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Executive Director
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EAST-WEST GATEWAY
Council of Governments
Creating Solutions Across Jurisdictional Boundaries

MEMORANDUM

TO: **Transportation Planning Committee**

FROM: **East-West Gateway Staff**

DATE: **December 20, 2017**

SUBJECT: **Tuesday, January 9, 2018 meeting**

The next meeting of the joint Illinois/Missouri Transportation Planning Committee (TPC) is scheduled for **Tuesday, January 9, 2018 at 2:00 p.m. at East-West Gateway Council of Governments offices**. (Reminder parking is available at Stadium-East Garage)

If you have any questions or concerns regarding the enclosed materials or the upcoming meeting please contact EWGCOG. The agenda for the meeting is as follows:

AGENDA

1. Call to order
2. Scoring criteria for Surface Transportation Block Grant Program project applications (action item), Rachael Pawlak & Jason Lange - EWG
3. Other Business
   - Next Illinois TPC Meeting to be determined
   - Next Missouri TPC Meeting Scheduled for Wednesday, February 7, 2 PM

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To: Transportation Planning Committee

From: East-West Gateway Staff

Date: December 20, 2017

Subject: Scoring Criteria for Local Program Applications – Surface Transportation Block Grant Program (STP-S)

Background

Under the Moving Ahead for Progress in the 21st Century (MAP-21) Act and reinforced in the Fixing America's Surface Transportation (FAST) Act, federal surface transportation law requires the implementation of performance management requirements through which states and Metropolitan Planning Organizations (MPOs) will "transition to a performance-driven, outcome-based program that provides for greater level of transparency and accountability, improved project decision-making, and more efficient investment of federal transportation funds." *Connected2045*, the region's long-range transportation plan, includes ten guiding principles that articulate the desired outcomes for the St. Louis region's transportation system. *Connected2045* also created a performance management framework to guide East-West Gateway Council of Governments (EWG) in making investments through its planning and programming processes, namely the Transportation Improvement Program (TIP).

STP-S Scoring Criteria Development

EWG has been working with the Transportation Planning Committee (TPC) to ensure that our performance-based planning and programming efforts are consistent with both the federal performance management requirements and the region's ten guiding principles. The development of the scoring criteria consisted of internal research on national best practices, feedback from focus groups, a beta-test, and input from TPC representatives.

Comments Received on STP-S Scoring Criteria

Updated scoring criteria, based on previous feedback, were presented to the TPC on November 1, 2017. Staff requested TPC representatives to comment on the scoring criteria by November 17, 2017, although, EWG accepted comments after the deadline. Comments from four members were received. The comments and responses from EWG staff are provided in **Attachment A**.

Modifications to STP-S Scoring Criteria

Based on the feedback from the TPC in November, staff made the following modifications to the scoring criteria:

- **Funding cap**: EWG staff initially proposed that a project can receive no more than 20 percent of the available federal funds during each funding round unless it can be documented to serve a regional priority. EWG received comments from two Missouri TPC representatives that this cap is too high, therefore for projects in Missouri, EWG

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staff is proposing to reduce the funding cap to 15 percent, with an exception for projects that serve a regional priority (i.e., a major bridge or a major economic development initiative). For projects in Illinois, EWG is proposing to keep the funding cap at 20 percent, with an exception for projects that serve a regional priority. Regionally significant projects that request over the funding cap must be approved by the respective TPC. **Note**: it is a EWG Board approved policy that each county, including the City of St. Louis, should have at least one project in each funding round.

- **Cost**: Based on the adjustment to the funding cap for Missouri projects, the cost allocation breakdown has been revised as follows:

Federal Project Cost Ranges (Missouri)	Proposed Criteria (Nov 2017):	Proposed Modification (Jan 2018):
Project requests 1.9% or less of the funds available	20 – 18.8	20 – 18.8
Project requests 2.0-2.9% of the funds available	18.7 – 14.8	18.7 – 14.8
Project requests 3.0-3.9% of the funds available	14.7 – 10.8	14.7 – 10.8
Project requests 4.0-4.9% of the funds available	10.7 – 6.8	10.7 – 6.8
Project requests 5.0-9.9% of the funds available	6.7 – 4.1	6.7 – 4.1
Project requests 10.0-14.9% of the funds available	4 – 2.8	4 – 2.8
Project requests 15.0-19.9% of the funds available	2.7 – 1	0
Project requests 20.0% or more of the funds available	0	0

- **Usage**: Feedback was received that project usage should be worth more points, however, project usage is also taken into account under the regional transportation significance measure. Volume is one of the factors used to determine roadway functional classification. Therefore, EWG is not proposing to increase the points allotted to project usage.
- **Transit application**: Modifications were made to the transit criteria to require a higher level of justification to ensure more significant service improvements. The following modifications are proposed:
    - **Transit Asset Management & System Upgrades**: Under the impact to ridership measure, staff operationalized the terms ‘significant’ and ‘marginal.’ A significant increase entails a ten percent or greater increase in service levels, and a marginal increase involves at least a five percent increase in service levels.
    - **Transit Expansion**: Under the adding capacity measure, percent values were increased to better reflect significant service improvements. To earn the maximum points under this measure, the project must reflect a ten percent increase in ridership. This is an increase from what was originally proposed of two and a half percent.
- **Urban and rural context**: EWG received comments that the scoring criteria continued to provide an advantage to projects located within the central core. The following modifications are proposed to address this concern:
    - **Road application**: For projects that are ‘outside community,’ the point values for the regional transportation significance were adjusted:
        - Principal arterial – unchanged (12 points); minor arterial – nine to ten points; major collector – six to seven points; urban minor collector – three to four points.
    - **Bridge application**: The point values were adjusted to account for the importance of bridge projects and the need to keep bridges in good condition.
        - For ‘within community’ projects, principal arterial – unchanged (five points); minor arterial – four to five points; major collector – unchanged (three points); minor collector – two to three points; local – unchanged (two points).
        - For ‘outside community’ projects, principal arterial – unchanged (nine points); minor arterial – eight to nine points; major collector – unchanged (seven points); minor collector – six to seven points; local – unchanged (six points).

- **Bridge application**: The "catalog of improvements" was revised to include two points for shared-lane bridges at 25 mph or less OR on 'outside community' bridges with 1,000 ADT or less. This is to account for MoDOT's allowance for bridge width on low-volume rural bridges.
- **Traffic Flow application**: The Foster a Vibrant Downtown & Central Core principle was removed. This included one point for projects located in the central core. The one point was added to the Support Quality Job Development principle. This reflects the importance of access to jobs throughout the region. The point values for job density were adjusted:
    - High jobs/sq. mile – four to five points; medium-high – three to four points; medium – two to three points; medium-low – one to two points; low – unchanged (zero points).
- **Active Transportation application**: The total points for Environmental Justice under the Support Neighborhoods & Communities principle were reduced from six to four points. The two points were added to the Access to Community Resources measure under the same principle. Projects can now earn up to five points for providing direct access to community resources.
- **Active Transportation application**: Under the Foster a Vibrant Downtown & Central Core, the Population and Employment Index (PEI) replaced the Project Utilization Index (PUI). The PUI includes transit proximity, and there are concerns that the lack of transit in some areas of the region can negatively impact the project score. The PEI is a tool that is used to estimate the proximity of pedestrian and bicycle infrastructure to residential populations and employment. Transit is still accounted for under the Support Public Transportation principle. The updated scale and point values are shown below:
    - Avg. PEI 4+ – ten points; avg. PEI 3-3.9 – eight points; avg. PEI 2-2.9 – six points; avg. PEI 1-1.9 – four points; avg. PEI <1 – two points.
- **Freight/Economic Development application**: Under the Strengthen Intermodal Connections principle, the points for the industrial site areas were decreased from 30 to 25 points. The five points were added to the intermodal connections measure. Freight projects can now earn 35 points for intermodal connections with a commercial vehicle countermeasure.

The updated scoring criteria is included in **Attachment D**. The modifications are highlighted in yellow.

Recommendation
EWG staff is recommending the approval of the STP-S scoring criteria. The scoring criteria will be presented to the Board of Directors for final approval at its Wednesday, January 31, 2018 meeting. EWG will reevaluate the evaluation process after two years.

ATTACHMENT A: Summary of Comments Received from November TPC

<u>Illinois Transportation Planning Committee</u>

- The committee requests that consideration be provided in the scoring criteria for a Benefit/Cost factor vs. the proposed Cost factor derived as a percentage of total funds available. The committee envisions that the Benefit/Cost factor would be derived using the total Performance Points vs. Cost in a similar banded fashion as the current percentage cost proposal.

> **EWG response**: A goal of performance-based planning and programming is to use objective data and performance measures to select transportation projects to help achieve the region's desired outcomes. The cost effectiveness administered under the old scoring criteria prioritized the project's cost over the project's performance, with lower cost projects generally being recommended for funding. This also encouraged the segmentation of the project's limits. The proposed scoring criteria makes up 80 percent performance, 16 percent cost, and four percent usage (Person Miles of Travel). This approach prioritizes the project's performance, but also acknowledges that the criteria needs to have a control for the project's cost.
>
> A concern from IDOT was that the project sponsors would segment projects to gain the highest score for cost under the scoring criteria. A benefit-cost ratio will not alleviate this issue of segmentation. A challenge with developing benefit-cost ratios is the difference in the magnitude of benefits between large projects and small projects, and it is difficult to compare the cost effectiveness of projects at different scales. Therefore, EWG proposes that logical termini for Illinois projects be determined prior to the project application deadline.

- The committee is concerned that the Population and Employment Index criteria used in the determination of whether the project is considered "Inside Community" or "Outside Community" may not fully address the multi-modal services in the project vicinity, such as Transit or Bike/Ped generators. The committee requests a review to determine if additional detail can be provided in the determination of this factor.

> **EWG response:** A concern from the TPC was that rural road and bridge projects would not be able to compete against projects in the urban area because of not being able to accumulate multimodal points. The St. Louis region includes a diverse mix of urban, suburban, and rural areas, and we recognize that the criteria should consider the context of the project. However, U.S. DOT policy states that safe and convenient walking and bicycle facilities should be incorporated into transportation projects.
>
> EWG proposed to use the Population and Employment Index (PEI) as a method for determining whether projects are 'within community' or 'outside community.' Areas categorized as 'within community' have a higher density of population and employment (a PEI of two or greater). Research has found that walking and biking frequency is significantly correlated with both population and employment density. In addition, studies have demonstrated that the densities of population and employment are positively related to bicycle and pedestrian crash frequency (see map provided in **Attachment B**). Projects that are 'within community' are weighted more under multimodal improvements, and projects that are 'outside community' are weighted more under the

regional transportation significance measure (i.e., functional classification), which focuses more on supporting mobility and intermodal improvements.

- The committee requests review of whether preservation type projects will be fairly scored in the criteria. Preservation of the existing transportation system is a key principle in the regions Long Range Plan and a concern of many local public agencies given the limited funding currently available.

EWG response: Preservation of the exiting transportation system has been and will continue to be a priority for EWG. For each application type, points are assigned based on the applicable guiding principles with the bulk of the points going towards the project's primary purpose. Up to 60 points can be gained for road and bridge projects based on condition alone. Safety, traffic flow, active transportation, transit, and freight/economic development projects must demonstrate a strong benefit to the transportation system to earn the maximum amount of points under its primary purpose. EWG will continue to monitor the evaluation process and will reevaluate the criteria if it is determined that preservation projects cannot successfully compete.

- A commitment is requested for a re-evaluation of the current criteria with the Joint Transportation Planning Committee after two (2) years of implementation.

EWG response: EWG will monitor the evaluation process and will reevaluate the criteria after two years. EWG's planning and project evaluation processes will need to remain compliant with the FAST Act and any subsequent federal transportation legislation.

Franklin County

- I still feel there is one major issue that is needing comment concerning the revised draft scoring criteria for the Surface Transportation Block Grants. Even though points are now being awarded toward the cost effectiveness of a project it is still felt the cost effectiveness should play a larger role in points being awarded. I do not know if cost effectiveness could somehow be incorporated into each of the performance criteria or not but that way each of the criteria has some impact on the cost effectiveness and ultimately the scoring of the project. If cost effectiveness cannot be incorporated into each of the performance criteria then cost effectiveness should be made a larger component of the overall point total.

EWG response: Federal transportation legislation requires the implementation of performance-based planning and programming. The cost effectiveness administered under the old scoring criteria prioritized the project's cost over the project's performance, with low-cost projects generally being recommended for funding. EWG initially proposed six points for the project's cost, but TPC representatives stated that six points for cost were not enough points. Therefore, EWG increased the points for cost to 20 points. The proposed scoring criteria makes up 80 percent performance, 16 percent cost, and four percent usage (Person Miles of Travel). This approach prioritizes the project's performance, but also acknowledges that the criteria needs to have a control for the project's cost.

- The only other comment is the 20% limitation of the funding available for any one project. This is still felt 20% is too high with one local entity or agency having the opportunity to capture 20% of the funding or $7 to $8 million possibly awarded to any one project. There should be stricter limit

in order to have the opportunity for more projects being awarded. It would be suggested the maximum amount be reduced to 15%. 15% would yield around $5 to $6 million for any one project.

> **EWG response**: EWG proposes to lower the funding cap for Missouri projects from 20 percent to 15 percent of available federal funds.

St. Charles County

- St. Charles County feels that overall the new scoring criteria continue to provide an advantage to projects within the Central Core of the region. Without seeing actual project scores using the new criteria, it is very difficult to determine the overall implication of the proposed criteria.

> **EWG response**: EWG has made several modifications to the scoring criteria to ensure a balanced and regional approach that addresses the needs of the transportation system, while maintaining an objective evaluation that emphasizes performance-based outcomes. The project scores are provided in **Attachment C**. These scores are based on the current modifications to the scoring criteria. It is important to note that not all projects had sufficient data to be evaluated under the new system. For example, traffic flow projects could not be scored under the scoring criteria because data were not available, however, projects from the previous TIP cycle with similar characteristics were used to determine the effectiveness of the criteria.

- It has been noted that these metrics are being tied back to Connected 2045. It is my understanding that the entire process of developing Connected 2045 was conducted in and about St. Louis City. The public meetings and speaker series were all focused in and about the urban core/St. Louis City. We feel that it is of vital importance to include the entire region in future planning. The region as a whole is extremely diverse, and it is important to identify, understand, and support the varying needs of each area. We do not feel that the proposed scoring criteria accomplish this.

> **EWG response**: The ten guiding principles were developed through the *Renewing the Region Initiative*, which was an extensive regional planning effort. The Initiative included more than 30 large and small group discussions throughout the region, a Board retreat, and an online discussion blog. The ten guiding principles were presented at the Board retreat in March 2010, and were adopted by the Board in May 2010. In the region's last long-range transportation plan, RTP 2040, the ten guiding principles were used to establish a set of policy-focused strategies, and to build on that, *Connected2045* operationalized the ten guiding principles by aligning them with federal and state goals and performance measures.
>
> The public engagement meetings to support the development of *Connected2045* were held at the Missouri History Museum, an attraction that is centrally located in the St. Louis region. The meetings were not focused on urban issues. The first discussed the history of transportation in the St. Louis region as well as emerging transportation technologies; the second focused on freight and regional economic development; the third covered various transportation users such as youth, elderly, persons with disabilities, and minorities; and the final session was about transportation funding. A representative

technical stakeholder group, online survey, and multiple open houses also contributed to the development of the long-range transportation plan.

- While adding point for cost will encourage greater local participation and may reduce some excessive costs, it doesn't really account for cost effectiveness of the overall project. Cost as part of the performance scoring, as done for safety projects, would be preferred.

EWG response: Federal transportation legislation requires the implementation of performance-based planning and programming. The cost effectiveness administered under the old scoring criteria prioritized the project's cost over the project's performance, with low-cost projects generally being recommended for funding. EWG initially proposed six points for the project's cost, but TPC representatives stated that six points for cost were not enough points. EWG increased the points for cost to 20 points. The proposed scoring criteria makes up 80 percent performance, 16 percent cost, and four percent usage (Person Miles of Travel). This approach prioritizes the project's performance, but also acknowledges that the criteria needs to have a control for the project's cost.

A challenge with developing benefit-cost ratios is the difference in the magnitude of benefits between large projects and small projects, and it is difficult to compare the cost effectiveness of projects at different scales. It is also difficult to determine how the benefits will be monetized.

- We are supportive of a cap on funding for a single project.

EWG response: Noted.

- In regards to projects "outside community" vs. "inside community", we have some concerns with the use of the Population and Employment Index. This is not an effective measure of the nature and density of population and employment because the census blocks are too small to spread out high densities near geographic anomalies that prevent development, but are too large to provide effective granularity to the map. Areas near natural barriers (lakes, rivers) are more likely to have a demand for multimodal facilities because they add a recreational draw, and because transportation users are funneled onto fewer facilities, especially bridges. Could areas on the fringe, be given the option to choose outside or inside?

EWG response:
Research has found that walking and biking frequency is significantly correlated with both population and employment density. In addition, studies have demonstrated that the densities of population and employment are positively related to bicycle and pedestrian crash frequency (see map provided in **Attachment B**). Therefore, EWG proposed to use population and employment density as the base measure to evaluate areas in the region that are more conducive to walking and biking. There are other factors that contribute to walking and biking (i.e., safe walking/biking facilities, proximity to schools, connectivity, areas that have higher proportions of zero-car households, etc.), so EWG developed the multimodal 'catalog of improvements' to capture other pedestrian and bicycle generators, but also to allow for project flexibility. Projects can receive points for improving multimodal access to schools, transit, or activity centers and added safety improvements.

EWG staff researched other methods to distinguish between 'within community' and 'outside community,' such as using the U.S. Census defined urbanized area boundary or the municipal boundary, and determined that the PEI is a uniform tool that can be applied across the region. The PEI was developed using data from the U.S. Census Bureau, Dun and Bradstreet, Bureau of Labor Statistics, and Bureau of Economic Analysis. It consists of 18,738 grid cells that cover the EWG region, and each grid cell has an area of ¼ square mile. The data was summed and assigned to the grid cell that it was located in. Using a grid system is a standard procedure to allocate different sets of data to a consistent geography.

The PEI uses the most available data and does not capture potential future growth, particularly on the fringe of the urbanized area, nor does it capture connections to the multimodal network. Therefore, EWG proposes that project sponsors submit a provisional application prior to the project application deadline. The provisional application would include: a brief project description, project limits, length, and a location map. EWG will categorize a project as 'within community' or 'outside community' and then will notify the sponsors before the application deadline. This would not be a requirement for all project sponsors, but would be available for sponsors that are unsure how the project would be categorized or believe the project should be categorized differently. Any changes to the PEI categorization would need to be justified, for example, the project is within one-mile of a grid cell with a PEI of two or greater, in proximity to a transit route, provides a connection to the multimodal network, unusual circumstance, etc.

St. Louis County

- St. Louis County cannot offer complete comments on the latest changes to the project performance scoring in the Draft Criteria without being able to review revised "Beta Test" results incorporating all of the scoring modifications proposed since the "Beta Test" results were initially provided.

EWG response: The project scores are provided in **Attachment C**. These scores are based on the current modifications to the scoring criteria. It is important to note that not all projects had sufficient data to be evaluated under the new system. For example, traffic flow projects could not be scored under the scoring criteria because data were not available, however, projects from the previous TIP cycle with similar characteristics were used to determine the effectiveness of the criteria.

- St. Louis County does not believe that simply adding more points for project cost, while continuing to score cost and usage separately, adequately captures the "cost effectiveness" of a project. Cost effectiveness should be part of the project performance scoring.

