
Transportation Service Key Performance Indicator Procedures

Date Approved: **DRAFT**

Section: Capital Asset Management

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Lead: Director, Operations

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Supports: **Policy CAM-004 – City of Selkirk Capital Asset Levels of Service Policy**

SUPPORTING POLICIES, PROCEDURES & TOOLS

Policy:

CAM-002 Asset Management Evaluation Policy

LOS-001 Snow Clearing/Removal and Sanding Policy

Procedures:

Tools:

CAM-004-000-01 Key Performance Indicator Database

CAM-004-004-01 Snowfall Tracker

OBJECTIVES

Procedures to follow to record and report on transportation service delivery using approved key performance indicators.

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1 IDENTIFY THE AVERAGE NUMBER OF SEVERE OR EXTREME SIDEWALK DEFICIENCIES ON 1 KM OF SIDEWALK

Who: Manager of Public Works

A full sidewalk condition assessment will be completed on a schedule basis, as outlined by the *Asset Management Evaluation Policy*.

- 1.1 Acquire final sidewalk assessment report and database from the company performing the sidewalk assessment.
- 1.2 Provide the GIS/Survey Technician with the final report and deficiencies database by placing it in the folder that holds all annual performance indicator information.

Who: GIS/Survey Technician

- 1.3 Convert the database into a feature class in ArcGIS and save this file as: SidewalkDeficiencies_year [Changing the name to the appropriate year]. This file shall be saved in the Road Network geodatabase.
- 1.4 Perform a definition query to remove vegetation deficiencies using the following equation:

```
SELECT * FROM [file_name] WHERE: Defect= "Vegetation"
```

- 1.5 Calculate the number of deficiencies that are ranked as Severe Hazards (4), or Extreme Hazards (5). To do this, use the following code in the Definition Query tool in ArcGIS:

```
SELECT * FROM [file_name] WHERE: Rating = 4 OR Rating = 5
```

- 1.6 Acquire the length total length of City owned sidewalk from the Asset Registry.
 - 1.6.1 Open the Asset Registry, from the CAMP folder.
 - 1.6.2 Navigate to the "Status" column and use the drop down to select "Active" to ensure all assets that are used in this query are active assets.
 - 1.6.3 Navigate to the "Asset Class" column and ensure only "Road Network" is selected from the drop down.

1.6.4 Navigate to the “Asset Subclass” column and ensure only “Sidewalk Surface” is selected from the drop down.

1.6.5 Navigate to the “Length (m)” column and select cells. To do this, click on the first cell in the column and press “Ctrl+Shift” and the down arrow on your keyboard.

1.6.6 Once all of the cells are highlighted, get the total length of sidewalk, in meters, from the bottom right-hand corner of the spreadsheet. Divide this number by 1000 to get the total length of sidewalk in kilometers.

1.7 Use the number of deficiencies remaining after completing this definition query, in the following equation to determine the ratio of deficiencies that are Severe or Extreme hazards per kilometer:

$$\text{Average Number of Sidewalk Deficiencies per KM} = \frac{\text{Total Deficiencies ranked 4, or 5}}{\text{KM of Sidewalk}}$$

- 1.8 The GIS/Survey Technician will save a .mxd copy of this map in the location holding all annual performance indicator data, organized by year.
- 1.9 After completing this calculation, record the results in the Transportation tab of the *Key Performance Indicator (KPI) Database*, under the Technical KPI Section.

2 DETERMINE AVERAGE PCI VALUE OF COMPLETE TRANSPORTATION ROAD NETWORK

Who: Public Works Staff

- 2.1 A trained individual from the Public Works Department will complete a Pavement Condition Index (PCI) Survey annually in accordance to the *Capital Asset Evaluation Policy*.
- 2.2 Notify the GIS/Survey Technician once the survey is complete.

