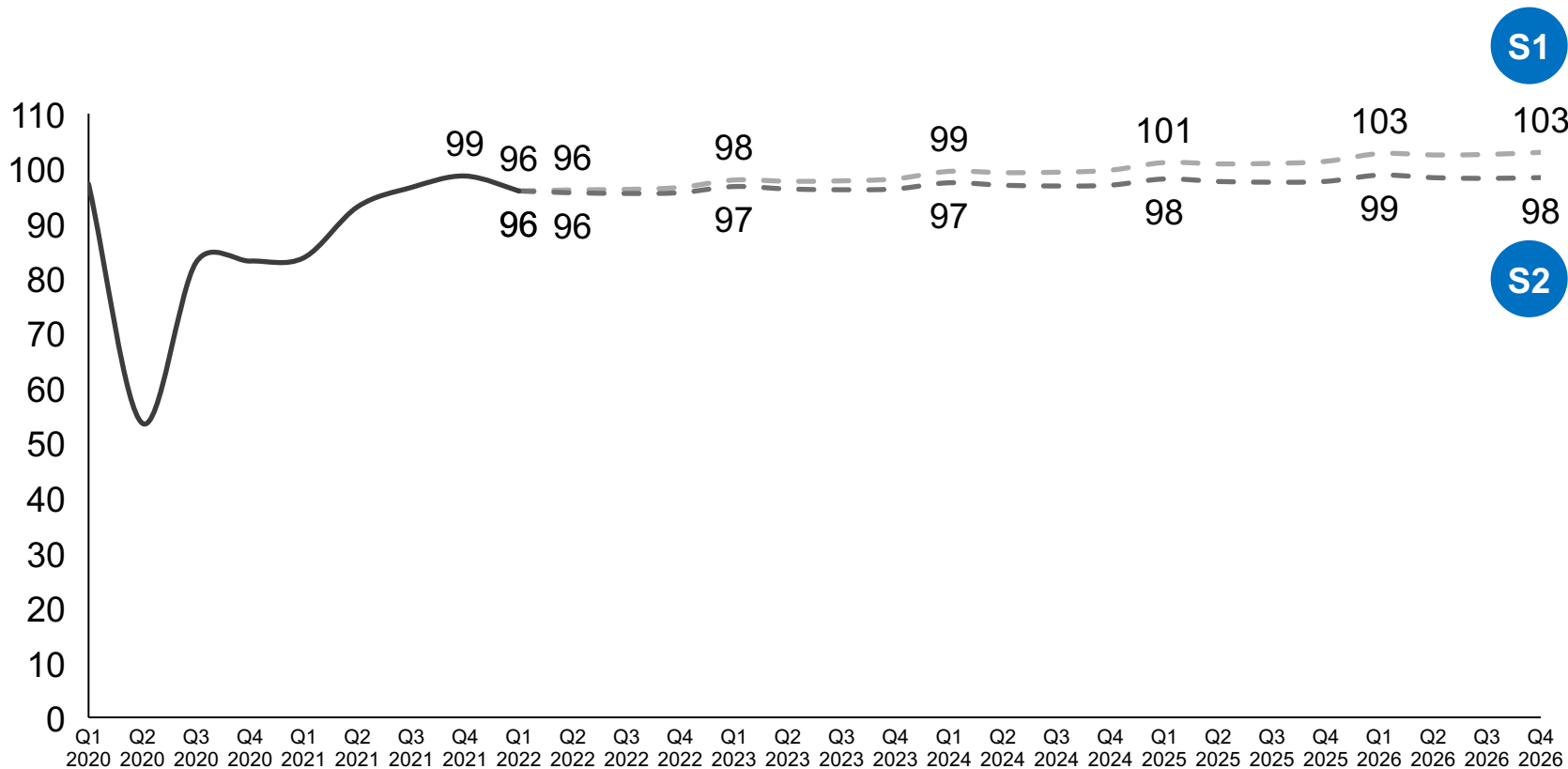


# Bridge and Tunnel (B&T) traffic over time

-- Scenario 1 -- Scenario 2 — Actuals

## Bridges and Tunnels traffic forecasts

As percentage of pre-pandemic traffic



Traffic returned to nearly pre-pandemic levels in 2021

Growth in traffic, aligned with long-term trend of between 0.4-0.7% p.a., may continue through 2026, due to GDP recovery, continued growth in VMT and shift to auto; although some transition to transit is likely expected to align with an increase in congestion charges from early 2024 and onwards

