

**Constructed Highways Metrics Handbook**

**Version 1.0 – May 2011**

**Network Delivery and Development Directorate**



**Document Control**

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| **Author(s)** | Tod Wood |
| **Owner** | Janet Sivorn, Asset Management Office |
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# Introduction

This Issue of this handbook follows the discontinuance of the Area Performance Indicators. However we still require Service Providers to provide constructed scores for certain Aspects that sit within the MAC and ASC Performance Management Framework (PMF).

# MAC 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 MAC and ASC Performance Management Manuals for further details.

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

# CONSTRUCTED HIGHWAYS METRICS (BY PMF ASPECT)

Details are now provided on the following CH Metrics, which relate to Aspects within the MAC PMF and/or ASC PMF.

|  |  |
| --- | --- |
| **Metric subject** | **Contract applicable to** |
| Operate SRW System | MAC and ASC |
| Network Availability | MAC |
| Forecast and Actual Expenditure versus Budget | MAC and ASC |
| Site (Workplace) Safety | MAC and ASC |
| Severe Weather | MAC and ASC |

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| **Indicator Ref. & Title** | | | Operate SRW System | | | | | | | | | |
| **Applies to** | | | MAC and ASC | | | | | | | | | |
| **Purpose / Description** | | | To measure the Provider's effectiveness and timeliness in recording occupancy information in the Scheduled Road Works (SRW) system. | | | | | | | | | |
| **Measures** | | |  | | | | | | | | | |
| SRW KPI 1 | | | Percentage of records without fundamental system data entry errors | | | | | | | | | |
| SRW KPI 2 | | | Percentage of works completed on SRW | | | | | | | | | |
| SRW KPI 3a | | | Percentage of records complying with NOM timescale updating | | | | | | | | | |
| **Definitions** | | |  | | | | | | | | | |
| *Occupancy* | | All works, all ‘Special Order’ Abnormal Indivisible Load movements, all Incidents and all events that take place on the Area Network. | | | | | | | | | | |
| **Methodology** | | | SRW KPI scores are calculated within SRW and reported monthly to the business. | | | | | | | | | |
| **Data Source / Requirements** | | | SRW | | | | | | | | | |
| **Data Input** (Frequency / Reporting Period: Calendar month) | | | | | | | | | | | | |
| **Field** | | | | | **Var** | **Type** | | **Calculation** | | **Decimals** | | **Range** |
| Percentage of records without fundamental system data entry errors | | | | | (A) | Percentage | |  | | 2 | | 0 – 100 |
| Percentage of works completed on SRW | | | | | (B) | Percentage | |  | | 2 | | 0 – 100 |
| Percentage of records complying with NOM timescale updating | | | | | (C) | Percentage | |  | | 2 | | 0 – 100 |
| **Calculations** (Individual Monthly Performance) | | | | | | | | | | | | |
| **Measure** | **Type** | | | **Calculation** | | | **Decimals** | **Range** | **Target** | | **PMF Green Threshold** | |
| SRW KPI 1 | Percentage | | | A | | | 2 | 0 – 100 | 100 | | >= 95 | |
| SRW KPI 2 | Percentage | | | B | | | 2 | 0 – 100 | 100 | | >= 95 | |
| SRW KPI 3a | Percentage | | | C | | | 2 | 0 – 100 | 100 | | >= 95 | |

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| **Indicator Ref. & Title** | | Network Availability | | | | | | | | | |
| **Applies to** | | MAC | | | | | | | | | |
| **Purpose / Description** | | To provide an indirect measure of the amount of work being carried out on the Area Network, and of the effectiveness of the Provider'snetwork management /operator role with respect to road space co-ordination. Wherever possible, road works should be carried out outside of peak times so as to minimise disruption and delay to road users. | | | | | | | | | |
| **Measures** | |  | | | | | | | | | |
| NA01(M) | | **Percentage of the Area Network available for use by road users during peak hours.** | | | | | | | | | |
| **Definitions** | |  | | | | | | | | | |
| *Area network* | | The length of trunk road and/or motorway, including all carriageways, hard shoulders, slip roads and access roads as recorded in SRW for an Area. | | | | | | | | | |
| *Peak* | | }  } As defined in SRW  } | | | | | | | | | |
| *Off-peak* | |
| *Night* | |
| **Methodology** | | The network availability percentages are calculated using the standard reports provided within SRW. | | | | | | | | | |
| **Data Source / Requirements** | | Scheduled Road Works (SRW) system | | | | | | | | | |
| **Data Input** (Frequency / Reporting Period: Calendar month) | | | | | | | | | | | |
| **Field** | | | |  | **Type** | | **Calculation** | | | **Decimals** | **Range** |
| Availability - Peak hours | | | | (A) | Percentage | |  | | | 2 | 0 - 100 |
| **Calculations** (Individual Monthly Performance) | | | | | | | | | | | |
| **Measure** | **Type** | | **Calculation** | | | **Decimals** | | **Range** | **Target** | | |
| NA01(M) | Percentage | | A | | | 2 | | 0 - 100 | TBC | | |

