PURPOSE OF REPORT

To inform members of the observed operational performance of the Greater Manchester bus network for the 2017/18 mid-year period and compare it against the level achieved in 2016/17.

RECOMMENDATIONS

Members are asked to note:

 i) the challenging operational conditions resulting from major infrastructure works, planned events and unplanned roadworks; and

 ii) the high environmental standards of the bus fleet within Greater Manchester.

BACKGROUND DOCUMENTS

Bus Network Performance 2016/17 7 July 2017
Bus Network Performance 2016/17 Mid-Year 20 January 2017
Bus Network Performance 2015/16 8 July 2016

CONTACT OFFICERS

Alison Chew 0161 244 1726 alison.chew@tfgm.com
1. **Background**

1.1 According to passenger research, punctuality and reliability, as experienced by 201.6 million passengers in Greater Manchester (2016/17), are key service improvement priorities. The latest Transport Focus survey (Autumn 2016) indicated that within Greater Manchester, 83% of passengers are satisfied with their overall journey.

1.2 TfGM proactively works in partnership with the bus operators and highway authorities to identify performance issues and drive operational improvements on both commercial and tendered services. However, the scale and number of infrastructure works on radial routes and in the Regional Centre, particularly those in connection with the Bus Priority Package, Metrolink Second City Crossing¹ and the Challenge Fund carriageway resurfacing works, combined with internal operational issues (e.g. service cancellations) have caused significant challenges/issues for bus operators over the last 12 months (Oct 16 – Sept 17).

1.3 The operational performance of the bus network is currently monitored through the Punctuality Reliability Monitoring System (PRMS) which has been in operation since 2009 and provides an influential evidence base on bus performance, particularly with respect to the Bus Operators Code of Conduct (CoC) and Supplier Rating.

1.4 The development and implementation of the Optimised Public Transport Integration System (OPTIS), which incorporates direct feeds from the bus operators’ Automatic Vehicle Location (AVL) systems, will make available detailed and comprehensive real time performance information, including journey time profiles and variances when fully implemented. This level and quality of coverage is not currently available, however as an interim measure AVL based monthly performance summary reports are provided by key operators.

2. **Bus Network Performance**

**Introduction**

2.1 This report presents network wide bus performance statistics for the Greater Manchester region and tracks performance levels against the CoC and Traffic Commissioner targets:

- Reliability - 97.0%;
- Regularity - 97.0%;

¹ All heavy works on the Second City Crossing were completed in 2016; the remainder were complete in February 2017, and the Second City Crossing was officially opened on 26 February 2017
• Start-Point Punctuality - 90.0%; and
• Mid-Point Punctuality - 70.0%.

2.2 Figure 1 and Figure 2 summarise the network headline results for 2017/18 mid-year period split between those registered to adhere to a timetable with specific departure times (scheduled services) and those registered to operate six buses an hour or more, with the associated timetable stating the service frequency (frequent services).

2.3 In considering the observed bus fleet, performance in terms of vehicle age and engine emission standards is outlined in Figure 1 and Figure 2 and assessed based on observations from both frequent and scheduled services.

2.4 A Glossary of Terms is provided in Appendix One.

### Figure 1: Network Performance 2017/18 Mid-Year

<table>
<thead>
<tr>
<th>Measure</th>
<th>Minimum Standard</th>
<th>No. Obs.</th>
<th>Network Average</th>
<th>Above/Below Standard</th>
<th>Change from 2016/17</th>
<th>Trend1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scheduled Service Performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reliability</td>
<td>97.0%</td>
<td>77,415</td>
<td>97.9%</td>
<td>Above</td>
<td>-0.17%</td>
<td>Declining</td>
</tr>
<tr>
<td>Start Point Punctuality</td>
<td>90.0%</td>
<td>36,845</td>
<td>89.2% (89.3%)²</td>
<td>Below</td>
<td>0.19%</td>
<td>Stable</td>
</tr>
<tr>
<td>Mid-Point Punctuality</td>
<td>70.0%</td>
<td>40,570</td>
<td>79.5% (77.2%)³</td>
<td>Above</td>
<td>0.93%</td>
<td>Improving</td>
</tr>
<tr>
<td>Overall Punctuality²</td>
<td>80.0%</td>
<td>77,415</td>
<td>84.4%</td>
<td>Below</td>
<td>0.56%</td>
<td>Improving</td>
</tr>
<tr>
<td>Frequent Service Performance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regularity</td>
<td>97.0%</td>
<td>29,308</td>
<td>95.2%</td>
<td>Below</td>
<td>0.09%</td>
<td>Stable</td>
</tr>
<tr>
<td>All Service Vehicle Quality (most recent quarter)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Euro IV +</td>
<td>87.1%</td>
<td></td>
<td></td>
<td></td>
<td>1.69%</td>
<td>Improving</td>
</tr>
<tr>
<td>Hybrid Diesel</td>
<td>13.9%</td>
<td>26,567</td>
<td></td>
<td></td>
<td>-2.19%</td>
<td>Declining</td>
</tr>
<tr>
<td>Euro VI</td>
<td>20.4%</td>
<td></td>
<td></td>
<td></td>
<td>2.37%</td>
<td>Improving</td>
</tr>
<tr>
<td>Age (Yrs)</td>
<td>7.4</td>
<td></td>
<td></td>
<td></td>
<td>0.3</td>
<td>Stable</td>
</tr>
</tbody>
</table>

