

Roadway Reconstruction/Modernization

Prioritizing Criteria and Measures

September 18, 2019

Definition: A roadway project that does not add thru-lane capacity, but reconstructs, reclaims, and/or modernizes a corridor with improved safety, multimodal, or mobility elements (e.g., new turn lanes, traffic signal, or roundabout). Routine maintenance including mill and overlay projects are not eligible. Projects must be located on a non-freeway principal arterial or A-minor arterial functionally classified roadway, consistent with the latest TAB approved functional classification map.

Examples of Roadway Reconstruction/Modernization Projects:

- Intersection improvements, including innovative intersection designs
- Alternative intersections such as unsignalized or signalized reduced conflict intersections (one intersection or multiple intersections)
- Interchange reconstructions that do not involve new ramp movements or added thru lanes
- Turn lanes
- Two-lane to three-lane conversions (with a continuous center turn lane)
- Four-lane to three-lane conversions
- Roundabouts
- Addition or replacement of traffic signals
- Shoulder improvements
- Strengthening a non-10-ton roadway
- Raised medians, frontage roads, access modifications, or other access management
- Roadway improvements with the addition of multimodal elements
- Roadway improvements that add safety elements
- New alignments that replace an existing alignment and do not expand the number of lanes

Scoring:

Criteria and Measures	Points	% of Total Points
1. Role in the Regional Transportation System and Economy	105	10%
Measure A - Connection to Total Jobs and Manufacturing/ Distribution Jobs	65	
Measure B - Regional Truck Corridor Study Tiers	40	
2. Usage	175	16%
Measure A - Current daily person throughput	110	
Measure B - Forecast 2040 average daily traffic volume	65	
3. Equity and Housing Performance	100	9%
Measure A - Benefits and outreach to disadvantaged populations	50	
Measure B - Housing Performance Score/ affordable housing connection	50	
4. Infrastructure Age/Condition	175	16%
Measure A - Date of construction	50	
Measure B - Geometric, structural, or infrastructure deficiencies	125	

Criteria and Measures	Points	% of Total Points
5. Congestion Reduction/Air Quality	80	7%
Measure A - Vehicle delay reduced	50	
Measure B - Kg of emissions reduced	30	
6. Safety	180	16%
Measure A - Crashes reduced	150	
Measure B – Pedestrian Crash Reduction (Proactive)	30	
7. Multimodal Elements and Existing Connections	110	10%
Measure A - Transit, bicycle, or pedestrian project elements and connections	110	
8. Risk Assessment	75	7%
Measure A- Risk Assessment Form	75	
9. Cost Effectiveness	100	9%
Measure A – Cost effectiveness (total points awarded/total project cost)	100	
Total	1,100	

Role in the Regional Transportation System and Economy (170 Points)

Tying regional policy (Thrive MSP2040) to the Regional Solicitation, this criterion measures the project’s ability to serve a transportation purpose within the regional transportation system and economy based on how it connects to employment, manufacturing/distribution-related employment, and post-secondary students; and how it aligns with the Regional Truck Corridor Study.

- A. **MEASURE:** Reference the “Regional Economy” map generated at the beginning of the application process. Report the existing employment and manufacturing/distribution-related employment, and post-secondary students enrolled within one mile, as depicted on the “Regional Economy” map.

RESPONSE (Data from the “Regional Economy” map):

- Existing Employment within 1 Mile: _____ (Maximum of 65 points)
- Existing Manufacturing/Distribution-Related Employment within 1 Mile: _____ (Maximum of 65 points)
- Existing Post-Secondary Students within 1 Mile: _____ (Maximum of 40 points)

Upload the “Regional Economy” map used for this measure.

SCORING GUIDANCE (65 Points)

All Census block groups that are included within or intersect the buffer area around the project will be included.

The applicant with the highest existing total employment will receive the full points. Remaining projects will receive a proportionate share of the full points. For example, if the application being scored had 1,000 workers within one mile and the top project had 1,500 workers, this applicant would receive

$(1,000/1,500)*65$ points or 43 points.

The applicant with the highest existing manufacturing/distribution-related employment will receive the full points. Remaining projects will receive a proportionate share of the full points equal to the existing manufacturing/distribution-related employment within one mile of the project being scored divided by the project with the highest manufacturing/distribution-related employment within one mile multiplied by the maximum points available for the measure (30). For example, if the application being scored had 1,000 manufacturing/distribution-related workers within one mile and the top project had 1,500 manufacturing/distribution-related workers, this applicant would receive $(1,000/1,500)*65$ points or 43 points.

The applicant with the highest number of post-secondary students will receive 30 points. Remaining projects will receive a proportionate share of the 30 points. For example, if the application being scored had 1,000 students within one mile and the top project had 1,500 students, this applicant would receive $(1,000/1,500)*40$ points or 27 points.

The scorer will assess if the applicant would score highest with the total employment part of the measure, the manufacturing/distribution employment part of the measure, or the education part of the measure and give the applicant the highest of the three scores out of a maximum of 65 points.

Note: Due to the use of multiple sub-measures, two applicants can receive the full 65 points.

