



## Report for FY 2023 Legislative Intent Language: Winter Road Prioritization Method and Input Solicitation

### FY 2023 INTENT LANGUAGE

*It is the intent of the legislature that DOT&PF create and implement a method to solicit input from and consult with local municipalities, community organizations, Metropolitan Planning Organizations, Regional Transportation Planning Organizations and service areas on the creation and revision of the prioritized list of state-maintained roads and highways for snow plowing, and to coordinate these efforts, where appropriate, with local governments and service areas. This plan shall be developed and submitted to the Finance Committee Co-Chairs and Legislative Finance Division by December 20th, 2022.*

### DOT&PF TASKS TO GENERATE THIS REPORT

Given passage of the above intent language in the FY23 budget, the Alaska DOT&PF pursued the following tasks to produce this report:

- 1) BACKGROUND DOCUMENTATION – The department reviewed internal processes and documentation regarding the winter road maintenance prioritization criteria and process across all three regions through regional maintenance and operations (M&O) chiefs and department leadership. Road priorities translate to routing sheets utilized by each M&O staff deployment.
- 2) SOLICITATION OF INPUT - Given existing resources and no associated funding with this legislative intent, the department coordinated through communications staff a survey of various groups to gauge importance of the existing road prioritization criteria. This information can help the department better understand and process for public review and comment (housed on the DOT&PF website and promoted through social media and exiting stakeholder discussions). Direct survey solicitations were made with extended comment periods.
- 3) REPORT CONCLUSIONS – The department deployed three surveys to capture comments from as many of the groups as possible. Resourcing factors that impact road service delivery were gathered as context in preparation for a future review of current road priorities. Summary tables, examples, and select survey comments received are available under the REPORT CONCLUSIONS section of this report. Additionally, there is proposed a plan to review and revise the current winter road maintenance priorities in CY 2023 given the data collected. This report is being provide by December 20, 2022 as outlined in the legislative intent language.

# BACKGROUND DOCUMENTATION



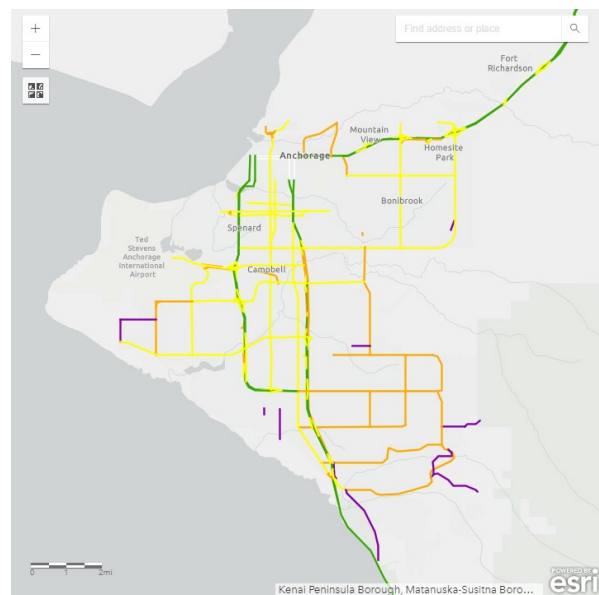
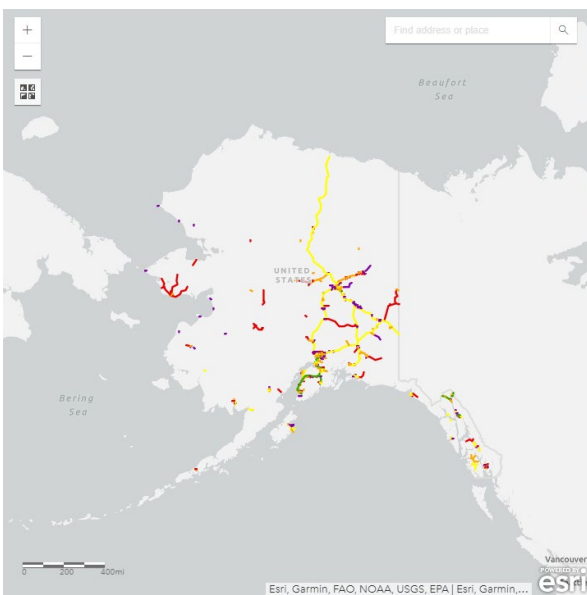
## PURPOSE OF ESTABLISHING WINTER ROAD MAINTENANCE PRIORITIES

