

9 Inspections

9.1 Sidewalks Evaluation

9.1.1 Sidewalk Classification

The objective of the Sidewalk Classification system is to establish a method of prioritizing the maintenance and inspection of the sidewalks based on a generalized level of anticipated pedestrian traffic according to land use zones.

9.1.2 Sidewalk Types

9.1.2.1 Combined Walk and Curb (CWC)



Combined Walk and Curb (CWC) sidewalks only appear in the older areas of the city, as this type is about 30 years old. The distinguishing feature is that the walk and curb are combined without a gutter. The road asphalt is set right next to the curb and it provides the drainage for water. This method is no longer used because current sidewalk standards for Regina require a gutter. CWC walks cannot be mud jacked in most cases.

Figure 16: Combined Walk and Curb (CWC)

9.1.2.2 Monolithic (MONO)



The Monolithic sidewalk is the most common type and can be found in every area of Regina. It is a combined walk and curb with an 18-inch concrete gutter. The walk, curb and gutter are installed together during construction. Standard monolithic walks are 1.2 or 1.5 meters in width with a 3% cross slope toward the gutter.

Figure 17: Monolithic Walk (MONO)

9.1.2.3 Separate Walk & Curb/Gutter (SEP)



The Separate Walk & Curb/Gutter type is when a boulevard separates the walk from the curb and gutter. An example of this can be found on Elphinstone Street near Avonhurst Drive where trees are planted between the sidewalks and curb. The defining feature is that the separation is landscaped with grass, trees, and/or landscape rock.

Figure 18: Separate Walk & Curb/Gutter (SEP)

9.1.2.4 Enhancement (EN)



The Enhanced sidewalk is similar to a separate walk in that the sidewalk is separate from the curb and gutter. The defining feature is the presence of paving stones or concrete pads. These sidewalks require higher maintenance investment as the paving stones may shift individually causing distresses. For these walks, distresses in the paving stones must also be rated. In Regina, this type of walk can largely be found in the downtown area. Ratters must be sure to differentiate paving stones from stamped concrete which is poured like a monolithic walk and then stamped to resemble paving stones. Stamped concrete exists in Regina's downtown and should be noted on the rating form.

Figure 19: Enhancement (Paving Stone) (EN)

9.1.3 Distresses

There are several different types of distresses that a sidewalk can be labeled with. For inspection purposes, all sidewalks will fall into one of the following distress categories:

- Differential Settlement >25mm vertical
- Transverse Cracking >25mm vertical or >5mm width
- Longitudinal Cracking >30mm vertical or >5mm width
- Spalling at least 1 panel is 100% affected
- Excessive Cross Slope >10% positive or <0% (negative)
- Poor Drainage >60mm vertical
- Broken Walk >25mm vertical

Distresses that exist in the asphalt capping are also rated. The location of all distresses includes a start chainage, a length and a house number (if available), additional structures/objects within the distress area (manholes, junction boxes, tree wells, grates, etc) and any other relevant comments.

9.1.3.1 Differential Settlement (D)

Differential Settlement occurs when two adjacent pieces of sidewalk have separated and the vertical displacement is causing a tripping hazard.



Measurement

The severity of this distress is measured by recording the following information:

1. Distress Code (D)
2. Chainage at the beginning of the first affected panel
3. Width of crack at widest point in millimetres (Widest Full Depth)
4. Maximum vertical displacement of crack
5. House number (if available)
6. Any relevant comments

Figure 20: Differential Settlement (DS)

9.1.3.2 Transverse Cracking (T)

A transverse crack is a full-depth crack in the sidewalk that is roughly perpendicular to the direction of the walk or curb.



Measurement

The severity of this distress is measured by recording the following information:

1. Distress Code (T)
2. Chainage at the beginning of the first affected panel
3. Width of crack at widest point in millimeters (Widest Full Depth)
4. Maximum vertical displacement of crack
5. House number (if available)
6. Any relevant comments

Figure 21: Transverse Cracking (T)

9.1.3.3 Longitudinal Cracking (L)

A longitudinal crack is a full-depth crack in the sidewalk that runs parallel to the direction of the walk. In many areas, a crack can run for the entire length of the block.



Measurement

The severity of this distress is measured by recording the following information:

1. Distress Code (L)
2. Chainage at the beginning of the first affected panel
3. Length of crack
4. Width of crack at widest point in millimeters (Widest Full Depth)
5. Maximum vertical displacement of crack
6. House number (if available)
7. Any relevant comments

Figure 22: Longitudinal Cracking (L)

9.1.3.4 Spalling (S)

A sidewalk that has begun to deteriorate and disintegrate exposing a coarse, granular surface is called spalling.



