

# Transportation Advisory Board

of the Metropolitan Council of the Twin Cities

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## Information Item

**DATE:** February 25, 2021  
**TO:** Technical Advisory Committee  
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**SUBJECT:** Sensitivity Analysis of the 2020 Regional Solicitation Measures

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This information item presents a sensitivity analysis of the scoring measures used in the 2020 Regional Solicitation. The analysis repeats what was completed after Regional Solicitations dating back to 2014 and is meant to help point to any needed changes to scoring measures for the next Regional Solicitation (2022).

In this analysis, measures were evaluated on how they impacted application rankings, which ultimately contribute to which projects were funded. The key findings of this analysis include the following:

1. Across most application categories measures with higher point values tend to have had a larger impact on application rankings. This suggests that these higher point value measures are generally performing as intended.
2. There are very few underperforming measures.
3. In 2016, one of the key obstacles to differentiation was scoring outliers (e.g., when one project scored 100 points on a measure and the rest of the applications only scored one or two points, rendering the measure meaningless) as staff identified 18 measures as outliers. Enabling scoring committees to adjust for outliers improved this situation. The analysis for 2018 identifies only three measures as outliers and only one is identified for 2020, after adjustments. It should be noted that there is no definition for what constitutes an outlier, nor how to correct for one.

## Evaluation Method

There are between nine and 16 measures per application category. Each of these measures was assigned a point value based largely on the results of the Regional Solicitation Evaluation and Redesign in 2013 and 2014. Then, submitted applications were scored on each of the measures, adding to a total score out of 1,100 possible points. Tables 1 through 11 present the measures used to evaluate each application category. Each measure is presented with three statistics: Impact on ranked order, applications that cross the “funding line,” and standard deviation.

### *Impact on Ranked Order when a Measure is Removed*

The primary gauge for evaluating a measure’s actual impact in the 2020 Regional Solicitation is how many applications change their rank position within an application subcategory if that measure is removed. Measures that have a large impact on how the applications score relative to each other have more potential to impact a funding decision.

### *Impact on the Funding Line when a Measure is Removed*

Changes in ranked order sometimes cause an application to move above or below the TAB-approved funding line. It is important to note that movement across the line tends to be a fairly arbitrary statistic, as that line is not predictable. Further, it is not a given that the flipping of two applications across that line would have resulted in funding the application that moved up (and not funding the application that

moved down), as point spread, geographic impacts, and federal funding request amounts could move funding from one category to another.

### *Standard Deviation*

To further explore the potential for a measure to contribute to an application's funding decision, each measure's standard deviation is calculated. Higher standard deviations usually suggest scores that are widely spaced, though it is possible for outliers to skew standard deviations. Lower standard deviations indicate score clustering. Standard deviation also depends on the number of points allocated to a measure, with higher-value measures expected to have generally higher standard deviations.

## **Findings**

### *Overall Findings*

Overall, the measures create differentiation, as intended. There are few counterintuitive results. Lower-performing measures tend to be measures with lower values. Few individual measures are significantly impactful. This may point to tweaks, which are often complicating factors, to individual measures as counterproductive.

### *Roadways Findings*

For three established roadways funding categories (Strategic Capacity, Reconstruction/Modernization, and Bridge), the measures were roughly as difference-making as expected. The fourth established category, Traffic Management Technologies only received five applications and no conclusions are able to be made, except that all eight applications over the previous two cycles scored the same points in Measure 1A, Functional Classification.

Spot Mobility and Safety was a new funding category for 2020. The scoring measures were generally impactful with the most surprising result being Measure 5, Multimodal, impacting the ranking of nine out of 10 projects, which somewhat overperforms its standard deviation (27) and point value (100) relative to the other measures.

### *Transit/Travel Demand Management (TDM) Findings*

As expected, the two transit application categories saw the most impact in their 350- and 325-point Usage measures (Measure 2). There are some deviations from expectation in Transit Modernization (see page 10) but with only nine applications, this could be an anomaly.

### *Bicycle/Pedestrian Findings*

In the Multiuse Trails and Bicycle Facilities application category, each of the nine measures changed the ranking of at least 21 of the 37 applications, which is in large part due to the bunching of scores. Pedestrian Facilities and Safe Routes to School showed no surprises.