Limits on arterial and feeder capacity cap growth is estimated to be less than 1% per year, producing a relatively stable forecast

# Potential drivers of change for each scenario

NOT EXHAUSTIVE

Categorization	Potential drivers of change	Description
Structural employment changes	<b>A</b> Future of office work	Number of workers that can work from home (WFH), their return to the office (at their original location), and how many days a week they return to the office
	<b>B</b> Long term behaviors for non-work trips	Consumer preferences changing the number of trips that are not work-related, by trip type (e.g., shift to e-commerce reduces shopping trips)
Consumer preferences and incoming interventions	<b>C</b> Consumer sentiment away from transit	Number of transit rides that are replaced with auto (e.g., personal vehicle, FHV), non-auto modes (e.g., cycling), or not taken due to negative sentiment regarding transit (e.g., perceptions of safety/cleanliness)
	<b>D</b> Motorists shift to transit	Shift from auto to other transportation modes due to, for example, congestion pricing (assumed to start in 2023 Q4)
	<b>E</b> Employment and GDP	Number of individuals employed within NYMSA and impact of other macro variables (e.g., domestic product, inflation) on mode-shift
Economic and demographic factors	<b>F</b> Population changes (including migration)	Number of individuals living within NYMSA by age, household size and other demographic variables including net migration
	<b>G</b> Incremental fare evasion	Riders not paying fares (over and above the baseline expectations from 2019)
Leakage	<b>H</b> Capital expansion projects	Changes in ridership from expansion projects under construction, although not yet complete (e.g., East Side Access)

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Source: MTA transit drivers workshop(s) – May 2022

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# Potential drivers of change for each scenario – details (1/2)

NOT EXHAUSTIVE

Categorization	Potential drivers of change	Baseline: Pre-pandemic 2019 view	<b>S1</b> Continued office return, limited mode shift from transit and limited economic disruption	<b>S2</b> Work-from-home remains at current levels, greater mode shift away from mass transit and sustained disruption to economy	Sources/case studies
<b>Structural employment changes</b>	<b>A</b> Future of office work	0.5 days work from home	Average 2 days total work from home varying by occupation (1 less day from today's 3) by Q4 2024	Average 3 days total work from home varying by occupation (same as today's 3) by Q4 2024	<ul style="list-style-type: none"> <li>McKinsey American Opportunity Survey</li> <li>McKinsey analysis, in partnership with Oxford Economics</li> </ul>
<b>Consumer preferences and incoming interventions</b>	<b>B</b> Long term behaviors for non-work trips	~2.5 non-work trips per person, per day	Reduction in non-work trips per person, per day based on returning 100% of school trips, 75% of retail trips and 95% of leisure/VFR trips to 2019 levels by Q4 2026	Reduction in non-work trips per person, per day based on returning 100% of school trips, 65% of retail trips and, 85% of leisure/VFR trips to 2019 levels by Q4 2026	<ul style="list-style-type: none"> <li>McKinsey Grocery and Consumer Pulse survey(s)</li> <li>E-commerce and bus. &amp; consumer credit card exp. (Affinity)</li> <li>MTA rider survey</li> </ul>
	<b>C</b> Consumer sentiment away from transit	No shift / 2019 baseline	<p>FHV ridership returns to pre-pandemic levels</p> <p>Auto mode shift continues fall from peak in Q3 2020 to settle at 1%</p> <p>Bicycle ridership returns to historical trend, mode shift of 1.5%</p>	<p>0.5% shift to FHVs matching estimated Omicron levels</p> <p>Auto mode shift falls at slower rate to 2%, matching new car registrations</p> <p>Bicycle mode shift continues, grows to 2%</p>	<ul style="list-style-type: none"> <li>Manhattan parking availability</li> <li>Auto Consumer Insights</li> <li>MTA rider survey</li> <li>Partnership for NYC survey</li> <li>MTA trip distance data, Micro-mobility trends</li> </ul>
	<b>D</b> Motorists shift to transit	No shift / 2019 baseline	Higher gas prices are sustained, and congestion pricing moves small % of motorists toward transit from Q1 2024	Congestion pricing has limited change to B+T and transit ridership; gas prices revert to lower historical levels	<ul style="list-style-type: none"> <li>MTA forward looking traffic and ridership data</li> </ul>

