



## **STAFF REPORT**

**To:** Honorable Mayor and Members of Town Council  
**From:** Eric Lee, Public Works Street Operation & Maintenance Division Manager  
**Title:** Update: Snow and Ice Control Policy

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### **History of Past Town Council, Boards & Commissions, or Other Discussions**

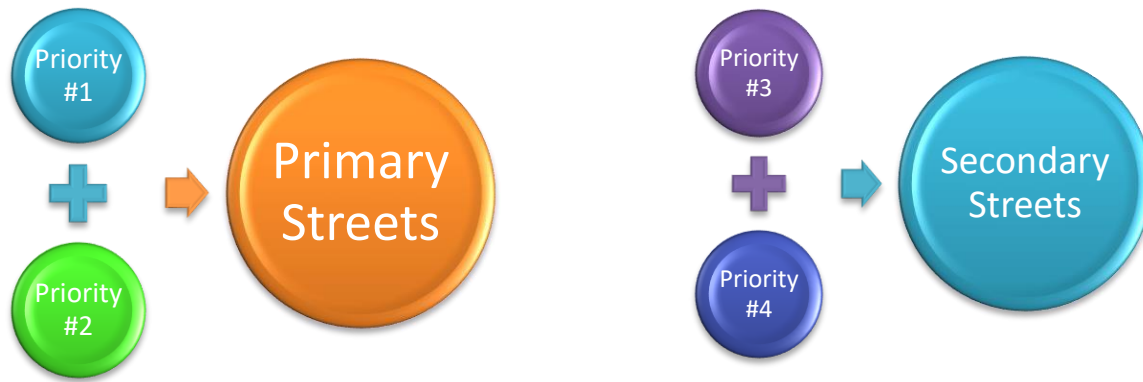
The policy was reviewed with both the Public Works Commission and Town Council in the fall of 2015 at their respective meetings. The Commission felt that the policy is adequately meeting the needs of the community and recommended keeping the policy unchanged. The Town Council concurred with the Commission's feedback.

The Department's goal of having passable conditions on roadways within eight (8) hours after snow has ceased was reviewed and approved by the Commission and Council in 2015.

### **Discussion**

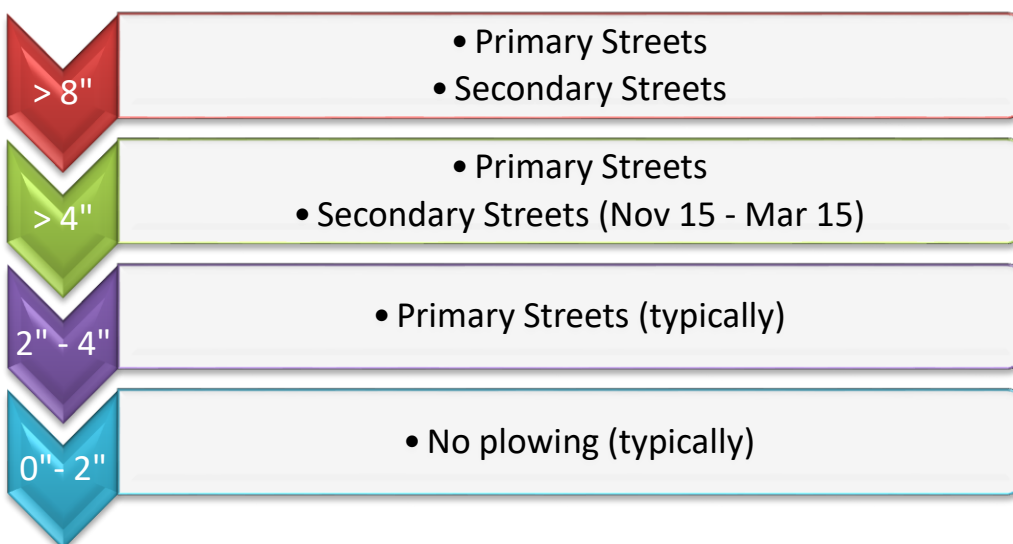
Snow and ice control efforts are a basic responsibility of the Town to provide for travel and emergency service access. Snowplowing and ice control will be completed according to the attached Snow and Ice Control Policy. Snow storm events often cannot be predicted and are frequently of varying lengths and intensity, requiring different levels of resources. The intent of the program is to keep the public streets within the Town passable during adverse weather conditions and in a reasonably safe condition.

The Town has classified Town streets based on the street function, traffic volume and importance to the welfare of the community. Two (2) categories of streets with four (4) priority rankings have been established.



- Priority 1: Those streets classified as arterials, major collectors, commercial/ industrial and commercial business areas. These are typically high volume streets that connect major sections of the Town and provide access for emergency fire, police, and medical services.
- Priority 2: Those streets classified as minor collectors and school bus routes or those roads providing access to schools.
- Priority 3: Low-volume and residential streets.
- Priority 4: Cul-de-sacs and alleys.