Measurement

The severity of this distress is measured by recording the following information:

1. Distress Code (S)
2. Chainage at the beginning of the first affected panel
3. Length of the affected panels
4. House numbers (if available)
5. Any relevant comments

Figure 23: Spalling

9.1.3.5 Excessive Cross Slope (EXS)

An Excessive Cross Slope occurs when heaving or settlement takes place causing the cross slope of the sidewalk to vary from the normal design slope of 3%. A positive cross slope would slope to the gutter and a negative slope away from the gutter.



Figure 24: Excessive Cross Slope (EXS)

Measurement

The severity of this distress is measured by recording the following information:

1. Distress Code (EXS)
2. Chainage at the beginning of the first affected panel
3. Length of the affected panels
4. Greatest slope over 10% (to gutter) or under 0% (to property)
5. House number (if available)
6. Any relevant comments

9.1.3.6 Poor Drainage (PD)

Poor Drainage is when water ponds along the gutter or in a depression on the sidewalk surface. This is usually due to settlement of the curb, walk or pavement. The severity is difficult to measure if it occurs over a long distance, but for the purpose of the evaluation, only the instance where water is ponding on the sidewalk is recorded.



Measurement

The severity of this distress is measured by recording the following information:

1. Distress Code (PD)
2. Chainage at the beginning of the first affected panel.
3. Length of affected panels
4. Using a string line find the maximum height from the the first affected panel, to the last affected panel
5. House number (if available)
6. Any relevant comments

Figure 25: Poor Drainage (PD)

9.1.3.7 Broken Walk (BW)

A sidewalk is considered a Broken Walk when one or more panel(s) of walk has multiple full-depth cracks and has been broken into 3 or more pieces. Broken walk occurs when transverse and/or longitudinal cracks meet or branch through progressive deterioration, damage due to heavy vehicles or equipment driving or sitting on the sidewalk, or excessive bad spalling which weakens the sidewalk and causes breakage.



Measurement

The severity of this distress is measured by recording the following information:

1. Distress Code (BW)
2. Chainage at the beginning of the first affected panel
3. Length of the affected panels
4. The maximum vertical displacement of the most severe crack
5. House number (if available)
6. Any relevant comments

Figure 26: Broken Walk (BW)

9.1.3.8 Unreported Cut (C)

On the backside of the data forms is a list of reported Cuts (where the walk has been cut out leaving dirt or gravel). If you come across a Cut that is not reported, it must be marked as a distress. This information will be passed on so that it can be reported.



Measurement

This information is documented by recording the following information:

1. Distress Code (C)
2. Chainage at the beginning of the first affected panel.
3. House number (if available).
4. Type of cut (Lawn, Concrete, Pavement)
5. Any relevant comments

Figure 27: Cut (C)

9.1.4 Rating/Procedure

9.1.4.1 Pre – Rating

Before rating, fill out the basic information on the iPad such as the key number on the street, and the house number/description where the distress falls in front of. After the basic information is filled out, continue to rate the distress.

Determining Ahead/Back Direction and Left/Right Sides

The following example (Fig 40) shows the segment From: Davis St To: Helena St.

To determine the RIGHT and LEFT side, imagine you are standing on Drake Avenue where it intersects with the From street (Davis) looking toward the To street (Helena). The RIGHT side is to your right, and LEFT side to your left.

If you start rating Drake Ave at the From street (Davis) proceeding toward the To street (Helena), then you would be working in the AHEAD direction. If you start from the To street (Helena) and proceed toward Davis, then you would be working in the back direction. The Walk Side stays the same regardless if you rate it in the ahead or back direction.