EWG response: Federal transportation legislation requires the implementation of performance-based planning and programming. The cost effectiveness administered under the old scoring criteria prioritized the project's cost over the project's performance, with low-cost projects generally being recommended for funding. EWG initially proposed six points for the project's cost, but TPC representatives stated that six points for cost were not enough points. EWG increased the points for cost to 20 points. The proposed scoring criteria makes up 80 percent performance, 16 percent cost, and four percent usage (Person Miles of Travel). This approach prioritizes the project's

performance, but also acknowledges that the criteria needs to have a control for the project's cost.

A challenge with developing benefit-cost ratios is the difference in the magnitude of benefits between large projects and small projects, and it is difficult to compare the cost effectiveness of projects at different scales. It is also difficult to determine how the benefits will be monetized.

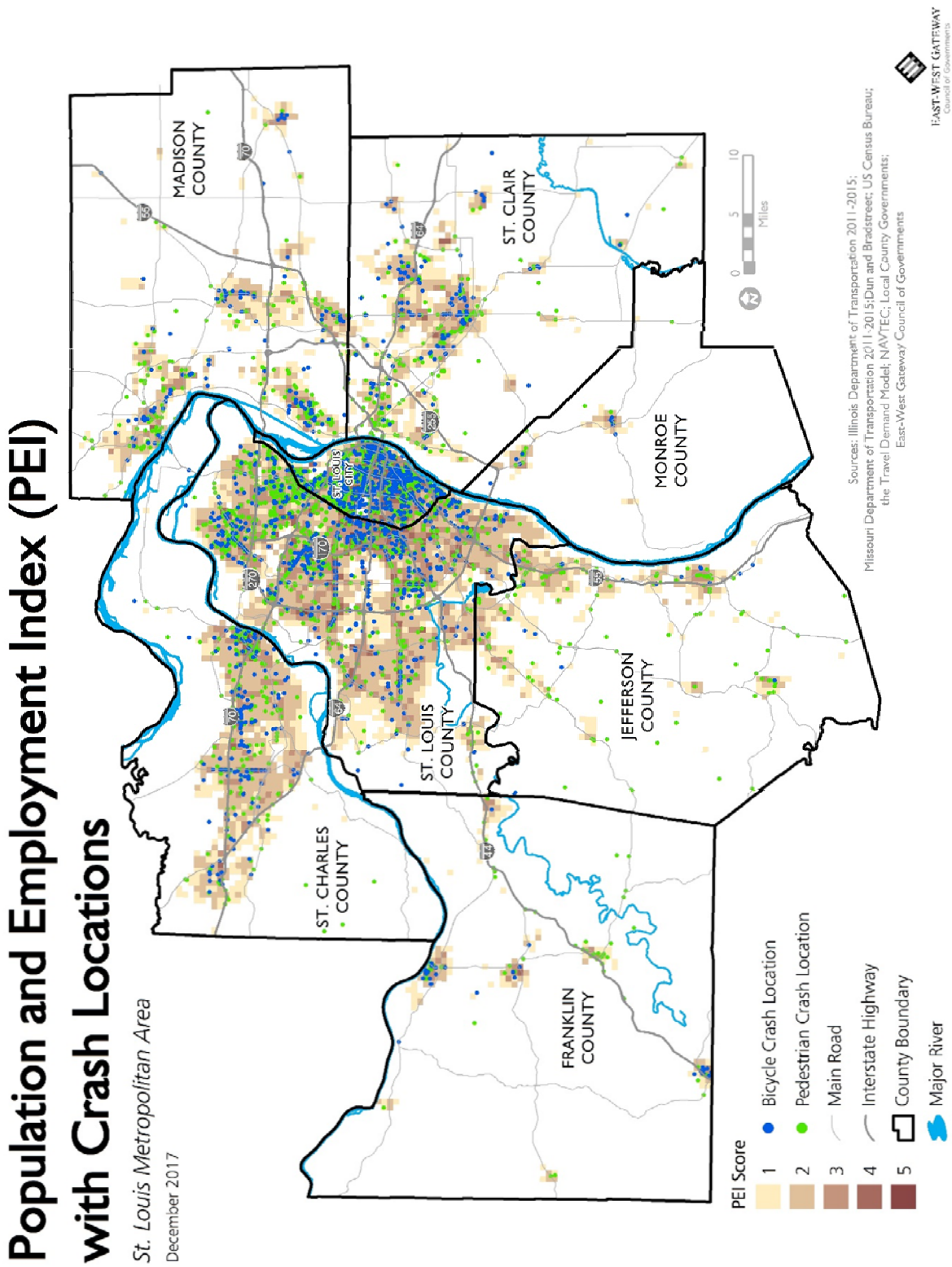
- St. Louis County is unlikely to vote to recommend or approve any scoring criteria which allows any single project to be awarded as much as 20% of the available STP funds. When combined with the rule guaranteeing one project to each County, this could result in a regionally significant allotment of funds for a project that could score very poorly from a performance standpoint.

EWG response: EWG proposes to lower the funding cap for Missouri projects from 20 percent to 15 percent of available federal funds.

- Despite the additional changes to address comments, the current Draft Criteria does not address many of our previous comments and is still not substantially different than what was originally presented and previously objected to by St. Louis County.

EWG response: The TPC has been instrumental in the development of the scoring criteria. The eight-county EWG region includes a diverse mix of urban, suburban, and rural areas that each experience unique challenges. EWG has strived to ensure that the selection criteria take these differences into consideration with a balanced, regional approach to addressing the needs of the transportation system. A major goal for the project scoring criteria is to have an objective evaluation that helps our region move the needle towards supporting federal, state, and local performance measures.

ATTACHMENT B: Population and Employment Index with Crash Locations



ATTACHMENT C: Illinois STP-S Test Evaluation Results - December 20, 2017				
Category	**Sponsor**	**Project Title**	**Fed. Cost**	**Score**
Road	ALTON	BROWN STREET / MILTON ROAD, PHASE 1	$562,500	99.03
Road	BELLEVILLE	LEBANON AVENUE	$377,226	101.93
Road	BETHALTO	NORTH PRAIRIE STREET, PHASE 1	$401,550	101.54
Road	COLLINSVILLE	EASTPORT DRIVE	$405,000	96.49
Road	EAST ALTON	WOOD RIVER AVENUE, PHASE 1	$562,500	94.03
Road	EAST ST. LOUIS	COLLINSVILLE AVENUE	$483,450	100.01
Road	EDWARDSVILLE	N BUCHANAN STREET	$410,250	95.40
Road	EDWARDSVILLE	ST. LOUIS STREET RESURFACING, PHASE 2	$564,404	96.94
Road	EDWARDSVILLE	TROY ROAD	$1,829,644	82.00
Road	EDWARDSVILLE	UNIVERSITY DRIVE IMPROVEMENTS	$910,125	82.22
Road	FAIRVIEW HEIGHTS	MARKET PLACE, PHASE 3	$320,250	94.85
Road	GODFREY	PIERCE LANE	$413,317	89.36
Road	GRANITE CITY	JOHNSON ROAD	$400,145	99.57
Road	HIGHLAND	POPLAR STREET	$791,250	79.43
Road	MADISON	3RD STREET	$496,934	90.33
Road	MARYVILLE	KEEBLER ROAD	$310,868	98.00
Road	MARYVILLE	PLEASANT RIDGE ROAD	$750,000	74.45
Road	O'FALLON	VENITA DRIVE, PHASE 1	$594,000	86.58
Road	SHILOH	SHILOH STATION ROAD, PHASE 7	$360,077	90.21
Road	TROY	EAST CLAY STREET	$438,750	95.95
Road	TROY	SPRING VALLEY ROAD, PHASE 2	$417,750	90.28
Road	WATERLOO	MOORE STREET, PHASE 6	$397,000	86.27
Road	WOOD RIVER	WOOD RIVER AVENUE, PHASE 1	$431,250	99.07

ATTACHMENT C: Missouri STP-S Test Evaluation Results - December 20, 2017				
Category	**Sponsor**	**Project Title**	**Fed. Cost**	**Score**
Road	BALLWIN	HOLLOWAY ROAD	$1,003,600	87.33
Transit	BI-STATE DEVELOPMENT/METRO	CALL-A-RIDE VAN REPLACEMENT - 2020 (A)	$1,104,000	90.18
Transit	BI-STATE DEVELOPMENT/METRO	CALL-A-RIDE VAN REPLACEMENT - 2020 (B)	$968,000	91.74
Active Trans.	BRENTWOOD	HIGH SCHOOL DRIVE SIDEWALK	$534,813	73.13
Active Trans.	BRENTWOOD	ROSALIE AVENUE SIDEWALK	$331,964	80.53
Road	BYRNES MILL	UPPER BYRNES MILL ROAD, PHASE 1	$488,280	87.22
Road	CHESTERFIELD	OLD CHESTERFIELD ROAD	$1,195,200	82.14
Road	CLAYTON	S. CENTRAL AVE/ MERAMEC AVE/ BONHOMME	$1,432,860	88.42
Road	CREVE COEUR	FERNVIEW DRIVE	$250,000	83.69
Road	CREVE COEUR	MOSLEY ROAD, PHASE 1	$425,000	87.34
Safety	CRYSTAL CITY	COMMERCIAL AVENUE	$642,879	102.91
Active Trans.	DARDENNE PRAIRIE	FEISE ROAD SIDEWALK	$91,760	75.00
Active Trans.	DARDENNE PRAIRIE	HENNING ROAD TRAIL RECONSTRUCTION PROJECT	$646,660	58.91
Active Trans.	DARDENNE PRAIRIE	MO N SIDEWALK	$190,976	56.80
Safety	DARDENNE PRAIRIE	WELDON SPRING ROAD	$3,075,520	24.75
Traffic Flow	DE SOTO	KINGSTON STREET EXTENSION	$1,039,871	-
Road	FENTON	ALLEN RD	$436,400	84.32
Road	FENTON	RUDDER RD	$1,204,000	91.04
Active Trans.	FESTUS	3RD STREET SIDEWALK	$273,240	86.64
Road	FESTUS SPECIAL ROAD DISTRICT	MEYER ROAD	$256,680	85.67
Bridge	FRANKLIN COUNTY	BOEUF CREEK ROAD BRIDGE	$672,000	101.86
Road	FRONTENAC	GEYER ROAD/CLAYTON RD IMPROVEMENTS, PHASE 1	$1,162,500	93.51
Road	HAZELWOOD	PHANTOM DRIVE ROAD DIET PROJECT	$1,931,700	92.52
Safety	HERCULANEUM	MCNUTT STREET	$786,688	86.81
Safety	HILLSBORO	BUSINESS 21, PHASE 4	$479,125	89.24
Safety	JEFFERSON COUNTY	EAST ROCK CREEK ROAD	$352,480	33.49
Road	JEFFERSON COUNTY	KONERT ROAD	$314,600	86.56
Road	JEFFERSON COUNTY	LITTLE BRENNAN ROAD / MEADOW DRIVE	$164,640	78.86
Road	JEFFERSON COUNTY	LOCAL HILLSBORO ROAD	$157,200	90.87
Road	JEFFERSON COUNTY	LONEDELL ROAD	$334,400	85.52
Road	JEFFERSON COUNTY	MAIN STREET	$481,600	91.23
Safety	JEFFERSON COUNTY	MILLER ROAD, PHASE 1	$550,480	86.09
Safety	JEFFERSON COUNTY	MILLER ROAD, PHASE 3	$217,600	33.75
Road	JEFFERSON COUNTY	MONTEBELLO ROAD	$236,880	80.71
Road	JEFFERSON COUNTY	NEW SUGAR CREEK ROAD	$182,800	83.82
Road	JEFFERSON COUNTY	NORTHWEST BLVD	$147,280	86.89
Road	JEFFERSON COUNTY	OLD LEMAY FERRY ROAD	$738,780	91.36
Road	JEFFERSON COUNTY	OLD STATE RTE. 21	$665,000	100.87
Bridge	JEFFERSON COUNTY	ROUGGLY KIEPE ROAD BRIDGE	$576,640	94.04
Safety	JEFFERSON COUNTY	SECKMAN ROAD, PHASE 2	$635,360	98.93
Road	KIRKWOOD	GEYER ROAD, PHASE 2	$1,251,128	93.50
Traffic Flow	LAKE SAINT LOUIS	LAKE SAINT LOUIS BLVD ROUNDABOUT	$1,250,000	-
Road	LAKE SAINT LOUIS	LAKE SAINT LOUIS BOULEVARD, PHASE 3	$1,275,000	85.23
Active Trans.	MANCHESTER	PIERREMONT-SAXONY ESTATES SIDEWALK	$544,200	69.11
Road	MARYLAND HEIGHTS	FEE FEE ROAD PAVEMENT	$371,000	62.45
Transit	MODOT-OATS	VEHICLE REPLACEMENT	$645,277	88.91
Road	NEW HAVEN	DOWNTOWN IMPROVEMENTS, PHASE 2	$565,923	88.06
Active Trans.	NEW MELLE	MILL STREET SIDEWALK	$322,493	85.54
Road	O'FALLON	HOFF ROAD	$1,259,200	79.41
Traffic Flow	O'FALLON	I-70 SOUTH OUTER ROAD	$1,593,032	-
Traffic Flow	O'FALLON	PAUL RENAUD BOULEVARD EXTENSION	$1,372,000	-
Road	O'FALLON	WINGHAVEN BLVD	$1,304,406	86.89
Road	OLIVETTE	DIELMAN ROAD, PHASE 2	$574,577	88.05
Active Trans.	PACIFIC	OSAGE STREET SIDEWALK	$703,667	80.76
Bridge	RICHMOND HEIGHTS	LOVELLA AVENUE BRIDGE	$388,000	103.42
Road	ST. CHARLES	CLARK STREET	$4,000,000	86.73
Road	ST. CHARLES	DUCHESNE DRIVE	$2,720,000	92.30
Road	ST. CHARLES	HAWKS NEST DRIVE	$1,680,000	76.60
Road	ST. CHARLES	SOUTH FIFTH STREET	$2,400,000	88.80
Safety	ST. CHARLES	STRATEGIC HWY SAFETY PLAN IMPROVEMENTS	$560,000	92.08
Road	ST. CHARLES	TRUMAN ROAD, PHASE 2	$1,000,000	104.37
Road	ST. CHARLES COUNTY	DAVID HOEKEL PARKWAY, PHASE 1B	$1,300,000	81.94
Safety	ST. CHARLES COUNTY	DAVID HOEKEL PKWY, PH. 2 (BUCKNER/S POINT PRAIRIE)	$750,000	44.23
Road	ST. CHARLES COUNTY	DUELLO ROAD, PHASE 3	$1,500,000	87.66
Road	ST. CHARLES COUNTY	HEPPERMAN ROAD, PHASE 2	$1,285,000	89.11
Traffic Flow	ST. CHARLES COUNTY	MO 364	$1,500,000	-
Safety	ST. CHARLES COUNTY	SCHWEDE ROAD	$235,000	37.72

ATTACHMENT C: Missouri STP-S Test Evaluation Results - December 20, 2017				
Category	**Sponsor**	**Project Title**	**Fed. Cost**	**Score**
Bridge	ST. CHARLES COUNTY	SEEBURGER ROAD BRIDGE	$440,000	102.31
Road	ST. LOUIS	7TH STREET	$1,680,000	93.60
Bridge	ST. LOUIS	COMPTON AVENUE BRIDGE	$2,000,000	94.41
Bridge	ST. LOUIS COUNTY	BAYLESS AVENUE BRIDGE	$2,100,000	86.26
Road	ST. LOUIS COUNTY	CREVE COEUR MILL ROAD - 2021	$1,100,000	92.23
Road	ST. LOUIS COUNTY	EDDIE & PARK ROAD - 2021	$1,010,640	91.25
Road	ST. LOUIS COUNTY	HANLEY ROAD - 2021	$1,100,000	94.23
Road	ST. LOUIS COUNTY	HANNA ROAD - 2021	$2,181,680	77.13
Safety	ST. LOUIS COUNTY	HILLSBORO ROAD, PHASE 1 - 2021	$1,000,000	92.37
Road	ST. LOUIS COUNTY	KINGSLAND AVENUE - 2021	$1,047,600	90.83
Road	ST. LOUIS COUNTY	LACKLAND ROAD - 2021	$1,400,000	88.80
Road	ST. LOUIS COUNTY	MCKELVEY RD/BENNINGTON PL/AMELING RD - 2021	$1,000,000	89.37
Road	ST. LOUIS COUNTY	MCKELVEY ROAD, PHASE 2 - 2021	$1,128,610	91.90
Bridge	ST. LOUIS COUNTY	MERAMEC BOTTOM ROAD BRIDGE	$1,095,200	95.28
Road	ST. LOUIS COUNTY	US 67 (LINDBERGH)	$4,000,000	92.73
Road	ST. LOUIS COUNTY	VALCOUR AVENUE - 2021	$900,000	91.51
Road	ST. LOUIS COUNTY	WASHINGTON STREET - 2021	$1,100,000	90.23
Road	ST. LOUIS COUNTY	WHITE ROAD	$900,000	91.51
Active Trans.	ST. PETERS	CENTENNIAL GREENWAY, PHASE 4 (MCCLAY RD)	$823,686	75.39
Active Trans.	SULLIVAN	FISHER DRIVE SIDEWALK	$284,022	87.62
Traffic Flow	SULLIVAN	I-44	$745,702	-
Road	TOWN & COUNTRY	TOPPING ROAD	$814,400	90.49
Bridge	UNION	DENMARK ROAD BRIDGE	$756,070	96.16
Road	UNIVERSITY CITY	WESTGATE AVE	$932,274	91.15
Road	VALLEY PARK	ST. LOUIS AVENUE, PHASE 2	$1,312,344	94.80
Road	WASHINGTON	THIRD STREET	$692,000	89.82
Active Trans.	WEBSTER GROVES	BIG BEND BOULEVARD SIDEWALK, PHASE 1	$247,730	79.69
Traffic Flow	WENTZVILLE	WEST MEYER, PHASE 3	$1,265,000	-
Road	WILDWOOD	SHEPARD RD/STRECKER RD/VALLEY RD	$1,120,000	79.00

Legend:

-	A traffic flow project that could not be scored under the draft scoring criteria because data were not available. Test projects from the previous TIP cycle with similar characteristics were used to determine effectiveness of criteria.
#	A safety project with a benefit cost ratio less than 1, and sponsor selected 'no' to safety countermeasure being included in state/county strategic highway safety plan and 'no' to having completed a safety study.

ATTACHMENT D: STP-S Scoring Criteria – December 20, 2017

The current federal transportation law, Fixing America's Surface Transportation (FAST) Act, continues the reforms initiated by the previous law, Moving Ahead for Progress in the 21st Century (MAP-21). This includes transitioning to a performance-driven, outcome-based program, and establishing performance goals for federal-aid highway programs. Performance-based planning and programming ensures that resources are invested in projects that make progress toward achieving critical outcomes for the St. Louis region.

The East-West Gateway Council of Governments (EWG) Board of Directors adopted *Connected2045*, the long-range transportation plan (LRP) for the St. Louis region, in June 2015. Projects in the Transportation Improvement Program (TIP) must be consistent with the 10 guiding principles of *Connected2045*, which are described in **Table 1**. These 10 principles guide transportation system evaluation and decision making, including the competitive selection of the Surface Transportation Block Grant (STP-S) program.

Table 1: *Connected2045* 10 Guiding Principles

Principle	Description
Preserve & Maintain the Existing System	Ensure the transportation system remains in a state of good repair.
Support Public Transportation	Invest in public transportation to spur economic development, protect the environment, and improve quality of life.
Support Neighborhoods & Communities	Connect communities to opportunities and resources across the region.
Foster a Vibrant Downtown & Central Core	Improve access to and mobility within the central core by all modes to increase attractiveness of St. Louis and strengthen the regional economy.
Provide More Transportation Choices	Create viable alternatives to automobile travel by providing bicycle and pedestrian facilities.
Promote Safety & Security	Provide a safe and secure transportation system for all users.
Support a Diverse Economy with a Reliable System	Reduce congestion and improve travel time reliability to support the diverse economic sectors of the region.
Support Quality Job Development	Support the growth of wealth producing jobs that allow residents to save and return money to the economy.
Strengthen Intermodal Connections	Support freight movement and connections that are critical to the efficient flow of both people and goods.
Protect Air Quality & Environmental Assets	Encourage investments that recognize the linkages between the social, economic, and natural fabric of the region.