- B. **MEASURE:** This criterion relies on the results on the Regional Truck Corridor Study, which prioritized all principal and minor arterials based on truck volume, truck percentage of total traffic, proximity to freight industry clusters, and proximity to regional freight terminals. (40 points)

Use the final study report for this measure:

<https://metro council.org/Transportation/Planning-2/Transit-Plans,-Studies-Reports/Highways-Roads/Truck-Freight-Corridor-Study.aspx>

RESPONSE: (Select one for your project, based on the Regional Truck Corridor Study):

- Along Tier 1: Miles (to the nearest 0.1 miles) : _____
- Along Tier 2: Miles (to the nearest 0.1 miles) : _____
- Along Tier 3: Miles (to the nearest 0.1 miles) : _____
- The project provides a direct and immediate connection (i.e., intersects) with either a Tier 1, Tier 2, or Tier 3 corridor:
- None of the tiers:

SCORING GUIDANCE (40 Points)

Applicants will be awarded points as assigned in the above tiers:

- Projects along Tier 1: 40 points
- Projects along Tier 2: 30 points
- Projects along Tier 3: 20 points
- Projects that that provide a direct and immediate connection to a corridor: 10 points.

- None of the tiers: 0 points

If no applicant is along Tier 1, the top-scoring application(s) will be adjusted to 40 points, with the others adjusted proportionately.

Note: Due to the use of tiered scoring, multiple applications can receive the full points.

2. Usage (175 Points)

This criterion quantifies the project's potential impact by measuring the current daily person throughput and future vehicular traffic that will be served by the project. These roadway users directly benefit from the project improvements on the A-minor arterial or non-freeway principal arterial. For interchange reconstruction projects, the cross-street traffic volumes should be used instead of the mainline volumes.

- A. **MEASURE:** The applicant must identify the location along the project length and provide the current AADT volume from the MnDOT 50-series maps (select Twin Cities Metro Area Street Series under Traffic Volume (AADT)) and existing transit routes that travel on the road (reference "Transit Connections" map). Ridership data will be provided by the Metropolitan Council staff, if public transit is currently provided on the project length. Metropolitan Council staff will calculate the current daily person throughput at one location along the A-minor arterial or non-freeway principal arterial project length using the current average annual daily traffic (AADT) volume and average annual ridership.

- Current Daily Person Throughput = (current average annual daily traffic volume x 1.30 vehicle occupancy) + average annual daily transit ridership (2019)

RESPONSE:

- Location: _____
- Current AADT volume: _____
- Existing Transit Routes on the Project: _____

Upload "Transit Connections" map.

SCORING GUIDANCE (110 Points)

The applicant with highest current daily person throughput will receive the full points for the measure. Remaining projects will receive a proportionate share of the full points. For example, if the application being scored had a daily person throughput of 1,000 people and the top project had a daily person throughput of 1,500 people, this applicant would receive $(1,000/1,500) * 110$ points or 73 points.

- B. **MEASURE:** Provide the forecast (2040) average daily traffic volume at the same location along the A-minor arterial or non-freeway principal arterial project length, as identified in the previous measure. The applicant may choose to use a county or city travel demand model based on the Metropolitan Council model to identify the forecast (2040) average daily traffic volume or have Metropolitan Council staff determine the forecast volume using the Metropolitan Council model and project location. Respond as appropriate to the use of one type of forecast model.

RESPONSE:

- Use Metropolitan Council model to determine forecast (2040) ADT volume
- If checked, METC Staff will provide Forecast (2040) ADT volume

OR

RESPONSE:

- Identify the approved county or city travel demand model to determine forecast (2040) ADT volume: _____
- Forecast (2040) ADT volume : _____

SCORING GUIDANCE (65 Points)

The applicant with the highest forecast (2040) ADT volume will receive the full points for the measure. Remaining projects will receive a proportionate share of the full points. For example, if the application being scored had a daily forecast of 28,000 vehicles and the top project had a daily forecast of 32,000 vehicles, this applicant would receive $(28,000/32,000)*65$ points or 57 points.

3. Equity and Housing Performance (100 Points)

This criterion addresses the [Council's role in advancing equity](#) by examining how a project directly provides benefits to, or impacts (positive and negative) low-income populations, people of color, people with disabilities, youth and the elderly. The criterion evaluates whether the applicant engaged these populations to identify transportation needs and potential solutions and how the project will address these identified needs. The criterion also evaluates a community's overall efforts to implement affordable housing and how the project improves multimodal access to affordable housing residents.

A. **MEASURE:** Socio-Economic Equity

1. **Sub-measure:** Equity Population Engagement (0 to 20 points): A successful project is one that is the result of active engagement of low-income populations, people of color, persons with disabilities, youth and the elderly. Engagement should occur prior to and during a project's development, with the intent to provide direct benefits to, or solve, an expressed transportation issue, while also limiting and mitigating any negative impacts. Describe and map the location of any low-income populations, people of color, disabled populations, youth or the elderly within a ½ mile of the proposed project. Describe how these specific populations were engaged and provided outreach to, whether through community planning efforts, project needs identification, or during the project development process. Describe what engagement methods and tools were used and how the input is reflected in the projects' purpose and need and design. Elements of quality engagement include: outreach and engagement to specific communities and populations that are likely to be directly impacted by the project; techniques to reach out to populations traditionally not involved in community engagement related to transportation projects; feedback from these populations identifying potential positive and negative elements of the proposed project through engagement, study recommendations, or plans that provide feedback from populations that may be impacted by the proposed project. If relevant, describe how NEPA or Title VI regulations will guide engagement activities.