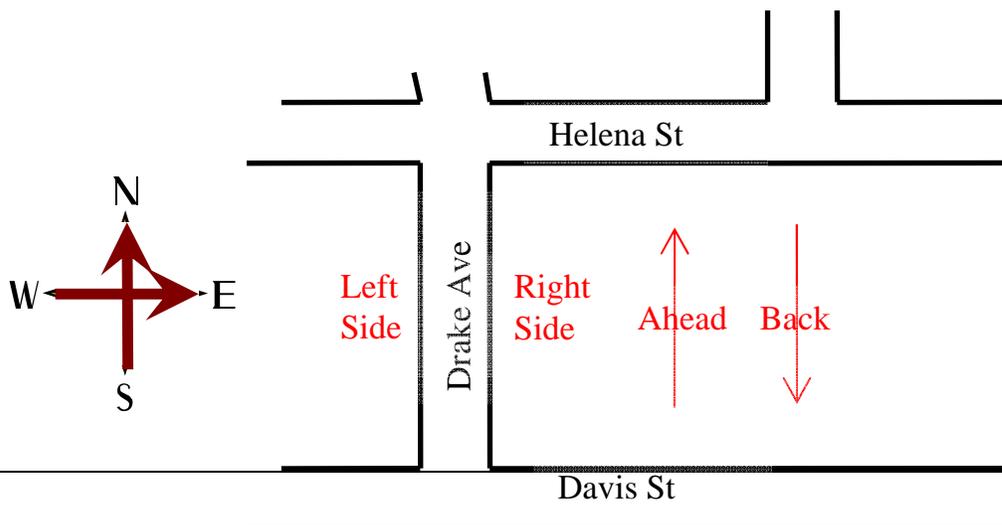


Figure 29: Ahead/Back Direction and Left/Right Side Example

*Note: From and To directions are generally run from South to North, and West to East. Any anomalies should be reported to the Program Coordinator for confirmation. In some cases, especially crescents, it may appear that the From and To intersections are backward, so be sure to confirm with the Program Coordinator before logging the Ahead/Back direction.

9.1.4.2 Rating the block

Procedure for Rating

- 4 As mentioned previously, open the Roadways Preservation map on the Collector app.
- 4 Place a distress point at the location at which the distress is by opening the side tab and selecting the distress point option. Click the map to place the point; stand at the location of the distress for the most accurate location.
- 4 Click the box and arrow icon on the right hand side and choose edit to begin entering information.
- 4 Using the map on the iPad, enter the correct key number for the distress' location.
- 4 If outside a house, record the house address number in the appropriate box. If applicable, give a location description in the box below.
- 4 Using your judgement, complete the remaining boxes.
- 4 Once completed, click update to save the distress to the map.

9.2 Service Request Inspections

A RFS or SR is a *Service Request* made by a member of the public in regard to problems with their walks, curbs, medians, roads, etc. These requests are typically called into Service Regina (777-7000). They are then separated by department and forwarded to the representatives in each department and branch

Service Requests on concrete works must be inspected within 30 days of the date of the request. In the case of a request that is forwarded or made by a member of Council or the Mayor's office, a reply is required within 48 hours. The reply need not include inspection results, but must acknowledge receipt and indicate the process to be followed.

Distresses which are identified through Service Request inspections are NOT given repair priority over other distresses. In special cases where the rating procedure does not adequately measure the severity of the problem, the Manager of Concrete Services may determine that a repair is required and indicate which concrete maintenance task will be charged for the work. The Operations Support personnel in Roadways Operations ensure the distress database is kept up-to-date with such changes.