¹ Reliability/Regularity:<0.1% Stable >-0.1%; Punctuality:<0.2% Stable >-0.2%; Emissions:<0.5% Stable >-0.5%; Vehicle Age:<0.5yr Stable >-0.5yr
² Merseyside - 84%, West Midlands - 79%, West Yorkshire - 83%, Lancashire - 79% (2015/16) : Department for Transport Table BUS0902
³ Based on operator supplied monthly AVL performance reports.

### Scheduled Service Performance

2.5 The reliability of scheduled services (Figure 1 and Figure 2) at the network level has declined to 97.9% (2017/18 Mid-Year) from 98.1% in 2016/17, however this is above the Code of Conduct minimum standard (97%).

2.6 Start-point punctuality of scheduled services is an area where TfGM has sought more action on the part of operators, as it is incumbent on them to provide reasonable recovery time and develop contingency plans to enable
journeys to start punctually. Traffic congestion in the Regional Centre has impacted on the ability of operators to increase recovery times – particularly given the limited space available for vehicle layover – while work continues to develop and better utilise AVL data for service planning.

2.7 The 2017/18 mid-year network level performance for start-point punctuality was observed at 89.2% (Figure 1 and Figure 2), just under the Code of Conduct minimum standard (90%), but remaining relatively stable when compared with performance level in 2016/17 (89.0%). The equivalent network performance recorded through the operators' AVL system (24/7 dataset) was 89.3%.

2.8 The scale and intensity of the infrastructure works in the Regional Centre and on key radial corridors, combined with the level of planned and unplanned roadworks, has directly impacted on operator performance during the 2017/18 mid-year period. Although the majority of these major transformation works were completed at the end of April 2017, performance between July and September 2017 (90.5%, 2017/18 Q2) has significantly declined from the level achieved in the equivalent quarter of 2016 (92.2%, 2016/17 Q2). During this period, further network disruption resulted from the A6 Viaduct closure, Moses Gate burst water main and the resurfacing works on Rochdale Road.

2.9 Mid-point punctuality of scheduled services is an area where TfGM anticipates action from both bus operators, highway authorities and other...
stakeholders who have an influence over the management of the local and strategic road network.

2.10 At the network level (Figure 1 and Figure 2) the mid-point punctuality of scheduled services has increased to 79.5% (2017/18 mid-year) from 78.6% (2016/17). Observed network performance is over nine percentage points higher than the Traffic Commissioner’s minimum standard (70%) despite the difficult operating environment, particularly within the Regional Centre. Network performance recorded through the operators’ AVL systems was fractionally lower at 77.2% (2017/18 mid-year). It is also worth noting that bus departure levels in Greater Manchester have declined in recent times, from 150,601 weekly bus departures (Jan 15) to 141,961 (Sept 17), reflecting reduced frequencies utilising the same vehicle resource on a number of services.

Operator Code of Conduct

2.11 The Bus Operators Code of Conduct (CoC) membership comprises Arriva, First Manchester, Jim Stones Travel, Rossendale Transport, Stagecoach Manchester and Transdev (87.0% of network mileage - July 17). For the 2017/18 mid-year period, the collective performance of the Code of Conduct operators exceeds the desired performance targets for both reliability (97.8%) and mid-point punctuality (79.9%), although start-point punctuality is below the required standard (88.9%). The quality of the fleet has continued to improve with the percentage of Euro IV+ vehicles (87.7%) exceeding the network average (87.1%).

Frequent Services

2.12 In the case of frequent services, the key issue for passengers is not the adherence to a specific set of timetabled departures, but the regularity of the service compared to their expectations. Performance is measured at intermediate timing points of a journey therefore this is another area where the CoC membership has acknowledged there may be a need for highways management interventions to achieve the minimum standards.