(Limit 1,400 characters; approximately 200 words):

2. **Sub-measure:** Equity Population Benefits and Impacts (0 to 30 points): A successful project is one that has been designed to provide direct benefits to low-income populations, people of color, persons with disabilities, youth and the elderly. All projects must mitigate potential negative benefits as required under federal law. Projects that are designed to provide benefits go beyond the mitigation requirement to proactively provide transportation benefits and solve transportation issues experienced by Equity populations.

a. (0 to 30 points) Describe the project’s benefits to low-income populations, people of color, children, people with disabilities, and the elderly. Benefits could relate to pedestrian and bicycle safety improvements; public health benefits; direct access improvements for residents or improved access to destinations such as jobs, school, health care or other; travel time improvements; gap closures; new transportation services or modal options, leveraging of other beneficial projects and investments; and/or community connection and cohesion improvements. Note that this is not an exhaustive list.

(Limit 2,800 characters; approximately 400 words):

b. (-10 to 0 points) Describe any negative impacts to low-income populations, people of color, children, people with disabilities, and the elderly created by the project, along with measures that will be taken to mitigate them. Negative impacts that are not adequately mitigated can result in a reduction in points.

(Limit 2,800 characters; approximately 400 words):

Below is a list of negative impacts. Note that this is not an exhaustive list.

- Increased difficulty in street crossing caused by increased roadway width, increased traffic speed, wider turning radii, or other elements that negatively impact pedestrian access.
- Increased noise.
- Decreased pedestrian access through sidewalk removal / narrowing, placement of barriers along the walking path, increase in auto-oriented curb cuts, etc.
- Project elements that are detrimental to location-based air quality by increasing stop/start activity at intersections, creating vehicle idling areas, directing an increased number of vehicles to a particular point, etc.
- Increased speed and/or “cut-through” traffic.
- Removed or diminished safe bicycle access.
- Inclusion of some other barrier to access to jobs and other destinations.

- Displacement of residents and businesses.
 - Mitigation of temporary construction/implementation impacts such as dust; noise; reduced access for travelers and to businesses; disruption of utilities; and eliminated street crossings.
 - Other
3. **Sub-measure: Bonus Points (0 to 25 points)** Those projects that score at least 80% of the maximum total points available through measures A and B will be awarded bonus points based on the geographic location of the project. These points will be assigned as follows, based on the highest-scoring geography the project contacts:
- a. 25 points to projects within an Area of Concentrated Poverty with 50% or more people of color
 - b. 20 points to projects within an Area of Concentrated Poverty
 - c. 15 points to projects within census tracts with the percent of population in poverty or population of color above the regional average percent
 - d. 10 points for all other areas

Upload the “Socio-Economic Conditions” map used for this measure.

RESPONSE (Select one, based on the “Socio-Economic Conditions” map):

- Project is located in an Area of Concentrated Poverty where 50% or more of residents are people of color (ACP50):
- Project is located in an Area of Concentrated Poverty:
- Project’s census tracts are above the regional average for population in poverty or population of color:
- Project located in a census tract that is below the regional average for population in poverty or populations of color, or includes children, people with disabilities, or the elderly:

SCORING GUIDANCE (50 Points)

Each application will be qualitatively scored based on the available points for each measure and will receive the number of points awarded. If the applicant receives at least 80% of the available points, i.e., 40 points for the Roadway applications, the project will receive Bonus points as described under Measure C. If an applicant qualifies for Bonus points it will result in a Socio-Economic Equity score of more than the total points available.

- B. **MEASURE:** Projects will be scored based on two housing measures: 1. the 2019 Housing Performance Score for the city or township in which the project is located (40 points) and 2. the project’s connection to affordable housing (10 points) as described below.

Part 1 (40 points): Housing Performance Score

A city or township’s housing performance score is calculated annually by the Metropolitan Council using data from four categories: new affordable or mixed-income housing completed in the last ten years; preservation projects completed in the last seven years and/or substantial rehabilitation projects completed in the last three years; housing program participation and production, and housing policies and ordinances; and characteristics of the existing housing stock. Data for the housing performance scores are updated each year by the Council, and the city or township is provided with an opportunity to review and revise the information.

Council staff will use the most current housing score for each city or township. If the project is located in more than one jurisdiction, the points will be awarded based on a weighted average using length or population of the project in each jurisdiction. For stand-alone intersection, bridge, underpass, and interchange projects, a one-mile radius-buffer will be drawn around the project. If the radius-buffer enters more than one jurisdiction, the points will be awarded based on the proportionate population of the Census blocks in each jurisdiction that are all or partially located in the area within the one-mile radius-buffer. If a project is located in a city or township with no allocation of affordable housing need (either there is no forecasted household growth or the area does not have land to support sewered development), the project will not be disadvantaged by this measure and the project's total score will be adjusted during scoring to remove this scoring measure.