9.2.1 Service Request Procedure

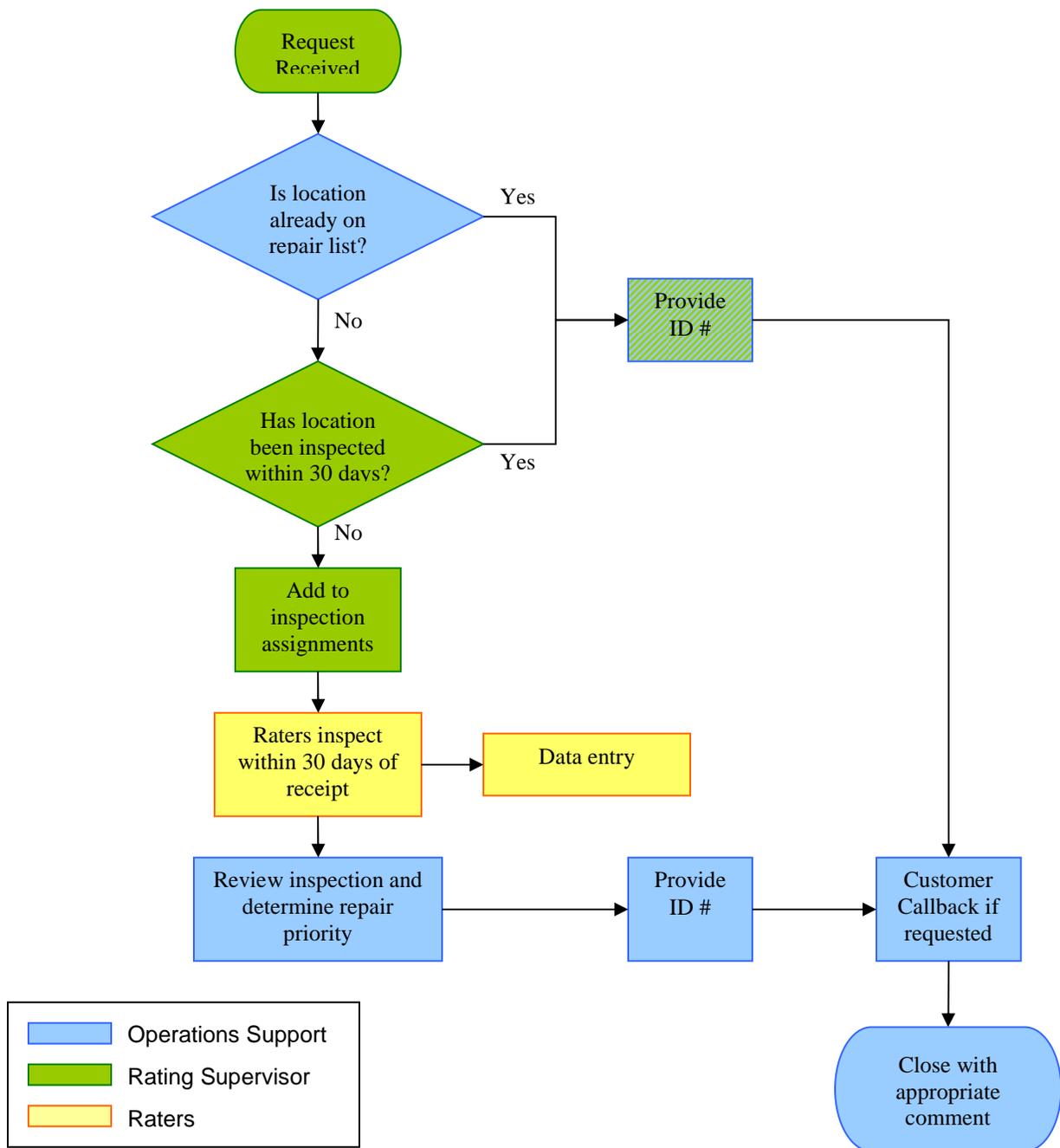
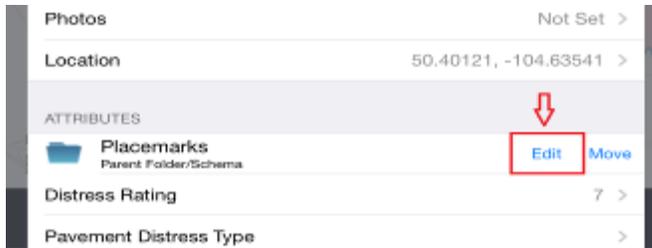
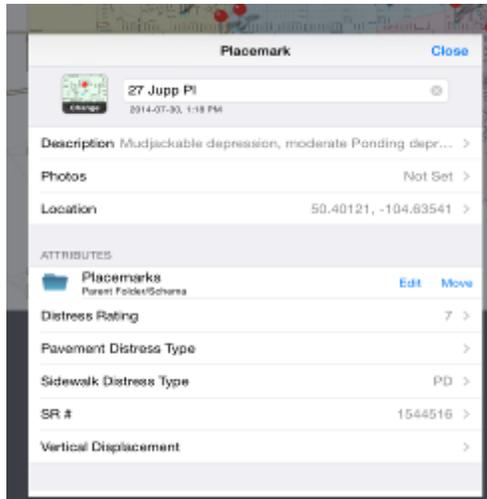


Figure 31: Service Request Procedure
Service Request Set-Up on PDF Maps

- Upon loading the SR layer, drop a pin in an arbitrary location
- Open this pin and click "Edit"



- In the "Edit" section, create 5 new attributes
- These attributes include:
 1. Comments: For the inspector's findings to describe what the problem area is like. For example the approximate size of a ponding issue.
 2. Pavement Distress Type: Choose from Cracking(CR), Drainage(DR), Ravelling(RA) and Ride(RI)
 3. Pavement Rating: Using the scale provided determine the severity of this location
 4. Sidewalk Distress Type: Choose from Excessive Cross Slope(ECS), Poor Drainage(PD), Spalling(SP) and Trip Hazard(TH)
 5. Sidewalk Rating: Using the scale provided determine the severity of this location
 6. Service Request Number: The provided SR number for the task
 7. Vertical Displacement: The height of a trip hazard or any other vertical displacement



- Upon setting up this layout the arbitrary pin can be deleted and you can begin normal service requests

Service Request Procedure for Data Entry with PDF Maps

- Download appropriate map with SR locations from Drop Box
- Upon arriving at the location; drop a pin on the distress area
- Name the pin with the address of the location
- The description is used to give a brief overview of the distress and what is affected by the distress **(Refrain from giving your opinion in the description, strictly information about the distress should be provided)**
- Fill out the attributes according to the distress
- Using an alternative program, take a picture of the distress and record the service request number on it (Note: Pictures take a very long time to upload so only take pictures for very severe issues.)