Who: GIS/Survey Technician

- 2.3 Determine the average PCI score for the entire road network.
 - 2.3.1 Navigate to the City of Selkirk Asset Registry.
 - 2.3.2 Navigate to the "Asset Class" column and use the drop down to ensure that only "Road Network" is selected.
 - 2.3.3 Navigate to the "Asset Class" column and use the drop down to ensure that only "Road Surface" is selected.
 - 2.3.4 Navigate to the "Weighted PCI" Column.
 - 2.3.5 Select all cells in this column by clicking on the top cell, pressing "Ctrl+Shift" and the down arrow on your keyboard.
 - 2.3.6 Once all cells have been highlighted, acquire the total from the bottom right corner of the excel spreadsheet, beside "Sum". This number will be accepted as the average PCI Score.
- 2.4 Record this score in the Transportation Tab of the *KPI Database*, in both the technical and customer KPI sections.

3 DETERMINED THE AVERAGE IRI VALUE OF THE COMPLETE TRANSPORTATION ROAD NETWORK

Who: Public Works Staff

- 3.1 An individual from the Public Works department will complete an International Roughness Ratio (IRI) survey as outlined in the *Asset Evaluation Policy*.
- 3.2 Notify the GIS/Survey Technician once the survey is complete.

Who: GIS/Survey Technician

- 3.3 Determine the average IRI score for the entire road network. This value will be accepted as the average IRI Value for the transportation road network and used as the KPI to measure condition of the road network.
- 3.4 Record this average score in the Transportation Network tab of the *KPI database*, in both the technical and customer KPI sections.

4 DETERMINE ACCEPTABLE VARIATION BETWEEN SUMMER AND WINTER AVERAGE IRI SCORE

Who: GIS/Survey Technician

- 4.1 Acquire the average IRI values for the summer survey and the winter survey from the Total Pave website.
- 4.2 Use the summer IRI score, the winter IRI Score, and the following equation to calculate the acceptable variation.

$$\text{Variation} = \left(\frac{\text{Summer IRI} - \text{Winter IRI}}{\text{Summer IRI}} \right) \times 100$$

- 4.3 Record the acceptable level of IRI Variation in the transportation tab of the *KPI Database*, under the customer KPI section.

5 DETERMINE PERCENT OF TIME SNOW REMOVAL OPERATIONS COMPLETED IN ACCEPTABLE TIMEFRAME

Who: Manager of Public Works

5.1 Throughout the winter months, record the details of each snow clearing operation. These details include:

- Date of Snowfall
- Amount of Snow that fell
- Type of snow event [Major Storm Event, Storm Event, Blizzard Event]
- Time snow removal operations started
- Time snow removal operations were complete
- Equipment used to complete snow removal operations
- [yes/no] whether snow removal operations were completed within the time outlined in the *City's Snow Clearing/Removal and Sanding Policy*
- A reason why the snow removal operation failed to meet targets, or significantly exceeded them.

5.2 The Manager of Public Works shall determine the number of snow removal operations that met the standards set by the *Snow Clearing/Removal and Sanding Policy* using the following equation:

$$\begin{array}{rcl}
 \begin{array}{l} \% \text{ Snow Clearing} \\ \text{Operations that met Snow} \\ \text{Clearing Standards} \end{array} & = & \begin{array}{l} \text{Total Snow} \\ \text{Removal} \\ \text{Operations} \end{array} - \begin{array}{l} \text{Snow Clearing} \\ \text{Operations} \\ \text{Exceeding Target} \\ \text{Times} \end{array} \\
 & & \hline
 & & \text{Total Snow Removal Operations}
 \end{array}$$

- 5.3 After this value is determined, the Public Works Manager shall provide the performance data as well as all supporting data to the GIS/Survey Technician by putting a copy of the *Snowfall Tracker* in the folder holding all annual performance indicator data, organized by year.
- 5.4 The GIS/Survey Technician is to record the percent of snow clearing operations that met the targets set by the City's *Snow Clearing/Removal and Sanding Policy*, in the Transportation Services Tab of the *KPI Database*, under the Customer KPI Tab.