



2020

Transportation Infrastructure Report Card



Public Works Department
Town of Castle Rock
5/27/2020

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Executive Summary

Managing the Town's transportation infrastructure assets involves the pursuit of maximizing the value the community receives from these assets, using the allocated resources. This report card is designed to provide high level feedback to the community associated with the management of these important assets.



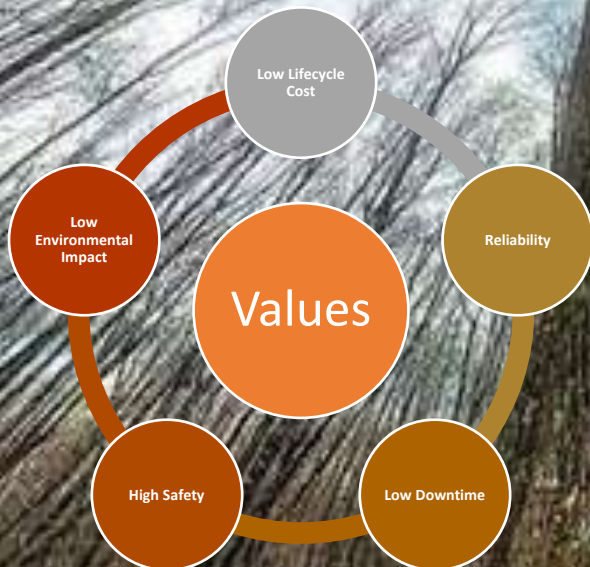
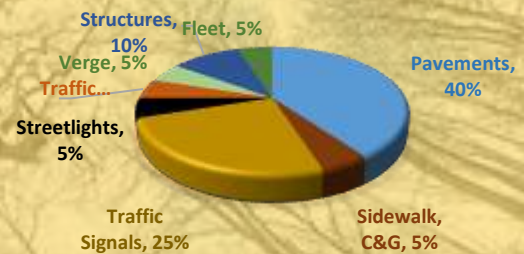
Combined Asset Classes Grade

5 Stars: Excellent, 4 Stars: Great, 3 Stars: Good, 2 Stars: Fair, 1 Star: Poor

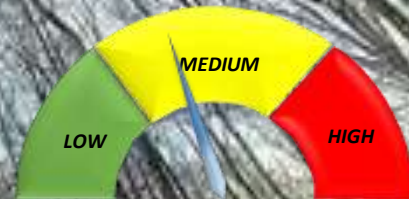
Asset Classes



ASSET CLASS WEIGHT



Cumulative Risk



There is some level of risk associated with maintaining service levels in certain asset classes. These risks are summarized briefly in the next section, with a more detailed assessment within the Recommendations Section. The cumulative risk above is primarily associated with the weighting placed on the Pavements Asset Class. Obtaining the lowest total lifecycle costs of an asset means that the asset should be replaced as near its end of life as possible. With the Pavements Asset Class several lane-miles are near their end of life. In the long term, this means that the Town will likely need to pay higher prices as a result of increased reactionary pothole repair needs once pavements pass their end of life until they can be replaced.

Transportation Unit Costs
(7 of 8 Asset Classes)

\$34,100/lane-mile

Fleet Unit Costs
(1 of 8 Asset Classes)

\$2,863/vehicle

The Town has a continued pursuit of maximizing value from the public transportation assets and is committed to utilizing available resources efficiently to meet this pursuit.