The Alaska DOT&PF establishes state road priorities to provide a timeline of service delivery and logical order of maintenance to guide our maintenance and operations (M&O) efforts. The effort in prioritizing roads is to maintain first the roads that would have the greatest impact to the public if NOT cleared and work down to other roads when those higher priority roads are clear (and continue to remain clear). Transparency with the public is also a primary purpose of providing clear road priorities and the reasonable expectation of the order in which service delivery occurs to any given area. This gives the public users of state roads the ability to understand which roads will see initial clearing when weather events impact access and which roads will have to wait for resources to become available for their own route planning (e.g. “do I go out now or wait if I can until roads in my area are cleared”).

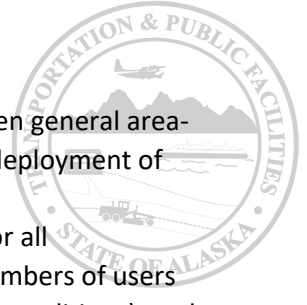
## CURRENT WINTER ROAD MAINTENANCE PRIORITY INDICATORS AND DEFINITIONS:

PRIORITY 1	PRIORITY 2	PRIORITY 3	PRIORITY 4	PRIORITY 5
<b>May take up to 12 hours to clear after a winter storm.</b>  high-volume, high-speed highways, expressways, minor highways, all safety corridors and other major urban and community routes.	<b>May take up to 18 hours to clear after a winter storm.</b>  routes of lesser priority based on traffic volume, speeds and uses. Typically, these are major highways and arterials connecting communities.	<b>May take up to 24 hours to clear after a winter storm.</b>  major local roads or collector roads located in larger urban communities.	<b>May take up to 30 hours to clear after a winter storm.</b>  minor local roads that provide residential or recreational access.	roadways that are designated as “No Winter Maintenance” routes, e.g. Denali Highway or Taylor Highway. Generally cleared only in spring to open road for summer traffic.

These priority levels were then mapped in the 2017 timeframe to a GIS map that is found on the DOT&PF website and commonly referenced by the department and the public (examples below).



## PRINCIPLES WHEN ESTABLISHING WINTER ROAD MAINTENANCE PRIORITIES



- Priority Levels represent the minimum staff power and resource allocation when general area-wide weather conditions are of such duration and intensity as to demand full deployment of department resources.
- DOT&PF's primary focus and mission is to promote and maintain safe access for all transportation users. Areas of greatest safety concerns involve congestion (numbers of users and types of uses), environmental hazards (weather), site characteristics (road conditions), and historic traffic safety record (data).
- As an inter-modal transportation organization, the department is ever mindful to maintain access to other forms of transportation such as airports, rail, harbors, ferry terminals, public transit stations, etc.
- Beyond user safety and freedom of movement, there is a strong focus to ensure transportation routes for essential goods and services (economic activity).
- Maintain readiness for rapid response of emergency services.
- Establish priorities that allow for the most efficient response to severe weather events that present transportation challenges.

Priority Levels provide the basis for dispatching operators and equipment so they can effectively perform snow and ice removal and control operations. In addition to Alaska DOT&PF data, information about the progress of storms or pavement conditions may be volunteered by the public or solicited from other agencies, such as the police department. M&O crews report back to their stations and managers information on highway conditions to assist in real-time decision making. Reports of highway conditions from external sources are weighed in relation to current priorities and activities of the crews.

Deviations from established Priority Levels may be necessary to react to unique or isolated Alaska DOT&PF Highway M&O conditions. One example of how priorities shift is when a school is open or closed due to weather. A school bus route that is a higher priority when schools are operating may be less of a priority during a heavy snow occurrence where schools are closed, allowing resources to be deployed to where they are needed the most given current conditions.

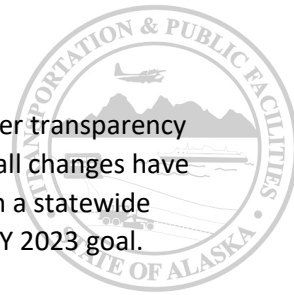
Every Alaska DOT&PF maintained road will be designated a winter maintenance Priority Level. The designated Priority Level defines the order of snow and ice activities that shall be implemented on the route and the goal for operators to meet.