RESPONSE: (NOTE: The below bullets vary slightly by funding category)

- City/Township: _____
- Total project cost: _____
- Length of Segment (For stand-alone projects, enter population from Regional Economy map) within each City/Township: _____
- Percent of total funds to be spent within City/Township: _____

Part 2 (10 points): Affordable Housing Access

This measure is a qualitative scoring measure. Describe and map any affordable housing developments—planned, under construction or existing, within ½ mile of the proposed project. The applicant should note the development stage, number of units, number of bedrooms per unit, and level of affordability using 2019 affordability limits. Also note whether the affordability is guaranteed through funding restrictions (i.e. LIHTC, 4d) or is unsubsidized, if housing choice vouchers are/will be accepted, and if there is a fair housing marketing plan required or in place.

Describe how the proposed project will improve or impact access for residents of the affordable housing locations within ½ mile of the project. This should include a description of improved access by all modes, automobiles, transit, bicycle and pedestrian access. Since residents of affordable housing are more likely not to own a private vehicle, higher points will be provided to roadway projects that include other multimodal access improvements.

RESPONSE:

(Limit 2,100 characters; approximately 300 words):

SCORING GUIDANCE (50 Points)

Part 1 (40 points): The applicant with the highest 2019 Housing Performance Score will receive the full points. Remaining projects will receive a proportionate share of the full points. For example, if the application being scored had a Housing Performance Score of 55 and the top project had a Housing Performance Score of 90, this applicant would receive $(55/90)*40$ points or 24 points.

Projects will use the city Housing Performance Score based on the project location. If a project is located in more than one jurisdiction, the points will be awarded based on a weighted average of the city or township scores for the project location based on the length of the project in each jurisdiction. For stand-alone roadway (intersection, bridge, underpass, and interchange) projects, a one-mile radius-buffer will be drawn around the project. If the radius-buffer enters more than one jurisdiction, the points

will be awarded based on the proportionate population of the Census blocks in each jurisdiction that are all or partially located in the area within the one-mile radius-buffer.

If a project is located in a city or township with no allocation of affordable housing need (either there is no forecasted household growth or the area does not have land to support sewered development), the project's total score will be adjusted as a result. If this is the case, the hold-harmless method will be used: the total points possible in the application will be 960 instead of 1,000. The total points awarded through the rest of the application (900 as a hypothetical example) will be divided by 960, then multiplied by 1,000. Therefore, a project scoring 900 out of 960, will equate to 938 points on a 1,000-point scale. If a portion of the project is located in a city with an affordable housing allocation and the other portion is located in a township with no affordable housing allocation, then a combination of the Housing Performance Score (or weighted average) and the hold-harmless method should be used. This will result in a total score that will be somewhere between 960 and 1,000; then the score will need to be adjusted to fit a 1,000-point scale. NOTE: Any community without a Housing Performance Score in 2018 will be awarded the better of its new score in 2020 and the above method. NOTE: in these cases, the raw points from Part 2 will be included in the 960-point total.

Part 2 (10 points): The project that best provides meaningful improvements to access to the affordable housing units will receive the full 10 points. Multiple projects may receive the highest possible score of 10 points based on this assessment. Remaining projects will receive a share of the full points at the scorer's discretion.

Final Score (50 points): The scores in Parts 1 and 2 will be totaled. If no application gets 50 points, the highest-scoring project will be awarded 50 points, with other projects adjusted proportionately.

Note: Metropolitan Council staff will score this measure.

4. Infrastructure Age/Condition (175 Points)

This criterion will assess the age of the roadway facility being improved. Roadway improvement investments should focus on the higher needs of an aging facility, whereas, improvements to a recently reconstructed roadway does not display an efficient use of funds.

- A. **MEASURE:** Identify the year of the roadway’s original construction or most recent reconstruction. If the reconstruction date is used for the roadway, a full reconstruction must have been completed during the indicated year. Routine maintenance, such as an overlay or sealcoating project does not constitute a reconstruction and should not be used to determine the infrastructure age.

If construction was completed over several years, enter the segment lengths for each year. The average age will be calculated.

RESPONSE:

- Year of original roadway construction or most recent reconstruction: _____
- Location(s) used: _____

SCORING GUIDANCE (50 Points)

The applicant with the oldest roadway will receive full points. Remaining projects will receive a proportionate share of the full points. For example, if the application being scored was constructed 41 years ago and the oldest project was constructed 48 years ago, this applicant would receive $(41/48) * 50$ points or 43 points.

Note: Because of the reporting of year of construction, it is possible for multiple projects to receive the full allotment of 50 points.

