Operational Metrics Handbook

Version 1.1 – April 2013

Network Delivery and Development Directorate

1. INTRODUCTION

Each month Service Providers submit Operational Data to NDD Central. This data is then scored using the metrics in the Performance Measurement Framework (PMF).

There are three forms of Operational Data – Incident, Scheme and Asset. For each type of Data this document shows how the PMF metric scores are calculated, giving the information fields within the Data used to do so.

2. SERVICE PROVIDER PERFORMANCE MANAGEMENT FRAMEWORK

In 2010/11 the previous methods for monitoring our Service Provider performance were developed into a more useful performance management tool in the form of the Service Provider Performance Management Framework (PMF).

The PMF now gives us a standard approach to capturing performance data in order to achieve:
- Visibility of Service Provider performance
- Consistency in the data we capture on Service Provider performance
- Benchmarking of Service Provider performance results.

See the NDD PMF Methodology document and the ASC Performance Management Manuals for further details.

All the Operational Metrics are included in the MAC PMF and/or the ASC PMF.

3. INCIDENT METRICS

3.1 ASC Incident Clearance

Applies to ASCs and Retrofitted MACs

Metric Title	Incidents are cleared rapidly
Purpose / Description	To measure the Provider's performance with regard to incident clearance on the network. Following incidents the Provider will undertake to make safe the asset and to ensure that the expeditious movement of traffic on the Area Network is secured.
Measures	
AMOR Performance Metrics 1, 2 & 3	Performance Metric 1 During month, maximum duration from *Provider Incident identification/notification from TOS/Emergency Services* through to *production of Provider Tactical Incident Response Plan* Performance Metric 2 Monthly mean: For all Provider attended HA led Incidents, duration from *Lane Closure* through to *Lane Opening* Performance Metric 3 Monthly mean: From *Incident command handover* from the Emergency Services to the HA, through to *Lane Opening*
Definitions	
Provider Incident identification/notification from TOS/Emergency Services	Incident data field: LOG_DATE_TIME
Production of Provider Tactical Incident Response Plan	Incident data field: TIRP_PRODUCTION_DATE_TIME
Lane Closure	Describes the situation when a live running lane is partially or fully obstructed by an Incident. Incident data field: Earliest of - LANE_CLOSURE_DATE_TIME FIRST_RESTRICTION_ON_DATE_TIME NOTIFIED_FIRST_ON_DATE_TIME

Metric Title	Incidents are cleared rapidly
Lane Opening	Incident data field: Later of - LANE_OPENING_DATE_TIME LAST_RESTRICTION_OFF_DATE_TIME NOTIFIED_LAST_OFF_DATE_TIME
Incident command handover	Incident data field: CMD_HANDOVER_DATE_TIME
Methodology	AMOR Part 3, Table 3.1, outlines the 36 different combinations of the fields Road Type/Emergency Services Present/Time of Day/Road Traffic Levels against which **Incidents are cleared rapidly** can be scored. All 36 may not occur during the qualifying period, in which case those combinations not occurring should be excluded from calculations. Each of the combinations is assessed to determine if the Service Provider has met the relevant target, and an overall score of the targets met as a percentage of the total applicable combinations is calculated. PM1 For each combination (maximum 18) the greatest value of *TIRP_PRODUCTION_DATE_TIME – (LOG_DATE_TIME)* for an incident in the qualifying period is compared to the target time and a pass or fail is awarded. PM2 For each combination (maximum 9, does not apply to incidents where Emergency Services present) the mean of *(Lane Opening) – (Lane Closure)* for incidents in the qualifying period is compared to the target time and a pass or fail is awarded. PM3 For each combination (maximum 9, applies to incidents where Emergency Services present only) the mean of *(Lane Opening) – (CMD_HANDOVER_DATE_TIME)* for incidents in the qualifying period is compared to the target time and a pass or fail is awarded.
Data Source / Requirements	Incident Logs/Performance Reports

Data Input (Frequency / Reporting Period: Calendar month)

Field	Var	Type	Calculation	Decimals	Range

Metric Title	Incidents are cleared rapidly					
Number of AMOR 3.1 combinations applicable for Performance Metric 1	(A)	Integer	-	0	0-18	
Of (A), number of combinations meeting target	(B)	Integer	-	0	0-18	
Number of AMOR 3.1 combinations applicable for Performance Metric 2	(C)	Integer	-	0	0-9	
Of (C), number of combinations meeting target	(D)	Integer	-	0	0-9	
Number of AMOR 3.1 combinations applicable for Performance Metric 3	(E)	Integer	-	0	0-9	
Of (E), number of combinations meeting target	(F)	Integer	-	0	0-9	

Calculations

Measure	Type	Calculation	Decimals	Range	Target
AMOR Performance Metrics 1, 2 & 3	Integer	(B + D + F) / (A + C + E) * 100	2	0 – 100	100