Pavements Asset Class Overview



Inventory

694 lane-miles

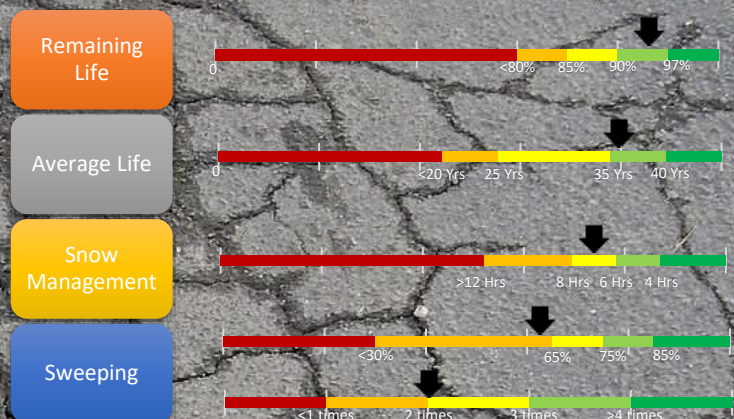
Risk of Maintaining Service Levels



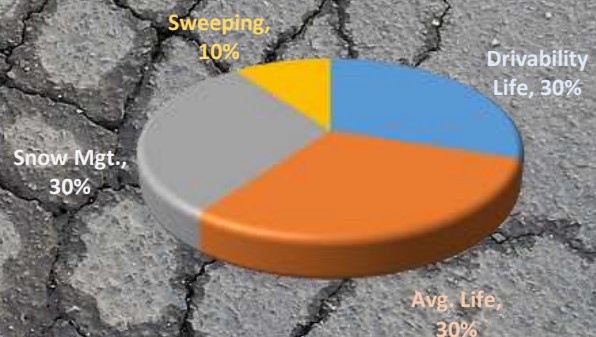
While the Town's roadway pavements are in good shape, the current risk associated with maintaining the existing level of service is a shorter lifespan for a percentage of the roadway network. Current assessments of the lowest total cost per lane-mile indicate that the Town is currently funding approximately 74% of the recommended minimum level. As a result, some recommended scheduled maintenance treatments are being deferred, or missed. This leads to a potential reduction of life-span, and an increased unit-cost per lane mile. It also leads to a potential increase in reactionary maintenance needs such as pothole repair.

Pavements that don't reach their full design life means that the Town is likely paying more over time. A service level change is likely necessary if the Town desires to have all pavements reach their full design life. This will require further detailed analysis which is underway. In the meantime, it's recommended that current service levels be maintained.

Levels of Service



Levels of Service Weighting



Recommendations

The Department's current goals established for pavement maintenance have been met. Based on feedback received during the Town's most recent community survey the transportation stakeholders are pleased with the current pavement conditions. It's recommended that current resource allocations and practices be maintained as a minimum. However, a large percentage of lane-miles are approaching their end of life. In addition, preventative maintenance needs to achieve maximum lifespans are adding to increased funding needs.

Sidewalks Asset Class Overview

(includes curb & gutter plus ADA ramps)



Levels of Service

Percent Functional



Percent ADA Compliant



Inventory

- 472 miles of Sidewalk, Curb and Gutter
- 5,127 ADA Ramps

Levels of Service Weighting



Risk of Maintaining Service Levels



While the Town's sidewalks, curb ramps, and curb & gutters, and are in good shape, the current risk associated with maintaining the existing level of service is the number of ADA ramps that still need to be brought up to current standards. It is recommended to maintain budget levels to keep this current grade. Additional funding to increase the number of ADA ramps that are brought in line with current standards will assist with improving the grade in this asset class.

Recommendations

This asset class has the potential for a long lifespan based on the relative lighter loads that they experience. The primary damage caused to these assets are heaving due to freeze and thaw cycles, along with damage due to heavier vehicles driving over, or on, these surfaces that the assets are not designed to handle. In addition, standards to ADA continue to evolve, and there is a need to update ramps as a result of new standards.

Signals Asset Class Overview

(Town owned. CDOT lights excluded)



Inventory

41 Signals

Risk of Maintaining Service Levels



The Town has recently made significant capital upgrades to the Town's traffic signal system. The current practices and procedures are ensuring timing plans are efficient. Physical assets in this asset class are well maintained and are achieving low total life cycle costs. The primary risk in this area is associated with volumes on certain arterial roadways nearing capacity during peak periods. Capacity improvements will need to be target to assist with improving in this area. The Town's prioritization of projects listed within the Transportation Master Plan should be followed, with additional funding consideration made.

Levels of Service

Travel Time Index (avg. of all corridors)



Recommendations

The most recent community survey indicates that most stakeholders are interested in focusing efforts on reducing congestion on Town roadways. Traffic signal timing is just one component of this as existing intersection configurations have a finite ability to process vehicles. The Department's goal is to minimize the Travel Time Index for the highest volume vehicular patterns during the various typical daily peak hours. It's recommended that the Department continue to make signal timing adjustments to achieve current TTI goals where possible. Once timing plans are maximized, the Department will need to look at alternatives, such as capital improvement projects, to assist with mitigating congestion issues. It's recommended that current resource allocations and practices be maintained.