## **Strategies for Underperforming Measures**

While this does not seem to be a significant issue for the 2020 Regional Solicitation, for lower-impact measures or measures that are not distinguishing applications as intended, there are several strategies that can be employed:

- Do nothing. Some measures may serve to improve all applications even if they do not differentiate scores.
- Change the number of points allocated to the measure.
- Change the measure's scoring guidance or applicant instructions.
- Convert the measure to a required qualification instead of a scoring measure.
- Remove the measure.

Key for Tables 1-11:

<b>Rank order changed:</b> How many applications changed in ranked order by including that measure.	<b>Crossed funding line:</b> How many applications flipped across the TAB-approved funding line by including that measure.
<b>St. dev.:</b> Standard deviation; a measure of how clustered or spread out application scores are.	<b>Outliers:</b> Those denoted by letters (e.g., A or B) were adjusted during the scoring process while those denoted by numbers (e.g., 1 or 2) were not adjusted. There is no definition of an outlier; the numbered outliers are included in this analysis based on staff judgement.

**Table 1. Summary of Traffic Management Technologies Measure Performance (5 applications; 2 funded)**

Criteria	#	Measures	Max Points	# of applications:		St. Dev.	Outliers (None)
				Rank order changed	Crossed funding line*		
Regional Role	1A	Functional Classification	50	0	0	0	
	1B	Reg. Truck Corridor Study Tiers	50	0	0	14	
	1C	Integration with existing systems	50	2	0	9	
	1D	Coordination with Other Agencies	25	2	0	2	
Usage	2A	Daily person throughput	85	<u>4</u>	<u>1</u>	17	
	2B	Forecast 2040 average daily traffic	40	3	<u>1</u>	8	
Equity / Housing	3A	Socio-Economic	50	2	0	12	
	3B	Housing	50	0	0	11	
Infra Age	4	Infrastructure Age	75	3	<u>1</u>	22	
Congestion / Air Quality	5A	Vehicle delay reduced	<u>150</u>	3	<u>1</u>	<u>42</u>	
	5B	Kg of emissions reduced	50	2	<u>1</u>	9	
Safety	6A	Crashes reduced	50	2	0	19	
	6B	Safety Issues	<u>150</u>	<u>4</u>	<u>1</u>	28	
Multimodal	7	Transit, bicycle, or pedestrian project elements and connections	50	0	0	12	
Risk	8	Risk Assessment Form	75	2	<u>1</u>	10	
Cost Effect	9	Cost Effectiveness	100	3	<u>1</u>	19	
<b>TOTAL</b>			<b>1,100</b>			<b>79</b>	

\*The number indicates projects that moved above the funding line. For each such instance, another project moved below the funding line. This is the case on Tables 1-11.

Comments: Given the low number of applications (5), very little can be gleaned. This is the second consecutive cycle for which measure 1A saw all applications (3 and 5 applications, respectively) scored the full 50 points (adjusted to the maximum because the projects are all on A-minor arterials).

Key differences from 2018: No key differences are evident, given the minimal number of applications.

Sorted by Max Points		Max	Rank	Cross	St.
#	Measure	Pts	Change	Line	Dev
6B	Safety Issues	<u>150</u>	<u>4</u>	<u>1</u>	28
5A	Vehicle delay reduced	<u>150</u>	3	<u>1</u>	<u>42</u>
9A	Cost Effectiveness	100	3	<u>1</u>	19
2A	Throughput	85	<u>4</u>	<u>1</u>	17
4	Infrastructure Age	75	3	<u>1</u>	22
8	Risk Assessment	75	2	<u>1</u>	10
3A	Equity	50	2	0	12
3B	Housing	50	2	0	12
1A	Functional Class	50	0	0	0
1B	Truck Study	50	2	0	2
1C	Integration w/Systems	50	2	0	9
6A	Crashes reduced	50	2	0	19
7	Multimodal	50	0	0	12
5B	Emissions	50	2	<u>1</u>	9
2B	Forecast ADT	40	3	<u>1</u>	8
1D	Coordination/Agencies	25	2	0	2