- B. **MEASURE:** Select the geometric, structural, or infrastructure deficiencies listed below that will be improved as part of this project, as reflected in the project cost estimate. (125 Points)

RESPONSE (Select all that apply. Please identify the proposed improvement):

- Improved roadway to better accommodate freight movements: 0-15 pts
 - *RESPONSE (Limit 700 characters; approximately 100 words):*
- Improved clear zones or sight lines: 0-10 pts
 - *RESPONSE (Limit 700 characters; approximately 100 words)*
- Improved roadway geometrics: 0-15 pts
 - *RESPONSE (Limit 700 characters; approximately 100 words)*
- Access management enhancements: 0-20 pts
 - *RESPONSE (Limit 700 characters; approximately 100 words)*
- Vertical/horizontal alignment improvements: 0-10 pts
 - *RESPONSE (Limit 700 characters; approximately 100 words)*
- Improved stormwater mitigation: 0-10 pts
 - *RESPONSE (Limit 700 characters; approximately 100 words)*
- Signals/lighting upgrades: 0-10 pts
 - *RESPONSE (Limit 700 characters; approximately 100 words)*
- Other Improvements: 0-10 pts

- *RESPONSE (Limit 700 characters; approximately 100 words)*

SCORING GUIDANCE (125 Points)

Within each improvement sub-measure, the answer most responsive to the need will receive full points (e.g., the top project that improves clear zones or sight lines will receive 10 points), with each remaining project receiving a share of the full points at the scorer's discretion. It is possible for more than one project to receive maximum points for a sub-measure.

The highest-scoring application for this measure will be adjusted to receive the full 125 points. Remaining projects will receive a proportionate share of the full points equal to the points for the project being scored divided by the points assigned to the highest-scoring project multiplied by the maximum points available for the measure (100). For example, if the application being scored had 25 points and the top project had 50 points, this applicant would receive $(25/50) \times 125$ points or 63 points.

5. Congestion Reduction/Air Quality (80 Points)

This criterion measures the project's ability to reduce congestion. In addition, it will address its ability to improve congested intersections operating at unacceptable levels of service during peak hour conditions. The project will also be measured based on its ability to reduce emissions.

- A. **MEASURE:** Conduct a capacity analysis at one or more of the intersections (or rail crossings) being improved by the roadway project using existing turning movement counts (collected within the last three years) in the weekday a.m. or p.m. peak hour and the Synchro or HCM software. The applicant must show the current total peak hour delay at one or more intersections (or rail crossings) and the reduction in total peak hour intersection delay at these intersections (or rail crossings) in seconds due to the project. If more than one intersection (or rail crossing) is examined, then the delay reduced by each intersection can be added together to determine the total delay reduced by the project.
- For roadway projects that include a railroad crossing, the applicant should conduct fieldwork during either the weekday a.m. or p.m. peak hour to determine the total peak hour delay reduced by the project. Applicants can also add together intersection delay reduced and railroad delay reduced, if they both will be improved by the project.
 - The applicant should include the appropriate Synchro or HCM full reports (including the Timing Page Report) that support the improvement in total peak hour delay and should conduct the analysis using the following:
 - Under the network settings, all defaults should be used for lanes, saturation flow rates, volumes, and simulation
 - Use Synchro's automatic optimization to determine cycle, offset and splits (for traffic signals). Use the setting when assessing delay both with and without the project. This methodology will ensure that all applicants start with their signal systems optimized when determining existing delay.
 - Project improvements assumed in the build condition should be reflected in the total project cost, such as additional through or turn lanes and protective left-turn phasing
 - Roadway lengths for intersection approaches must be the same length for before and after scenarios
 - An average weekday should be used for the existing conditions instead of a weekend, peak holiday, or special event time period that is not representative of the corridor for most of the year

Total Peak Hour Delay Reduced (Seconds) = Total Peak Hour Delay/Vehicle x Vehicles Per Hour

RESPONSE:

- Total Peak Hour Delay/Vehicle without the Project (Seconds/Vehicle): _____
- Total Peak Hour Delay/Vehicle with the Project (Seconds/Vehicle): _____
- Total Peak Hour Delay/Vehicle Reduced by the Project (Seconds/Vehicle): _____ (automatically calculated)
- Volume (Vehicles Per Hour): _____
- Total Peak Hour Delay Reduced by the Project (Seconds): _____ (automatically calculated)

EXPLANATION of methodology used to calculate railroad crossing delay, if applicable (Limit 1,400 characters; approximately 200 words):

SCORING GUIDANCE (50 Points)

The applicant with the most peak hour vehicle delay reduced by the project improvement will receive the full points for the measure. Remaining projects will receive a proportionate share of the points. For example, if the application being scored reduced delay by 5,000 seconds and the top project reduced delay by 25,000 seconds, this applicant would receive $(5,000/25,000) * 50$ points, or 10 points.

- B. **MEASURE:** Using the Synchro or HCM analysis completed in the previous measure, identify the total peak hour emissions reduction in kilograms (CO, NOX, VOC) due to the project. The applicant should include the appropriate Synchro or full HCM reports (including the Timing Page Report) that support the improvement in total peak hour emissions. If more than one intersection is examined, then the emissions reduced by each intersection can be added together to determine the total emissions reduced by the project.