4. SCHEME METRICS

4.1 Budget

Metric Title	**Deliver Schemes to Budget - MAC**
Applies to	MACs
Purpose / Description	To measure the accuracy of cost predictions, on *eligible schemes* exceeding £100K in value. The indicators are designed to reflect the impact on customers and the HA of *milestones* in the process of design and construction of these schemes not being achieved at the predicted cost.
Milestones Description	1. Commitment to detailed design 2. Completion of detailed design 3. Agreement of Cost 4. Agreement of predicted start and finish dates 5. Actual start of Construction 6. Actual Completion of Construction 7. Agreement of final account at first valuation after completion
Measures	
CP01 (A)	Average (for all eligible schemes) Variance between the sum of costs at *milestone* 3 (Scheme Data Field: PREDICTED_COST_AT_AGREEMENT_OF_COST) compared to those costs predicted at *milestone* 1 (Scheme Data Field: PREDICTED_COST_AT_DESIGN_COMMITMENT), as a percentage of costs predicted at *milestone* 1
CP02 (A)	Average (for all eligible schemes) Variance between the sum of costs at *milestone* 7 (Scheme Data Field: ACTUAL_COST_1ST_VALUATION) compared to these costs predicted at *milestone* 3 (Scheme Data Field: PREDICTED_COST_AT_AGREEMENT_OF_COST), as a percentage of costs predicted at *milestone* 3.
CP03 (A)	Average (for all eligible schemes) Variance between the sum of costs at *milestone* 7 (Scheme Data Field: ACTUAL_COST_1ST_VALUATION) compared to these costs predicted at *milestone* 1 (Scheme Data Field: PREDICTED_COST_AT_DESIGN_COMMITMENT), as a percentage of costs predicted at *milestone* 1.
Definitions	
Eligible Scheme	Scheme currently approved by HA, with an estimated *scheme cost* over £100K at *milestone* 1. In terms of database calculations, a scheme is live if: a) Reporting Period >= the actual date of design compleition b) The Actual_Date_1st_Valuation = Blank OR Actual_Date_1st_Valuation >= Reporting_Period minus 11 months c) Scheme_Stopped_Flag = N
Methodology	As part of preparing the annual programme, covering works funded for each financial year, a record for each Scheme is produced and relevant details are recorded, including project details and prediction of final cost

Metric Title	Deliver Schemes to Budget - MAC

(*milestone* 1).

When all parties agree the construction costs (*milestone* 3), the provider records the revised predicted final *scheme cost* and the date of this entry, against the project record.

Finally, the provider records the projected final *scheme cost*, at the first valuation after the End of Construction (*milestone* 7) and the date of this entry, against the project record.

Data Source / Requirements	Provider's scheme records

Data Input (Frequency / Reporting Period: Calendar month)

Field		Type	Calculation	Decimals	Range
PREDICTED_COST_AT_DESIGN_COMMITMENT	(A)	Integer	-	0	unspecified
PREDICTED_COST_AT_AGREEMENT_OF_COST	(B)	Integer	-	0	unspecified
ACTUAL_COST_1ST_VALUATION	(C)	Integer	-	0	unspecified
Number of eligible schemes	(D)	Integer	-	0	unspecified

Calculations (average current + preceding 11 months)

Measure	Type	Calculation	Decimals	Range	Target
CP01 (A)	Percentage	(($\sum$B-A)/ $\sum$A * 100) / D	2	unspecified	<= 0%
CP02 (A)	Percentage	(($\sum$C-B)/ $\sum$B * 100) / D	2	unspecified	<= 0%
CP03 (A)	Percentage	(($\sum$C-A)/ $\sum$A * 100) / D	2	unspecified	<= 0%

Metric Title	Deliver Schemes to Budget – ASC
Applies to	ASCs
Purpose / Description	To measure the accuracy of cost predictions on all live Capital Schemes over £100,000 which have reached milestones 3 (Agreement of Cost) or 7 (Agreement of final account at first valuation after completion). The metric is designed to reflect the impact on customers and the HA of changes in predictions and costs during the different phases of design and construction of these Schemes.
Measures	
Total Cost Variance (Scheme Performance Metric 2 (SPM2))	The Total Variance in Cost between Scheme Data field PREDICTED_COST_AT_DESIGN_COMMITMENT and *Net Cost*, as a percentage of Predicted Costs, for all Live Schemes over £100k.
Definitions	
Net Cost	If a Scheme has reached milestone 3 only, Net Cost = Scheme Data field PREDICTED_COST_AT_AGREEMENT_OF_COST If a Scheme has reached milestone 7, Net Cost = Scheme Data field ACTUAL_COST_1ST_VALUATION
Eligible Schemes	As per MAC
Methodology	Cost information is recorded in Service Provider Scheme Data submissions
Data Source / Requirements	Service Provider Scheme Data

Data Input (Frequency / Reporting Period: Calendar month)