The actual performance in achieving these goals will vary due to the dynamic nature of winter weather. Storms vary widely in their characteristics, and winter maintenance activities may deviate temporarily from the descriptions below based upon the timing, intensity, duration of the storm, temperature, humidity, wind conditions, and the nature of the precipitation. While winter storms may at times temporarily overtake snow and ice control operations, the conditions below describe the objectives that the maintenance crews continue to strive to obtain.

It is important to note that some lower Priority Level designated roads may be treated as higher level roads in order to maximize operational efficiencies. It is also important to note that not all maintenance areas have roads in each Priority Level. Rural maintenance stations may only have Priority Levels III and IV roads in their area. As such, operators work from the highest present level and work down from there.

## FREQUENCY OF ESTABLISHING AND REVIEWING ROAD PRIORITIZATION

The road maintenance priorities were codified by the department in 2017 to add greater transparency for the public on road maintenance efforts and expectations. In the last five years, small changes have been made to the online map but no comprehensive review has been undertaken from a statewide perspective. A full review of road prioritization and how they are presented is now a CY 2023 goal.



## SOLICITATION OF INPUT

Surveys were provided to the following lists per the legislative intent language. Future surveys could expand to other groups, work with community partners (e.g. AML) to ensure distribution/visibility, and refine stakeholder contact lists. See a summary of survey results in Appendix B of this report.

- **2022 STIP List (Survey #1, open)** was distributed in October to our DOT&PF STIP List. This of roughly 1,100 contacts reaches municipal (mayors and city managers), village and city council members. The survey was quickly shared by media and the public resulting in significant public participation as well. Final submissions totaled 616.
- **2022 MPO Member (Survey #2, targeted)** was labeled and distributed to Municipal Planning Organization members directly. 31 total submissions received.
- **2022 Community Council Member (Survey #3, targeted)** was labeled and distributed to community council members directly from lists compiled by DOT&PF communications staff. 42 total submissions received.

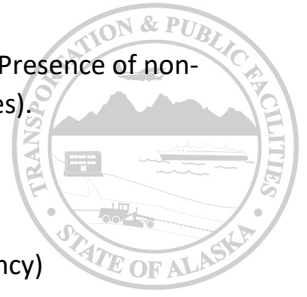
## DOT&PF CRITERIA LISTED FOR RANKING IN ROAD PRIORITIZATION SURVEYS:

The following is a list of the more significant criteria used by DOT&PF M&O staff in the evaluation and establishment of the existing winter road maintenance priorities along with a list of items considered when assigning resources to respond to winter event in an effort to best deliver service within the goals set for each performance target.

Criteria for evaluation and establishment of winter roadway maintenance priorities:

- Annual average daily traffic (objective measure of activity via recorded traffic counts)
- Major shipping lanes and freight/cargo transport.
- Access to other modes of transportation (airports and marine ports/harbors)
- Safety corridors (designated for enhanced safety due to accident data)
- Public transit systems (bus routes)
- Reliable access for emergency responders and hospitals (speed of emergency services)
- School bus routing (district-specific and seasonal considerations)
- Alternative emergency routes (evacuation routes for any community, traffic congestion alternative routes for larger population areas)
- Type of road (major or minor hwy, arterial, collector, local road, etc)
- Road characteristics (grade, surface condition, curves, adjacent localized conditions such as fog, etc)
- Speed limit of road (higher speeds require more frequent attention to avoid safety issues)

- [MPO and Community Council addition given early input from 2022 Survey #1] Presence of non-motorized facilities (bike lanes, sidewalks, pathways and pedestrian overcrosses)



Factors considered when responding to a winter event:

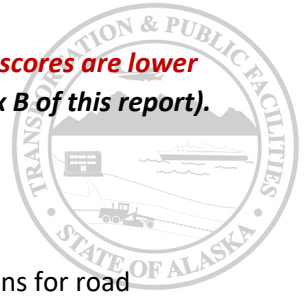
- Weather events (type, severity, and impact to conditions - i.e. freezing rain)
- Route and segment access (operator catches area along the way due to efficiency)
- Bridges and Rivers (icing near waterway in winter)
- Existing DOT&PF resources (Personnel and equipment are experience/condition and location dependent)