# Potential drivers of change for each scenario – details (2/2)

NOT EXHAUSTIVE

ⓧ Details on ridership impact follow

Categorization	Potential drivers of change	Baseline: Pre-pandemic 2019 view	<b>S1</b> Continued office return, limited mode shift from transit and limited economic disruption	<b>S2</b> Work-from-home remains at current levels, greater mode shift away from mass transit and sustained disruption to economy	Sources/case studies
Economic and demographic factors	<b>E</b> Employment and GDP	<b>GDP:</b> Growth rate (2018-2019) 2.1% Level \$1866 B  <b>Employment:</b> Growth rate 1.4% Level (workers) <ul style="list-style-type: none"> <li>10 M (NYMSA)</li> <li>4.6 M (NYC)</li> <li>2.6 M (Manhattan)</li> </ul>	NYMSA employment grows at approx. 0.7% annually through Q4 2026  NYC overall and Manhattan employment grows approx. 0.8% annually through Q4 2026  Note: employment levels in 2026Q4 predominantly remain 1.5-3% lower than pre-pandemic (2019)	NYMSA employment grows at approx. 0.2% annually through Q4 2026  NYC overall and Manhattan employment grows approx. 0.3% annually through Q4 2026  Note: employment levels in Q4 2026 predominantly remain 3-4% lower than pre-pandemic (2019)	<ul style="list-style-type: none"> <li>McKinsey analysis, in partnership with Oxford Economics</li> <li>Moody's and IHS Markit</li> </ul>
	<b>F</b> Population changes (incl. migration)	19.9 M people	NY metro area population increases at approx. 0.5% annualized growth rate	NY metro area population increases at approx. 0.2% annualized growth rate	<ul style="list-style-type: none"> <li>American Community Survey</li> <li>McKinsey analysis, in partnership with Oxford Economics</li> </ul>
Leakage	<b>G</b> Incremental fare evasion	5-6% on subway 20-25% on bus	Estimated fare evasion continues decline and falls to 2018 levels, 3-5% on subway, and 15-25% on bus	Decline in fare evasion on subway stalls at Q4 21 levels of 8%, current trends on bus continue to reach 35%	<ul style="list-style-type: none"> <li>MTA historical fare evasion data</li> </ul>
Network enhancement and expansion	<b>H</b> Capital expansion projects	No capital expansion projects	Additional ridership included on LIRR as part of ESA	No additional capital expansion projects contributing net new trips in 2026 timeframe, new trips are diversions of old trips	<ul style="list-style-type: none"> <li>MTA planning data</li> </ul>