Roadway projects that do not include railroad grade-separation elements:

- Total Peak Hour Emissions Reduced (Kilograms)= Total Peak Hour Emissions without the project – Total Peak Hour Emissions with the Project

RESPONSE:

- Total (CO, NOX, and VOC) Peak Hour Emissions without the Project (Kilograms): _____
- Total (CO, NOX, and VOC) Peak Hour Emissions with the Project (Kilograms): _____
- Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms): _____ (calculated online)

If more than one intersection is examined, the response should include a total of all emissions reduced.

Roadway projects that include railroad grade-separation elements:

- For roadway projects that include a railroad crossing, the applicant needs to input four variables before and after the project to determine the change in emissions. Those variables include: speed, vehicle mile traveled, delay, and total vehicle stops. The applicant needs to conduct fieldwork during either the a.m. or p.m. peak hour to determine the existing

conditions and then detail any assumptions used for conditions after the project is built. The variables will be used in the exact same equation used within the software program (i.e., Synchro) required of the other project types. Therefore, the approach to calculate the kilograms emissions reduced for railroad grade-separation projects will be comparable to intersection improvement projects.

RESPONSE:

- Cruise speed in miles per hour without the project:_____ (Applicant inputs number)
- Vehicle miles traveled without the project:_____ (Applicant inputs number)
- Total delay in hours without the project:_____ (Applicant inputs number)
- Total stops in vehicles per hour without the project:_____ (Applicant inputs number)
- Cruise speed in miles per hour with the project:_____ (Applicant inputs number)
- Vehicle miles traveled with the project:_____ (Applicant inputs number)
- Total delay in hours with the project:_____ (Applicant inputs number)
- Total stops in vehicles per hour with the project:_____ (Applicant inputs number)
- Fuel consumption in gallons (F1)
- Fuel consumption in gallons (F2)
- Fuel consumption in gallons (F3)

Speed = cruise speed in miles per hour

Total Travel = vehicle miles traveled

Total Delay = total delay in hours

Stops = total stops in vehicles per hour

$$K1 = 0.075283 - 0.0015892 * \text{Speed} + 0.000015066 * \text{Speed}^2$$

$$K2 = 0.7329$$

$$K3 = 0.0000061411 * \text{Speed}^2$$

F1 (or F2 – without the project) = Fuel consumption in gallons

$$F1 = \text{Total Travel} * k1 + \text{Total Delay} * k2 + \text{Stops} * k3$$

$$F2 = \text{Total Travel} * k1 + \text{Total Delay} * k2 + \text{Stops} * k3$$

$$F3 = F1 - F2$$

$$\text{CO} = F3 * 0.0699 \text{ kg/gallon}$$

$$\text{NOX} = F3 * 0.0136 \text{ kg/gallon}$$

$$\text{VOC} = F3 * 0.0162 \text{ kg/gallon}$$

Equation Automatically Provides Emissions Reduced:

- Total (CO, NOX, and VOC) Peak Hour Emissions Reduced by the Project (Kilograms):
_____ (Online Calculation)

EXPLANATION of methodology and assumptions used (Limit 1,400 characters; approximately 200 words):

SCORING GUIDANCE (30 Points)

The applicant with the most kilograms reduced by the project improvement will receive the full points for the measure. Remaining projects will receive a proportionate share of the full. For example, if the application being scored reduced emissions by 3 kilograms and the top project reduced emissions by 5 kilograms, this applicant would receive $(3/5)*30$ points or 18 points.

6. Safety (180 Points)

This criterion addresses the project's ability to correct deficiencies and improve the overall safety of a roadway facility. It will assess the project's monetized safety benefits.

A. **MEASURE:** Respond as appropriate to one of the two project types below. (175 Points)

Roadway projects that do not include railroad grade-separation elements:

Calculate the reduction in the total number of crashes due to improvements on the A-minor arterial or non-freeway principal arterial made by the project. The applicant must base the estimate of crash reduction on the methodology consistent with the latest Highway Safety Improvement Program (HSIP) application (www.dot.state.mn.us/stateaid/trafficsafety.html). Applicants should focus on the crash analysis for reactive projects.

Crash data must be obtained for the project length using the MnDOT TIS system average for calendar years 2016 through 2018. Crash data should include all crash types and severities, including pedestrian and bicycle crashes.

Applicants should request crash data from MnDOT as early as possible. The applicant must then attach a listing of the crashes reduced and the HSIP Benefit/Cost (B/C) worksheet (www.dot.state.mn.us/stateaid/trafficsafety.html) that identifies the resulting benefit associated with the project. As part of the response, please detail and attach the crash modification factor(s) used from FHWA's Crash Modification Factors Clearinghouse: <http://www.cmfclearinghouse.org/>. This measure requests the monetized safety benefit of the project. The cost of the project is scored in the Cost Effectiveness criterion.