| **Indicator Ref. & Title** | | Forecast and Actual Expenditure versus Budget | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Applies to** | | MAC and ASC | | | | | | | | | |
| **Purpose / Description** | | To measure the predictability of the Provider’s resource (accruals) forecasting with respect to the monthly accruals and annual budget allocation for the overall Area portfolio. | | | | | | | | | |
| **Measures** | |  | | | | | | | | | |
| Resource FYF vs Budget | | Resource Full Year Forecast vs Resource Full Year Budget - Variance % | | | | | | | | | |
| Capital FYF vs Budget | | Capital Full Year Forecast vs Capital Full Year Budget - Variance % | | | | | | | | | |
| Resource YTD Actual vs YTD Budget | | Resource YTD Actual vs Resource YTD Budget - Variance % | | | | | | | | | |
| Capital YTD Actual vs YTD Budget | | Capital YTD Actual vs Capital YTD Budget - Variance % | | | | | | | | | |
| **Definitions** | |  | | | | | | | | | |
| *SfM* | | System for Managing - the Agency’s finance database. | | | | | | | | | |
| **Methodology** | | Obtain the SfM WD6 report from Finance (Duncan Edmonds) – this shows budgets, forecast and spend for each MAC cost centre.  Actual spend/monthly forecasts are shown in columns J-U (for Apr-Mar)  The YTD Budget figures are in column W  The Budget figures are in column Y  The second tab has a pivot table which shows the four variances for that month by MAC. | | | | | | | | | |
|  | | The data file that is used is all sourced from the BR02a - there are no adjustments.    The BR02a is a task level report and the data is therefore rolled up into single lines for each PIN.    The report will always contain actuals up to the current month with the remaining months being forecasts.    The full year budget is from the BR02a but the YTD comes from the BR20a. Budgets were loaded into projects during March and April and these reconcile to the AMO allocations and will be the ones used throughout the year.    The report includes all NDD data for all cost centres but deletes S278 schemes as these should net off against the income (but income is not captured against the PINs).    As all data is present this will also include Managed Works. However, this is still expenditure under MAC control.    The pivot table summarises the YTD and FYF against the respective budgets for each MAC cost centre which should be specific to each MAC contract. | | | | | | | | | |
| **Data Source / Requirements** | | SfM WD6 report | | | | | | | | | |
| **Data Input** (Frequency / Reporting Period: Calendar month) | | | | | | | | | | | |
| **Field** | | | |  | **Type** | | **Calculation** | | **Decimals** | | **Range** |
| Resource Full Year Budget | | | | (A) | Integer | |  | | 0 | |  |
| Resource Full Year Forecast | | | | (B) | Integer | |  | | 0 | |  |
| Resource Full Year Forecast vs Resource Full Year Budget - Variance | | | | (C) | Integer | | B-A | | 0 | |  |
| **Resource Full Year Forecast vs Resource Full Year Budget - Variance %** | | | | **(D)** | **Percentage** | | **(C/A)\*100** | | **2** | | **-1000 – 1000** |
| Capital Full Year Budget | | | | (E) | Integer | |  | | 0 | |  |
| Capital Full Year Forecast | | | | (F) | Integer | |  | | 0 | |  |
| Capital Full Year Forecast vs Capital Full Year Budget - Variance | | | | (G) | Integer | | F-E | | 0 | |  |
| **Capital Full Year Forecast vs Capital Full Year Budget - Variance %** | | | | **(H)** | **Percentage** | | **(G/E)\*100** | | **2** | | **-1000 – 1000** |
| Resource YTD Budget | | | | (I) | Integer | |  | | 0 | |  |
| Resource YTD Actual | | | | (J) | Integer | |  | | 0 | |  |
| Resource YTD Actual vs Resource YTD Budget - Variance | | | | (K) | Integer | | J-I | | 0 | |  |
| **Resource YTD Actual vs Resource YTD Budget - Variance %** | | | | **(L)** | **Percentage** | | **(K/I)\*100** | | **2** | | **-1000 – 1000** |
| Capital YTD Budget | | | | (M) | Integer | |  | | 0 | |  |
| Capital YTD Actual | | | | (N) | Integer | |  | | 0 | |  |
| Capital YTD Actual vs Capital YTD Budget - Variance | | | | (O) | Integer | | N-M | | 0 | |  |
| **Capital YTD Actual vs Capital YTD Budget - Variance %** | | | | **(P)** | **Percentage** | | **(O/M)\*100** | | **2** | | **-1000 – 1000** |
| **Calculations** (Individual Monthly Performance) | | | | | | | | | | | |
| **Measure** | **Type** | | **Calculation** | | | **Decimals** | | **Range** | | **Target** | |
| Resource FYF vs Budget | Percentage | | D | | | 2 | | -1000 – 1000 | | Between -5 and 5 | |
| Capital FYF vs Budget | Percentage | | H | | | 2 | | -1000 – 1000 | | Between -5 and 5 | |
| Resource YTD Actual vs YTD Budget | Percentage | | L | | | 2 | | -1000 – 1000 | | Between -5 and 5 | |
| Capital YTD Actual vs YTD Budget | Percentage | | P | | | 2 | | -1000 – 1000 | | Between -5 and 5 | |