EWG has identified seven types of potential projects. These project types are identified below, followed by example activities:

- **Road** – road resurfacing or reconstruction.
- **Bridge** – bridge rehabilitation or replacement, bridge preventative maintenance program.
- **Traffic Flow** – addition of travel lanes, two-way turn lanes, new roads, intersection improvements, Intelligent Transportation Systems (ITS) improvements, signal optimization. **Note**: single occupant vehicle (SOV) capacity expansion projects are not eligible for funding under the Congestion Mitigation and Air Quality Improvement Program (CMAQ), but are eligible under STP-S.
- **Safety** – systemic safety improvements (e.g., guardrail or rumble strip installation), sight distance improvements, signage upgrades, intersection/crossing safety improvements.
- **Active Transportation** – shared-use paths, on-street bicycle facilities, sidewalks, bicycle and pedestrian bridges and underpasses.
- **Transit:**
    - **Transit Asset Management and System Upgrades** – revenue replacement vehicles, improvements to transit facilities, maintenance facility for revenue vehicles
    - **Expansion** – vehicle fleet expansion, geographic expansion

- **Freight/Economic Development** – road or bridge projects that improve the flow of freight or promote economic development, railway-highway grade separation, traffic signal optimization, truck parking facilities.

Each project type will be evaluated based on how it meets the priority criteria established in *Connected2045*. **Table 2** details the performance criteria values for each project type.

Table 2: Project Type and Performance Criteria Values

	STP-S Project Type							
***Connected2045* Investment Priority Criteria**	**Road***	**Bridge***	**Traffic Flow**	**Safety**	**Active Transportation**	**Transit Asset Management & System Upgrades**	**Transit Expansion****	**Freight / Economic Development*****
Preserve & Maintain the Existing System	65/72	65/69	5	8	-	45	-	5
Multimodal: Support Public Transportation / Provide More Transportation Choices	12/5	9/5	11	10	32	24	64/69	10
Support Neighborhoods & Communities	4	4	4	5	20	8	8	4
Foster a Vibrant Downtown & Central Core	-	-	-	-	10	1	1	-
Promote Safety	8	13	10	70	35	7	7	10
Support a Diverse Economy with a Reliable System	1	-	50	-	-	5	5	10
Support Quality Job Development	4	4	5	-	-	-	5/0	0/10
Strengthen Intermodal Connections	5	5	5	7	-	-	-	60/50
Protect Air Quality & Environmental Assets	1	-	10	-	3	10	10	1
Total Performance Points	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

*Road and bridge projects are categorized as either 'within community' or 'outside community.' The point values under Preserve & Maintain the Existing System and Multimodal vary depending on the project category.
**Transit expansion projects can include either adding capacity projects or geographic expansion projects. The point values under Multimodal and Support Quality Job Development vary depending on the project type.
***This project type includes freight or economic development activities. The point values under the Support Quality Job Development and Strengthen Intermodal Connections vary depending on the project type.

All application submittals are expected to have one primary project type. The component of the project that is most important to the sponsor is considered the primary type. Many of the projects could fall into multiple project types. For example, if a sponsor in planning on resurfacing a road and adding a bicycle lane, the project is considered multimodal. Assuming that the roadway resurfacing is the primary activity, the project would be evaluated as a road project type and can earn points for providing more transportation choices.

All projects will be scored and ranked based on the primary project type indicated by the project sponsor. Each project type has a maximum of 10 criteria and up to 14 metrics that are used to assign performance points. Certain criteria do not apply to all project types. For example, a road project type is assessed for nine out of the 10 criteria (12 metrics) and an active transportation project type is assessed for six out of the 10 criteria (13 metrics). The criteria are held constant across the project types, however, the measures and metrics vary depending on the project type. In addition, criterion can contain multiple measures and metrics.

Each project type can receive a maximum of 100 performance points. Each project type has a primary purpose that include the measures and metrics that are most important to the project type. For example, the measure that has the most amount of points in the road project type is the road condition, worth 60 points. Road condition is also evaluated in the traffic flow and freight/economic development project types, but is only worth five points. This is

because the primary purpose of road type projects is to preserve the roadway. As noted before, the measures and metrics are specific to each project type. All project types compete against each other for the available STP-S funding. Funding is not set aside in silos by project type.

Project usage and cost points will be included in the final scoring of each project, which is worth an additional 25 points. Projects can receive up to five points for usage and up to 20 points for cost. Person Miles of Travel (PMT) will be calculated for each project type to determine the facility usage. The purpose of the cost metric is to place emphasis on projects requesting a lower amount of STP-S funding, as well as to spread funding around to more projects. Cost points are assigned based on the amount of federal funds requested compared to the total funds available in Missouri, and the amount of construction funds requested compared to the adjusted construction funds available in Illinois. The percentage values are grouped into ranges. Within each percentage range, the points assigned to each project are scaled based on the percentage requested. The projects in the lowest percentage range are adjusted on a curve.

Table 3 shows the usage allocation breakdown for Illinois and Missouri. **Table 4** shows the cost allocation breakdown for Illinois and Missouri.

Table 3: Usage Allocation Breakdown – Illinois and Missouri

Usage Ranges – PMT (Illinois)	Points		Usage Ranges – PMT (Missouri)	Points
4,001+	5		10,001+	5
2,001-4,000	4		5,001-10,000	4
1,101-2,000	3		2,001-5,000	3
501-1,100	2		701-2,000	2
1-500	1		1-700	1

Table 4: Cost Allocation Breakdown - Illinois and Missouri

Adjusted Construction Cost Ranges (Illinois)*	Point Range
Project requests 8.9% or less of the adjusted construction funds available	20 – 17.4
Project requests 9.0-10.9% of the adjusted construction funds available	17.3 – 12.1
Project requests 11.0-12.9% of the adjusted construction funds available	12 – 8.1
Project requests 13.0-15.9% of the adjusted construction funds available	8 – 4.1
Project requests 16-19.9% of the adjusted construction funds available	4 - 1
Project requests 20.0% or more of the adjusted construction funds available	0
**the adjusted construction funds available = IDOT STP-S funding mark/0.75*	
Federal Project Cost Ranges (Missouri)	**Point Range**
Project requests 1.9% or less of the funds available	20 – 18.8
Project requests 2.0-2.9% of the funds available	18.7 – 14.8
Project requests 3.0-3.9% of the funds available	14.7 – 10.8
Project requests 4.0-4.9% of the funds available	10.7 – 6.8
Project requests 5.0-9.9% of the funds available	6.7 – 4.1
Project requests 10.0-14.9% of the funds available	4 – 2.8
Project requests 15.0% or more of the funds available	0

Road Project Type

Table 5 outlines the scheme for evaluating road projects. Road projects are assessed for nine out of the 10 criteria and include 12 metrics. No measures were identified for the criteria related to Foster a Vibrant Downtown & Central Core. Further information on the metrics used to evaluate road projects follows.

Table 5: Road Project Type Evaluation Scheme

***Connected2045* Investment Priority Criteria**	**Measure**	**Metric**	**Points**
Preserve & Maintain the Existing System	Road condition	PASER rating	60
	Significance	Functional classification	5
Multimodal: Support Public Transportation / Provide More Transportation Choices	Multimodal accommodations	Elements of other modes being implemented as part of the project	12
Support Neighborhoods & Communities	Environmental Justice	Project falls in or partially located in area with a high concentration of: a. low-income persons or minority populations b. zero-vehicle households c. seniors or persons with disabilities	4
Foster a Vibrant Downtown & Central Core	n/a	n/a	n/a
Promote Safety	Improved safety	1. Total crash rate 2. Fatal & serious injury crash rate 3. Safety countermeasure proposed	8
Support a Diverse Economy with a Reliable System	Improved facility efficiency	Management and operations elements	1
Support Quality Job Development	Access to jobs	Job density	4
Strengthen Intermodal Connections	Regional freight significance	1. Freight proximity 2. Commercial vehicle countermeasures	5
Protect Air Quality & Environmental Assets	Impact to the environment	Environmental infrastructure elements	1

Preserve & Maintain the Existing System (65 total points)

Projects will be assessed in terms of how they contribute to the preservation of existing infrastructure assets. The first metric evaluates the condition of the pavement. The second metric evaluates the project's significance to the National Highway System.

Road Condition (60 points)

Pavement condition will be assessed using the Pavement Surface Evaluation and Rating (PASER) Guide, which is a visual rating system. PASER ratings range from 1-10, with 1 being '*very poor*' condition and 10 being '*excellent*' condition. Facilities with a PASER rating of 1.5 or less are assigned a lower priority to encourage preventative maintenance prior to this level of deterioration. Examples of the types of improvements typically used on roadways with different pavement ratings, as well as their associated scores, are listed below. This is meant to be illustrative, and not an exhaustive list of improvements eligible for funding.

60 points PASER 1.6-4.5 – Includes improvements such as mill and overlay, extensive slab replacement, joint rehabilitation, or full-depth pavement repairs.

57 points PASER 4.6-5.5 – Includes project elements that are primarily focused on preservative treatments and non-structural surface repairs.

53 points PASER 5.6-7.5 – Includes project elements that are primarily focused on preservative treatments, non-structural surface repairs, routine sealing, and minor patching of pavement to prevent further deterioration.

40 points PASER 1.5 or less – Includes full reconstruction of the facility, regardless of pavement condition. Reconstruction may be due to deterioration or deficient design.

30 points PASER 7.6-8.5 – Includes standard roadway maintenance.

Zero points	PASER 8.6-10 – Includes pavement in new or like-new condition with no maintenance required.

Regional Transportation Significance (5 points)
This measure evaluates how critical the route's location is to the regional network. Scoring is based on the functional classification of the road. **Note**: local and rural minor collectors are not eligible for road applications.

5 points	Principal arterial.
4 points	Minor arterial.
3 points	Major collector.
2 points	Urban minor collector.
Zero points	Project is on the state system.

Note: road projects with a population and employment index less than two are considered an 'outside community' type project. A map of the population and employment index is included in **Appendix A**. 'Outside community' projects will be evaluated for regional transportation significance using the following metric:

12 points	Principal arterial.
10 points	Minor arterial.
7 points	Major collector.
4 points	Urban minor collector.
Zero points	Project is on the state system.

Multimodal: Support Public Transportation / Provide More Transportation Choices (12 total points)
This measure relates to *Connected2045*'s goal of fostering a multimodal transportation system. Incorporating bicycle and pedestrian facilities in road projects is an efficient and cost-effective way for communities to create multimodal networks. In addition, road projects can provide multiple benefits to public transit, including better mobility for transit vehicles and better access for users of all ages and abilities.

EWG encourages context-sensitive facilities and taking a flexible approach to achieving multimodal transportation networks. Projects can score up to 12 points (of a possible 46) for the following features existing and being retained, or being included in and newly constructed by the project. 'Outside community' road projects are capped at five points. **Note**: a project does not need to satisfy all improvements listed below to earn points. For example, if a road project is addressing poor sidewalks on both sides of the road, reconstructing ADA curb ramps, and a school is along the corridor, 11 points will be assigned. Projects that score over the 12 points will be capped at 12 points.

3 points	Project is located on a transit route; OR **1 point** if project intersects a transit route
2 points	Includes physical improvements to transit system (benches, ADA landing pads, shelters, etc.)
1 point	New or upgraded bicycle and/or pedestrian connection to transit system OR new or upgraded bicycle and/or pedestrian connection to activity center
3 points	Bicycle and/or pedestrian facility directly touching school property; OR **1 point** if bicycle and/or pedestrian facility is within ½-mile of school

6 points	Corrects existing sidewalk deficiencies (deficiencies = poor sidewalk conditions or existing width ≤ 4') or new 5' sidewalks (residential) or 8' sidewalks (commercial) on both sides of road
4 points	New or upgraded 5' sidewalks (residential) or 8' sidewalks (commercial) on one side of road
2 points	Reconstruction of curb ramps
8 points	10' shared-use path; OR **6 points** for 8' shared-use path
6 points	Physically protected or buffered on-street bicycle facility
4 points	Conventional bike lanes on roads at 30 mph or less; OR **2 points** for conventional bike lanes on roads at 35 mph
5 points	5'-8' paved shoulders; OR **3 points** for 4' paved shoulders
1 point	Shared-lane markings on roads at 25 mph or less
4 points	Safety improvements to at-grade rail crossing
4 points	Speed control or volume control solutions to reduce modal conflicts (road diet, bulb outs, raised crosswalks, refuge islands, etc.)
2 points	Pedestrian-scale lighting along bicycle/pedestrian facility
4 points	Crossing treatments at intersections or uncontrolled locations (pedestrian signals, pedestrian flashing beacons, high visibility crosswalks, bicycle intersection crossing markings, etc.); OR **2 points** for standard crosswalk only
1 point	Street trees and/or landscaped buffer between roadway and sidewalk
1 point	Includes physical or innovative improvements to the bicycle network (bicycle-friendly grates, bike racks, bike boxes, etc.)

Support Neighborhoods & Communities (4 total points)

This measure is included to account for projects that are located in Environmental Justice (EJ) areas. The purpose of EJ is to focus federal attention on the environmental and human health effects of federal actions on minority or low-income populations with the goal of achieving environmental protection for all communities. EWG further expands on EJ to include areas with a high concentration of one or more of: zero-vehicle households, elderly, and persons with a disability. The EJ policy ensures that populations that have traditionally been underserved have safe access to community resources and meaningful choices in transportation. Census data and GIS analysis is used to determine if the project is located in an EJ area. A map of the EJ areas is provided in **Appendix A**.

4 points	Project falls in, or partially in, an EJ area with high concentration of low-income persons, or minorities.
3 points	Project falls in, or partially in, an EJ area with high concentration of zero-vehicle households.
1 point	Project falls in, or partially in, an EJ area with high concentration of seniors or persons with a disability.
Zero points	Project is not located in an EJ area OR project imposes a burden on EJ area.

Projects that are located within EJ areas will not earn points if they impose a burden on the population of the area. Burdens may include disruption of community cohesion (i.e., access to schools, parks, medical facilities, and religious institutions), adverse employment effects, decline in tax base or property values, displacements, increased noise and/or emissions, diminished aesthetics, and disruption to businesses, or access to transit.

Promote Safety (8 total points)

EWG is focusing on lowering the number of fatalities and serious injuries caused by vehicle crashes. To meet this goal, all projects should strive to correct safety issues in high crash locations or use a systemic approach to address future crashes. The two metrics relate to the current conditions on the roadway by looking at the total crash rate

and the fatal and serious injury crash rate. This helps prioritize projects that are in locations experiencing a current problem. The third metric addresses the stated safety problem with an appropriate safety countermeasure.

Project sponsors must use five years of crash data (2011-2015) when calculating the total crash rate and the fatal and serious injury crash rate. Sponsors should use the number of fatal and serious injury crashes and not the total number of fatalities or serious injuries. To receive points under metric one and metric two, the project must include a safety countermeasure that addresses the current safety problem.

Total Crash Rate (4 points)
EWG will group all projects that have crashes into quartiles and assign points as follows:

4 points	Top quartile
3 points	Second quartile
2 points	Third quartile
1 point	Lowest quartile

Fatal and Serious Injury Crash Rate (4 points)
EWG will group all projects that have crashes into quartiles and assign points as follows:

4 points	Top quartile
3 points	Second quartile
2 points	Third quartile
1 point	Lowest quartile

Note: if an *intersection* project is in the lowest quartile in both metric one and metric two, and the project includes a safety countermeasure that addresses the safety problem, the project can receive four total points. If a project has no crashes on the project limits, but includes a preventative safety countermeasure, the project can receive two total points.

Support a Diverse Economy with a Reliable Transportation System (1 total point)
Management and operations (M&O) strategies are defined as integrated strategies to optimize the performance of existing infrastructure through the implementation of multimodal and intermodal, cross-jurisdictional systems, services, and projects designed to preserve capacity and improve security, safety, and reliability of the transportation system. Examples of M&O strategies include: traffic operational improvements, ITS technologies, or other integrated technology component to increase facility efficiency and reliability. This metric evaluates the integration of M&O strategies into roadway projects.

1 point	Project includes M&O strategies.
Zero points	Project does not include M&O strategies.

Support Quality Job Development (4 total points)
Access to jobs is an important function of the transportation system. The *OnTheMap* tool is derived from census data and will be used to assess where workers are employed in the region. Employment density will be used as a metric in determining how important improvements to transportation facilities are in the surrounding area.

4 points	High jobs/sq. mile

3 points	Medium-high jobs/sq. mile
2 points	Medium jobs/sq. mile
1 point	Medium-low jobs/sq. mile
Zero points	Low jobs/sq. mile

Strengthen Intermodal Connections (5 total points)
The St. Louis region is well positioned to capture some of the expected growth in nationwide freight movement for all modes, given the region's central location, rivers, low traffic congestion, and lack of tolling. Future growth will depend on coordinating public and private freight decision making and investments, ensuring reliable truck travel times, strengthening multi-modal connections to key industrial site areas, and ensuring the region's workforce can access freight employment opportunities. A map of the industrial site areas and the Primary Highway Freight System is provided in **Appendix A**.

Freight Proximity (3 points)
In 2013, EWG completed the St. Louis Regional Freight Study. The Study identified key industrial areas that influence the freight industry in the St. Louis region. Industrial site areas are centers of employment and are connected by a series of transportation networks. Projects that improve mobility to an industrial site area, connect to the Primary Highway Freight System, or connect to an intermodal facility will earn points under this metric.

3 points The project meets one of the following criteria:

- Located within an industrial site areas.
- Connects to the Primary Highway Freight System.
- Connects to an intermodal freight facility, serves a major freight generator, logistic center, manufacturing and warehouse industrial land, or navigable waterway or Port District.

Commercial Vehicle Countermeasure (2 points)
To earn points under this metric, the project must score points under the first metric, freight proximity, and include a commercial vehicle countermeasure that improves freight movement. Common techniques related to commercial vehicle accommodations include improving shoulder width and pavement structure, intersection design, parking, acceleration/deceleration lanes, and truck and car separation.

2 points The project addresses the stated freight problem with appropriate commercial vehicle countermeasures.

Protect Air Quality & Environmental Assets (1 total point)
Transportation projects should limit the impacts on the natural environment. Green infrastructure is a design approach to managing stormwater, the urban heat island effect, public health, and air quality. Sustainable stormwater management treats and slows runoff from impervious roadways, sidewalks, and building surfaces. Examples of green infrastructure include bioswales, rain gardens, pervious strips, pervious pavement, and green bulb-outs. This metric evaluates the integration of green infrastructure into roadway projects.

1 point	Project includes green infrastructure elements.
Zero points	Project does not include green infrastructure.

Bridge Project Type

Table 6 outlines the scheme for evaluating bridge projects. Bridge projects are assessed for seven out of the 10 criteria and include 8 metrics. No measures were identified for the criteria related to Foster a Vibrant Downtown & Central Core, Support a Diverse Economy with a Reliable System, and Protect Air Quality & Environmental Assets. Further information on the metrics used to evaluate bridge projects follows.