The following graphic shows the general policy thresholds utilized to determine when snowplowing operations are commenced as determined by the Town's Street Operations and Maintenance Division Manager. The scale on the left is predicted snow accumulation in inches.



The policy goal is to have streets “passable” to maintain two-way traffic. Department service level goals in this regard are:

Once snow has stopped:

- Primary Streets: All lanes passable within 8-hours, 90% of the time.
- Secondary Streets: A single passable lane within 8-hours, 90% of the time.

Information on how actual performance compares to these Department goals are provided within the “Performance Goals/Measures” section.

### *Primary Streets*

- The primary streets are divided into thirteen (13) areas for snow & ice control efforts
- Up to 13 Town personnel will be used to clear these routes
- These are the heavy-duty, big plows & heavy equipment and will focus on clearing the Town’s arterials and collectors (Priority 1 and 2 streets)
- Priority 1 and 2 streets make up 437 lane-miles of roadway or 66% of all lane-miles in the Town
- Personnel assigned to these duties typically need a Commercial Driver’s License (CDL)

### *Secondary Streets*

- The secondary streets are divided into ten (10) areas for snow clearing efforts
- Up to 10 Town personnel will be used to clear these routes.
- Light-duty plows are assigned and will focus on clearing the Town’s residential streets (Priority 3 and 4 streets)
- Once the Priority 1 and 2 streets are completed, they may assist the light-duty plows with Priority 3 streets
- Priority 3 and 4 streets make up 224 lane-miles of roadway or 34% of all lane-miles in the Town
- Personnel assigned to these duties do not need a Commercial Driver’s License (CDL)
- Personnel have been trained to plow cul-de-sacs, so as not to block residential drive ways

Snowplowing operations will not generally be conducted for snowfall of less than two (2) inches. When snowplowing and/or ice control operations are initiated, all primary streets (Priorities 1 and 2) will be plowed.

Snowplowing will be completed for each storm event on secondary streets (Priorities 3 and 4) routes when the accumulation of snow or ice in the roadway is predicted to be more than four (4) inches between November 15 and March 1, or when the accumulation of snow or ice is predicted to be more than eight (8) inches in the roadway prior to November 15 or after March 15.

Secondary streets (Priorities 3 and 4) may or may not be plowed when snow and ice control operations are initiated for primary streets. The criteria to initiate snowplowing

on secondary streets involve a determination of whether the streets will be passable for vehicles based on the existing storm event. Temperatures and time of year will also be considered. When deployment to secondary streets is warranted, the primary objective during a storm event is to provide a passable lane for emergency response. To stay ahead of storm accumulation, this is accomplished in the most efficient manner possible in the least amount of time to ensure the fastest emergency response times achievable. Therefore, inefficiencies of “custom” plowing operations that would include plowing snow from shady sides to sunny sides, or multiple passes is not achievable during the event.

Plowing operations typically occur at night while it is snowing which does not facilitate operators anticipating where particular areas will be in the sunshine during different parts of the snow season. Also, plowing all snow to a future sunny side during an event may create an impassable depth of snow until such snow melts. In the days following the storm, crews may return to areas where freeze – thaw cycles have caused icing problems and employ ice abatement techniques. These techniques include the use of specialized equipment, an Ice Breaker that can efficiently crush ice allowing it to be plowed to areas where previously plowed snow has melted. The winter season of 2011-2012 was an unusual winter that included major events followed by long periods of freeze – thaw which exacerbated town-wide icing. The Town purchased this Ice Breaker to specifically address icing in a much more efficient manner that allows faster response times to these conditions town-wide. In 2017 due to the success of the program the Town purchased an additional Ice Breaker to further increase levels of service.

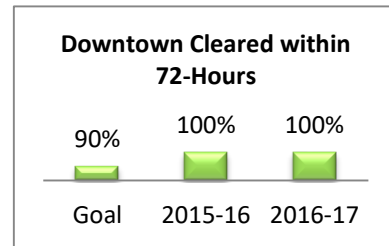
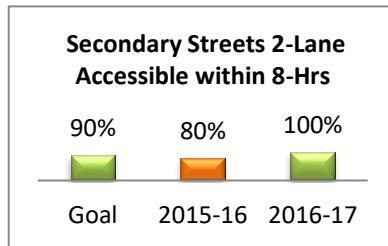
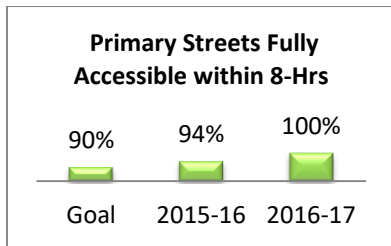
The Public Works Department is the primary Town department responsible for snow and ice control operations, however, a team of more than 70 staff from the Public Works, Water, Parks & Recreation, and Development Services departments are trained each year to respond to storm events. Approximately 19 Town staff will be used for a “typical” storm event. This additional staff allows for multiple shifts in the case of a blizzard or when “around-the-clock” operations are implemented.