Street Lights Asset Class Overview

(Town Owned. IREA lights not included)



Levels of Service

Percent
Operational
(avg.)



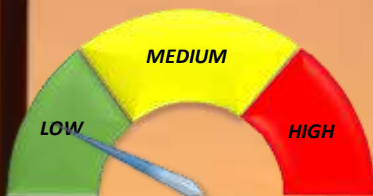
Inventory

696 Street lights

Recommendations

The Department's current goals (maintain an average operation percentage of 85%) established for this asset class have been met. It is recommended that current resource allocations be maintained as a minimum.

Risk of Maintaining Service Levels



The current Department maintenance practices are good. Lights are quickly replaced when they burn out. The primary risk associated with maintaining the existing service level are lighting components that extend beyond their life expectancy.

Traffic Control Asset Class Overview

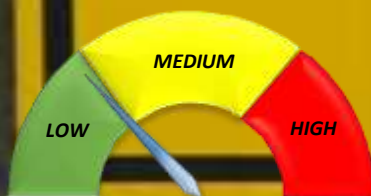
(Traffic signs and pavement markings)



Inventory

16,254 Signs & Beacons
3,410 Symbol markings
236 miles of lane markings

Risk of Maintaining Service Levels



The primary risk of maintaining existing service levels is related to the lifespan of painted crosswalks being exceeded. Currently, most crosswalks along school routes are repainted every two years. Crosswalks immediately adjacent to school are painted each year. This equates to approximately 50% being painted each year. At the end of a year, the paint is beginning to fade and lose its reflectivity properties. The risk is considered on the low side because the crosswalks are utilized during the daylight hours at locations that have legal crosswalks established without any pavement markings needed. By law, drivers are required to yield to pedestrians in these crosswalks whether they are marked or not. Accident statistics are also not indicating a safety concern. It's recommended to have funding keep pace with the increased number of assets being added in this asset class to maintain this current grade.

Levels of Service

% Signs Operational



% Markings replaced within 10% of life's end



Levels of Service Weighting



Recommendations

While crosswalks at signalized intersections were repainted, close to 29% of all symbols located in residential areas were not repainted during the year.

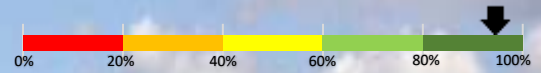
Verge Asset Class Overview

(Verge is the previous area within ROW)

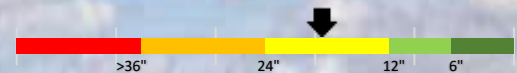


Levels of Service

Avg. % of Recovery Zone



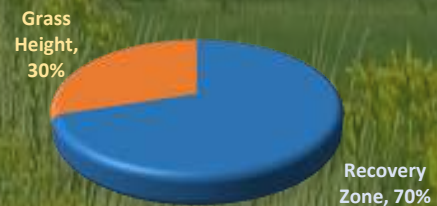
Avg. Grass Height



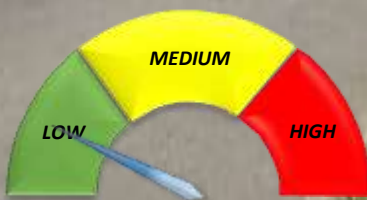
Inventory

65 edgeline miles

Levels of Service Weighting



Risk of Maintaining Service Levels



Risk is low with this asset class. Looking for opportunities to improve the percentage of recovery zone area will continue. Based on historical accident statistics, the risk in this area is low.

Recommendations

The rating for this asset class is high. It's recommended to continue to maintain current operations processes and associated funding to sustain this level.