**Table 2. Spot Mobility and Safety Measure Performance (10 applications; 4 funded)**

Criteria	#	Measures	Max Points	# of applications:		St. Dev.	Outliers (None)
				Rank order changed	Crossed funding line		
<i>Regional Role</i>	1A	Congestion, PA intersection conversion, CMSP	100	4	0	23	
	1B	Reg. Truck Corridor Study Tiers	75	5	<u>1</u>	35	
<i>Equity / Housing</i>	2A	Socio-Economic	50	3	<u>1</u>	17	
	2B	Housing	50	7	0	19	
<i>Congestion / Air Quality</i>	3A	Vehicle delay reduced	200	7	<u>1</u>	<b>79</b>	
	3B	Kg of emissions reduced	75	3	<u>1</u>	26	
<i>Safety</i>	4A	Crashes reduced	<b>225</b>	6	<u>1</u>	67	
	4B	Ped crash reduction	50	6	<u>1</u>	11	
<i>Multimodal</i>	5	Transit, bicycle, or pedestrian project elements and connections	100	<b>9</b>	<u>1</u>	27	
<i>Risk</i>	6	Risk Assessment Form	75	2	0	12	
<i>Cost Effect</i>	7	Cost Effectiveness	100	4	<u>1</u>	29	
<b>TOTAL</b>			<b>1,100</b>			122	

Comments: While the standard deviations are not unusually large, several measures did cause the majority of applications to change their rankings. Most notably, nine applications changed in ranking due to the Multimodal measure (Measure 5), including one that decreased by three spots. Since this measure only had a standard deviation of 27, it could be argued that vehicle delay reduction, with a standard deviation of 79 and impact on the ranking of seven projects, is the most impactful measure in the category. At least two projects\* changed rankings in each measure.

Measure 1B was also impactful in that the top three projects were the only projects that scored points (75, 65, and 75, respectively). Removal of that measure would cause those projects to be ranked, 3, 4, and 5, respectively.

Key differences from 2018: N/A. This is a new funding category.

Sorted by Max Points		Max	Rank	Cross	St.
#	Measure	Pts	Change	Line	Dev
4A	Crashes reduced	<b>225</b>	6	<u>1</u>	67
3A	Vehicle delay reduced	200	7	<u>1</u>	<b>79</b>
1A	Congestion, PA, CMSP	100	4	0	23
5	Multimodal	100	<b>9</b>	<u>1</u>	27
6	Cost Effectiveness	100	4	<u>1</u>	29
1B	Truck Study	75	5	<u>1</u>	35
3B	Emissions	75	3	<u>1</u>	26
6	Risk Assessment	75	2	0	12
3A	Equity	50	3	<u>1</u>	17
3B	Housing	50	7	0	19
4B	Ped crash reduction	50	6	<u>1</u>	12

\*it is not possible for exactly one project to change ranking.

**Table 3. Summary of Strategic Capacity Measure Performance (17 applications; 10 funded)**

Criteria	#	Measures	Max Points	# of applications:		St. dev.	Outliers
				Rank order changed	Crossed funding line		
Regional Role	1A	Congestion/PA Intersection Study	80	9	0	30	A
	1B	Connection to Total Jobs and Manufacturing/Distribution Jobs	50	8	0	16	B
	1C	Regional Truck Corridor Study	80	<b>12</b>	<b>1</b>	29	
Usage	2A	Daily person throughput	110	7	0	30	
	2B	Forecast 2040 average daily traffic	65	5	0	18	
Equity / Housing	3A	Socio-Economic	50	6	<b>1</b>	15	
	3B	Housing	50	5	0	18	
Infra.	4	Date of construction	40	5	0	12	
Congestion / Air Quality	5A	Vehicle delay reduced	100	3	0	26	
Safety	5B	Kg of emissions reduced	50	3	0	18	
	6	Crashes reduced	<b>120</b>	7	<b>1</b>	<b>34</b>	
Multimodal	6B	Ped crash reduced	30	5	0	8	
	7	Transit, bicycle, or pedestrian project elements and connections	100	7	0	19	
Risk Assess.	8	Risk Assessment Form	75	3	0	10	
Cost Effect.	9	Cost Effectiveness	100	10	0	23	
<b>TOTAL</b>			<b>1,100</b>			<b>154</b>	

Comments: Most measures were impactful, with all measures impacting the ranking of at least three out of 17 applications. Vehicle Delay (Measure 5A) seems to have underproduced, along Risk Assessment (Measure 8).

Measures with outliers:

- A. 1A. The total score is the highest of three separate components. The “Congestion on Adjacent Parallel component included an outlier (72% decrease) so the applications were scored proportionality to the second-highest project (56%). This improved the scores of five projects.
- B. 1B. Similarly, the total score here is the highest score of three different components. The “Employment within one mile” component included an outlier (10,285) so the applications were scored proportionality to the second-highest project (9,363). This improved the score for nine projects.