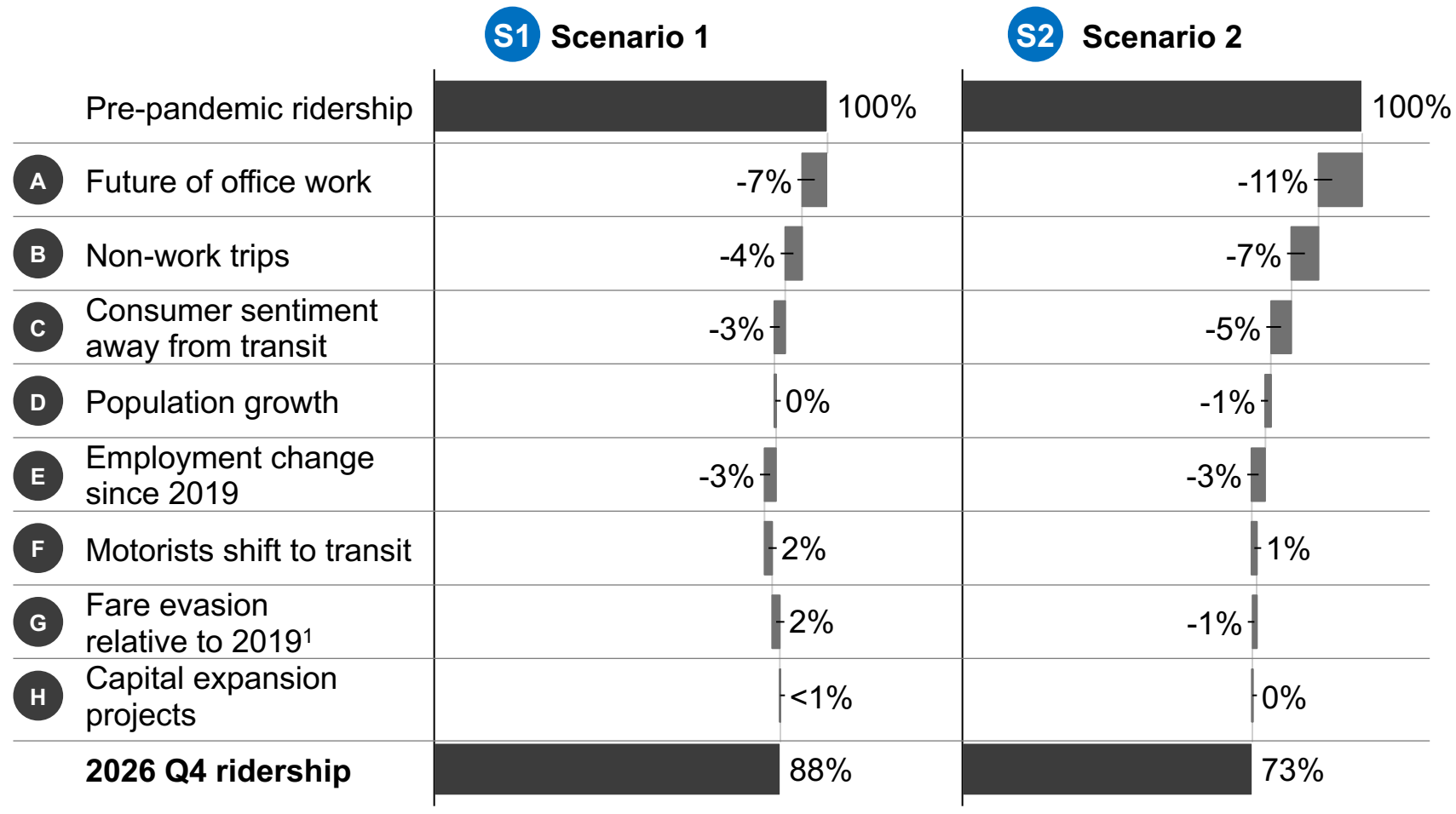
# A: WFH is largest single driver: additional 1.5 – 2.5 days per week for the half of all work trips that can be done from home

Ridership % by trip type and ability to work from home (2019)		Average daily pre-pandemic ridership (000s)	Days WFH for those able to (days/week)		Impact on total ridership (pp)
			2019	2026	
<b>Total</b>		~7,570	0.5	2.1 - 3.2	7 - 11
<b>Bus</b>		~1,700	0.5	2.1 - 3.1	2 - 4
<b>Subway</b>		~5,300	0.5	2.1 - 3.2	7 - 13
<b>LIRR</b>		~300	0.5	2.1 - 3.2	11 - 20
<b>MNR</b>		~270	0.5	2.0 - 3.2	18 - 34

Source: MGI Economics Research analytics, US Census American Community Survey (ACS), McKinsey American Opportunity Survey 2022 (Spring 2022), MTA ridership survey data

# Total transit ridership in 2026 Q4 is estimated to reach 73-88% of pre-pandemic levels

## Q4 2026 ridership estimates, As percentage of pre-pandemic ridership



The largest factor contributing to the estimated reduction in 2026 ridership is the future of office work (7 to 11%), **represents a 30 – 50% reduction of the 24% of the MTA’s trips that are work trips, of jobs that can be done from home**