2.13 Network mid-point regularity performance (Figure 1 and Figure 2) for 2017/18 Mid-Year period was 95.2%, which is stable when compared with the performance level achieved in 2016/17 (95.2%), but continues to operate below the CoC minimum standard (97%).

2.14 The level of performance of frequent services needs to be appreciated, against the underlying picture of a number of corridors disrupted by major roadworks and events during 2017/18 mid-year period including construction activity associated with the Bus Priority Package, Metrolink Second City Crossing and the Challenge Fund carriageway resurfacing works. The network level regularity figure masks some significant improvements and operator actions that have been tracked at a corridor level.
3. Fleet Profiles

3.1 The observed\(^2\) bus fleet performance in terms of vehicle age and engine emission standards are presented in Figure 1 and Figure 3.

3.2 The bus fleet profile within Greater Manchester (~2,555 vehicles, Oct 17) has continued to improve, with an increased deployment of low emission vehicles on key service routes. Although the proportion of hybrid diesel-electric vehicles observed has declined between 2017/18 Q2 (13.9\%) and 2016/17 (16.1\%), the proportion of Euro VI has continued to improve and now stands at 20.4\% (2017/18 Q2). As of Oct 17, there were 384 (15.0\%) low-carbon emission vehicles in the Greater Manchester bus fleet, of which TfGM owns 150 (109 low-carbon emission and 41 exhaust retrofit vehicles). In contrast, 28.5\% (2,729) of the Greater London bus fleet (9,590) are categorised as hybrid\(^3\).

**Figure 3: Fleet Profile (2017/18 Mid-Year)**

3.3 Further improvement in the emissions standards of the Greater Manchester bus fleet is set to continue given the large sized operators’ existing and proposed vehicle investment plans, particularly Stagecoach Manchester. The overall level of fleet investment by Arriva, First Manchester and Stagecoach is summarised in Figure 4.

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\(^2\) The observed fleet profile differs from the registered fleet profile, since the former monitors what is deployed as opposed to what is registered. Therefore, the results present a natural bias to what is observed on the busier corridors of Greater Manchester. It provides a more customer and environmental focussed picture of the impact fleet management activity has on the customer experience and vehicle emissions across the City Region.

Figure 4: Fleet Investment by the Top Three Bus Operators

<table>
<thead>
<tr>
<th>Fleet Size (Oct 17) Large Operators</th>
<th>No. of New Vehicles</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>2014</td>
</tr>
<tr>
<td>1759</td>
<td>161</td>
</tr>
<tr>
<td></td>
<td>77</td>
</tr>
<tr>
<td></td>
<td>50</td>
</tr>
<tr>
<td></td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>TBC</td>
</tr>
</tbody>
</table>

3.4 The average age of the Greater Manchester bus fleet was observed at 7.4 years (2017/18 mid-year), which is fractionally higher than the age profile (7.1 years) recorded in 2016/17, but does compare favourably with 7.6 years for local bus services in England (2015/16). The average age of the Greater London bus fleet is 5.5 years (Jun 17).

3.5 All vehicles observed through PRMS are low floor accessible and therefore meet the accessibility standards specified by the Public Service Vehicle Accessibility Regulations.

4. District Engagement Update

4.1 The scale and number of planned infrastructure works on radial routes and in the Regional Centre, particularly those in connection with the Bus Priority Package, A6 Viaduct Closure and the Challenge Fund carriageway resurfacing works, combined with the impact of unplanned works (i.e. Moses Gate burst water mains) have caused significant operational challenges for bus operators during the 2017/18 mid-year period.

4.2 For the 2017/18 mid-year period, 91,856 roadworks were registered through the Greater Manchester Road Activity Permit System representing an 17.1% increase from the level recorded in 2016/17 (78,437). A significant proportion of the works were related to immediate emergency works (19,568; 22.9%). An overview of bus service punctuality performance at the district level is provided in Figure 5.

4.3 The impact of the Regional Centre and Bus Priority Package infrastructure works was mitigated where possible by on-going dialogue with bus operators through the Regional Centre Traffic Management Group. The Second City Crossing and Regional Centre bus routes works were finished in January 2017, after which bus performance on the affected routes improved significantly. Work on Oxford Road (Greater Manchester’s busiest bus route) continued until May 2017. These works resulted in significant delays to bus operations with significant amounts of additional bus resources being utilised to maintain published timetables.