Key differences from 2018: None.

Sorted by Max Points					
#	Measure	Max Pts	Rank Change	Cross Line	St. Dev
6	Crashes reduced	<b>120</b>	7	<b>1</b>	<b>34</b>
2A	Throughput	110	7	0	30
7	Multimodal	100	7	0	19
5A	Vehicle Delay	100	3	0	26
9	Cost Effectiveness	100	10	0	23
1A	Congestion/PA	80	9	0	30
1C	Reg. Truck Study	80	<b>12</b>	<b>1</b>	29
8	Risk Assessment	75	3	0	10
2B	Forecast ADT	65	5	0	18
3A	Equity	50	6	<b>1</b>	15
3B	Housing	50	5	0	18
5B	Emissions	50	3	0	18
1B	Connection to Jobs	50	8	0	16
4	Construction date	40	5	0	12
6B	Ped crash reduced	30	5	0	8

**Table 4. Summary of Roadway Reconstruction / Modernization Measure Performance (17 applications submitted; 4 funded).**

Criteria	#	Measures	Max Points	# of applications:		St. Dev.	Outliers (None)
				Rank order changed	Crossed funding line		
<i>Regional Role</i>	1A	Connection to Total Jobs and Manufacturing/Distribution Jobs	65	11	0	11	
	1B	Reg. Truck Corridor Study Tiers	40	6	0	12	
<i>Usage</i>	2A	Daily person throughput	110	10	0	<b>26</b>	
	2B	Forecast 2040 average daily traffic	65	10	0	13	
<i>Equity / Housing</i>	3A	Socio-Economic	50	2	0	8	
	3B	Housing	50	3	0	20	
<i>Infrastructure Age</i>	4A	Date of construction	50	6	0	11	
	4B	Geometric, structural, or infrastructure deficiencies	125	7	0	23	
<i>Congestion / Air Quality</i>	5A	Vehicle delay reduced	50	8	0	8	
	5B	Kg of emissions reduced	30	8	0	8	
<i>Safety</i>	6A	Crashes reduced	<b>150</b>	<b>12</b>	<b>1</b>	<b>26</b>	
	6B	Proactive Ped Crash Reduction	30	3	0	6	
<i>Multimodal</i>	7	Transit, bicycle, or pedestrian project elements and connections	110	8	0	23	
<i>Risk Assess.</i>	8	Risk Assessment Form	75	2	0	10	
<i>Cost Effect.</i>	9	Cost Effectiveness	100	6	0	20	
<b>TOTAL</b>			<b>1,100</b>			<b>97</b>	

Comments: No surprising results.

Key differences from 2018: None.

<b>Sorted by Max Points</b>					
#	Measure	Max Pts	Rank Change	Cross Line	St. Dev
6	Crashes	<b>150</b>	<b>12</b>	<b>1</b>	<b>26</b>
4B	Deficiencies	125	7	0	23
2A	Throughput	110	10	0	<b>26</b>
7	Multimodal	110	8	0	23
9	Cost Effect.	100	6	0	20
8	Risk	75	2	0	10
1A	Jobs	65	11	0	11
2B	Forecast ADT	65	10	0	13
4A	Construction Date	50	6	0	11
3A	Equity	50	2	0	8
3B	Housing	50	3	0	20
5A	Delay reduced	50	8	0	8
1B	Truck Study	40	6	0	12
5B	Emissions	30	8	0	8
6B	Ped Crash	30	3	0	6