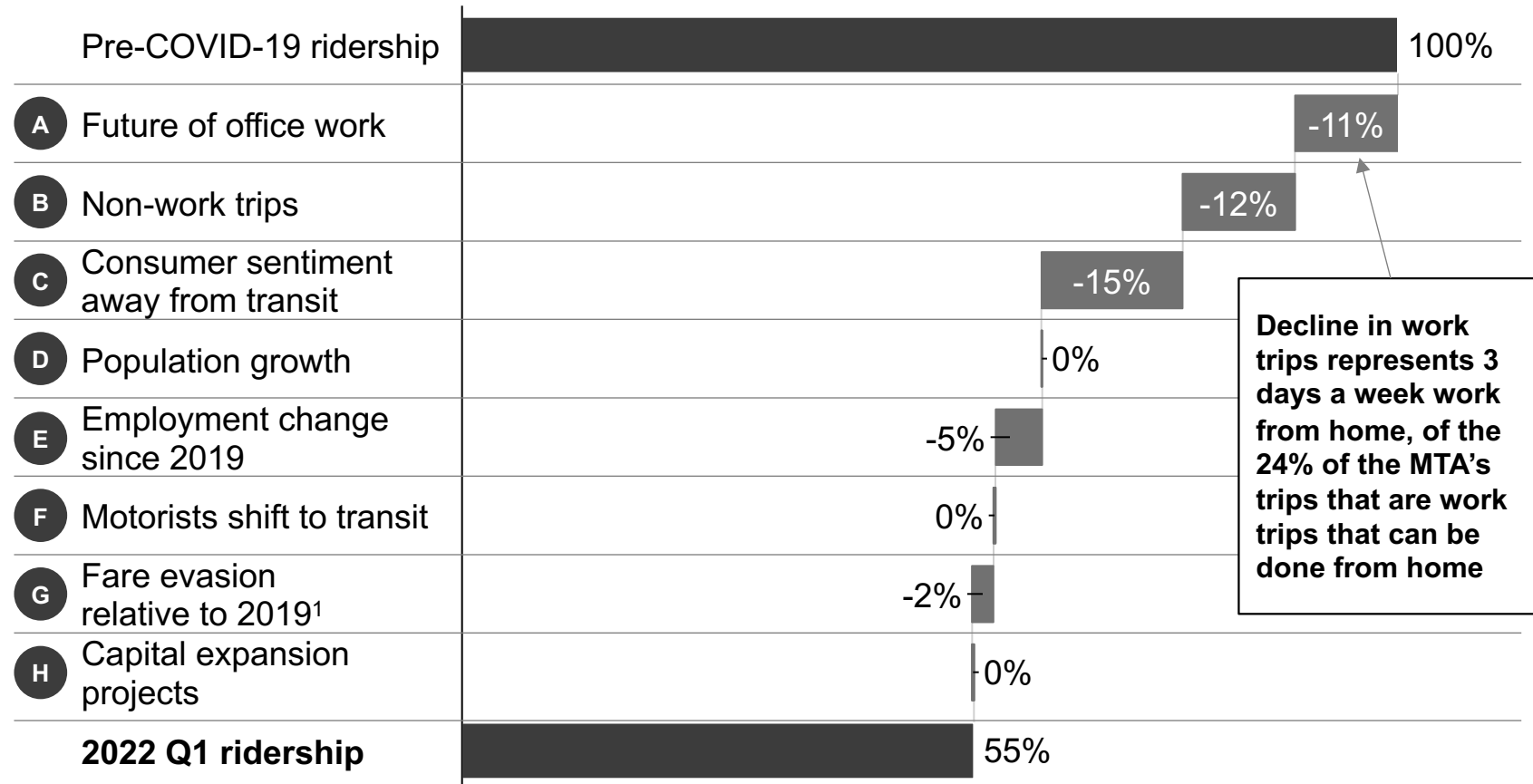
Non-work trips (4 to 7%) and consumer sentiment away from transit (3 to 5%) may contribute to the next two largest drivers of estimated change to 2026 ridership, followed by employment change (approx. 3%), fare evasion (+2 to -1%) and population growth (0 to 1%)

Motorist shift to transit (congestion pricing) (+1 to +2%) and capital expansion projects (<1%) may likely contribute some increases to ridership (**with ESA increasing LIRR ridership by 4% in Q4 26 in S1**)

1. Estimated as change in 'paid ridership'  
Source: MTA ridership and revenue modeling – May 2022  
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# Impact of drivers to ridership for 2022 Q1

## 2022 Q1 ridership estimates, As percentage of pre-pandemic ridership



The largest drivers of decline to 2022 Q1 ridership may relate to consumer sentiment away from transit due to COVID-19 (15%), non-work trips (12%), and the future of office work (11%)