Field	Var	Type	Calculation	Decimals	Range
Sum of Cost Variance for all qualifying schemes	(A)	Integer	∑ (Net Cost – PREDICTED_COST_AT_DESIGN_COMMITMENT)	2	unspecified
Sum of Predicted Cost for all qualifying schemes	(B)	Integer	∑ PREDICTED_COST_AT_DESIGN_COMMITMENT	2	unspecified
Number of eligible	(C)	Integer	Total number of eligible schemes	0	unspecified

Metric Title	Deliver Schemes to Budget – ASC				
schemes					

Calculations

Measure	Type	Calculation	Decimals	Range	Target
Total Cost Variance	Percentage	((A / B) * 100) / C	2	unspecified	<=-5%

The following Metrics will be scored as Constructed Provider until further notice

See CP Handbook for details

5. PAVED AREAS – SEE CP HANDBOOK UNTIL APRIL 13

Metric Title	Make Safe Defects: Paved Areas				
Applies to	ASCs and retrofitted MACs				
Purpose / Description	To measure the Provider's performance in ensuring that paved areas provide a safe and even surface for all road users.				
Measures					
Defects Made Safe	Defects – potholes, surface deformation, iron work, trip hazards - are made safe within 24 hours of verification				
Definitions					
Defects	> Pothole > 150 mm diameter, or of > depth than that of the surface course thickness, or of > depth than 40 mm. > Local Surface Deformation > 40 mm > Ironwork - Difference in level around ironwork > 25 mm > Pothole > 25 mm depth or > 150 mm diameter > Local Surface Deformation > 25 mm > Trip Hazard - Any step change > 25 mm				
Verification	Point at which defect is recorded, either arising from an inspection (Data field: DEFECT_INSPECTION_DATE_TIME) or by notification (Data field: DEFECT_NOTIFICATION_DATE_TIME)				
Made Safe	Point at which defect is made safe Data field: MAKE_SAFE_DATE_TIME or Data field: PERMANENT_REPAIR_DATE_TIME				
Methodology	This metric is measured as the percentage of those defects made safe within 24 hours of verification				
Data Source / Requirements	Provider's Asset Defect Data Standard				
Data Input (Frequency / Reporting Period: Calendar month)					

Field		Type	Calculation	Decimals	Range
Total Number of Verified Defects in month	(A)	Number	-	0	0-1000
Of (A), Total Number of Defects Made Safe within 24 hours of Verification	(B)	Number	Total Defects where: Made Safe – Verification <= 24 hours	0	0-1000

Calculations (Individual Monthly Performance)

Measure	Type	Calculation	Decimals	Range	Target

Defects Made Safe	Percentage	(B)/(A)*100	2		0-100	100

6. FLOOD METRICS - SEE CP HANDBOOK UNTIL APRIL 13

6.1 Flood Events Are Minimised

Metric Title	Flood Events Are Minimised
Applies to	ASCs and retrofitted MACs
Purpose / Description	To demonstrate that the relevant drainage system is managed and maintained to minimise the risk of Flood Events on trafficked surfaces and remove standing water
Measures	
Flood Events	The number of Flood Events on trafficked surfaces recorded on the Asset Defect Data Standard (ADDS) Total number of records where DEFECT_CODE = FLOOD
Definitions	
Flood event	A Flood Event is one that causes disruption or delay on the highway for at least 15 minutes.
Methodology	
Data Source / Requirements	HADDMS Records

Data Input (Frequency / Reporting Period: Calendar month)

Field		Type	Calculation	Decimals	Range
Flood Events	(A)	Number	Total Incidents for which DEFECT_CODE = FLOOD	0	0-100

Calculations (Individual Monthly Performance)

Measure	Type	Calculation	Decimals	Range	Target
Flood Events	Number	(A)	0	0-100	0

6.2 Flood Event Details Recorded

Metric Title	Flood Event details recorded
Applies to	ASCs and retrofitted MACs
Purpose / Description	To demonstrate that Flood Events are cleared according to the time scale set out in AMOR
Measures	
Flood Events not set to 'Closed' status within 28 days	Total number of instances in which a Flood Event was not set to 'Closed Status' within 28 days
Definitions	
Flood Event	A Flood Event is one that causes disruption or delay on the highway for at least 15 minutes.
Flood Event start	Data field: FLOOD_NOTIFICATION_DATE_TIME
Flood Event end	Data field: MAKE_SAFE_DATE_TIME
Methodology	
Data Source / Requirements	Provider's Routine and Planned Maintenance System

Data Input (Frequency / Reporting Period: Calendar month)

Field		Type	Calculation	Decimals	Range
Flood Events not set to 'Closed' status within 28 days	(A)	Number	Total incidents in which MAKE_SAFE_DATE_TIME – FLOOD_NOTIFCATION_DATE_TIME > 28 days	0	0-100

Calculations (Individual Monthly Performance)

Measure	Type	Calculation	Decimals	Range	Target
Flood Events Not Set To 'Closed' Status within 28 days	Number	(A)	0	0-100	0