Table 6: Bridge Project Type Evaluation Scheme

***Connected2045* Investment Priority Criteria**	**Measure**	**Metric**	**Points**
Preserve & Maintain the Existing System	Bridge condition	Bridge sufficiency rating	60
	Significance	Functional classification	5
Multimodal: Support Public Transportation / Provide More Transportation Choices	Multimodal accommodations	Elements of other modes being implemented as part of the project	9
Support Neighborhoods & Communities	Environmental Justice	Project falls in or partially located in area with a high concentration of: a. low-income persons or minority populations b. zero-vehicle households c. seniors or persons with disabilities	4
Foster a Vibrant Downtown & Central Core	n/a	n/a	n/a
Promote Safety	Improved safety	1. Structurally deficient 2. Functionally obsolete	13
Support a Diverse Economy with a Reliable System	n/a	n/a	n/a
Support Quality Job Development	Access to jobs	Job density	4
Strengthen Intermodal Connections	Regional freight significance	Bridge weight limits	5
Protect Air Quality & Environmental Assets	n/a	n/a	n/a

Preserve & Maintain the Existing System (65 total points)
Projects will be assessed in terms of how they contribute to the preservation of existing infrastructure assets. The first metric evaluates the condition of the bridge. The second metric evaluates the project's significance to the National Highway System.

Bridge Condition (60 points)
Bridge conditions will be assessed using the bridge sufficiency rating system approved by Federal Highway Administration (FHWA). Bridge sufficiency ratings range from 0-100, with 0 being '*completely deficient*' and 100 being a *'new'* bridge. The ratings are based on several factors, including: width, vertical clearance, load capacity, essentiality for public use, and structural safety.

60 points	Bridge sufficiency rating 0-39.9 (very poor)
57 points	Bridge sufficiency rating 40-49.9 (poor)
50 points	Bridge sufficiency rating 50-59.9 (fair)
30 points	Bridge sufficiency rating 60-79.9 (good)
Zero points	Bridge sufficiency rating 80-100 (excellent)

Note: preventative maintenance activities may be eligible for funding if the sponsor has in place a systematic process, such as a Bridge Management System, which demonstrates the cost effectiveness of extending the service life of the bridge. If preventative maintenance activities are proposed, the project can receive 50 points under this metric. Preventative maintenance activities must be previously reviewed and approved by FHWA.

Regional Transportation Significance (5 points)
This measure evaluates how critical the route's location is to the regional network. Scoring is based on the functional classification of the road.

5 points	Principal/minor arterial.
3 points	Major/minor collector.
2 points	Local.
Zero points	Project is on the state system.

Note: bridge projects with a population and employment index less than two are considered an 'outside community' type project. A map of the population and employment index is included in **Appendix A**. 'Outside community' projects will be evaluated for regional transportation significance using the following metric:

9 points	Principal/minor arterial.
7 points	Major/minor collector.
6 points	Local.
Zero points	Project is on the state system.

Multimodal: Support Public Transportation / Provide More Transportation Choices (9 total points)
This measure relates to *Connected2045*'s goal of fostering a multimodal transportation system. The UDSOT *Policy Statement on Bicycle and Pedestrian Accommodation Regulations and Recommendations* (2010) identifies sections of the United States Code (USC) that pertain to walking and bicycling: "In any case where a highway bridge deck being replaced or rehabilitated with Federal financial participation is located on a highway on which bicycles are permitted to operate at each end of such bridge, and the Secretary determines that the safe accommodation of bicycles can be provided at reasonable cost as part of such replacement or rehabilitation, then such bridge shall be so replaced or rehabilitated as to provide such safe accommodations" (23 U.S.C. 217(e)). Although this requirement only mentions bicycles, the DOT encourages States and local governments to apply this same policy to pedestrian facilities as well.

EWG encourages context-sensitive facilities and taking a flexible approach to achieving multimodal transportation networks. Projects can score up to 9 points (of a possible 32) for the following features existing and being retained, or being included in and newly constructed by the project. 'Outside community' road projects are capped at five points. **Note**: a project does not need to satisfy all improvements listed below to earn points. Projects that score over the 9 points will be capped at 9 points.

3 points	Project is located on a transit route
1 point	New or upgraded bicycle and/or pedestrian connection within ½-mile of transit system OR new or upgraded bicycle and/or pedestrian connection within ½-mile of activity center
3 points	Bicycle and/or pedestrian facility is within ½-mile of school
6 points	Corrects existing sidewalk deficiencies (deficiencies = poor sidewalk conditions or existing width ≤ 4') or new 5' sidewalks (residential) or 8' sidewalks (commercial) on both sides of bridge
4 points	New or upgraded 5' sidewalks (residential) or 8' sidewalks (commercial) on one side of bridge
2 points	Reconstruction of curb ramps
8 points	10' shared-use path; OR **6 points** for 8' shared-use path

6 points	Physically protected or buffered on-street bicycle facility
4 points	Conventional bike lanes on roads at 30 mph or less; OR **2 points** for conventional bike lanes on roads at 35 mph
5 points	5'-8' paved shoulders; OR **3 points** for 4' paved shoulders
2 points	Shared-lanes on bridge at 25 mph or less OR on 'outside community' bridges with 1,000 ADT or less
4 points	Bicycle/pedestrian railing and/or protective screening
2 points	Pedestrian-scale lighting along bicycle/pedestrian facility

Support Neighborhoods & Communities (4 total points)
This measure is included to account for projects that are located in Environmental Justice (EJ) areas. The purpose of EJ is to focus federal attention on the environmental and human health effects of federal actions on minority or low-income populations with the goal of achieving environmental protection for all communities. EWG further expands on EJ to include areas with a high concentration of one or more of: zero-vehicle households, elderly, and persons with a disability. The EJ policy ensures that populations that have traditionally been underserved have safe access to community resources and meaningful choices in transportation. Census data and GIS analysis is used to determine if the project is located in an EJ area. A map of the EJ areas is provided in **Appendix A**.

4 points	Project falls in, or partially in, an EJ area with high concentration of low-income persons, or minorities.
3 points	Project falls in, or partially in, an EJ area with high concentration of zero-vehicle households.
1 point	Project falls in, or partially in, an EJ area with high concentration of seniors or persons with a disability.
Zero points	Project is not located in an EJ area OR project imposes a burden on EJ area.

Projects that are located within EJ areas will not earn points if they impose a burden on the population of the area. Burdens may include disruption of community cohesion (i.e., access to schools, parks, medical facilities, and religious institutions), adverse employment effects, decline in tax base or property values, displacements, increased noise and/or emissions, diminished aesthetics, and disruption to businesses, or access to transit.

Promote Safety (13 total points)
A bridge with a deficient condition is considered a priority for replacement. Bridge deficiencies can be categorized as structurally deficient and/or functionally obsolete.

Structurally Deficient (8 points)
Structural deficiencies are characterized by deteriorated conditions of significant bridge elements. A structurally deficient designation does not imply that the bridge is unsafe, but could become so and would need to be closed without substantial improvements. Structurally deficient bridges typically require significant maintenance or repair to remain in service and would eventually require major rehabilitation or replacement to address the underlying deficiencies. To be considered structurally deficient, a bridge must meet the following:

- A condition rating of four or less for a deck, superstructure, substructure, or culvert and retaining walls.
- An appraisal rating of two or less for the structural condition or waterway adequacy.

Bridges that are structurally deficient will earn points under this metric.

8 points	The bridge is structurally deficient.

Zero points	The bridge is not structurally deficient.

Functionally Obsolete (5 points)
A bridge is considered functionally obsolete when it does not meet current design standards either because the volume of traffic exceeds the level anticipated when the bridge was constructed and/or relevant design standards have been revised. To be considered functionally obsolete, a bridge must meet the following:

- A condition rating of three or less for deck geometry, underclearances, or approach/roadway alignment.
- An appraisal rating of three or less for the structural condition or waterway adequacy.

Bridges that are functionally obsolete will earn points under this metric.

5 points	The bridge is functionally obsolete or systemic preventative maintenance activity proposed.
Zero points	The bridge is not functionally obsolete.

Support Quality Job Development (4 total points)
Access to jobs is an important function of the transportation system. The *OnTheMap* tool is derived from census data and will be used to assess where workers are employed in the region. Employment density will be used as a metric in determining how important improvements to transportation facilities are in the surrounding area.

4 points	High jobs/sq. mile
3 points	Medium-high jobs/sq. mile
2 points	Medium jobs/sq. mile
1 point	Medium-low jobs/sq. mile
Zero points	Low jobs/sq. mile

Strengthen Intermodal Connections (5 total points)
In 1975, Congress enacted the Bridge Formula to limit the weight-to-length ratio of a vehicle crossing a bridge. Posted weight limits impact the movement of freight as trucks may have to detour to avoid a weight restricted bridge. Projects that rehabilitate or replace a load-limited bridge to improve freight movement will earn points under this metric.

5 points	The bridge has a posted weight limit of at least 20 tons.
3 points	The bridge has a posted weight limit between 20.1 and 40 tons.
2 points	The bridge has a posted weight limit above 40 tons.
Zero points	The bridge does not have a posted weight limit.

Traffic Flow Project Type

Table 7 outlines the scheme for evaluating traffic flow projects. Traffic flow projects are assessed for 9 out of the 10 criteria and include 13 metrics. Further information on the metrics used to evaluate traffic flow projects follows.

Table 7: Traffic Flow Project Type Evaluation Scheme

***Connected2045* Investment Priority Criteria**	**Measure**	**Metric**	**Points**
Preserve & Maintain the Existing System	Road or bridge condition	PASER rating or bridge sufficiency rating	5
	ITS condition	Preserving ITS components	
Multimodal: Support Public Transportation / Provide More Transportation Choices	Multimodal accommodations	Elements of other modes being implemented as part of the project	11
Support Neighborhoods & Communities	Environmental Justice	Project falls in or partially located in area with a high concentration of: a. low-income persons or minority populations b. zero-vehicle households c. seniors or persons with disabilities	4
Foster a Vibrant Downtown & Central Core	n/a	n/a	n/a
Promote Safety	Improved safety	1. Total crash rate 2. Fatal & serious injury crash rate 3. Safety countermeasure proposed	10
Support a Diverse Economy with a Reliable System	Improved mobility and congestion	Speed or delay improvements	50
Support Quality Job Development	Access to jobs	Job density	5
Strengthen Intermodal Connections	Regional freight significance	1. Freight proximity 2. Commercial vehicle countermeasures	5
Protect Air Quality & Environmental Assets	Impact to the environment	1. Reduction in VOC & NO_x 2. Environmental infrastructure elements	10

Preserve & Maintain the Existing System (5 total points)
Projects will be assessed in terms of how they contribute to the preservation of existing infrastructure assets. The first metric evaluates the condition of the pavement or bridge. Sponsors can score points under preservation if they are improving the condition of the facility. Roadways or bridges with low pavement/sufficiency ratings will receive a higher preservation score. The second metric relates to the replacement of ITS components. If the sponsor receives points in the first metric and the second metric, the scores of the two metrics will be averaged.

Road or Bridge Condition (5 points)
Pavement condition will be assessed using the Pavement Surface Evaluation and Rating (PASER) Guide, which is a visual rating system. PASER ratings range from 1-10, with 1 being '*very poor*' condition and 10 being '*excellent*' condition.

5 points	PASER 2.5 or less
4 points	PASER 2.6-3.5
3 points	PASER 3.6-5.5
2 points	PASER 5.6-7.5
1 point	PASER 7.6-8.5
Zero points	PASER 8.6-10

Bridge conditions will be assessed using the bridge sufficiency rating system approved by FHWA. Bridge sufficiency ratings range from 0-100, with 0 being *'completely deficient'* and 100 being a *'new'* bridge. State DOTs calculate the

ratings based on several factors, including: width, vertical clearance, load capacity, essentiality for public use, and structural safety.

5 points	Bridge sufficiency rating 0-39.9 (very poor)
4 points	Bridge sufficiency rating 40-49.9 (poor)
3 points	Bridge sufficiency rating 50-59.9 (fair)
2 points	Bridge sufficiency rating 60-79.9 (good)
Zero points	Bridge sufficiency rating 80-100 (excellent)

ITS Components (5 points)
Project can earn points if existing ITS components will be preserved, repaired, improved, or upgraded (for example: signals, traffic sensors). To receive points, the ITS components must be within the project limits.

5 points	Existing ITS components are inoperable or require repairs, improvements, or upgrades.

Multimodal: Support Public Transportation / Provide More Transportation Choices (11 total points)
This measure relates to *Connected2045*'s goal of fostering a multimodal transportation system. Incorporating bicycle and pedestrian facilities in road projects is an efficient and cost-effective way for communities to create multimodal networks. In addition, road projects can provide multiple benefits to public transit, including better mobility for transit vehicles and better access for users of all ages and abilities.

EWG encourages context-sensitive facilities and taking a flexible approach to achieving multimodal transportation networks. Projects can score up to 11 points (of a possible 46) for the following features existing and being retained, or being included in and newly constructed by the project. **Note**: a project does not need to satisfy all improvements listed below to earn points. For example, if a project is addressing poor sidewalks on both sides of the road, reconstructing ADA curb ramps, and a school is along the corridor, 11 points will be assigned. Projects that score over the 11 points will be capped at 11 points.

3 points	Project is located on a transit route; OR **1 point** if project intersects a transit route
2 points	Includes physical improvements to transit system (benches, ADA landing pads, shelters, etc.)
1 point	New or upgraded bicycle and/or pedestrian connection to transit system OR new or upgraded bicycle and/or pedestrian connection to activity center
3 points	Bicycle and/or pedestrian facility directly touching school property; OR **1 point** if bicycle and/or pedestrian facility is within ½-mile of school
6 points	Corrects existing sidewalk deficiencies (deficiencies = poor sidewalk conditions or existing width ≤ 4') or new 5' sidewalks (residential) or 8' sidewalks (commercial) on both sides of road
4 points	New or upgraded 5' sidewalks (residential) or 8' sidewalks (commercial) on one side of road
2 points	Reconstruction of curb ramps
8 points	10' shared-use path; OR **6 points** for 8' shared-use path
6 points	Physically protected or buffered on-street bicycle facility
4 points	Conventional bike lanes on roads at 30 mph or less; OR **2 points** for conventional bike lanes on roads at 35 mph
5 points	5'-8' paved shoulders; OR **3 points** for 4' paved shoulders
1 point	Shared-lane markings on roads at 25 mph or less
4 points	Safety improvements to at-grade rail crossing

4 points	Speed control or volume control solutions to reduce modal conflicts (road diet, bulb outs, raised crosswalks, refuge islands, etc.)
2 points	Pedestrian-scale lighting along bicycle/pedestrian facility
4 points	Crossing treatments at intersections or uncontrolled locations (pedestrian signals, pedestrian flashing beacons, high visibility crosswalks, bicycle intersection crossing markings, etc.); OR **2 points** for standard crosswalk only
1 point	Street trees and/or landscaped buffer between roadway and sidewalk
1 point	Includes physical or innovative improvements to the bicycle network (bicycle-friendly grates, bike racks, bike boxes, etc.)

Support Neighborhoods & Communities (4 total points)
This measure is included to account for projects that are located in Environmental Justice (EJ) areas. The purpose of EJ is to focus federal attention on the environmental and human health effects of federal actions on minority or low-income populations with the goal of achieving environmental protection for all communities. EWG further expands on EJ to include areas with a high concentration of one or more of: zero-vehicle households, elderly, and persons with a disability. The EJ policy ensures that populations that have traditionally been underserved have safe access to community resources and meaningful choices in transportation. Census data and GIS analysis is used to determine if the project is located in an EJ area. A map of the EJ areas is provided in **Appendix A**.

4 points	Project falls in, or partially in, an EJ area with high concentration of low-income persons, or minorities.
3 points	Project falls in, or partially in, an EJ area with high concentration of zero-vehicle households.
1 point	Project falls in, or partially in, an EJ area with high concentration of seniors or persons with a disability.
Zero points	Project is not located in an EJ area OR project imposes a burden on EJ area.

Projects that are located within EJ areas will not earn points if they impose a burden on the population of the area. Burdens may include disruption of community cohesion (i.e., access to schools, parks, medical facilities, and religious institutions), adverse employment effects, decline in tax base or property values, displacements, increased noise and/or emissions, diminished aesthetics, and disruption to businesses, or access to transit.

Promote Safety (10 total points)
EWG is focusing on lowering the number of fatalities and serious injuries caused by vehicle crashes. To meet this goal, all projects should strive to correct safety issues in high crash locations or use a systemic approach to address future crashes. The two metrics relate to the current conditions on the roadway by looking at the total crash rate and the fatal and serious injury crash rate. This helps prioritize projects that are in locations experiencing a current problem. The third metric addresses the stated safety problem with an appropriate safety countermeasure.

Project sponsors must use five years of crash data (2011-2015) when calculating the total crash rate and the fatal and serious injury crash rate. Sponsors should use the number of fatal and serious injury crashes and not the total number of fatalities or serious injuries. To receive points under metric one and metric two, the project must include a safety countermeasure that addresses the current safety problem.

Total Crash Rate (5 points)
EWG will group all projects with crashes into quartiles and assign points as follows:

5 points	Top quartile
4 points	Second quartile

3 points	Third quartile
2 points	Lowest quartile

Fatal and Serious Injury Crash Rate (5 points)
EWG will group all projects with crashes into quartiles and assign points as follows:

5 points	Top quartile
4 points	Second quartile
3 points	Third quartile
2 point	Lowest quartile

Note: if an *intersection* project is in the lowest quartile in both metric one and metric two, and the project includes a safety countermeasure that addresses the safety problem, the project can receive five total points. If a project has no crashes on the project limits, but includes a preventative safety countermeasure, the project can receive four total points.

Support a Diverse Economy with a Reliable Transportation System (50 total points)
Improving congested roadways benefits the movement of people and goods. Projects will be evaluated based on how well they improve travel conditions along a roadway OR intersection. EWG will measure changes in congestion during peak hour through the increase of average speed along a road segment or reduction of average vehicle delay at an intersection.

Speed – Road Segment (50 points)
For road segment projects, points will be assigned based on the increase in average speed during peak hour.

50 points	40%+
40 points	20-39.9%
30 points	10-19.9%
20 points	5-9.9%
Zero points	0-4.9%

Delay – Intersection (50 points)
For intersection projects, points will be assigned based on the reduction in average vehicle delay during peak hour.

50 points	50%+
40 points	40-49.9%
30 points	30-39.9%
20 points	10-29.9%
Zero points	0-9.9%

Support Quality Job Development (5 total points)

Access to jobs is an important function of the transportation system. The *OnTheMap* tool is derived from census data and will be used to assess where workers are employed in the region. Employment density will be used as a metric in determining how important improvements to transportation facilities are in the surrounding area.

5 points	High jobs/sq. mile
4 points	Medium-high jobs/sq. mile
3 points	Medium jobs/sq. mile
2 points	Medium-low jobs/sq. mile
Zero points	Low jobs/sq. mile

Strengthen Intermodal Connections (5 total points)
The St. Louis region is well positioned to capture some of the expected growth in nationwide freight movement for all modes, given the region's central location, rivers, low traffic congestion, and lack of tolling. Future growth will depend on coordinating public and private freight decision making and investments, ensuring reliable truck travel times, strengthening multi-modal connections to the industrial site areas, and ensuring the region's workforce can access freight employment opportunities. A map of the industrial site areas and the Primary Highway Freight System is provided in **Appendix A**.

Freight Proximity (3 points)
In 2013, EWG completed the St. Louis Regional Freight Study. The Study identified 23 key industrial areas that influence the freight industry in the St. Louis region. Industrial site areas are centers of employment and are connected by a series of transportation networks. Projects that improve mobility to an industrial site area, connect to the Primary Highway Freight System, or connect to an intermodal facility will earn points under this metric.

3 points The project meets one of the following criteria:

- Located within an industrial site areas.
- Connects to the Primary Highway Freight System.
- Connects to an intermodal freight facility, serves a major freight generator, logistic center, manufacturing and warehouse industrial land, or navigable waterway or Port District.

Commercial Vehicle Countermeasure (2 points)
To earn points under this metric, the project must score points under the first metric, freight proximity, and include a commercial vehicle countermeasure that improves freight movement. Common techniques related to commercial vehicle accommodations include improving shoulder width and pavement structure, intersection design, parking, acceleration/deceleration lanes, and truck and car separation.