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| **Indicator Ref. & Title** | | | Geotechnical asset risk is managed effectively – DRAFT WIP – To be finsalied by 30 June 2012 | | | | | |
| **Applies to** | | | ASC | | | | | |
| **Purpose / Description** | | | To measure the of the Provider's effectiveness in managing geotechnical asset risk on the network. | | | | | |
| **Measures** | | |  | | | | | |
| Severe Risk Level | | | The length (in km) of geotechnical assets in the Severe risk category expressed as a percentage of the Area’s geotechnical asset length | | | | | |
| High Risk Level | | | The length (in km) of geotechnical assets in the High risk category expressed as a percentage of the Area’s geotechnical asset length | | | | | |
| Medium Risk Level | | | The length (in km) of geotechnical assets in the Medium risk category expressed as a percentage of the Area’s geotechnical asset length | | | | | |
| **Definitions** | | |  | | | | | |
| Severe Risk | | *Is there a definition somewhere?* | | | | | | |
| High Risk | | *Is there a definition somewhere?* | | | | | | |
| Medium Risk | | *Is there a definition somewhere?* | | | | | | |
| **Methodology** | | | The Agency already has a range of metrics that relate to Geotechnical Assets and the risk they pose based upon the Design Manual for Roads and Bridges (DMRB) Volume 4, Geotechnics and Drainage Section 1, Earthworks Part 3 – referred to as HD 41/03. This defines length of asset and risk status, which is recorded following inspections carried out to HD41 within the HAGDMS database on an Area by Area basis each month. | | | | | |
|  | | | Data is obtained from HAGDMS [report name?/when?/do we have to manipulate in any way?] | | | | | |
| **Data Source / Requirements** | | | HAGDMS | | | | | |
| **Data Input** (Frequency / Reporting Period: Calendar month) | | | | | | | | |
| **Field** | | | | **Var** | **Type** | **Calculation** | **Decimals** | **Range** |
| The length (in km) of geotechnical assets in the Severe risk category expressed as a percentage of the Area’s geotechnical asset length | | | | (A) | Percentage |  | 2 | 0 – 100 |
| The length (in km) of geotechnical assets in the High risk category expressed as a percentage of the Area’s geotechnical asset length | | | | (B) | Percentage |  | 2 | 0 – 100 |
| The length (in km) of geotechnical assets in the Medium risk category expressed as a percentage of the Area’s geotechnical asset length | | | | (C) | Percentage |  | 2 | 0 – 100 |
| **Calculations** (Individual Monthly Performance) | | | | | | | | |
| **Measure** | **Type** | | | | **Calculation** | **Decimals** | **Range** | **Target** |
| Severe Risk Level | Percentage | | | | A | 2 | 0 – 100 | < 0.1 |
| High Risk Level | Percentage | | | | B | 2 | 0 – 100 | < 0.4 |
| Medium Risk Level | Percentage | | | | C | 2 | 0 – 100 | < 8.0 |