**Table 5. Summary of Bridges Measure Performance (7 applications submitted; 2 funded).**

Criteria	#	Measures	Max Points	# of applications:		St. Dev.	Outliers (None)
				Rank order changed	Crossed funding line		
<i>Regional Role</i>	1A	Distance to nearest parallel bridge	100	3	<u>1</u>	27	
	1B	Connection to Total Jobs and Manufacturing/Distribution Jobs	30	1	0	11	
	1C	Reg. Truck Corridor Study Tiers	65	4	0	33	
<i>Usage</i>	2A	Daily person throughput	100	5	<u>1</u>	26	
	2B	Forecast 2040 average daily traffic	30	1	0	8	
<i>Equity / Housing</i>	3A	Socio-Economic	50	3	0	10	
	3B	Housing	50	1	0	5	
<i>Infrastructure Condition</i>	4A	NBI Condition Rating	<b>300</b>	3	<u>1</u>	45	
	4B	Load-posting	100	5	<u>1</u>	<b>53</b>	
<i>Multimodal</i>	5	Transit, bicycle, or pedestrian project elements and connections	100	3	0	18	
<i>Risk Assessment</i>	6	Risk Assessment Form	75	1	0	10	
<i>Cost Effectiveness</i>	7	Cost Effectiveness	100	<u>6</u>	0	35	
<b>TOTAL</b>			<b>1,100</b>			<b>87</b>	

Comments: With only seven applications submitted, conclusions are difficult to draw. The category-specific measures (4A and 4B) are both very impactful, NBI condition (4A) because of its 300-point value and load-posting (4B) because of its all-or-none scoring. One unfunded project would likely have been funded had the bridge been load-posted.

Key differences from 2018: None.

Sorted by Max Points		Max	Rank	Cross	St.
#	Measure	Pts	Change	Line	Dev
4A	NBI Condition Rate	<b>300</b>	3	<u>1</u>	<b>45</b>
1A	Distance to Parallel	100	3	<u>1</u>	27
4B	Load-posting	100	5	<u>1</u>	53
7	Cost Effectiveness	100	<u>6</u>	0	35
2A	Throughput	100	5	<u>1</u>	26
5	Multimodal	100	3	0	18
6	Risk Assessment	75	1	0	10
1C	Heavy Commercial	65	4	0	33
3A	Equity	50	3	0	10
3B	Housing	50	1	0	5
1B	Connection to Jobs	30	1	0	11
2B	Forecast ADT	30	1	0	8



**Table 6. Summary of Transit Expansion Measure Performance (10 applications submitted; 4 funded\*).**

Criteria	#	Measures	Max Points	# of applications:		St. Dev.	Outliers (None)
				Rank order changed	Crossed funding line		
<i>Regional Role</i>	1A	Connection to Jobs and Educational Institutions	50	4	<u>1</u>	17	
	1B	Average number of weekday transit trips connected to the project	50	4	<u>1</u>	16	
<i>Usage</i>	2	New Annual Riders	<b>350</b>	<b>6</b>	<b>1</b>	<b>97</b>	
<i>Equity / Housing</i>	3A	Socio-Economic	150	2	<u>1</u>	13	
	3B	Housing	50	0	0	5	
<i>Emissions Reduction</i>	4	Total emissions reduced	200	0	0	55	
<i>Multimodal</i>	5	Bicycle and pedestrian elements and connections	100	4	0	17	
<i>Risk Assessment</i>	6	Risk Assessment Form	50	0	0	5	
<i>Cost Effectiveness</i>	7	Cost Effectiveness	100	2	0	27	
<b>TOTAL</b>			<b>1,100</b>			<b>167</b>	

\*Only three projects were funded, with the top-ranked project skipped due to limitations on funding of BRT projects and projects on the same corridor. For the purpose of this analysis, this project is considered funded.

Comments: New Annual Riders (Measure 2) proved to be a key differentiator, as six of ten applications changed rank with its removal. This makes sense given its 350-point value. Measure 4, Emissions Reduction, worth 200 points, did not change the rank order of any project. However, the spread of the scores here is significant, indicating that this lack of impact is an anomaly. Eight of the ten applications scored 50 out of 50 in risk assessment, though this could change in 2022 if all applicants are required to respond to the public outreach question.

Key differences from 2018: Measure 4 was more impactful in 2018 (changed rank of 3 out of 9 applications), but as discussed above, this cycle's lack of impact was probably an anomaly.