## **REPORT CONCLUSIONS**

### **SURVEY RESULTS – SUMMARY OF CRITERIA RANKING**

<b><i>2022 Winter Road Priority Maint. Criteria Ranking (Survey Summary)</i></b>	<b>STIP List</b>	<b>MPO</b>	<b>Community Council</b>
<b>Road Criteria to Rank (Importance)</b>	<i>(survey #1)</i>	<i>(survey #2)</i>	<i>(survey #3)</i>
Public transit systems	6.7	7.9	5.5
Safety corridors	7.8	7.9	7.4
Speed limit of road	7.2	7.7	7.8
Road characteristics	8.4	6.9	4.8
Existing DOT&PF resources	8.1	7.2	7.6
Bridges and Rivers	8.6	6.2	7.7
Type of road	8.5	7.9	8.0
Annual average daily traffic	8.0	7.9	7.5
Weather events	10.0	8.4	9.9
Alternative emergency routes	8.3	7.2	8.3
Population density	7.4	7.9	7.1
School bus routing	7.8	7.9	7.7
Distance from M&O station	5.6	4.3	5.9
Route and segment access	6.7	6.6	6.4
Reliable access for emergency responders and hospitals	9.9	10.0	10.0
Major shipping lanes and freight/cargo transport	6.7	7.9	5.5
Access to other modes of transportation	7.8	7.9	7.4
Presence of non-motorized facilities		6.9	4.8

*(Green weighted scores are over 8 and ranked as higher importance, Red weighted scores are lower than 6 indicating criteria is less important. See detailed survey summary in Appendix B of this report).*



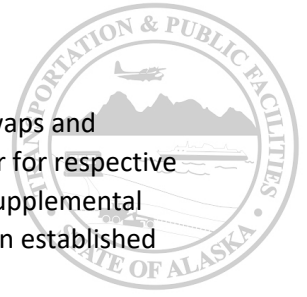
### **SURVEY RESULTS – SUMMARY OF QUESTION: “Any Road Priority Criteria Missing?”**

Open-ended questions were provided to allow for additional input. Here are submissions for road priority criteria that was either unclear or not represented in DOT&PF current documented list:

- Winter recreational pull outs / Recreation use / Parking and maintenance on winter recreational areas / Pull outs in passes well maintained / significant winter recreational use of our public lands / road access to winter recreation zones / Recreation Usage Pullouts / Shoulders and pull-out maintenance / Access to recreational areas is of critical importance / Recreation corridors access points / Access to winter recreation and public land / Mountain Passes / Highway Pullouts
- Sidewalks and Pedestrian traffic / clear sidewalks / sidewalks or multi-use paths for non-motorized users / sidewalks and bike lanes / access by pedestrians and cyclists / separated bike and pedestrian trails / non-motorized infrastructure / Non-motorized, equity and gender balanced / Pedestrian access / Sidewalks and multi-use trails / Non-motorized access for multimodal transportation / Bicycle lanes / Bike Paths should be maintained in winter / Sidewalks need to be taken care of / Non-Motorized mobility / SIDEWALKS / Non-motorized transportation routes (bike lanes, separated paths, sidewalks), Bus stops / sidewalks and bike paths / Non-motorized facilities / non-motorized usage / public transit / bicycles, pedestrian, wheel chair accessible sidewalks / Sidewalks and bike lines / Sidewalks and bus stops
- Day of week for commuting
- Exit and on ramps
- Side roads downtown for workers
- Congestion due to traffic and traffic lights
- Accident reports from previous seasons
- Historical Needs/Severity of Weather Events
- Multiple lane roads; single lane roads with no streetlights
- Areas that can only be accessed by one route / no alternative route
- High use highways that link cities
- school walking routes / location near school and community centers / Proximity to Schools
- Lighting / Lighting in the Glenn
- Reportable slush accumulation, black ice, potholes, etc.
- Regular checking that maintenance contracts are being fulfilled
- Lack of cell service
- high tourist traffic/inexperienced drivers
- Known icy areas need to be sanded quickly
- Medians and shoulders of roads and highways for vehicles in distress
- Local Freight Delivery (home heating fuel and potable water)

## **ROAD PRIORITY SERVICE IMPACT - PARTNERSHIPS AND EXTERNAL RESOURCES**

One factor not captured in the road priority conversation here are the maintenance swaps and agreements with municipalities (trading winter maintenance of one route with another for respective efficiency). Additionally, the department leverages private contractor support when supplemental services are needed during extraordinary weather events. Contracts will and have been established where assistance is needed.