### Performance Goals/Measures

Plowing streets and applying ice control agents supports the Town goal of maintaining safe, functional and accessible infrastructure in a proactive manner. Public Works staff has established some performance measures to quantify service levels:

- Plow snow from primary streets (Priorities 1 & 2) so that all lanes are passable within eight hours after snowfall ceases, 90% of the time
- Plow snow from secondary streets (Priorities 3 & 4) to achieve a single passable lane within eight hours after snowfall ceases, 90% of the time, for applicable storm events between November 15 and March 15
- Remove snow plowed to the center of streets in the downtown area within 72 hours after snow fall ceases, 90% of the time

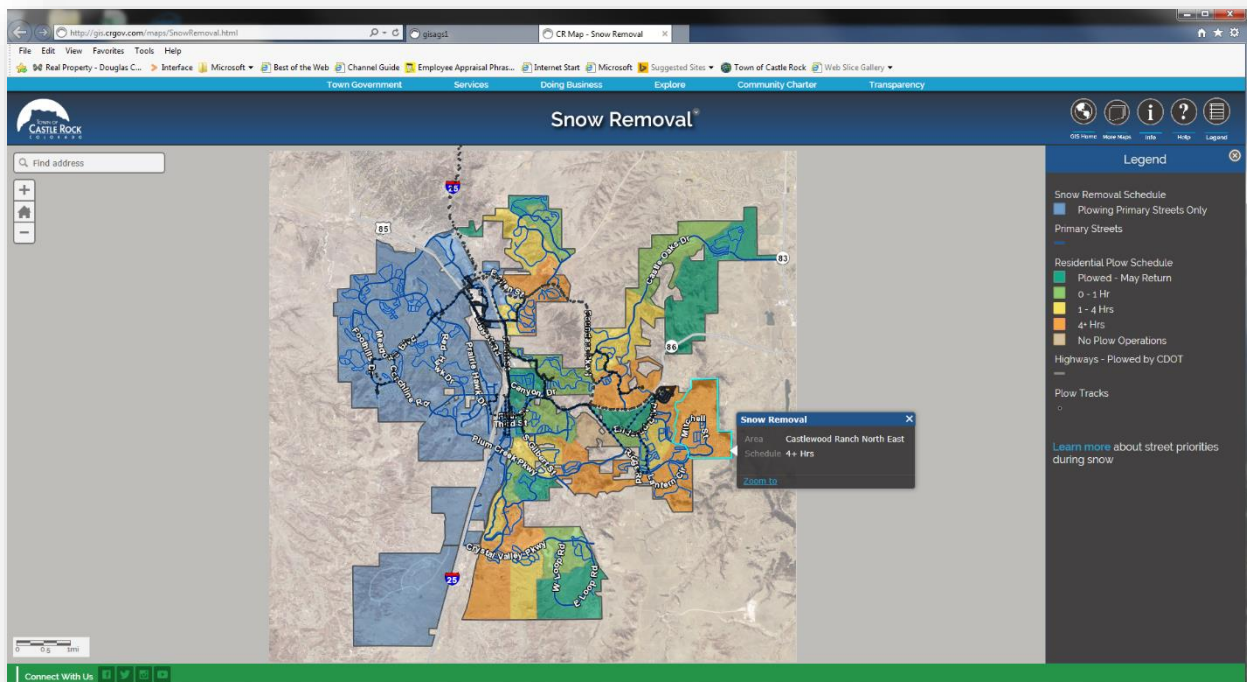
The graphs below depict actual accomplishments during 2015:



The Department has received feedback from the Town's transportation stakeholders indicating that the service levels of 8-hours, 90% are good. As a result, staff is recommending that the current service level goal of 8-hours, 90% of the time be maintained. Town staff will continue to monitor service level changes and report back to Town Council in future years.

### Public Notification and Outreach Efforts

A critical piece of information for citizens is not only where the plows have been but also when they are expected in a certain area. Therefore, staff developed a separate web-based map, using the Automatic Vehicle Locator (AVL) System data, to not only show which streets have been plowed but also identify, by sub-area/neighborhood, an expected time frame for when those streets will be plowed.



- Maps are available on the Town's website showing which streets have been plowed during storm events. These maps do not show the real-time locations of vehicles for security and safety reasons.
- Administrative personnel are able to view the system so that they can respond more accurately and effectively to citizens who call requesting information on whether their street has been plowed or when it will be plowed.
- Supervisory personnel are able to expeditiously relocate the closest available equipment and personnel to respond to emergency requests, or to identify missed streets.
- Snowplow driver safety is also enhanced by this system. Supervisory staff is able to monitor the location of all vehicles and can contact a driver on their cellular phone if a vehicle is immobile for an extended period of time, to ensure that they are safe.

Citizens are able to view the map on the Town's website to determine where the plows have been working and get an approximate time of when their neighborhood will be plowed. Public Works staff update the map on a regular basis during the storm event. These maps do not show the real-time locations of snowplow vehicles for security and safety reasons.