<u>Sorted by Max Points</u>		Max	Rank	Cross	St.
#	Measure	Pts	Change	Line	Dev
2	New Riders	<b>350</b>	<b>6</b>	<b>1</b>	<b>97</b>
4	Emissions	200	0	0	55
3A	Equity	150	2	<u>1</u>	13
5	Multimodal	100	4	0	17
7	Cost Effect.	100	2	0	27
3B	Housing	50	0	0	5
1A	Jobs/Edu	50	4	<u>1</u>	17
1B	Trips	50	4	<u>1</u>	16
6	Risk Assessment	50	0	0	5

**Table 7. Summary of Transit Modernization Measure Performance (9 applications submitted; 6 funded\*).**

Criteria	#	Measures	Max Points	# of applications:		St. Dev.	Outliers
				Rank order changed	Crossed funding line		
<i>Regional Role</i>	1A	Connection to Jobs and Educational Institutions	50	3	0	16	1
	1B	Average number of weekday transit trips connected to the project	50	3	0	15	A
<i>Usage</i>	2	Total existing annual riders	<b>325</b>	5	0	<b>94</b>	B
<i>Equity / Housing</i>	3A	Socio-Economic	125	3	0	19	
	3B	Housing	50	0	0	10	
<i>Emissions Reduction</i>	4	Description of emissions reduced	50	4	0	16	
<i>Service and Customer Improvements</i>	5	Project improvements for users	200	2	0	30	
<i>Multimodal</i>	6	Bicycle and pedestrian elements and connections	100	<b>6</b>	0	36	
<i>Risk</i>	7	Risk Assessment Form	50	2	0	16	
<i>Cost Effect.</i>	8	Cost Effectiveness	100	3	0	35	
<b>TOTAL</b>			<b>1,100</b>			<b>146</b>	

\*Only four projects were funded, with the third- and fifth- ranked projects skipped due to limitations on funding of BRT projects. For the purpose of this analysis, these projects are considered funded.

Comments: There are slight diversions from expectations. For example, Measure 5, at 200 points, appears to be one of the least-impactful measures. But for the most part, the performance is consistent with expectations.

Measures with outliers:

1. Top scoring project scored 50 with no others scoring over 9.
- A. For existing trips component, treated farebox upgrade (regional) and Gold Line (magnitude) as outliers with full points. Provided full points to Burnsville Bus Garage Modernization and adjusted the remaining projects proportionate to that.
- B. Treated farebox upgrade (regional) and Gold Line (magnitude) as outliers with full points. Provided full points to Burnsville Bus Garage Modernization and adjusted the remaining projects proportionate to that.

Key differences from 2018: Measure 5 was far more impactful in 2018 (four of 10 applications changed and a standard deviation of 84).

<b>Sorted by Max Points</b>					
#	Measure	Max Pts	Rank Change	Cross Line	St. Dev
2	Existing Riders	<b>325</b>	5	0	<b>94</b>
5	User Improvements	200	2	0	30
3A	Equity	125	3	0	19
6	Multimodal	100	<b>6</b>	0	36
8	Cost Effectiveness	100	3	0	35
3B	Housing	50	0	0	10
1A	Jobs/Edu	50	3	0	16
1B	Trips	50	3	0	15
4	Emissions	50	4	0	16
7	Risk Assessment	50	2	0	16

**Table 8. Summary of Travel Demand Management Measure Performance (4 applications submitted; 4 funded).**

Criteria	#	Measures	Max Points	# of applications:		St. Dev.	Outliers (None)
				Rank order changed	Crossed funding line		
<i>Regional Role</i>	1	Ability to capitalize on existing regional transportation facilities and resources	<u>200</u>	0	N/A	34	
<i>Usage</i>	2	Users	100	0	N/A	33	
<i>Equity / Housing</i>	3A	Socio-Economic	100	0	N/A	10	
	3B	Housing	50	0	N/A	1	
<i>Congestion</i>	4A	Congested roadways	150	0	N/A	61	
<i>Reduction / Air Quality</i>	4B	VMT reduced	150	0	N/A	<u>69</u>	
<i>Innovation</i>	5	Project innovations and geographic expansion	<u>200</u>	0	N/A	62	
<i>Risk Assessment</i>	6A	Technical capacity of organization	25	0	N/A	3	
	6B	Continuation of project after initial federal funds are expended	25	0	N/A	11	
<i>Cost Effectiveness</i>	7	Cost Effectiveness	100	0	N/A	14	
<b>TOTAL</b>			<b>1,100</b>			<b>191</b>	

Comments: Only four applications were submitted and the closest total scoring gap between any two of them was 135 points. Therefore, no single scoring measure impacted the rankings. This appears to be more an issue of overall project quality than ineffectiveness of any measure. The higher-valued scoring measures tend to create separation that would be meaningful with more evenly-matched projects, or simply more projects.

Key differences from 2018: In 2018, 13 applications were submitted. Therefore, there were closer scoring gaps and the measures were difference making. The standard deviations in 2020 follow a nearly identical pattern to 2018.