## **MOVING FORWARD - 2023 REVIEW / REVISION PLAN FOR WINTER ROAD MAINTENANCE PRIORITIES**

With this intent language, the conversation internally at DOT&PF has led to discussions and goal setting toward a comprehensive review of road priorities. Additionally, a review of how maintained information and data is presented will be conducted during this review with the potential of a reevaluation of how road priorities are established and presented to the public. The criteria outline in this report, both by the department, associated ranking by stakeholders, future solicitation to stakeholders, and the additional criteria submitted by stakeholders will be beneficial in that review.

One area the department would like to explore additional transparency is in the area of M&O maintenance performance goals. While we do internally track route efficiency and performance data, it is not currently in a form that can be easily shared or understood by the public. Finding a way to provide performance data can allow the department to more accurately evaluate our ability to meet M&O targets and/or demonstrate current resourcing effectiveness in the field to policy maker and constituents.

## (APPENDIX A)

### DOT&PF "Designation of Road Priority" Criteria Survey

The Alaska Legislature asked the Department of Transportation and Public Facilities (DOT&PF) to solicit input on the criteria and development of winter road maintenance priorities on DOT&PF maintained roads.

#### We want your feedback on the DOT&PF winter road priority system!

Extreme weather events, available staff or equipment, and the way a storm hits a region all impact DOT&PF's ability to restore our roads and highways to acceptable driving conditions. Our teams uses the best information through collaborative partnerships, real-world experience, and weather data to respond as quickly and efficiently as they can. Sometimes we have to make tough decisions of where and how to apply our snow and ice control resources when responding to winter weather events—that's where you come in—please share your feedback with us on our winter prioritization system by taking this survey.

VIEW THE MAP HERE ONLINE:

<https://dot.alaska.gov/stwdmno/wintermap/>

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#### What Alaska city do you live in?

Please add an organization or group if related to your comments on transportation.

#### What organization are you are part of (and what's your role/title)?

#### Road Maintenance Prioritization Criteria

Please rank the importance of the following criteria used by DOT&PF to establish road priorities (for road maintenance).

	Not Important	Low Importance	Moderate Importance	High Importance	Critical Importance
Major shipping lanes and freight/cargo transport.*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Access to other modes of transportation (airports and marine ports/harbors)*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Speed limit of road (higher speeds require more frequent attention to avoid safety issues)*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Road characteristics (grade, surface condition, curves, adjacent localized conditions such as fog, etc)*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Existing DOT&PF resources (Personnel and equipment are experience/condition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



and location dependent)*					
Bridges and Rivers (icing near waterway in winter)*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Type of road (major or minor hwy, arterial, collector, local road, etc)*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Annual average daily traffic (objective measure of activity via recorded traffic counts)*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Weather events (type, severity, and impact to conditions - i.e. freezing rain)*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alternative emergency routes (evacuation routes for any community, traffic congestion alternative routes for larger population areas)*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Population density of surrounding/connected area (potential utilization of route)*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
School bus routing (district-specific and seasonal considerations)*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Distance from M&O station that DOT&PF staff must travel for work*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Route and segment access (operator catches area along the way due to efficiency)*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Reliable access for emergency responders and hospitals (speed of emergency services)*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Public transit systems (bus routes)*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Safety corridors (designated for enhanced safety due to accident data)*	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### Any Road Priority Criteria Missing?

If you see criteria not listed above for ranking that should be taken into account, let us know what that is and why you believe it should be added to the list.

### OPINION: DOT&PF Road Maintenance in Your Area - Positives

From your perspective, what is DOT&PF doing well for winter road maintenance?

1000

### OPINION: DOT&PF Road Maintenance in Your Area - DOT&PF Improvements

From your perspective, what can DOT&PF do better, if resources allow, for improved winter road maintenance?