RESPONSE:

- Crash Modification Factors Used (Limit 700 characters; approximately 100 words): _____
- Rationale for Crash Modifications Selected (Limit 1,400 characters; approximately 200 words): _____
- Project Benefit (\$) from B/C ratio: _____
- Explanation of Methodology: _____
- Total Fatal (K) Crashes: _____
- Total Serious Injury (A) Crashes: _____
- Total Non-Motorized Fatal and Serious Injury Crashes: _____
- Total Crashes: _____
- Total Fatal (K) Crashes Reduced by Project: _____
- Total Serious Injury (A) Crashes Reduced by Project: _____
- Total Non-Motorized Fatal and Serious Injury Crashes Reduced by Project: _____
- Total Crashes Reduced by Project: _____

Roadway projects that include railroad grade-separation elements:

Since the number of observed crashes at an existing at-grade railroad crossing is minor compared to an intersection, this measure will assess crash risk exposure that exists in order to

compare projects. As a proactive safety measure, railroad grade-separation projects eliminate the crash risk exposure.

Crash Risk Exposure Eliminated = current average annual daily traffic volume x average number of daily trains at the at-grade crossing

RESPONSE:

- Current AADT volume: _____
- Average daily trains: _____
- Crash Risk Exposure eliminated: _____

SCORING GUIDANCE (150 Points)

This measure will be considered separately for projects that do and do not include a railroad grade-separation project. As a result, two projects (one without a railroad grade-separation project and one with a railroad grade-separation) may receive the full points.

For projects that do not include a grade-separation project, the applicant with the highest dollar value of benefits will receive the full points for the measure. Remaining projects will receive a proportionate share of the full points. For example, if the application being scored had safety benefits of \$11,000,000 and the top project had safety benefits of \$16,000,000, this applicant would receive $(11,000,000/16,000,000)*175$ points or 120 points.

For railroad grade-separation projects, the applicant with the highest crash risk exposure eliminated due to the project will receive the full points for the measure. Remaining projects will receive a proportionate share of the full points. For example, if the application being scored reduced 11,000 exposures and the top project reduced 16,000, this applicant would receive $(11,000 /16,000)*175$ points or 120 points.

- B. **MEASURE:** Discuss how the project will improve safety for pedestrians. Safety countermeasures for pedestrians can include those identified by the FHWA as part of its [Safe Transportation for Every Pedestrian program](#) or others in its [Proven Safety Countermeasures](#) (e.g., pedestrian refuge islands, raised crosswalks, pedestrian hybrid beacons, leading pedestrian intervals). More information about pedestrian safety best practices is also available in MnDOT's [Best Practices for Pedestrian/Bicycle Safety](#).

SCORING GUIDANCE (30 Points)

The project that will provide the most improvement to pedestrian safety will receive full points. Remaining projects will receive a share of the full points at the scorer's discretion.

7. Multimodal Elements and Existing Connections (110 Points)

This criterion measures how the project improves the travel experience, safety, and security for other modes of transportation and addresses the safe integration of these modes. The Transportation Policy Plan requires that explicit consideration of all users of the transportation system be considered in the planning and scoping phase of roadway projects.

- A. **MEASURE:** Describe how the project positively affects the multimodal system.

- Discuss any bicycle, pedestrian, or transit elements that are included as part of the project and how they improve the travel experience, safety, and security for users of these modes. Applicants should make sure that new multimodal elements described in the response are accounted for as part of the cost estimate form earlier in the application. Applicants should note if there is no transit service in the project area and identify supporting studies or plans that address why a mode may not be incorporated in the project (e.g., a bicycle system plan that locates bikeway facilities on a lower-volume parallel route).
- Describe how the proposed multimodal improvements positively affect identified alignments in the Regional Bicycle Transportation Network (RBTN) or along a regional trail, if applicable.
- Describe how the proposed multimodal improvements either provide a new, or improve an existing a Major River Bicycle Barrier Crossing (MRBBC) as defined in the 2040 Transportation Policy Plan (TPP) or an identified Regional Bicycle Barrier Improvement Area as defined in the TPP and Technical Addendum to the Regional Bicycle Barriers Study (May 2019), if applicable.
- Discuss the existing bicycle, pedestrian, and transit connections and how the project enhances these connections.
- Discuss whether the project implements specific locations identified as being deficient in a completed ADA Transition Plan.

RESPONSE (Limit 2,800 characters; approximately 400 words):

SCORING GUIDANCE (110 Points)

The project that most positively affects the multimodal elements system will receive the full points. Remaining projects will receive a share of the full points at the scorer's discretion. The project score will be based on the quality of the improvements, as opposed to being based solely on the number of modes addressed. Points can be earned for incorporating multimodal project elements, positively affecting identified alignments in the Regional Bicycle Transportation Network (RBTN), regional trail, Major River Bicycle Barrier Crossing, or Regional Bicycle Barrier, or for making connections with existing multimodal systems or helping to implement an ADA Transition Plan. Projects do not need all of these elements to be awarded all of the points. Multimodal elements for rural roadway projects may include wider shoulders that will be used by bicyclists and pedestrians.

8. Risk Assessment (75 Points)

This criterion measures the number of risks associated with successfully building the project. High-risk applications increase the likelihood that projects will withdraw at a later date. If this happens, the region is forced to reallocate the federal funds in a short amount of time or return them to the US Department of Transportation. These risks are outlined in the checklist in the required Risk Assessment.