Sorted by max points					
#	Measure	Max Pts	Rank Change	Cross Line	St. Dev
5	Innovation/Expansion	<u>200</u>	0	0	62
1	Facilities/Resources	<u>200</u>	0	0	34
4A	Congestion	150	0	0	61
4B	VMT reduced	150	0	0	<u>69</u>
7	Cost Effectiveness	100	0	0	14
2	Users	100	0	0	33
3A	Equity	100	0	0	10
3B	Housing	50	0	0	1
6A	Technical Capacity	25	0	0	3
6B	Project continuation	25	0	0	11

**Table 9. Summary of Multiuse Trails and Bicycle Facilities Measure Performance (37 applications submitted; 11 funded).**

Criteria	#	Measures	Max Points	# of applications:		St. Dev.	Outliers (None)
				Rank order changed	Crossed funding line		
<i>Regional Role</i>	1	Identify location of project relative to RBTN*	<u>200</u>	<u>31</u>	<u>2</u>	39	
<i>Potential Usage</i>	2	Existing population and employment within 1 mile	<u>200</u>	28	0	<u>42</u>	
<i>Equity / Housing</i>	3A	Socio-Economic	70	25	0	18	
	3B	Housing	50	21	0	13	
<i>Deficiencies and Safety</i>	4A	Gaps closed, barriers removed, and / or improved connectivity between jurisdictions	100	23	1	13	
	4B	Deficiencies corrected or safety problems addressed	150	26	<u>2</u>	19	
<i>Multimodal</i>	5	Transit or pedestrian elements and connections	100	22	0	10	
<i>Risk Assessment</i>	6	Risk Assessment Form	130	25	1	19	
<i>Cost Effectiveness</i>	7	Cost Effectiveness	100	30	<u>2</u>	22	
<b>TOTAL</b>			<b>1,100</b>			<b>98</b>	

\*Regional Bicycle Transportation Network

Comments: As is always the case, this category has had significant “bunching” of scores near the funding line (particularly between the lowest-scoring funded project and the four highest-scoring unfunded projects). This is due at least in part to the number of applications. The measure that stands out the most is Measure 1, Location Relative to the RBTN, which changed the rank order of all but six applications. And while it only caused two projects to drop below (and, therefore, two to move above) the funding line, it easily had the highest average change in ranking, including one project ranked 32 that would be ranked 12 without the measure. This relates to the number of applications for projects within/along an RBTN corridor or alignment (27, with eight having direct connection and two not connected.) those projects with no connection to the RBTN (50 points) are greatly impacted. The standard deviation is not exceptionally large and it appears that the reason for the impact on 31 rankings (including 31 of 34 outside of the top-3) is because one low-scoring project can cause a large shift in rank as evidenced by the average rank change, amongst those that changed, of 4.6, while no other measure has a rank change higher than 2.75.

Each measure changed the rank order of at least 20 applications and no clear cause of the “bunching” problem, aside from volume of applications, is evident.

Key differences from 2018: None.

Sorted by Max Points					
#	Measure	Max Pts	Rank Change	Cross Line	St. Dev
1	RBTN	<u>200</u>	<u>31</u>	<u>2</u>	39
2	Pop/Employment	<u>200</u>	28	0	<u>42</u>
4B	Deficiencies	150	26	<u>2</u>	19
6	Risk Assessment	130	25	1	19
4A	Gaps/Barriers	100	23	1	13
5	Multimodal	100	22	0	10
7	Cost Effectiveness	100	30	<u>2</u>	22
3A	Equity	70	25	0	18
3B	Housing	50	21	0	13

**Table 10. Summary of Pedestrian Facilities Measure Performance (8 applications submitted; 8 funded).**

Criteria	#	Measures	Max Points	# of applications:		St. Dev.	Outliers
				Rank order changed	Crossed funding line		
<i>Regional Role</i>	1	Connection to Jobs and Educational Institutions	150	<u>6</u>	N/A	<u>53</u>	A, 1
<i>Potential Usage</i>	2	Existing population within ½ mile	150	4	N/A	42	1
<i>Equity / Housing</i>	3A	Socio-Economic	70	2	N/A	25	1
	3B	Housing	50	3	N/A	14	
<i>Deficiencies and Safety</i>	4A	Barriers overcome or gaps filled	120	2	N/A	16	
	4B	Deficiencies corrected or safety problems addressed	<u>180</u>	<u>6</u>	N/A	49	
<i>Multimodal</i>	5	Transit or bicycle elements and connections	150	2	N/A	40	1
<i>Risk Assessment</i>	6	Risk Assessment Form	130	3	N/A	33	
<i>Cost Effectiveness</i>	7	Cost Effectiveness	100	2	N/A	32	
<b>TOTAL</b>			<b>1,100</b>			<b>151</b>	

Comments: Since all projects were funded no measures led to projects crossing the funding line.