1000

### COMMENTS: Any additional input or comments you would like to give specifically about road maintenance priorities?

1000

**NOTES:** Allocated resources to DOT&PF, the use/condition of existing infrastructure and our crew's knowledge of the area (terrain, road conditions, traffic, etc.) heavily influence the prioritization process.

Daily maintenance activities rely on management's evaluation of available resources (staffing, equipment, funding, cell phone coverage). Crews may not be able to always follow the priority system in real-time extreme weather events and for localized issues - discretion is given for conditions. Our teams use the best information available to them through collaborative partnerships, real-world experience, and weather data to respond as best they can under circumstances.

We appreciate the public's input and patience as we work together to enhance response to Alaska's challenging and exciting weather events (2021 and 2022 set numerous records across Alaska). Thank you in advance for your participation in this survey.

Submit

2022 DOT&PF Survey Appendix B - Road Maintenance Prioritization Criteria: Please rank the importance of the following criteria used by DOT&PF to establish road priorities (for road maintenance).

Road Criteria to Rank
Public transit systems
Safety corridors
Speed limit of road
Road characteristics
Existing DOT&PF resources
Bridges and Rivers
Type of road
Annual average daily traffic
Weather events
Alternative emergency routes
Population density
School bus routing
Distance from M&O station
Route and segment access
Reliable access for emergency responders and hospitals
Major shipping lanes and freight/cargo transport.
Access to other modes of transportation
Presence of nonmotorized facilities

STIP List (Muni, Tribal/Village, Public)						
Road Criteria Ranking (Importance) - 616 submissions						
Not	Low	Mod	High	Critical		Weighted Score*
61	89	197	159	100		6.7
24	66	177	190	149		7.8
28	86	198	182	112		7.2
11	31	160	248	156		8.4
21	35	182	218	150		8.1
14	37	140	218	197		8.6
12	21	170	231	172		8.5
18	53	173	216	146		8.0
4	12	66	204	320		10.0
14	54	163	183	192		8.3
19	69	220	192	106		7.4
25	61	180	182	158		7.8
85	115	246	104	56		5.6
31	84	260	167	64		6.7
10	9	62	208	317		9.9
61	89	197	159	100		6.7
24	66	177	190	149		7.8
Added to future surveys given early input STIP List survey (a need to more clearly call out pedestrian criteria)						

MPO Members						
Road Criteria Ranking (Importance) - 31 submissions						
Not	Low	Mod	High	Critical		Weighted Score*
1	3	7	12	8		7.9
1	4	7	10	9		7.9
1	5	14	15	1		7.7
1	5	10	11	4		6.9
1	3	11	12	4		7.2
0	10	9	10	2		6.2
0	3	8	14	6		7.9
0	4	8	12	7		7.9
0	3	5	15	8		8.4
0	4	11	13	3		7.2
1	1	9	15	5		7.9
1	1	8	17	4		7.9
7	9	8	7	0		4.3
0	5	14	10	2		6.6
0	0	2	13	16		10.0
1	3	7	12	8		7.9
1	4	7	10	9		7.9
1	5	10	11	4		6.9

Community Council Members						
Road Criteria Ranking (Importance) - 42 submissions						
Not	Low	Mod	High	Critical		Weighted Score*
9	4	18	8	3		5.5
3	8	8	14	9		7.4
2	5	14	10	11		7.8
8	16	9	4	5		4.8
0	6	17	11	8		7.6
1	5	14	15	7		7.7
0	5	13	17	7		8.0
3	2	15	17	5		7.5
0	1	6	17	18		9.9
2	5	10	11	14		8.3
2	7	14	13	6		7.1
3	6	10	12	11		7.7
2	9	24	4	3		5.9
3	5	24	5	5		6.4
0	0	9	12	21		10.0
9	4	18	8	3		5.5
3	8	8	14	9		7.4
8	16	9	4	5		4.8

WEIGHTED SCORE KEY:

GREEN is a weighted score greater than 8 (most important to survey group)

RED is a weighted score lower than 6 (less important to survey group)

\* 10.0 was set as the highest score to get relative totals for comparative purposes.

NOTES:

Safety was clearly ranked as most important through "Weather Events" and "Reliable access for emergency responders".