2 points The project addresses the stated freight problem with appropriate commercial vehicle countermeasures. Common techniques related to commercial vehicle accommodations include improving:

Air Quality & Environment Assets (10 total points)
Transportation projects should limit the impacts on the natural environment. The first metric evaluates the incorporation of green infrastructure to reduce environmental impacts. The second metric evaluates the project's impact on air quality benefits.

Environment (1 point)
Green infrastructure is a design approach to managing stormwater, the urban heat island effect, public health, and air quality. Sustainable stormwater management treats and slows runoff from impervious roadways, sidewalks,

and building surfaces. Examples of green infrastructure include bioswales, rain gardens, pervious strips, pervious pavement, and green bulb-outs.

1 point	Project includes green infrastructure elements.
Zero points	Project does not include green infrastructure.

Air Quality (9 points)
A major objective of the transportation planning process is to ensure that the projects in the TIP help to reduce, where possible, and minimize the air quality impacts of transportation projects in accordance with federal, state, and local air quality standards, regulations, and priorities. The St. Louis region is in marginal non-attainment for the 2008 eight-hour ozone standard.

To measure the project's impact on air quality, an analysis will be performed to determine the emissions reduction of the precursors of ground-level ozone formation (volatile organic compounds and oxides of nitrogen).

9 points	0.91 kg/day +
7 points	0.091-0.9 kg/day
5 points	0.036-0.09 kg/day
3 points	0.011-0.035 kg/day
Zero points	0-0.01 kg/day

Safety Project Type

Table 8 outlines the scheme for evaluating safety projects. Safety projects are assessed for six out of the 10 criteria and include 11 metrics. No measures were identified for the criteria related to Foster a Vibrant Downtown & Central Core, Support a Diverse Economy with a Reliable System, Job Quality Development, and Protect Air Quality & Environmental Assets. Further information on the metrics used to evaluate safety projects follows.

Table 8: Safety Project Type Evaluation Scheme

***Connected2045* Investment Priority Criteria**	**Measure**	**Metric**	**Points**
Preserve & Maintain the Existing System	Road or bridge condition	PASER rating or bridge sufficiency rating	8
	ITS condition	Preserving ITS components	
	Safety hardware condition	Preserving safety hardware	
Multimodal: Support Public Transportation / Provide More Transportation Choices	Multimodal accommodations	Elements of other modes being implemented as part of the project	10
Support Neighborhoods & Communities	Environmental Justice	Project falls in or partially located in area with a high concentration of: a. low-income persons or minority populations b. zero-vehicle households c. seniors or persons with disabilities	5
Foster a Vibrant Downtown & Central Core	n/a	n/a	n/a
Promote Safety	Improved safety	1. Total crash rate 2. Fatal & serious injury crash rate 3. Benefit/cost analysis	70
Support a Diverse Economy with a Reliable System	n/a	n/a	n/a
Support Quality Job Development	n/a	n/a	n/a
Strengthen Intermodal Connections	Regional freight significance	1. Freight proximity 2. Commercial vehicle countermeasures 3. Regional transportation significance	7
Protect Air Quality & Environmental Assets	n/a	n/a	n/a

Preserve & Maintain the Existing System (8 total points)

Projects will be assessed in terms of how they contribute to the preservation of existing infrastructure assets. The first metric evaluates the condition of the pavement or bridge. Sponsors can score points under preservation if they are improving the condition of the facility. Roadways or bridges with low pavement/sufficiency ratings will receive a higher preservation score. The second metric relates to the replacement of ITS components. The third metric relates to the replacement of safety components. If the sponsor receives points in the first metric, second metric, and third metric, the scores of the three metrics will be averaged.

Road or Bridge Condition (8 points)

Pavement condition will be assessed using the Pavement Surface Evaluation and Rating (PASER) Guide, which is a visual rating system. PASER ratings range from 1-10, with 1 being '*very poor*' condition and 10 being '*excellent*' condition.

8 points	PASER 2.5 or less
6 points	PASER 2.6-3.5
4 points	PASER 3.6-5.5
2 points	PASER 5.6-7.5
1 point	PASER 7.6-8.5

Zero points	PASER 8.6-10

Bridge conditions will be assessed using the bridge sufficiency rating system approved by FHWA. Bridge sufficiency ratings range from 0-100, with 0 being *'completely deficient'* and 100 being a *'new'* bridge. State DOTs calculate the ratings based on several factors, including: width, vertical clearance, load capacity, essentiality for public use, and structural safety.

8 points	Bridge sufficiency rating 0-39.9 (very poor)
6 points	Bridge sufficiency rating 40-49.9 (poor)
4 points	Bridge sufficiency rating 50-59.9 (fair)
2 points	Bridge sufficiency rating 60-79.9 (good)
Zero points	Bridge sufficiency rating 80-100 (excellent)

ITS Components (8 points)
Project can earn points if existing ITS components will be preserved, repaired, improved, or upgraded (for example: signals, traffic sensors). To receive points, the ITS components must be within the project limits.

8 points	Existing ITS components are inoperable or require repairs, improvements, or upgrades.

Safety Hardware (8 points)
Project can earn points if existing safety hardware will be repaired, improved, or upgraded (for example: signage, guardrails, crash cushion). To receive points, the safety hardware must be within the project limits.

8 points	Existing safety hardware require repairs, improvements, or upgrades.

Multimodal: Support Public Transportation / Provide More Transportation Choices (10 total points)
This measure relates to *Connected2045*'s goal of fostering a multimodal transportation system. Incorporating bicycle and pedestrian facilities in road projects is an efficient and cost-effective way for communities to create multimodal networks. In addition, road projects can provide multiple benefits to public transit, including better mobility for transit vehicles and better access for users of all ages and abilities.

EWG encourages context-sensitive facilities and taking a flexible approach to achieving multimodal transportation networks. Projects can score up to 10 points (of a possible 46) for the following features existing and being retained, or being included in and newly constructed by the project. **Note**: a project does not need to satisfy all improvements listed below to earn points. For example, if a project is addressing poor sidewalks on both sides of the road, reconstructing ADA curb ramps, and a school is along the corridor, the project will be capped at 10 points.

3 points	Project is located on a transit route; OR **1 point** if project intersects a transit route
2 points	Includes physical improvements to transit system (benches, ADA landing pads, shelters, etc.)
1 point	New or upgraded bicycle and/or pedestrian connection to transit system OR new or upgraded bicycle and/or pedestrian connection to activity center
3 points	Bicycle and/or pedestrian facility directly touching school property; OR **1 point** if bicycle and/or pedestrian facility is within ½-mile of school
6 points	Corrects existing sidewalk deficiencies (deficiencies = poor sidewalk conditions or existing width ≤ 4') or new 5' sidewalks (residential) or 8' sidewalks (commercial) on both sides of road
4 points	New or upgraded 5' sidewalks (residential) or 8' sidewalks (commercial) on one side of road

2 points	Reconstruction of curb ramps
8 points	10' shared-use path; OR **6 points** for 8' shared-use path
6 points	Physically protected or buffered on-street bicycle facility
4 points	Conventional bike lanes on roads at 30 mph or less; OR **2 points** for conventional bike lanes on roads at 35 mph
5 points	5'-8' paved shoulders; OR **3 points** for 4' paved shoulders
1 point	Shared-lane markings on roads at 25 mph or less
4 points	Safety improvements to at-grade rail crossing
4 points	Speed control or volume control solutions to reduce modal conflicts (road diet, bulb outs, raised crosswalks, refuge islands, etc.)
2 points	Pedestrian-scale lighting along bicycle/pedestrian facility
4 points	Crossing treatments at intersections or uncontrolled locations (pedestrian signals, pedestrian flashing beacons, high visibility crosswalks, bicycle intersection crossing markings, etc.); OR **2 points** for standard crosswalk only
1 point	Street trees and/or landscaped buffer between roadway and sidewalk
1 point	Includes physical or innovative improvements to the bicycle network (bicycle-friendly grates, bike racks, bike boxes, etc.)

Support Neighborhoods & Communities (5 total points)
This measure is included to account for projects that are located in Environmental Justice (EJ) areas. The purpose of EJ is to focus federal attention on the environmental and human health effects of federal actions on minority or low-income populations with the goal of achieving environmental protection for all communities. EWG further expands on EJ to include areas with a high concentration of one or more of: zero-vehicle households, elderly, and persons with a disability. The EJ policy ensures that populations that have traditionally been underserved have safe access to community resources and meaningful choices in transportation. Census data and GIS analysis is used to determine if the project is located in an EJ area. A map of the EJ areas is provided in **Appendix A**.

5 points	Project falls in, or partially in, an EJ area with high concentration of low-income persons, or minorities.
4 points	Project falls in, or partially in, an EJ area with high concentration of zero-vehicle households.
2 point	Project falls in, or partially in, an EJ area with high concentration of seniors or persons with a disability.
Zero points	Project is not located in an EJ area OR project imposes a burden on EJ area.

Projects that are located within EJ areas will not earn points if they impose a burden on the population of the area. Burdens may include disruption of community cohesion (i.e., access to schools, parks, medical facilities, and religious institutions), adverse employment effects, decline in tax base or property values, displacements, increased noise and/or emissions, diminished aesthetics, and disruption to businesses, or access to transit.

Promote Safety (70 total points)
EWG is focusing on lowering the number of fatalities and serious injuries caused by vehicle crashes. To meet this goal, all projects should strive to correct safety issues in high crash locations or use a systemic approach to address future crashes. The two metrics relate to the current conditions on the roadway by looking at the total crash rate and the fatal and serious injury crash rate. This helps prioritize projects that are in locations experiencing a current problem. The third metric addresses the stated safety problem with an appropriate safety countermeasure.

Project sponsors must use five years of crash data (2011-2015) when calculating the total crash rate and the fatal and serious injury crash rate. Sponsors should use the number of fatal and serious injury crashes and not the total

number of fatalities or serious injuries. To receive points under metric one and metric two, the project must include a safety countermeasure that addresses the current safety problem.

Total Crash Rate (10 points)
EWG will group all projects with crashes into quartiles and assign points as follows:

10 points	Top quartile
8 points	Second quartile
6 points	Third quartile
4 points	Lowest quartile

Fatal and Serious Injury Crash Rate (10 points)
EWG will group all projects with crashes into quartiles and assign points as follows:

10 points	Top quartile
8 points	Second quartile
6 points	Third quartile
4 points	Lowest quartile

Note: if an *intersection* project is in the lowest quartile in both metric one and metric two, and the project includes a safety countermeasure that addresses the safety problem, the project can receive 10 total points. If a project has no crashes on the project limits, but includes a preventative safety countermeasure, the project can receive eight total points.

Benefit/Cost Analysis (50 points)
This metric compares all of the project's benefits associated with a countermeasure to the cost of implementing the countermeasure.

50 points	Benefit/cost ratio greater than 3.0
47 points	Benefit/cost ratio is greater than 2.1 and less than 3.0
45 points	Benefit/cost ratio is greater than 1.0 and less than 2.1
40 points *	Benefit/cost ratio is greater than 0 and less than 1
Zero points	Benefit/cost ratio is equal to 0

* To receive 40 points, the location and/or safety countermeasure must be identified in the state's strategic highway safety plan OR the respective county strategic highway plan OR a safety study that was completed for the specific project location.

Strengthen Intermodal Connections (7 total points)
The St. Louis region is well positioned to capture some of the expected growth in nationwide freight movement for all modes, given the region's central location, rivers, low traffic congestion, and lack of tolling. Future growth will depend on coordinating public and private freight decision making and investments, ensuring reliable truck travel times, strengthening multi-modal connections to key industrial site areas, and ensuring the region's workforce can

access freight employment opportunities. A map of the industrial site areas and the Primary Highway Freight System is provided in **Appendix A**.

Freight Proximity (3 points)
In 2013, EWG completed the St. Louis Regional Freight Study. The Study identified key 23 industrial areas that influence the freight industry in the St. Louis region. Industrial site areas are centers of employment and are connected by a series of transportation networks. Projects that improve mobility to an industrial site area, connect to the Primary Highway Freight System, or connect to an intermodal facility will earn points under this metric.

3 points The project meets one of the following criteria:

- Located within an industrial site areas.
- Connects to the Primary Highway Freight System.
- Connects to an intermodal freight facility, serves a major freight generator, logistic center, manufacturing and warehouse industrial land, or navigable waterway or Port District.

Commercial Vehicle Countermeasure (2 points)
To earn points under this metric, the project must score points under the first metric, freight proximity, and include a commercial vehicle countermeasure that improves freight movement. Common techniques related to commercial vehicle accommodations include improving shoulder width and pavement structure, intersection design, parking, acceleration/deceleration lanes, and truck and car separation.

2 points The project addresses the stated freight problem with appropriate commercial vehicle countermeasures.

Regional Transportation Significance (2 points)
This measure evaluates how critical the route's location is to the regional network. Scoring is based on the functional classification of the road.

2 points Principal/minor arterial.

1 point Collector.

Active Transportation

Table 9 outlines the scheme for evaluating active transportation projects. Active transportation projects are assessed for six out of the 10 criteria and include 13 metrics. No measures were identified for the criteria related to Preserve & Maintain the Existing System, Support a Diverse Economy with a Reliable System, Support Job Quality Development, and Strengthen Intermodal Connections. Further information on the metrics used to evaluate active transportation projects follows.

Table 9: Active Transportation Project Type Evaluation Scheme

***Connected2045* Investment Priority Criteria**	**Measure**	**Metric**	**Points**
Preserve & Maintain the Existing System	n/a	n/a	n/a
Multimodal: Support Public Transportation / Provide More Transportation Choices	Improved transit connections	1. Transit proximity 2. Physical improvements to transit	5
	System connectivity	Multimodal linkages to existing facilities	27
Support Neighborhoods & Communities	Connecting communities to opportunities	1. Project falls in or partially located in area with a high concentration of: a. low-income persons or minority populations b. zero-vehicle households c. seniors or persons with disabilities 2. Access to schools 3. Access to community resources 4. Planning efforts	20
Foster a Vibrant Downtown & Central Core	Multimodal needs of residents and access to employment	Population and employment density	10
Promote Safety	Bicycle & pedestrian level of stress/comfort	1. Pedestrian/bicycle crashes 2. Pedestrian/bicycle facility type 3. Traffic calming and design improvements 4. Intersection treatments	35
Support a Diverse Economy with a Reliable System	n/a	n/a	n/a
Support Quality Job Development	n/a	n/a	n/a
Strengthen Intermodal Connections	n/a	n/a	n/a
Protect Air Quality & Environmental Assets	Impact to the environment	Environmental infrastructure elements	3

Multimodal: Support Public Transportation / Provide More Transportation Choices (32 total points)
Active transportation projects should enhance connections between neighborhoods and activity centers through access to transit and comprehensive bicycle and pedestrian facilities. The three metrics below will be used to evaluate the project's impact on transit access and connectivity.

Transit Proximity (2 points)
Bicycling and walking are complementary to transit. The Gateway Bike Plan states, "Targeting the provision of safe and convenient bicycle facilities such as lanes, trails, and bicycle parking can increase the service radius of a transit stop." The Federal Transit Administration (FTA) determined in a 2011 policy statement that all pedestrian improvements located within ½-mile and all bicycle improvements located within 3-miles of a public transportation stop or station shall have a *de facto* physical and functional relationship to public transportation.

2 points	Pedestrian project is located within ½-mile OR bicycle project is within 3 miles of a bus stop, transfer center, or station.
Zero points	Project does not satisfy the above.

Physical Improvements to Transit (3 points)
A walking or bicycling trip can be longer if it involves transit. Bus stops that have access via sidewalks and appropriate street crossing locations ensure personal safety for pedestrians who use transit. In addition, improvements to transit infrastructure can encourage seniors or persons with a disability to utilize public transportation. Physical improvements to a bus stop include: sidewalks to transit facilities, removing obstructions blocking access to transit facilities, landing pads, appropriate street crossings near transit facilities, lighting, bus shelters, benches, etc.

3 points	Project includes physical improvements to transit system.
2 points	New or upgraded sidewalk connections to transit.
Zero points	Project does not include physical improvements to transit system.

System Connectivity (27 points)
System connectivity is a factor related to linking or connecting existing pedestrian or bicycle facilities to complete a network. This measure relates to *Connected2045*'s goal of providing comprehensive pedestrian and bicycle facilities. The metric evaluates the level of connectivity that the project will provide.

27 points	Project eliminates barrier AND connects on one end.
25 points	Project fills in gaps by linking both ends. Gap = no pedestrian/bicycle facilities OR existing poor (PSR 0-2) sidewalk or width ≤ 4' OR high-stress bicycle facility.
20 points	Project fills in gap by linking both ends. Gap = existing fair (PSR 2-3) sidewalk.
15 points	Project connects on one end (extends or intersects).
10 points	Project is adjacent to existing facility (no connections established, but existing facility is within a ¼- mile radius).
5 points	Project is a new, isolated facility (no existing facility within a ¼-mile radius).

Support Neighborhoods & Communities (17 total points)
Active transportation projects should connect communities to opportunities across the region. The four metrics below will be used to evaluate the project's impact on neighborhoods and communities.

Environmental Justice (4 points)
This measure is included to account for projects that are located in Environmental Justice (EJ) areas. The purpose of EJ is to focus federal attention on the environmental and human health effects of federal actions on minority or low-income populations with the goal of achieving environmental protection for all communities. EWG further expands on EJ to include areas with a high concentration of one or more of: zero-vehicle households, elderly, and persons with a disability. The EJ policy ensures that populations that have traditionally been underserved have safe access to community resources and meaningful choices in transportation. Census data and GIS analysis is used to determine if the project is located in an EJ area. A map of the EJ areas is provided in **Appendix A**.

4 points	Project falls in, or partially in, an EJ area with high concentration of low-income persons, or minorities.
3 points	Project falls in, or partially in, an EJ area with high concentration of zero-vehicle households.
2 points	Project falls in, or partially in, an EJ area with high concentration of seniors or persons with a disability.
Zero points	Project is not located in an EJ area.

Access to Schools (6 points)
This metric is included to account for projects that provide safe routes to schools. Making bicycling and walking to school a safer and more appealing transportation choice encourages a healthy and active lifestyle from an early age.

6 points	Project provides direct access to a school.
3 points	Project is within ½-mile of a school.
Zero points	Project is not within a ½-mile of a school.

Access to Community Resources (5 points)
Transportation investments that connect residents to local community resources can have a profound impact on public health. This metric evaluates improved access to community resources. Examples of community resources include: parks, recreational facilities, medical centers, civic buildings, etc.

5 points	Project provides direct access to a community resource.
3 points	Project is within ½-mile of a community resource.
Zero points	Project does not provide access to a community resource.

Planning (5 points)
This metric is included to identify and add significance to roadway segments or trail corridors that are identified in a locally adopted plan or has undergone a comprehensive planning process.

5 points	Project is specifically prioritized in a planning document or has been through a comprehensive planning process.
2 points	Project is consistent with planning document or Complete Streets policy.
Zero points	No planning documentation provided to support project.

Foster a Vibrant Downtown & Central Core (10 total points)
Improving access to and mobility within communities is a goal of *Connected2045*. Projects will be evaluated on how well they are served by pedestrian- and bicycle-supportive densities. A map of the population and employment index (PEI) is included in **Appendix A**. Job data is accounted for in the PEU. Therefore, points are not assigned under the Support Quality Job Development criterion.