- A. **MEASURE:** Applications involving construction must complete the Risk Assessment. This checklist includes activities completed to-date, as well as an assessment of risks (e.g., right-of-way acquisition, proximity to historic properties, etc.).

RESPONSE (Complete Risk Assessment):

Please check those that apply and fill in anticipated completion dates for all projects, except for new/expanded transit service projects or transit vehicle purchases.

1. Layout (25 Percent of Points)

Layout should include proposed geometrics and existing and proposed right-of-way boundaries

100% Layout approved by the applicant and all impacted jurisdictions (i.e., cities/counties that the project goes through or agencies that maintain the roadway(s)). A PDF of the layout must be attached along with letters from each jurisdiction to receive points.

50% Layout completed but not approved by all jurisdictions. A PDF of the layout must be attached to receive points.

0% Layout has not been started

Anticipated date or date of completion: _____

2. Review of Section 106 Historic Resources (15 Percent of Points)

100% No known historic properties eligible for or listed in the National Register of Historic Places are located in the project area, and project is not located on an identified historic bridge

100% There are historical/archeological properties present but determination of “no historic properties affected” is anticipated.

80% Historic/archeological property impacted; determination of “no adverse effect” anticipated

40% Historic/archeological property impacted; determination of “adverse effect” anticipated

0% Unsure if there are any historic/archaeological properties in the project area.

Project is located on an identified historic bridge:

3. Right-of-Way (25 Percent of Points)

100% Right-of-way, permanent or temporary easements either not required or all have been acquired

50% Right-of-way, permanent or temporary easements required, plat, legal descriptions, or official map complete

25% Right-of-way, permanent or temporary easements required, parcels identified

0% Right-of-way, permanent or temporary easements required, parcels not all identified

Anticipated date or date of acquisition _____

4. Railroad Involvement (15 Percent of Points)

100% No railroad involvement on project or railroad Right-of-Way agreement is executed (include signature page, if applicable)

50% Railroad Right-of-Way Agreement required; negotiations have begun

0% Railroad Right-of-Way Agreement required; negotiations have not begun.

Anticipated date or date of executed Agreement _____

5. Public Involvement (20 Percent of Points)

Projects that have been through a public process with residents and other interested public entities are more likely than others to be successful. The project applicant must indicate that events and/or targeted outreach (e.g., surveys and other web-based input) were held to help identify the transportation problem, how the potential solution was selected instead of other options, and the public involvement completed to date on the project.

List Dates of most recent meetings and outreach specific to this project:

- Meeting with general public: _____
- Meeting with partner agencies: _____
- Targeted online/mail outreach: _____
 - Number of respondents: _____

100% Meetings specific to this project with the general public and partner agencies have been used to help identify the project need.

75% Targeted outreach specific to this project with the general public and partner agencies have been used to help identify the project need.

50% At least one meeting specific to this project with the general public has been used to help identify the project need.

50% At least one meeting specific to this project with key partner agencies has been used to help identify the project need.

25% No meeting or outreach specific to the project was conducted, but the project was identified through meetings and/or outreach related to a larger planning effort.

0% No outreach has led to the selected of this project.

RESPONSE (Limit 2,800 characters; approximately 400 words):

SCORING GUIDANCE (75 Points)

The applicant with the most points on the Risk Assessment (more points equate to less project risk) will receive the full points for the measure. Remaining projects will receive a proportionate share of the full points. For example, if the application being scored had 40 points and the top project had 70 points, this applicant would receive $(40/70)*75$ points or 43 points.

9. Cost Effectiveness (100 Points)

This criterion will assess the project’s cost effectiveness based on the total TAB-eligible project cost (not including noise walls) and total points awarded in the previous criteria.

A. **MEASURE:** This measure will calculate the cost effectiveness of the project. Metropolitan Council staff will divide the number of points awarded in the previous criteria by the TAB-eligible project cost (not including noise walls). If a project has been awarded other outside, competitive funding (e.g., state bonding, Transportation Economic Development Program, Minnesota Highway Freight Program), project sponsors may reduce the total project cost for the purposes of this scoring measure by the amount of the outside funding award.

- Cost- effectiveness = total number of points awarded in previous criteria/total TAB-eligible project cost

RESPONSE (This measure will be calculated after the scores for the other measures are tabulated by the Scoring Committee):

- Total Project Cost (entered in Project Cost Form): _____ (automatically calculated)
- Enter amount of Noise Walls: _____
- Enter amount of any outside, competitive funding (attach documentation of award): _____
- Points Awarded in Previous Criteria: ____ (entered by Metropolitan Council staff)

SCORING GUIDANCE (100 Points)

The applicant with the most points (i.e., the benefits) per dollar will receive the full points for the measure. Remaining projects will receive a proportionate share of the full points. For example, if the top project received .0005 points per dollar and the application being scored received .00025 points per dollar, this applicant would receive $(.0005/.00025) * 100$ points for 50 points.

The scorer for this measure will also complete a reasonableness check of the total project cost that is used for this measure. The scorer may follow up with the applicant to clarify any questions. Up to 50 percent of points awarded for this measure can be deducted if the scorer does not believe that the cost estimate is reasonable.

TOTAL: 1,100 POINTS