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| **Indicator Ref. & Title** | | Site (Workplace) Safety | | | | | | | | | |
| **Applies to** | | MAC and ASC | | | | | | | | | |
| **Purpose / Description** | | To measure the effectiveness of the Provider’ssafety processes by monitoring all accidents reportable under RIDDOR within the Provider’sorganisation. | | | | | | | | | |
| **Measures** | |  | | | | | | | | | |
| Accident Frequency Rate (AFR) | | Area RIDDOR Frequency Rate, based on all accidents reportable under RIDDOR. | | | | | | | | | |
| **Definitions** | |  | | | | | | | | | |
| *Provider’s organisation* | | All site, network and compound based staff involved in MAC, EMAC or MA/TMC activities including subcontractors and head office staff directly employed in Area business. | | | | | | | | | |
| *RIDDOR* | | Reporting of Injuries, Diseases and Dangerous Occurrences Regulations | | | | | | | | | |
| **Methodology** | | AFR information is supplied as stated in IAN 128 12 AIRSWeb | | | | | | | | | |
|  | | AFR is calculated as all accidents reportable under RIDDOR in the 12 month period, divided by the total number of hours worked in that period by the Provider’s organisation, multiplied by 100,000. | | | | | | | | | |
| **Data Source / Requirements** | | AIRSWeb | | | | | | | | | |
| **Data Input** (Frequency / Reporting Period: Calendar month) | | | | | | | | | | | |
| **Field** | | | |  | **Type** | | **Calculation** | | | **Decimals** | **Range** |
| Total number of hours worked in the month | | | | (A) | Integer | |  | | | 0 | 0 – 150000 |
| Total number of all accidents reportable under RIDDOR in the month | | | | (B) | Integer | |  | | | 0 | 0 – 50 |
| **Calculations** (Rolling 12 Month Performance) i.e. current month + preceding 11 months | | | | | | | | | | | |
| **Measure** | **Type** | | **Calculation** | | | **Decimals** | | **Range** | **Target** | | |
| AFR | Number | | (ΣB / ΣA) \*100000 | | | 2 | | 0 – 5 | 0.15 | | |
| Note: ∑ = the aggregation of input data for the current month and the preceding 11 months. | | | | | | | | | | | |

| **Indicator Ref. & Title** | | | Severe Weather - DRAFT WIP – To be finalised by 30 Sep 2012 | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Applies to** | | | | MAC and ASC | | | | | | | |
| **Purpose / Description** | | | To ensure the Provider is prepared for severe winter weather and is able to respond robustly and in a timely manner to ensure the Area Network remains open | | | | | | | | |
| **Measures** | | |  | | | | | | | | |
| SW1 | | | Minimum salt level during the month | | | | | | | | |
| SW2 | | | Max. Consecutive days below Minimum Salt Requirement | | | | | | | | |
| SW3 | | | Percent Route treated within target time | | | | | | | | |
| SW4 | | | Percent Lane Availability | | | | | | | | |
| **Definitions** | | |  | | | | | | | | |
| *Minimum Salt Requirement* | | | The minimum level agreed with each MAC ahead of the Winter Period and documented in the Provider’s Severe Weather Plan. | | | | | | | | |
| *Winter Period* | | | 1 October – 30 April | | | | | | | | |
| **Methodology** | | | In the Winter Period these metrics should always be scored. Outside of the Winter period it should be scored N/A unless severe winter weather conditions were experienced in which case it should be scored as per the RAG guidance. | | | | | | | | |
|  | | | See MAC/ASC PMF Scoring Guidance for more information on these measures. | | | | | | | | |
|  | | | Minimum salt level during the month is obtained from [where?/report name?/when?/do we have to manipulate in any way?] | | | | | | | | |
|  | | | Max. Consecutive days below Minimum Salt Requirement month is obtained from [where?/report name?/when?/do we have to manipulate in any way?] | | | | | | | | |
|  | | | Percent Route treated within target time is obtained from [where?/report name?/when?/do we have to manipulate in any way?] | | | | | | | | |
|  | | | Percent Lane Availability is obtained from [where?/report name?/when?/do we have to manipulate in any way?] | | | | | | | | |
| **Data Source / Requirements** | | | WRF1  Salt Database [name?], Other? | | | | | | | | |
| **Data Input** (Frequency / Reporting Period: Calendar month) | | | | | | | | | | | |
| **Field** | | |  | | | **Type** | | **Calculation** | | **Decimals** | **Range** |
| Minimum salt level during the month (in tonnes) | | | (A) | | | Integer | |  | | 0 | 0 – 100000 |
| Max. Consecutive days below Minimum Salt Requirement | | | (B) | | | Integer | |  | | 0 | 0 – 250 |
| Percent Route treated within target time | | | (C) | | | Percentage | |  | | 2 | 0 – 100 |
| Percent Lane Availability | | | (D) | | | Percentage | |  | | 2 | 0 – 100 |
| **Calculations** (Individual Monthly Performance) | | | | | | | | | | | |
| **Measure** | **Type** | **Calculation** | | | **Decimals** | | **Range** | | **Target** | | |
| SW1 | Integer | A | | | 0 | | 0 – 100000 | | >= Minimum Salt Requirement | | |
| SW2 | Integer | B | | | 0 | | 0 – 250 | | 0 (<=12 to avoid Red PMF score) | | |
| SW3 | Percentage | C | | | 2 | | 0 – 100 | | 100 | | |
| SW4 | Percentage | D | | | 2 | | 0 – 100 | | 100 | | |