10 points	Average PEI 4+
8 points	Average PEI 3-3.9
6 points	Average PEI 2-2.9
4 points	Average PEI 1-1.9
2 points	Average PEI <1

Promote Safety (35 total points)
Per the 2010 USDOT Policy Statement on *Bicycle and Pedestrian Accommodation Regulations and Recommendations*, every transportation agency has the responsibility to improve conditions and opportunities for walking and bicycling and to integrate walking and bicycling into their transportation systems. The USDOT encourages transportation agencies to go beyond the minimum requirements, and proactively provide convenient,

safe, and context-sensitive facilities that foster increased use by bicyclists and pedestrians of all ages and abilities, and utilize universal design characteristics when appropriate. The four metrics below will be used to evaluate the project's multimodal safety elements.

Pedestrian/Bicycle Crashes (2 points)
This metric relates to *Connected2045*'s goal of creating a safe transportation system. Projects that improve locations with pedestrian and/or bicycle crashes will receive points.

2 points	The project corridor has locations with pedestrian-involved or bicycle-involved crashes and project addresses the safety issue with an appropriate countermeasure.
Zero points	There are no pedestrian-involved or bicycle-involved crashes along the project corridor.

Pedestrian/Bicycle Facility Type (24 points)
Active transportation projects can include pedestrian facilities, bicycle facilities, or both. If a sponsor proposes both facility types, the scores of the two metrics will be averaged.

Pedestrian facilities with a high-level of comfort will earn points under this metric.

24 points	Project corrects existing sidewalk deficiencies (poor condition and/or width ≤4') OR new 5' (min) sidewalks (residential) or 8' (min) sidewalks (commercial) on both sides of road.
12 points	New 5' (min) sidewalks (residential) or 8' (min) sidewalks (commercial) on one side of road.
Zero points	Project does not satisfy the above.

Bicycle facilities with a low-level of stress will earn points under this metric.

24 points	Physically protected or buffered bicycle facility OR 10' shared-use path (min).
12 points	Conventional bike lanes on roads at 30 mph or less OR 8' shared-use path.
6 points	Conventional bike lanes on roads at 35 mph.
3 points	Shared-lane markings on roads at 25 mph or less.
Zero points	Project does not satisfy the above.

Traffic Calming and Design Improvements (6 points)
Traffic calming and design improvements can improve stress levels for bicyclists and comfort levels for pedestrians. Examples of traffic calming and design improvements include: bulb outs, raised crosswalks, lane diets, road diets, refuge islands, lighting, etc. Sponsors can score six points under this metric.

3 points	Project has traffic calming solutions to reduce modal conflicts.
3 points	Project includes pedestrian-scale lighting along bicycle/pedestrian facility.
Zero points	Project does not satisfy the above.

Intersection Treatments (3 points)
Design for intersections should reduce conflict between pedestrian/bicyclists and vehicles by heightening the level of visibility and indicating a clear right-of-way. Examples of intersection treatments include: pedestrian signals, pedestrian flashing beacons, marked crosswalks, high visibility crosswalk markings, bicycle intersection crossing markings, median refuge islands, etc.

3 points	Crossing treatments are provided at intersections or uncontrolled locations OR no intersections in projects limits. **Note**: pedestrian and bicycle projects must have logical termini.
Zero points	No crossing treatments where warranted.

Protect Air Quality & Environmental Assets (3 total points)

Transportation projects should limit the impacts on the natural environment. Green infrastructure is a design approach to managing stormwater, the urban heat island effect, public health, and air quality. Sustainable stormwater management treats and slows runoff from impervious roadways, sidewalks, and building surfaces. Examples of green infrastructure include bioswales, rain gardens, pervious strips, pervious pavement, and green bulb-outs. This metric evaluates the integration of green infrastructure into roadway projects.

3 points	Project includes green infrastructure elements.
Zero points	Project does not include green infrastructure.

Transit Asset Management and System Upgrades

Table 10 outlines the scheme for evaluating transit asset management and system upgrades projects. Transit asset management and system upgrades projects are assessed for eight out of the 10 criteria and include eight metrics. No measures were identified for the criteria related to Job Quality Development and Strengthen Intermodal Connections. Further information on the metrics used to evaluate transit asset management and system upgrades projects follows.

Table 10: Transit Asset Management & System Upgrades Project Type Evaluation Scheme

***Connected2045* Investment Priority Criteria**	**Measure**	**Metric**	**Points**
Preserve & Maintain the Existing System	Preserving transit assets	Average mileage of replacement vehicles	45
	System upgrades	Project type and impact on the transit system	
Multimodal: Support Public Transportation / Provide More Transportation Choices	Impact to service levels	Increase, expansion, or continuation of service	20
	First- and last-mile trip impacts	Multimodal options	4
Support Neighborhoods & Communities	Environmental Justice	Project serves or located within EJ community	8
Foster a Vibrant Downtown & Central Core	Multimodal needs of residents and access to employment	Access improvements in central core	3
Promote Safety	Improved safety	Safety and/or security elements at facilities or on transit vehicles	5
Support a Diverse Economy with a Reliable System	Service and customer improvements	ITS elements or other service enhancing technologies	5
Support Quality Job Development	n/a	n/a	n/a
Strengthen Intermodal Connections	n/a	n/a	n/a
Protect Air Quality & Environmental Assets	Impact to the environment	Zero- or low-emission bus replacements or environmental infrastructure elements	10

Preserve & Maintain the Existing System (45 total points)
Maintaining transit assets and upgrading the system can help maintain and attract ridership and improve regional mobility. Transit asset management and system upgrades projects will be evaluated under this criterion depending on the type of project submitted: vehicle replacements or system upgrades. Each project type has a different principal measure and metric.

Vehicle Replacements (45 points)
This metric relates the maintenance of the transit system. Preventative maintenance can extend the lifespan of buses. The average mileage of the vehicles to be replaced is the metric used to evaluate preservation of the system. Vehicles and facilities must meet their useful life by the fiscal year federal funds are programmed.

ADA paratransit bus replacement:

45 points Average mileage of vehicles to be replaced is 250,001+.

40 points Average mileage of vehicles to be replaced is 150,001-250,000.

35 points Average mileage of vehicles to be replaced is ≤150,000.

Bus replacement (large heavy-duty transit buses 35'-40'):

45 points	Average mileage of vehicles to be replaced is 650,001+.
40 points	Average mileage of vehicles to be replaced is 550,001-650,000.
35 points	Average mileage of vehicles to be replaced is ≤550,000.

Bus replacement (small heavy-duty transit buses 30'):

45 points	Average mileage of vehicles to be replaced is 500,001+.
40 points	Average mileage of vehicles to be replaced is 400,001-500,000.
35 points	Average mileage of vehicles to be replaced is ≤400,000.

System Upgrades (45 points)
Upgrading transit facilities or infrastructure can help improve the efficiency of the transit system and improve service for users. This metric relates to the type of facility or infrastructure being upgraded and the impact it has on the transit system. Project sponsors will be required to provide information on how the project will have a significant impact on the public transportation network.

45 points	Upgrades to transit facilities or infrastructure can receive up to 45 points (transfer centers upgrades, transit maintenance facilities, park and ride lots, bridge tunnels, etc.). Projects that demonstrate a greater need or have a greater impact will receive more points.
35 points	Station/bus stop improvements or new signage can receive up to 35 points (e.g., improvements to MetroLink station or a greater number of bus stops). Projects that have a greater impact will receive move points.

Multimodal: Support Public Transportation / Provide More Transportation Choices (24 total points)

Impact to Service Levels (20 points)
Ensuring a good state of repair of transit assets and system upgrades has a direct impact on maintaining the existing transit ridership base. Transit ridership is a reflection of vehicle condition, scheduling and operations, and access. Projects that will significantly increase service levels will receive more points than projects that maintain service. Sponsors must demonstrate that failure to replace or upgrade will negatively impact service levels by documenting inadequate asset availability and the related delays on the route.

20 points	Replacement or upgrade provides a 10% or higher increase in service levels along route.
17 points	Replacement or upgrade provides at least a 5% increase in service levels along route.
13 points	Replacement or upgrade is necessary to maintain service.
Zero points	Failure to replace or upgrade asset(s) will not cause any decreases in service levels.

First- and Last-Mile Trip Options (4 points)
A goal of *Connected2045* is to create viable alternatives to private automobile travel. Biking and walking provide critical first- and last-mile connections to transit. Project sponsors will be required to provide information on any bicycle or pedestrian elements that are included as part of the total project and how they improve multimodal access. Examples of multimodal elements includes bike racks on buses or at facilities, bicycle/pedestrian access to facilities, passenger wayfinding, and stop/station design (e.g., bus pads, transit shelter).

4 points	Project includes multimodal infrastructure.
2 points	Project includes multimodal equipment only.
Zero points	Project does not include any multimodal elements or equipment.

Support Neighborhoods & Communities (8 total points)
This measure is included to account for projects that serve Environmental Justice (EJ) populations. Project sponsors will be required to provide information on how the project serves EJ populations.

8 points	The project serves an EJ population or is located within an EJ area.
Zero points	The project does not serve an EJ population or is not located within an EJ area.

Foster a Vibrant Downtown & Central Core (1 total point)
Improving access to and mobility within the central core is a goal of *Connected2045*. Project sponsors will be required to provide information on how the transit project improves access to the central core.

1 point	The project improves access to or mobility within the central core.
Zero points	The project does not serve the central core.

Promote Safety (7 total points)
This criterion relates to *Connected2045*'s goal of creating a safer transportation system. This metric evaluates the impact the project will have on safety and security.

7 points	The project is a safety critical transit project or project incorporates safety technology (e.g., object detection or collision warning systems) to reduce transit vehicle crashes.
5 points	Safety and/or security measures at facility, station, and/or stop (lighting, cameras, emergency call stations, etc.).
3 points	Measures to provide safe services on vehicles for passengers (interior/exterior cameras, audio equipment, low floor / kneeling buses, extendable ramps, wheelchair securement, etc.).
Zero points	No safety measures.

Support a Diverse Economy with a Reliable Transportation System (5 total points)
Deployment of ITS technologies can improve the operation and service of a transit network. This metric evaluates the integration of ITS technologies. Projects that include both operation and service enhancing ITS technologies will receive five points.

3 points	Project incorporates the use of ITS to enhance operations.
2 points	Project incorporates the use of ITS to enhance passenger information/experience.
Zero points	Project does not include ITS enhancing technologies.

Protect Air Quality & Environmental Assets (10 total points)
Transportation projects should limit the impacts on the natural environment. The project's air quality benefits OR the integration of green infrastructure will be evaluated.

Replacing diesel buses with zero- or low-emission buses has a positive benefit on air quality. Replacing older diesel buses with newer buses can also provide air quality benefits. Incorporating green infrastructure into transit street

design also provides positive benefits to the natural environment. Examples of green infrastructure include bioswales, rain gardens, pervious strips, pervious pavement, and green bulb-outs.

10 points	Project replaces bus with zero-emission bus (e.g., electric).
7 points	Project replaces bus with low-emission bus (e.g., hybrid, CNG, LNG).
5 points	Project incorporates green design/materials at facilities.
4 points	Project replaces older diesel bus with a new diesel bus.
Zero points	Project does not provide air quality benefits.

Transit Expansion

Table 11 outlines the scheme for evaluating transit expansion projects. Transit expansion projects are assessed for eight out of the 10 criteria and include eight metrics. No measures were identified for the criteria related to Preserve & Maintain the Transportation System and Strengthen Intermodal Connections. Further information on the metrics used to evaluate transit expansion projects follows.

Table 11: Transit Expansion Project Type Evaluation Scheme

***Connected2045* Investment Priority Criteria**	**Measure**	**Metric**	**Points**
Preserve & Maintain the Existing System	n/a	n/a	n/a
Multimodal: Support Public Transportation / Provide More Transportation Choices	Adding capacity OR geographic expansion	Frequency OR population and employment density	60/65
	First- and last-mile trip impacts	Multimodal options	4
Support Neighborhoods & Communities	Environmental Justice	Project serves or located within EJ community	8
Foster a Vibrant Downtown & Central Core	Multimodal needs of residents and access to employment	Access improvements in central core	3
Promote Safety	Improved safety	Safety and/or security elements at facilities or on transit vehicles	5
Support a Diverse Economy with a Reliable System	Service and customer improvements	ITS elements or other service enhancing technologies	5
Support Quality Job Development	Access to jobs *(Adding Capacity projects only)*	Job density	5/0
Strengthen Intermodal Connections	n/a	n/a	n/a
Protect Air Quality & Environmental Assets	Impact to the environment	Zero- or low-emission bus replacements or environmental infrastructure elements	10

Multimodal: Support Public Transportation / Provide More Transportation Choices (64 total points)
Transit expansions can help reduce congestion and improve regional mobility by improving reliability and access for more people to more locations. Transit expansion projects will be evaluated under this criterion depending on the type of project submitted: adding capacity or geographic expansion. Each project type has a different principal measure and metric.

Adding Capacity (60 points)
Improving frequency can help to increase annual transit boardings system-wide. It has been documented that an increase in frequency corresponds to increases in ridership.

60 points	Project provides 10% or higher increase in ridership along route.
50 points	Project provides 8-10% increase in ridership along route.
40 points	Project provides 6-8% increase in ridership along route.
30 points	Project provides 4-6% increase in ridership along route.
20 points	Project provides 2-4% increase in ridership along route.
Zero points	Project provides less than 2% increase in ridership along route.

Geographic Expansion (65 points)
Implementing transit expansion projects where existing land uses best support the project's success is the key metric under this criterion. EWG developed a population and employment index to evaluate potential ridership. Expansion projects that are located in supportive residential and employment densities will score higher. Points will be assigned based on the average score of a buffer of 0.5 miles of a non-express bus route and a buffer of 1

mile of an express bus stop. *Geographic expansion projects receive five additional points under this criterion to account for the Support Quality Jobs criterion*. A map of the population and employment index (PEI) is included in **Appendix A**.

65 points	Average PEI 4+
60 points	Average PEI 3-3.9
55 points	Average PEI 2-2.9
35 points	Average PEI 1-1.9
20 points	Average PEI <1

First- and Last-Mile Trip Options (4 points)
A goal of *Connected2045* is to create viable alternatives to private automobile travel. Biking and walking provide critical first- and last-mile connections to transit. Project sponsors will be required to provide information on any bicycle or pedestrian elements that are included as part of the total project and how they improve multimodal access. Examples of multimodal elements includes bike racks on buses or at facilities, bicycle/pedestrian access to facilities, and stop/station design.

4 points	Project includes multimodal infrastructure.
2 points	Project includes multimodal equipment only.
Zero points	Project does not include any multimodal elements or equipment.

Support Neighborhoods & Communities (8 total points)
This measure is included to account for projects that serve Environmental Justice (EJ) populations. Project sponsors will be required to provide information on how the project serves EJ populations.

8 points	The project serves an EJ population or is located within an EJ area.
Zero points	The project does not serve an EJ population or is not located within an EJ area.

Foster a Vibrant Downtown & Central Core (1 total point)
Improving access to and mobility within the central core is a goal of *Connected2045*. Project sponsors will be required to provide information on how the transit project improves access to the central core.

1 point	The project improves access to or mobility within the central core.
Zero points	The project does not serve the central core.

Promote Safety (7 total points)
This criterion relates to *Connected2045*'s goal of creating a safer transportation system. This metric evaluates the impact the project will have on safety and security.

7 points	The project incorporates safety technology (e.g., object detection or collision warning systems) to reduce transit vehicle crashes.
5 points	Safety and/or security measures at facility, station, and/or stop (lighting, cameras, emergency call stations, etc.).

3 points	Measures to provide safe services on vehicles for passengers (interior/exterior cameras, audio equipment, low floor / kneeling buses, extendable ramps, wheelchair securement, etc.).
Zero points	No safety measures.

Support a Diverse Economy with a Reliable Transportation System (5 total points)
Deployment of ITS technologies can improve the operation and service of a transit network. This metric evaluates the integration of ITS technologies. Projects that include both operation and service enhancing ITS technologies will receive five points.

3 points	Project incorporates the use of ITS to enhance operations.
2 points	Project incorporates the use of ITS to enhance passenger information/experience.
Zero points	Project does not include ITS enhancing technologies.

Support Quality Job Development – *Adding Capacity only* (5 total points)
Access to jobs is an important function of the transportation system. The *OnTheMap* tool is derived from census data and will be used to assess where workers are employed in the region. Employment density will be used as a metric in determining how important transit improvements to are in the surrounding area. Geographic expansion projects will not be scored under this criterion since job data is used to determine the population and employment index.

5 points	High jobs/sq. mile
4 points	Medium-high jobs/sq. mile
3 points	Medium jobs/sq. mile
2 point	Medium-low jobs/sq. mile
Zero points	Low jobs/sq. mile

Protect Air Quality & Environmental Assets (10 total points)
Transportation projects should limit the impacts on the natural environment. The project's air quality benefits OR the integration of green infrastructure will be evaluated. Zero- or low-emission buses have a positive benefit on air quality. Incorporating green infrastructure into transit street design also provides positive benefits to the natural environment. Examples of green infrastructure include bioswales, rain gardens, pervious strips, pervious pavement, and green bulb-outs.

10 points	Project incorporates zero-emission bus (e.g., electric).
7 points	Project incorporates low-emission bus (e.g., hybrid, CNG, LNG).
5 points	Project incorporates green design/materials at facilities.
Zero points	Project does not provide air quality benefits.

Freight/Economic Development

Table 12 outlines the scheme for evaluating freight/economic development projects. Freight/economic development projects are assessed for nine out of the 10 criteria and include 13 metrics. No measures were identified for the criteria related to Foster a Vibrant Downtown & Central Core. Further information on the metrics used to evaluate freight/economic development projects follows.

Table 12: Freight/Economic Development Project Type Evaluation Scheme

***Connected2045* Investment Priority Criteria**	**Measure**	**Metric**	**Points**
Preserve & Maintain the Existing System	Road or bridge condition	PASER rating or bridge sufficiency rating	5
	ITS condition	Preserving ITS components	
Multimodal: Support Public Transportation / Provide More Transportation Choices	Multimodal accommodations	Elements of other modes being implemented as part of the project	10
Support Neighborhoods & Communities	Environmental Justice	Project falls in or partially located in area with a high concentration of: a. low-income persons or minority populations b. zero-vehicle households c. seniors or persons with disabilities	4
Foster a Vibrant Downtown & Central Core	n/a	n/a	n/a
Promote Safety	Improved safety	1. Total crash rate 2. Fatal & serious injury crash rate 3. Safety countermeasure proposed	10
Support a Diverse Economy with a Reliable System	Travel time reliability	1. Planning Time Index and Travel Time Index or volume/capacity 2. Strategy	10
Support Quality Job Development	Access to jobs *(Economic Development projects only)*	Cost per job created	10
Strengthen Intermodal Connections	Regional freight significance *(Freight projects only)*	1. Project located within an Industrial Site Area a. mega freight center, b. major freight center, or c. intermediate freight center 2. Provides connection to intermodal facility 3. Commercial vehicle countermeasure proposed	60
	Economic development significance *(Economic Development projects only)*	1. Average income of industry supported 2. Number of jobs created	50
Protect Air Quality & Environmental Assets	Impact to the environment	Environmental infrastructure elements	1

Preserve & Maintain the Existing System (5 total points)

In order to preserve and maintain the existing transportation system, projects will be assessed in terms of how they contribute to the preservation of existing infrastructure assets. The first metric evaluates the condition of the pavement or bridge. Sponsors can score points under preservation if they are improving the condition of the facility. Roadways or bridges with low pavement/sufficiency ratings will receive a higher preservation score. The second metric relates to the replacement of ITS components. If the sponsor receives points in the first metric and the second metric, the scores of the two metrics will be averaged.

Pavement/Bridge Condition (5 points)

Pavement condition will be assessed using the Pavement Surface Evaluation and Rating (PASER) Guide, which is a visual rating system. PASER ratings range from 1-10, with 1 being '*very poor*' condition and 10 being '*excellent*' condition.