Measures with outliers:

- A. The total employment and enrollment of the City of Minneapolis Phillips Neighborhood Pedestrian project was more than triple that of the second-highest-scoring project. Therefore, the top-two projects were awarded full points with the remaining projects adjusted proportionally to the second-ranked project.
  1. The top-scoring project was dominant to the point that it scored more than double the points of any competitors on four measures (even after the adjustment on measure 1, the top two were still nearly triple the third project). While this reduced the spread for the other projects, it did not eliminate it and measures 2, 3A, and 5 probably did not need to be adjusted. However, the overall spread of projects 2-8 would have been truer had project 1 been removed and recorded as scoring 1,100 points.

Key differences from 2018: None.

<b>Sorted by Max Points</b>					
#	Measure	Max Pts	Rank Change	Cross Line	St. Dev
4B	Deficiencies/Safety	<u>180</u>	<u>6</u>	0	49
1	Jobs/Edu	150	<u>6</u>	0	<u>53</u>
2	Population	150	4	0	42
5	Multimodal	150	2	0	40
6	Risk Assessment	130	3	0	33
4A	Gaps/Barriers	120	2	0	16
7	Cost Effectiveness	100	2	0	32
3A	Equity	70	2	0	25
3B	Housing	50	3	0	14

**Table 11. Summary of Safe Routes to School Measure Performance (6 applications submitted; 6 funded).**

Criteria	#	Measures	Max Points	# of applications:		St. Dev.	Outliers (None)
				Rank order changed	Crossed funding line		
SRST Elements	1A	Describe how the project addresses 5 E's* of SRST Program	150	2	N/A	18	
	1B	SRTS Plan	100	0	N/A	20	
Usage	2A	Average share of student population that bikes or walks	<b>170</b>	<b>5</b>	N/A	<b>61</b>	
	2B	Student population within school's walkshed	80	2	N/A	26	
Equity / Housing	3A	Socio-Economic	70	0	N/A	18	
	3B	Housing	50	2	N/A	10	
Deficiencies / Safety	4A	Barriers overcome or gaps filled	100	4	N/A	30	
	4B	Deficiencies corrected or safety or security addressed	150	4	N/A	28	
Public Engagement / Risk Assessment	5A	Public engagement process	45	4	N/A	9	
	5B	Risk Assessment Form	85	2	N/A	15	
Cost Effectiveness	6	Cost Effectiveness	100	2	N/A	30	
<b>TOTAL</b>			<b>1,100</b>			<b>104</b>	

\*The 5 Es of Safe Routes to School include Evaluation, Engineering, Education, Encouragement, and Enforcement.

Comments: Criterion 1 changed by adding 1B, SRTS Plan, which did not change any rank order. 1A moved from 250 to 150 points. Given the small sample size (eight in 2018 and six in 2020). It is difficult to state definitively, but the impact of the measure seems to have been reduced.

Key differences from 2018: As alluded to above, measure 1A, in being reduced from 250 points to 150 points changed the rank order of 6 applications in 2018 and only 2 in 2020. Those 100 points were moved to 1B, which does not seem to have been impactful.

<b>Sorted by Max Points</b>					
#	Measure	Max Pts	Rank Change	Cross Line	St. Dev
2A	Students that walk/bike	<b>170</b>	<b>5</b>	0	<b>61</b>
1A	5 E's	150	2	0	18
4B	Deficiencies/Safety	150	4	0	28
4A	Gaps/Barriers	100	4	0	30
1B	SRTS Plan	100	0	0	20
6	Cost Effectiveness	100	2	0	30
5B	Risk Assessment	85	2	0	15
2B	Students in walkshed	80	2	0	26
3A	Equity	70	0	0	18
3B	Housing	50	2	0	10
5A	Public engagement	45	4	0	9