Structures Asset Class Overview

(Includes bridges, retaining walls, and guardrail)

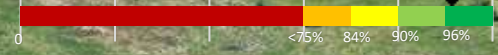


Levels of Service

Guardrail: %
Structurally
Sufficient



Bridges: %
Structurally
Sufficient



Walls: %
Structurally
Sufficient



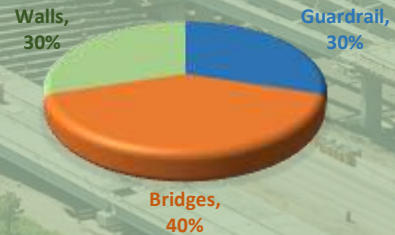
Inventory

36 Bridges

10 Walls

5.5 miles of Guardrail

Levels of Service Weighting



Risk of Maintaining Service Levels



Routine inspections to monitor changes will be key to maintain this current grade. In addition, funding is recommended to be prioritized to complete future maintenance recommendations.

Recommendations

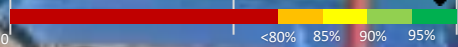
The Town's transportation structural assets are in good condition. It's recommended that current resource allocations and practices be maintained.

Fleet Asset Class Overview



Levels of Service

Availability



Inventory

291 Vehicles
82 Equipment

Risk of Maintaining Service Levels



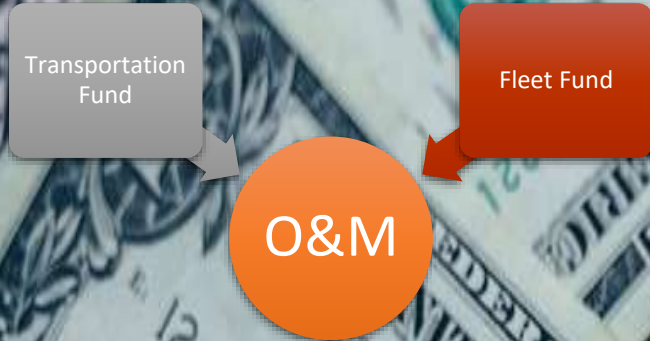
Recommendations

The Department's current goal established for this asset class has been met for 2019. It's recommended that current resource allocations and practices be maintained.

The Fleet Division is routinely recognized as an outstanding fleet organization based on their efficient practices and procedures. They are currently maintaining the lowest total lifecycle costs for the Town's vehicles and equipment as well as ensuring that department operations are not negatively impacted with maintenance downtimes.

Funding

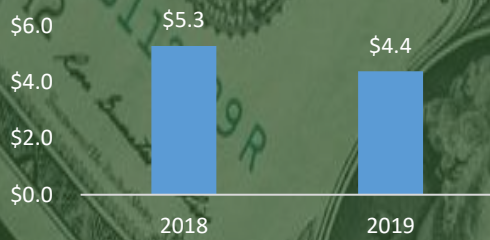
Operations and Maintenance Funds



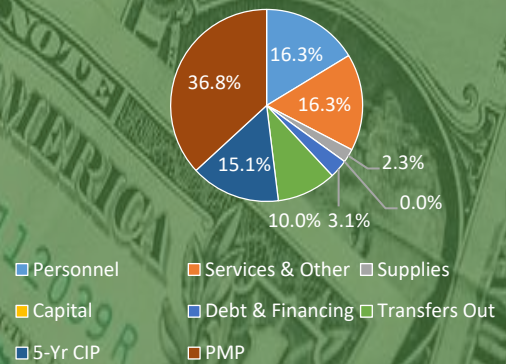
Transportation Fund Revenues (\$ Millions)



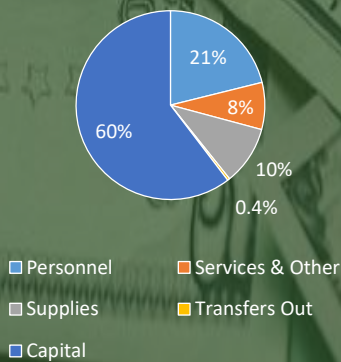
Fleet Fund Revenues (\$ Millions)



Trans. Fund Expenditure Categories (these percentages fluctuate yearly)



Fleet Fund Expenditure Categories (these percentages fluctuate yearly)



Transportation Unit Costs (7 of 8 Asset Classes)

\$34,100/lane-mile

Fleet Unit Costs (1 of 8 Asset Classes)

\$2,863/vehicle

\$0.45/mile