5 points	PASER 2.5 or less
4 points	PASER 2.6-3.5

3 points	PASER 3.6-5.5
2 points	PASER 5.6-7.5
1 point	PASER 7.6-8.5
Zero points	PASER 8.6-10

Bridge conditions will be assessed using the bridge sufficiency rating system approved by FHWA. Bridge sufficiency ratings range from 0-100, with 0 being *'completely deficient'* and 100 being a *'new'* bridge. State DOTs calculate the ratings based on several factors, including: width, vertical clearance, load capacity, essentiality for public use, and structural safety.

5 points	Bridge sufficiency rating 0-39.9 (very poor)
4 points	Bridge sufficiency rating 40-49.9 (poor)
3 points	Bridge sufficiency rating 50-59.9 (fair)
2 points	Bridge sufficiency rating 60-79.9 (good)
Zero points	Bridge sufficiency rating 80-100 (excellent)

ITS Components (5 points)
Project can earn points if existing ITS components will be preserved, repaired, improved, or upgraded (for example: signals, traffic sensors). To receive points, the ITS components must be within the project limits.

5 points	Existing ITS components are inoperable or require repairs, improvements, or upgrades.

Multimodal: Support Public Transportation / Provide More Transportation Choices (10 total points)
This measure relates to *Connected2045*'s goal of fostering a multimodal transportation system. Incorporating bicycle and pedestrian facilities in road projects is an efficient and cost-effective way for communities to create multimodal networks. In addition, road projects can provide multiple benefits to public transit, including better mobility for transit vehicles and better access for users of all ages and abilities.

EWG encourages context-sensitive facilities and taking a flexible approach to achieving multimodal transportation networks. Projects can score up to 10 points (of a possible 46) for the following features existing and being retained, or being included in and newly constructed by the project. **Note**: a project does not need to satisfy all improvements listed below to earn points. For example, if a project is addressing poor sidewalks on both sides of the road and reconstructing ADA curb ramps, 8 points will be assigned. Projects that score over the 10 points will be capped at 10 points.

3 points	Project is located on a transit route; OR **1 point** if project intersects a transit route
2 points	Includes physical improvements to transit system (benches, ADA landing pads, shelters, etc.)
1 point	New or upgraded bicycle and/or pedestrian connection to transit system OR new or upgraded bicycle and/or pedestrian connection to activity center
3 points	Bicycle and/or pedestrian facility directly touching school property; OR **1 point** if bicycle and/or pedestrian facility is within ½-mile of school
6 points	Corrects existing sidewalk deficiencies (deficiencies = poor sidewalk conditions or existing width ≤ 4') or new 5' sidewalks (residential) or 8' sidewalks (commercial) on both sides of road
4 points	New or upgraded 5' sidewalks (residential) or 8' sidewalks (commercial) on one side of road

2 points	Reconstruction of curb ramps
8 points	10' shared-use path; OR **6 points** for 8' shared-use path
6 points	Physically protected or buffered on-street bicycle facility
4 points	Conventional bike lanes on roads at 30 mph or less; OR **2 points** for conventional bike lanes on roads at 35 mph
5 points	5'-8' paved shoulders; OR **3 points** for 4' paved shoulders
1 point	Shared-lane markings on roads at 25 mph or less
4 points	Safety improvements to at-grade rail crossing
4 points	Speed control or volume control solutions to reduce modal conflicts (road diet, bulb outs, raised crosswalks, refuge islands, etc.)
2 points	Pedestrian-scale lighting along bicycle/pedestrian facility
4 points	Crossing treatments at intersections or uncontrolled locations (pedestrian signals, pedestrian flashing beacons, high visibility crosswalks, bicycle intersection crossing markings, etc.); OR **2 points** for standard crosswalk only
1 point	Street trees and/or landscaped buffer between roadway and sidewalk
1 point	Includes physical or innovative improvements to the bicycle network (bicycle-friendly grates, bike racks, bike boxes, etc.)

Support Neighborhoods & Communities (4 total points)
This measure is included to account for projects that are located in Environmental Justice (EJ) areas. The purpose of EJ is to focus federal attention on the environmental and human health effects of federal actions on minority or low-income populations with the goal of achieving environmental protection for all communities. EWG further expands on EJ to include areas with a high concentration of one or more of: zero-vehicle households, elderly, and persons with a disability. The EJ policy ensures that populations that have traditionally been underserved have safe access to community resources and meaningful choices in transportation. Census data and GIS analysis is used to determine if the project is located in an EJ area. A map of the EJ areas is provided in **Appendix A**.

4 points	Project falls in, or partially in, an EJ area with high concentration of low-income persons, or minorities.
3 points	Project falls in, or partially in, an EJ area with high concentration of zero-vehicle households.
1 point	Project falls in, or partially in, an EJ area with high concentration of seniors or persons with a disability.
Zero points	Project is not located in an EJ area OR project imposes a burden on EJ area.

Projects that are located within EJ areas will not earn points if they impose a burden on the population of the area. Burdens may include disruption of community cohesion (i.e., access to schools, parks, medical facilities, and religious institutions), adverse employment effects, decline in tax base or property values, displacements, increased noise and/or emissions, diminished aesthetics, and disruption to businesses, or access to transit.

Promote Safety (10 total points)
EWG is focusing on lowering the number of fatalities and serious injuries caused by vehicle crashes. To meet this goal, all projects should strive to correct safety issues in high crash locations or use a systemic approach to address future crashes. The two metrics relate to the current conditions on the roadway by looking at the total crash rate and the fatal and serious injury crash rate. This helps prioritize projects that are in locations experiencing a current problem. The third metric addresses the stated safety problem with an appropriate safety countermeasure.

Project sponsors must use five years of crash data (2011-2015) when calculating the total crash rate and the fatal and serious injury crash rate. Sponsors should use the number of fatal and serious injury crashes and not the total

number of people who died or were seriously injured. To receive points under metric one and metric two, the project must include a safety countermeasure that addresses the current safety problem.

Total Crash Rate (5 points)
EWG will group all projects with crashes into quartiles and assign points as follows:

5 points	Top quartile
4 points	Second quartile
3 points	Third quartile
2 points	Lowest quartile

Fatal and Serious Injury Crash Rate (5 points)
EWG will group all projects with crashes into quartiles and assign points as follows:

5 points	Top quartile
4 points	Second quartile
3 points	Third quartile
2 point	Lowest quartile

Note: if an *intersection* project is in the lowest quartile in both metric one and metric two, and the project includes a safety countermeasure that addresses the safety problem, the project can receive five total points. If a project has no crashes on the project limits, but includes a preventative safety countermeasure, the project can receive four total points.

Support a Diverse Economy with a Reliable Transportation System (10 total points)
Improving congested roadways benefits the movement of people and goods. Projects will be evaluated based on how well they improve travel conditions. The first metric relates to the existing non-recurring congestion on the project corridor. The second metric relates to the strategy used to mitigate congestion. The scores of the two metrics will be averaged to determine the points under this criterion.

Travel Time Reliability (10 points)
Non-recurring congestion will be assessed using the Planning Time Index (PTI) and the Travel Time Index (TTI), OR the volume to capacity (V/C) ratio. The PTI and TTI are derived from HERE data from the Regional Integrated Transportation Information System (RITIS). The PTI and TTI will only be calculated on roadways for which probe data is available. The points assigned for the PTI and the TTI will be averaged to determine the travel time reliability score. Roads with lower functional classifications will be evaluated based on the V/C ratios established in EWG's travel demand model.

Probe data is available in RITIS for project length:

Planning Time Index		Travel Time Index	
10 points	PTI 2.5+	**10 points**	TTI 2+
8 points	PTI 2.1-2.49	**8 points**	TTI 1.75-1.99
6 points	PTI 1.7-2.09	**6 points**	TTI 1.5-1.74
4 points	PTI 1.35-1.69	**4 points**	TTI 1.25-1.49

2 points	PTI 1.1-1.34	**2 points**	TTI 1-1.24
Zero points	PTI 1.1 or less	**Zero points**	TTI 1 or less

Probe data is not available in RITIS for project length:

Volume/Capacity Ratio	
10 points	V/C 1.1+
8 points	V/C 0.96-1.0
6 points	V/C 0.85-0.95
4 points	V/C 0.7-0.84
Zero points	V/C 0.69 or less

Strategy (10 points)
A higher PTI and TTI or V/C ratio is indicative of higher levels of congestion. The Strategic Highway Research Program (SHRP 2) has identified strategies that have a direct relationship to travel time reliability. The strategies can be used to mitigate the presence of congestion. The strategies fall into four levels, and each strategy has a proven effect on delay reduction. Projects that incorporate Level 1 or Level 2 strategies will score more points. The strategies are provided in **Appendix B**.

10 points	Level 1 strategy (delay reduction up to 50%) or Level 2 strategy (delay reduction up to 20%).
6 points	Level 3 strategy (delay reduction up to 10%).
4 points	Level 4 strategy (other improvements such as safety and capacity).
Zero points	Level 5 strategy or no strategy.

Support Quality Job Development – *Economic Development only* (10 total points)
A goal of *Connected2045* is to support the growth of jobs that allow residents to save and return money to the economy. The number of full-time direct jobs will be used to determine a ratio of estimated jobs by project cost. The average income of the development industry type will be multiplied by the number of full-time direct jobs created and then divided by the project cost. Freight projects will not be scored under this criterion since job data is used to determine the freight center ranking.

10 points	8.1+
8 points	6.1-8
6 points	4.1-6
4 points	2.1-4
Zero points	0-2

Strengthen Intermodal Connections – *Freight only* (60 total points)
The FAST Act repealed both the Primary Freight Network and National Freight Network, and directed FHWA to establish a National Highway Freight Network (NHFN) to strategically direct federal resources and policies toward improved performance of highway portions of the U.S. freight transportation system. This measure addresses connection and improvements to the NHFN as well as local freight planning initiatives. The first metric relates to

the project's location within an industrial site area and the significance of each site. Each industrial site area will fall into one of three tiers: mega, major, or intermediate. The second metric evaluates if the project will connect to an intermodal facility. The third metric addresses the stated freight problem with an appropriate commercial vehicle countermeasure.

Industrial Site Area (25 points)
The methodology used to tier industrial site areas as mega, major, or intermediate is still under development. In addition, EWG staff is identifying additional industrial site areas, which are based on additional job sectors related to freight, that were not identified in the 2013 St. Louis Regional Freight Study. To receive points under this metric, the project must be located within an industrial site area.

25 points	Mega freight center.
20 points	Major freight center.
15 points	Intermediate freight center.

Intermodal Connections (35 points)
To receive points, the project must include a commercial vehicle countermeasure that addresses the current freight problem. Common techniques related to commercial vehicle accommodations include improving shoulder width and pavement structure, intersection design, parking, acceleration or deceleration lanes, and truck and car separation.

35 points	The project connects to the Primary Highway Freight System, an intermodal freight facility, serves a major freight generator, logistic center, manufacturing and warehouse industrial facility, navigable waterway, or Port District.

Strengthen Intermodal Connections – *Economic Development only* (50 total points)
Transportation connectivity is a major contributing factor to the performance and competiveness of industries. This measure is included to account for how well the project supports the development of high quality industries within the region through improved transportation access. The first metric evaluates the relationship between the average income of the industry being supported to the average income of the all industries. The second metric evaluates the number of full-time jobs created.

Average Income of Industry Supported (30 points)
To be an eligible project type, the project must provide a direct transportation linkage to a development site. The development site may include the redevelopment of underutilized properties or industrial sites, business expansion, or planned industrial development. A direct transportation linkage is defined as an eligible publicly-owned and maintained transportation facility from the entrance of the development site to a public road.

30 points	The project provides a direct transportation linkage to a business development with an average industry income that is greater than the average income of all industries.
25 points	The project provides a direct transportation linkage to a business development with an average industry income that is the same as the average income of all industries.
20 points	The project provides a direct transportation linkage to a business development with an average industry income that is ¾ of the average income of all industries.
15 points	The project provides a direct transportation linkage to a business development with an average industry income that is ½ of the average income of all industries.
10 points	The project provides a direct transportation linkage to a business development with an average industry income that is ¼ of the average income of all industries.

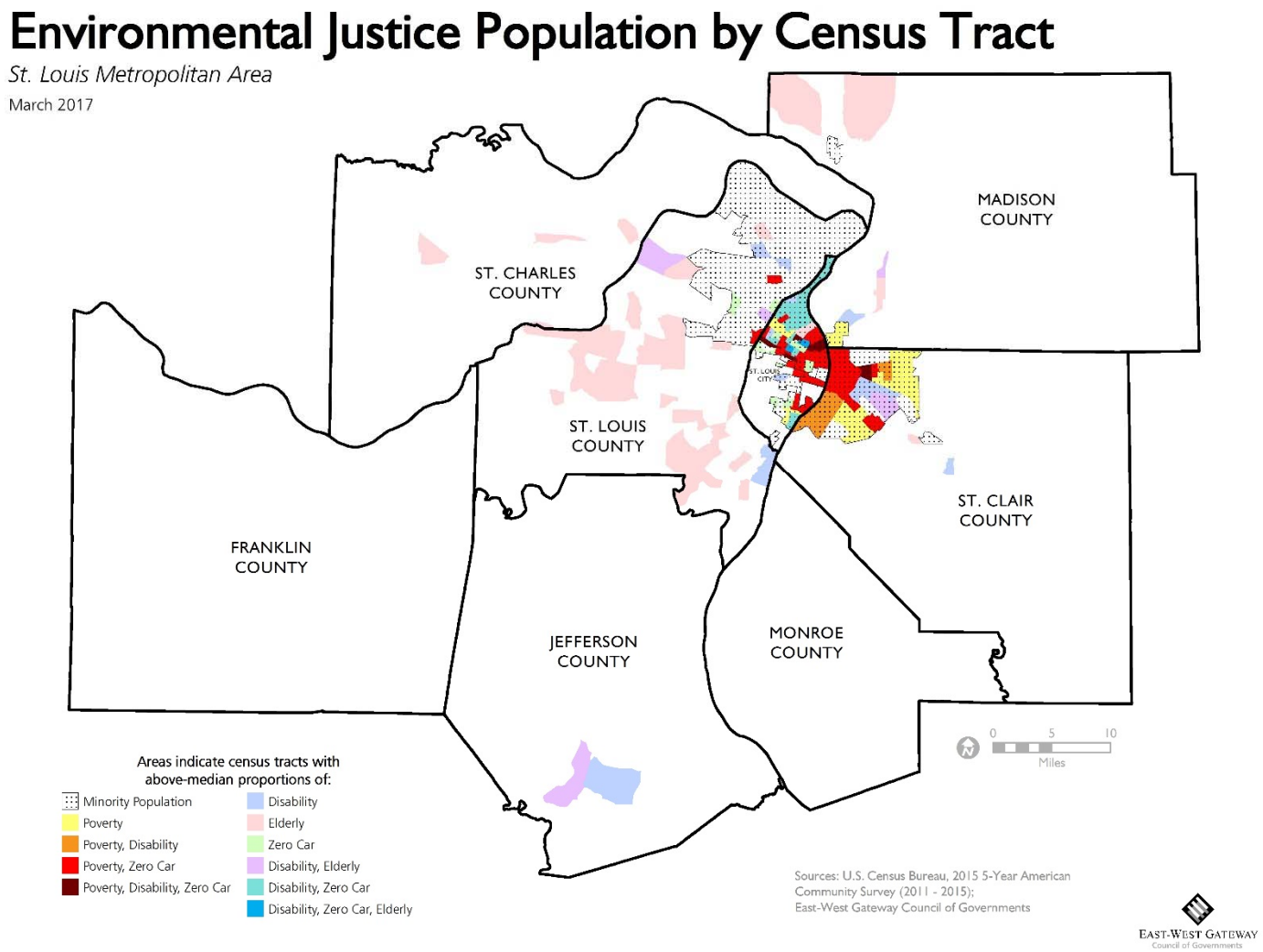
Number of Full-Time Jobs Created (20 points)
Projects that provide a direct transportation linkage to a greater number of jobs will earn more points under this metric.

20 points	The project supports the creation of 250 or more full-time direct jobs.
15 points	The project supports the creation of 100-249 full-time direct jobs.
10 points	The project supports the creation of 50-99 full-time direct jobs.
5 points	The project supports the creation of 20-49 full-time direct jobs.
Zero points	The project supports the creation of 19 or less full-time direct jobs.

Protect Air Quality & Environmental Assets (1 total point)
Transportation projects should limit the impacts on the natural environment. Green infrastructure is a design approach to managing stormwater, the urban heat island effect, public health, and air quality. Sustainable stormwater management treats and slows runoff from impervious roadways, sidewalks, and building surfaces. Examples of green infrastructure include bioswales, rain gardens, pervious strips, pervious pavement, and green bulb-outs. This metric evaluates the integration of green infrastructure into roadway projects.

1 point	Project includes green infrastructure elements.
Zero points	Project does not include green infrastructure.

Appendix A: Maps

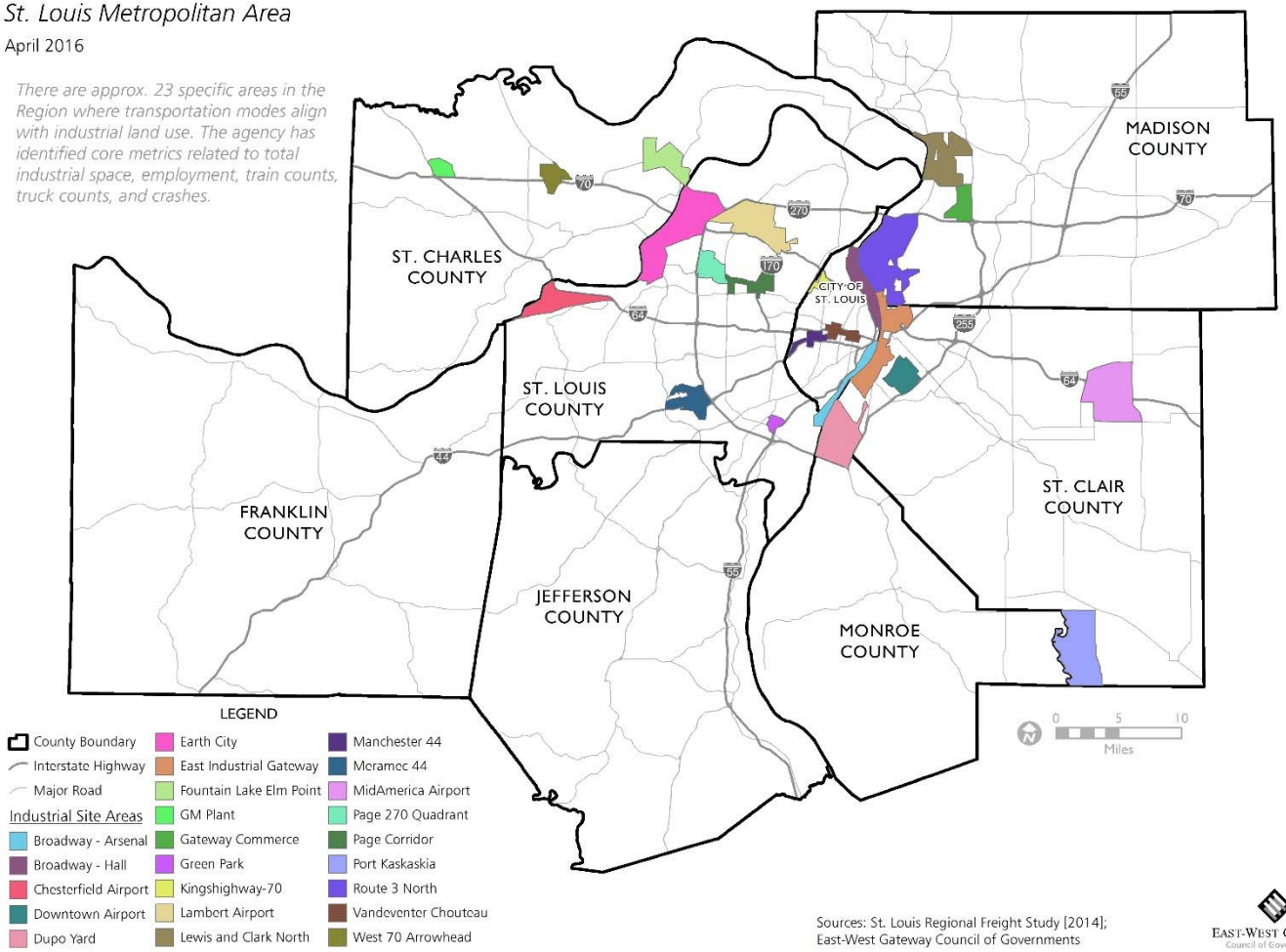


Industrial Site Areas

St. Louis Metropolitan Area

April 2016

There are approx. 23 specific areas in the Region where transportation modes align with industrial land use. The agency has identified core metrics related to total industrial space, employment, train counts, truck counts, and crashes.