4.4 Other key roadworks on radial routes have included Challenge Fund resurfacing works along lengths of the A6 Stockport Road and A57 Hyde Road in Manchester. In addition, the A6 Stockport Rd was closed during

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4 Annual Bus Statistics 2015/16 (Department for Transport)
6 Information provided by the Greater Manchester Road Access Permit department
summer in Stockport town centre for bridge waterproofing works, reopening on the 16 Oct 17. Where possible works have been undertaken during the off peak period; nevertheless there has been a significant impact upon bus operations. Given the impact of the works on the key radial routes, the Regional Centre Co-ordination Group’s role has been extended to cover those corridors. The group seeks to co-ordinate and minimise the impact of works and provide early notification/mitigation wherever possible.

4.5 In addition, all bus operators receive a daily email, automatically generated from the GMRAPS system, which details unique roadworks information relating to their bus service network. Bus performance in the Regional Centre is also often impacted by the number of events that often result in road closures and associated delays such as Pride and Greater Manchester Cycle Race.

Figure 5: District Performance 2017/18 Mid-Year Vs 2016/17

- SP: Start Point Punctuality
- MP: Mid Point Punctuality

4.6 In terms of significant infrastructure projects which may have impacted on performance, the ‘Challenge’ surfacing package of works in Manchester had an ongoing impact and to mitigate the impacts regular meetings were held with MCC to ensure operators were informed of the phasing of works and traffic management plans, and have influenced the works to ensure impact on the network is minimised.
4.7 In Salford, to assist with the impacts of the Ordsall Chord works, schemes on the A580 East Lancashire Road and the A57 Liverpool Road; regular liaison with the City Council was facilitated regarding future works through the Regional Centre co-ordination meetings. Interventions were delivered with Salford’s traffic management team in respect of working hours and methods for roadworks when they cause unexpected disruption.

4.8 The Metrolink Trafford Park Line works also have the potential to cause significant impacts on service delivery. In response, a weekly meeting is held to discuss the traffic management plans in order to prepare diversions in a timely manner and inform operators of any forthcoming disruption and co-ordinating with contractors to ensure that works are undertaken to minimise disruption.

5. Conclusions

5.1 The Greater Manchester bus network carries circa 200 million passengers per annum, representing over 75% of the public transport market (Jul 16 – Jun 18). The operational performance results for the 2017/18 mid-year period continued to highlight the high service performance standards achieved by the Greater Manchester bus network despite the challenging operating conditions, including over 91,568 registered roadworks and specific bus operator issues. Mid-point punctuality (79.5%) performance had continued to improve and exceeded the Code of Conduct minimum standard. Start-point punctuality had stabilised at 89.2%, just short of the Code of Conduct threshold (90%) and schedule service reliability remained high (97.9%).

5.2 The environmental standards of the Greater Manchester bus fleet has continued to improve with the proportion of Euro IV or above standing at 87.1% (2017/18 mid-year). The proportion of the fleet which was classified as Euro VI had increased significantly to 20.4%; supported by the continued investment in the fleet by Stagecoach Manchester.

6. Recommendations

6.1 Recommendations are set out at the front of this report.

Alison Chew
Interim Head of Bus Services
Appendix 1: Glossary of Terms & Data Sources

- **Scheduled Service**: Defined as those services timetabled by a bus company (both commercial and those supported by TfGM).

- **Frequent Service**: Defined in the Local Bus Service Registration documentation as 6 or more buses per hour.

- **Code of Conduct**: The Code of Conduct, developed in conjunction with Greater Manchester Bus Operators' Association (GMBOA), represents a Voluntary Partnership Agreement, which outlines the joint undertakings made by TIGM and Bus Operators to deliver continuous improvement across Greater Manchester Bus Network in relation to punctuality, reliability and vehicle standards. Current Code of Conduct members are Arriva, First Manchester, Jim Stones, Rosso, Stagecoach and Transdev.

- **Scheduled Service Reliability**: Measured by percentage of observed bus departures from a given location compared to the service provision promised to the public.

- **Scheduled Service Punctuality (Start & Mid)**: Measured by percentage of ‘on-time’ observed bus departures from a given location. The definition of an ‘On-time’ departure is one which is between 60 seconds early and 5 minutes and 59 seconds late, inclusive. Punctuality can be measured at the start of a journey or at the middle of a journey. Overall punctuality represents a simple average between start and mid-point punctuality, in line with NI178 guidelines.

- **Frequent Service Regularity**: Measured either by percentage of occasions where the gap between services is over 2 times the service headway, or 10 minutes, whichever is the larger number. Service Regularity encapsulates both the reliability and punctuality aspect of a frequent service.

- **Engine emission standards**: Based on the minimum requirement at the vehicle registration date. The emission standards are defined by European Union directives. Euro IV engine standards came into force on 1/10/2005. Hybrid electric bus combines a conventional internal combustion engine with an electric propulsion system.

- **Vehicle Age**: Based on the difference between the vehicle registration date and survey date.