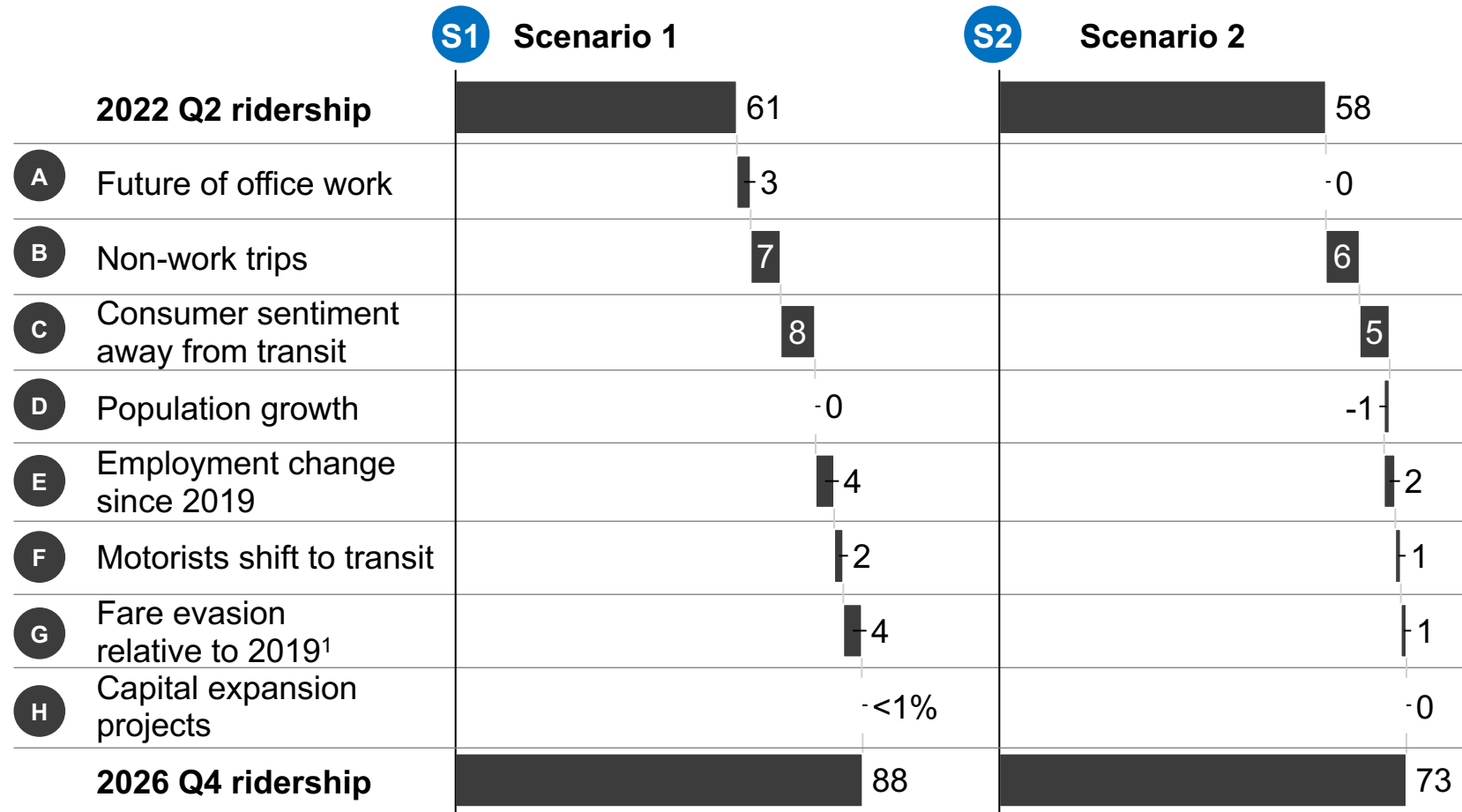
Employment change since pre-pandemic also has an impact on 2022 Q1 ridership, with an estimated 5% decrease on public transit ridership due to lower employment levels

Other smaller drivers impacting 2022 Q1 ridership, compared to pre-pandemic levels, include increased fare evasion (2%)

1. Estimated as change in 'paid ridership'  
Source: MTA ridership and revenue modeling – May 2022

# Path from today, 2022 Q2 to 2026 Q4 ridership

## Q4 2026 ridership estimates, As percentage of pre-COVID-19 ridership



The path to 2026 ridership from current includes return of non-work trips (6 to 7%), movement in consumer sentiment (5 to 8%) and improved employment levels (2 to 4%) as the largest drivers

Other smaller drivers helping toward increased 2026 ridership include reduced fare evasion from current levels (1 to 4%), congestion pricing affecting motorist shift to transit (1 to 2%) and continued future office worker return (0 to 3%)

Capital expansion projects (ESA) contributes 4% to LIRR ridership in S1 in Q4 '26, though impact on total ridership is more muted

1. Estimated as change in 'paid ridership'  
Source: MTA ridership and revenue modeling – May 2022  
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