Sources: St. Louis Regional Freight Study [2014]; East-West Gateway Council of Governments

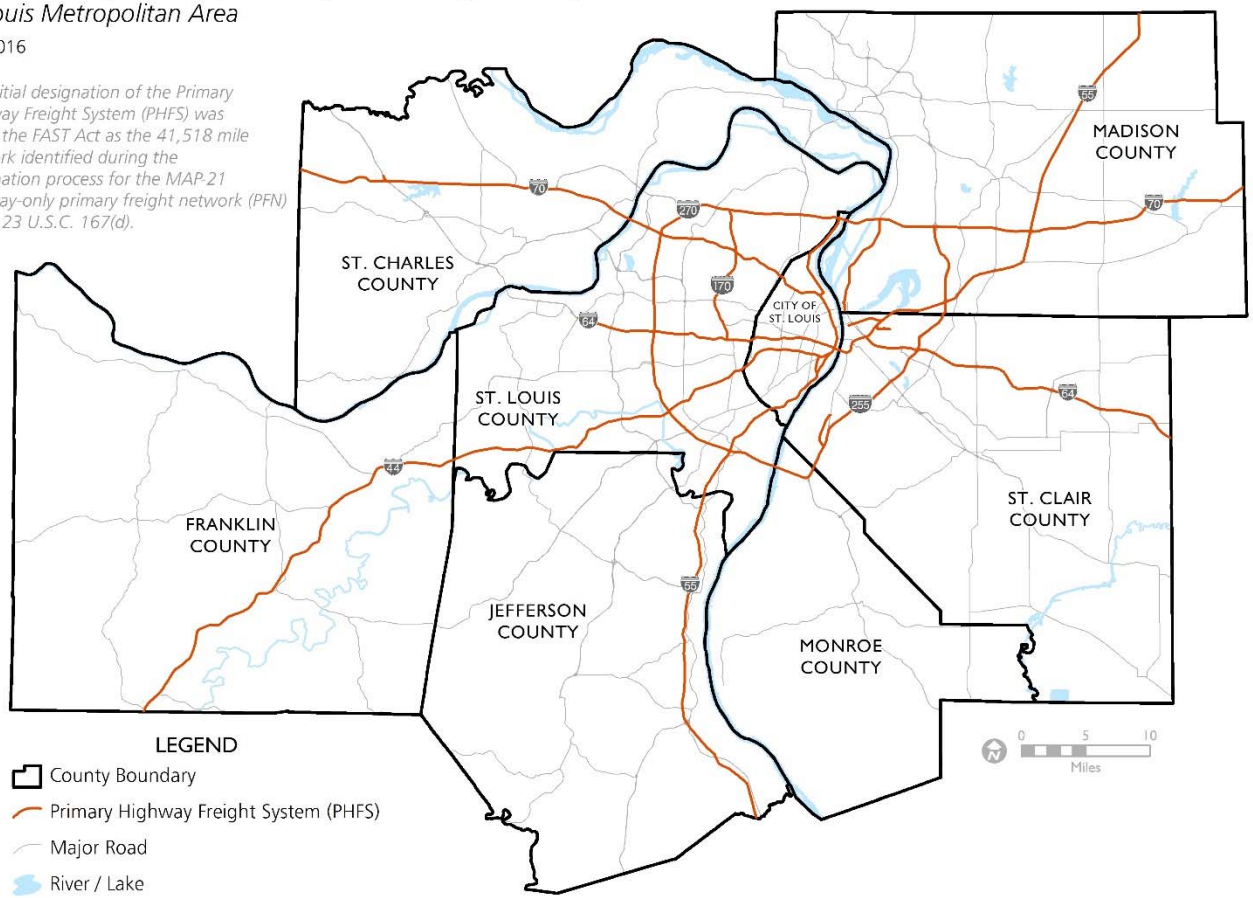
East-West Gateway Council of Governments

Primary Highway Freight System

St. Louis Metropolitan Area

April 2016

The initial designation of the Primary Highway Freight System (PHFS) was set by the FAST Act as the 41,518 mile network identified during the designation process for the MAP-21 highway-only primary freight network (PFN) under 23 U.S.C. 167(d).



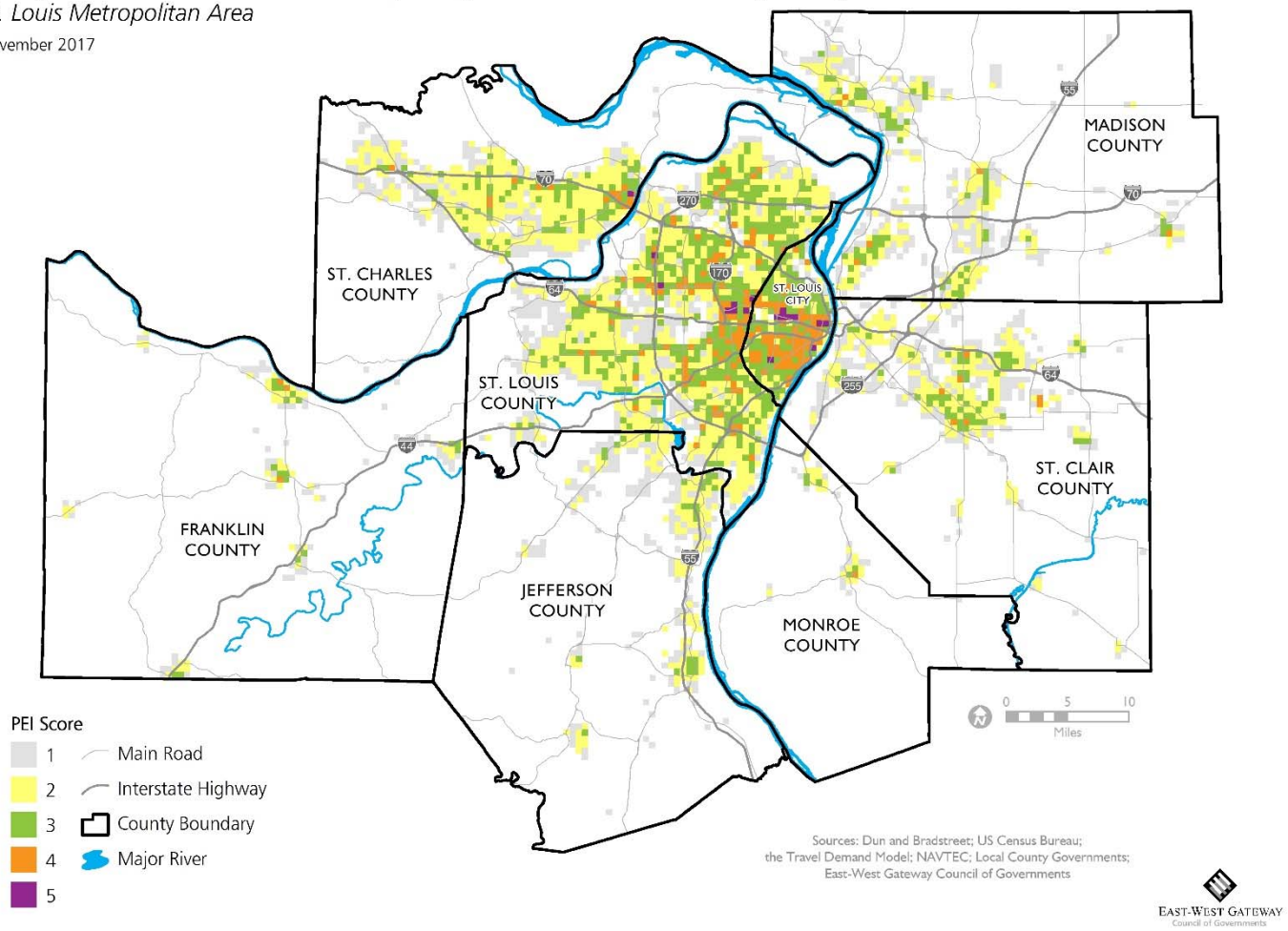
Sources: US Federal Highway Administration; East-West Gateway Council of Governments

East-West Gateway Council of Governments

Population and Employment Index (PEI)

St. Louis Metropolitan Area

November 2017



Appendix B: Congestion Strategies

Level 1 Strategies: Delay Reduction of Up to 50%						
Category	**Strategy**	**Treatment**	**Application to Sources of Congestion**	**Key Quantitative Benefit**	**Overall Cost Range**	**Effectiveness–Cost Rank**
Information collection and dissemination	Pre-trip information	National Traffic and Road Closure Information	Weather, work zones	Reduces delays (early and late arrivals) by 50%	Low–medium	1-B
Incident and special event management	Pre-event assistance	Service patrols	Traffic incidents	Can reduce incident response by 19% to 77% and incident clearance time by 8 min	High	1-E
	Post-event assistance	On-scene incident management (incident responder relationship, high-visibility garments, clear buffer zones, incident screens)	Traffic Incidents	Traffic incident management programs have reported reductions in incident duration from 15% to 65%	Low	1-A
		Work zone management	Work zones	Reduces work zone–related delays by 50% to 55%	Variable (depends on addition of infrastructure)	1-D
Infrastructure improvements and demand optimization	Signal timing, ITS	TMC	Traffic-control devices, special events, weather, work zones, traffic incidents	Reduces delay by 10% to 50%	High	1-E
		Traffic adaptive signal control, advanced signal systems	Traffic-control devices	Adaptive signal control systems have been shown to reduce peak period travel times by 6% to 53%	Medium–high	1-C
	Congestion pricing	Electronic toll collection (ETC)	Physical bottlenecks	Electronic toll collection (ETC) reduces delay by 50% for manual-cash customers and by 55% for automatic-coin-machine customers, and increases speed by 57% in the express lanes	High	1-E

Source: Evaluating Alternative Operations Strategies to Improve Travel Time Reliability SHRP2

Level 2 Strategies: Delay Reduction of Up to 20%						
Category	**Strategy**	**Treatment**	**Application to Sources of Congestion**	**Key Quantitative Benefit**	**Overall Cost Range**[a]	**Effectiveness–Cost Rank**
Information collection and dissemination	Surveillance and detection	Remote verification (CCTV)	Traffic-control devices, special events, weather, traffic incidents	5% reduction in travel times in nonrecurring congestion; overall 18% reduction in travel times	Medium	2-C
	Real-time information	Pretrip information by 511, websites, subscription alerts, radio	Traffic-control devices, special events, weather, work zones, traffic incidents	Potential reduction in travel time from 5% to 20%	Variable	2-E
		Road weather information systems	Weather	Reduces delays by up to 12%	Low–medium	2-B
	Roadside messages	Travel time message signs for travelers (DMS, VMS)	All	Improves trip-time reliability, with delay reductions ranging from 1% to 22%	High	2-F
Infrastructure improvements and demand optimization	Geometric design treatments	Bottleneck removal (weaving, alignment)	Physical bottlenecks	Reduces travel time by 5% to 15%.	Medium–high	2-D
	Signal timing, ITS	Signal retiming, optimization	Traffic-control devices	Reduction in travel time and delay of 5% to 20% when traffic-signal retiming was used	Low	2-A
		Advanced transportation automation systems, signal priority, and AVL	Traffic-control devices	Reduces transit delays by 12% to 21%	Low–medium	2-B
	Traffic demand metering	Ramp metering, ramp closure	All	An increase of mainline peak-period flows from 2% to 14% because of on-ramp metering, according to a study of ramp meters in North America	Low–medium	2-B
	Congestion pricing	Cordon pricing (areawide)	Physical bottle-necks, fluctuation in normal traffic, special events	A decrease in inner city traffic by about 20% from congestion pricing in London	Low–medium	2-B
	Lane treatments	Managed lanes: HOV, HOT, and TOT lanes	Physical bottle-necks, fluctuation in normal traffic, traffic incidents	Reduces travel times up to 16%	Medium–high	2-D

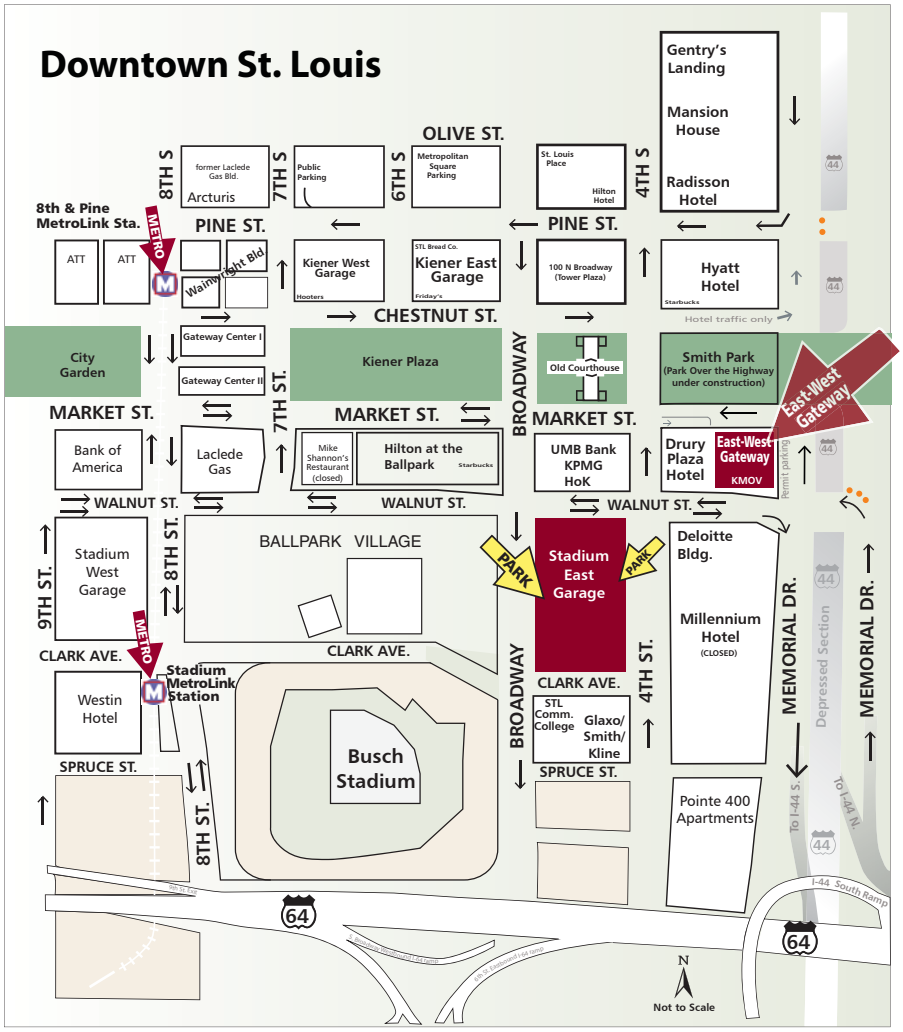
Source: Evaluating Alternative Operations Strategies to Improve Travel Time Reliability SHRP2

Level 3 Strategies: Delay Reduction of Up to 10%						
Category	**Strategy**	**Treatment**	**Application to Sources of Congestion**	**Key Quantitative Benefit**	**Overall Cost Range[a]**	**Effectiveness–Cost Rank**
Information collection and dissemination	Pretrip information	Planned special events management	Special events	Reduces delay caused by special events	Low–medium	3-B
	Real-time information	Freight shipper congestion information, commercial vehicle operations	Traffic-control devices, special events, weather, work zones, traffic incidents	Reduces freight travel time by up to 10% and screening time by up to 50%	Low	3-A
Vehicle technologies	Driver-assistance products	Electronic stability control; obstacle detection systems; lane-departure warning systems; road-departure warning systems	Traffic incidents	Reduces accidents involving vehicles by up to 50%; reduces travel times by 4% to 10%	Low	3-A
Infrastructure improvements and demand optimization	Signal timing, ITS	Traffic-signal pre- emption at grade crossings	Traffic-control devices	Reduces delays by up to 8% at grade crossings, according to simulation models	Medium	3-C

Source: Evaluating Alternative Operations Strategies to Improve Travel Time Reliability SHRP2

Level 4 Strategies: Other Improvements						
Category	**Strategy**	**Treatment**	**Application to Sources of Congestion**	**Key Quantitative Benefit**	**Overall Cost Range[a]**	**Effectiveness–Cost Rank**
Information collection and dissemination	Surveillance and detection	Driver qualification	Traffic incidents	Reduces non-recurring congestion by reducing accidents	Low	4-A
		Automated enforcement	Traffic incidents, bottlenecks	Reduces travel time and improves safety	Variable (high if done by agencies, low if by contractors)	4-D
	Probe vehicles and point detection	GPS, video detection, microwave radar, Bluetooth MAC Readers	Traffic-control devices	No direct benefit to reducing congestion	Low	4-A
Infrastructure improvements and demand optimization	Geometric design treatments	Geometric improvements (interchange, ramp, intersections, narrow lanes, temporary shoulder use)	Physical bottlenecks, traffic incidents	An increase in overall capacity by 7% to 22% from geometric improvements	Medium	4-C
	Variable speed limits	Variable speed limits	Physical bottlenecks, special events	Increases through- put by 3% to 5%	Low–medium	4-B

Source: Evaluating Alternative Operations Strategies to Improve Travel Time Reliability SHRP2



EAST-WEST GATEWAY
Council of Governments

Creating Solutions Across Jurisdictional Boundaries

Gateway Tower
One Memorial Dr., Ste. 1600
St. Louis, MO 63102

314-421-4220 or 618-274-2750

General Directions from Missouri to parking garages

From I-70

Exit at the new Tucker exit into downtown. Continue south on Tucker to Walnut St., turn left on Walnut to Broadway. Make a right on Broadway to the Stadium East Garage entrance on the left.

From I-64

Exit at 6th St., left on Gratiot, left on 4th St, north four blocks to Stadium East Garage on left.

From I-44

Exit at Memorial Dr. Turn left on Walnut up to Broadway. Turn left on Broadway to Stadium East Garage entrance.

From I-55

Merge to I-44 and continue on I-44 toward downtown. Exit at Memorial Dr. Turn left on Walnut up to Broadway. Turn left on Broadway to Stadium East Garage entrance.

General Directions from Illinois to parking garage

From I-64/55 (Poplar St. Bridge)

Exit at Memorial Dr. Turn left on Walnut up to Broadway. Turn left on Broadway to Stadium East Garage entrance.

From Martin Luther King Bridge

On I-64, merge onto the MLK bridge ramp. On MO side, stay to the right, which is 3rd St. Turn left on Cole St., then left on Broadway. Continue on Broadway about ten blocks to Stadium East garage on the left.

From Eads Bridge

Exit I-64 at 3rd St. in East St. Louis. Follow the Casino Queen signs toward the riverfront to the ramps up to the bridge. On St. Louis side, continue west to Broadway. Turn left on Broadway for seven blocks to Stadium East Garage on left.