9.2.2 Service Request Ratings

Service Request Ratings

For the purpose of the service request survey, the ratings are based on a small area that is usually less than a block. The rating system is as follows:

ROADS

Ravelling

- 10 - As new. No signs of ravelling.
- 8 - Some smaller particles missing in front of 1 or more properties.
- 6 - Small to medium particles missing in front of 1 or more properties.
- 4 - Large particles missing, becoming sandy in front of 1 or more properties.
- 2 - Large particles missing, becoming very sandy and turning to gravel in front of 1 or more properties.

Cracking

- 10 - As new. No visible cracking.
- 8 - 3 to 5 clearly developed transverse and longitudinal cracks in front of 1 or more properties.
- 6 - Frequent transverse and longitudinal cracks, and / or starting to block crack in front of 1 or more properties.
- 4 - Large areas of block cracking and/or noticeable area of alligator cracking in front of 1 or more properties.
- 2 - Large area of alligator cracking with chunks breaking out in front of 1 or more properties.

Ride

- 10 - As new. Very smooth surface. Excellent ride at design speed.
- 8 - Occasional dips, or repaired cuts, or other unevenness. Good ride at 50 km/hr in front of 1 or more properties.
- 6 - Dips, repaired cuts, patched potholes or other unevenness. Uncomfortable at 50 km/hr in front of 1 or more properties.
- 4 - Many dips, repaired cuts, potholes or other unevenness. Slow down to 30 - 40 km/hr in front of 1 or more properties.
- 2 - More than 50% of surface is patched, many depressions. Slow down to 20 km/hr in front of 1 or more properties.

Pavement Drainage

- 10 - As new. Good crown allowing water to reach the sides.
- 8 - Shallow rutting, or unevenness is appearing along 1 or more properties.
- 6 - Rutting, inverted crown, medium shallow to deep ponding issues appearing along 1 or more properties.
- 4 - Deep rutting, inverted crown, large shallow ponding issues appearing along 1 or more properties.
- 2 - Deep rutting, inverted crown, large deep ponding issues appearing along 1 or more properties.

SIDEWALK

Poor Drainage

- 10 - As new. Level gutter causing good Drainage to CB.
- 8 - Small (3' x 1'), shallow area of water collecting in gutter.
- 6 - Medium (5' x 3'), shallow area to deep area of water collecting in gutter.
- 4 - Large car sized (10' x 6'), shallow area of water collecting in roadway and gutter.
- 2 - Large car sized (10' x 6') or greater, deep area of water collecting in roadway and gutter.

Spalling

- 10 - As new. No walk damage.
- 8 - Less then 25% of one or more panels with good to fair spalling.
- 6 - Up to 50% of one or more panels with fair to severe spalling.
- 4 - Up to 75% of one or more panels with severe spalling.
- 2 - Over 85% of one or more panels with severe spalling.

Excessive Cross Slope

- 10 - Within normal standards (0% to 3% grade)
- 8 - 5%-10%
- 6 - 15% -20%
- 4 - 25% - 30%
- 2 - 35% - 40%

Trip Hazard

- 10 - As new. No visible cracking, or other distresses.
- 8 - TH of 0mm - 10mm, CR width 0mm - 5mm, BW with less then 25% of a single panel
- 6 - TH of 20mm - 35mm, CR width 10mm - 15mm, BW upto 50% of a single panel
- 4 - TH of 40mm - 60mm, CR width 20mm - 30mm, BW upto 75% of a single panel
- 2 - TH greater than 65mm, CR width over 35mm, BW over 85% of a single panel

9.2.3 Input SR Inspection Data into Hansen

What is Hansen?

Hansen is the City of Regina's complaint data base. Citizens of Regina call the 777-7000 number to describe their problem which in turn gets passed to the proper department to be addressed accordingly.

Hansen

To open Hansen use the following steps:

- Log onto a City of Regina computer
- Click on the start menu and open City Applications
- Click on Hansen 8
- Using your IT provided Username and Password log onto Hansen
- In the menu on the left hand side click on Look up service request

- At the top of this new page there will be a spot to enter a service request number, enter the number from your inspection sheet from DROPBOX which will be in the form of an excel sheet, and click on search
- A single request will appear, open it and click on Log Notes, at the bottom click on New Log Note
- In the 2 blank areas the first click on the arrow and click on CAT, the second again click on the arrow beside it and click ADD INFO, now enter the inspection data and notes and click save.
- You have now update a single service request
- Repeat this process until all your inspection locations have been updated.