South Carolina Department of Transportation

Engineering Directive

Directive Number: **ED-81** **Effective: July 5, 2024**

Subject: **Bridge Project Prioritization Process for Secondary Routes**

References: **Section 57-1-370 of South Carolina Code of Laws, 1976 as amended; S.C. Code of Regulations 63-10, as amended**

Primary Department: **Bridge Management**

In 2007, the South Carolina General Assembly enacted Act 114. One of the landmark items in Act 114 was the requirement that the South Carolina Department of Transportation (SCDOT) establish a prioritization process for projects to be undertaken that are included in the Statewide Transportation Improvement Program. In 2016, the General Assembly enacted Act 275. Act 275 eliminated some of Act 114's requirements but it retained the requirement for project prioritization. This requirement is codified in Section 57-1-370 of the South Carolina Code of Laws, 1976, as amended. Additional detail on the process is found in S.C. Code of Regulations 63-10, as amended.

This engineering directive details the process for ranking **bridge needs for secondary routes** using objective and quantifiable criteria.

SCDOT has approximately 8,500 state owned bridges. Bridges will be ranked on a statewide priority basis for the secondary route system. If a bridge is closed to traffic, an evaluation will be performed to determine the need to restore traffic. Reasons to restore traffic may include, but not limited to, single access to a community or emergency service facilities are located on the road. If restoration of traffic is required, then the closed bridge will go into the work plan for secondary routes.

An initial candidate list from the approximate 8,500 bridges will be generated by the Bridge Management Office of bridges with qualifying aspects. Qualifying aspects may include, but not limited to, superstructure type, substructure types, previously widened structures, route management, adjacent structures, limit on legal loads, condition of the structure, and age of structure.

The following **relevant** criteria and associated weightings will be used when calculating the scores to rank bridge candidates on a scale of 0 to 100 points. The higher the point value a bridge receives, the higher the priority for replacement or rehabilitation. Details specifying how to determine points for the initial candidate list are provided in appendix A of this directive.

- **Average Daily Truck Traffic (ADTT) (20% weight*)*** – ADTT is the percentage of Average Daily Traffic that is truck traffic, converted to truck volume.

- **Load Rating Factor (20% weight)** – This criterion is a numerical representation of the bridge's ability to adequately carry legal loads based on the design and condition of the

bridge. The load rating factor is an indicator of the need to post the bridge to restrict the loads.

- **Condition (20% weight)** – This criterion is a composite score based on the three major components of a bridge: deck, superstructure, and substructure. Deck, superstructure, and substructure score is based on the most recent bridge inspection. For bridge length culverts, this score is based on the condition of the culvert as indicated in the most recent inspection.

- **Average Daily Traffic (ADT) (10% weight)** – This criterion is a score based on the average traffic volume per day, including trucks.

- **Average Daily Traffic (ADT) and Detour Length (10% weight)** – This criterion is a composite score based on the average traffic volume per day, including trucks and the additional distance required for travel if the bridge is closed or load restricted.

- **Evacuation Route (5% weight)** – Routes that are officially designated as evacuation routes.

- **Freight Network Route (5% weight**) – Routes that are officially designated as a part of the freight network.

Once the bridge candidates have been identified, bridges will be sorted by engineering district and sent to the District Engineering Administrators for the completion of the local significance criterion, which will be worth 0 to 10 points.

- **Local Significance (10% weight)** – Local significance is a value determined by the district based on the significance of the structure to the local community and the impacts to local mobility. This criterion should take into account the district repair feasibility, emergency services need, commercial impacts, school impacts, and economic development impacts.

Bridges will then be ranked from highest total score to the lowest total score.

Candidates not deemed financially viable are eliminated from the prioritization list. Determining the number of projects to approve may be based on factors such as, but not limited to, availability of funding.

The following Act 114 criteria were considered but deemed **not relevant** as they relate to the bridge program category priority list, as they do not support the **purpose and need** of this program category.

- **Pavement Quality Index (PQI)** – Not relevant as part of the prioritization process since PQI is not calculated for, nor applicable to bridge decks.

- **Environmental Impact** – Not relevant as part of the prioritization process. The environmental permitting process is a part of every bridge replacement project and may have a large impact on the time it takes to develop the project, but it is not used to prioritize bridge replacements.

- **Alternative Transportation Solutions** – Not relevant as part of the bridge prioritization process. There are no viable alternative transportation solutions for bridges.

- **Consistency with Local Land Use Plans** – Not relevant to the prioritization process since this program category consists of the rehabilitation and replacement of existing bridge structures.

All data used for project prioritization will be kept on file as required by Departmental Directive 51 and SCDOT's record retention schedules.

Submitted and
Recommended by: Chris R. Lacy, P.E.
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Approved by: Rob Perry, P.E.
Deputy Secretary for Engineering

History: Issued on November 22, 2021
First Revision on July 5, 2024

APPENDIX A
FOR ENGINEERING DIRECTIVE 81

Bridge Ranking Criteria

Total Available Points			100	
Category	**Criteria**		**Points**	
ADTT	**Lower Range**	**Upper Range**	**Score**	
ADTT>400		400.00	20	
>200ADTT<=400	200.00	400.00	15	
>100 ADTT<=200	100.00	200.00	10	
>50ADTT<=100	50.00	100.00	5	
ADTT<=50	0.00	50.00	0	
Load Rating				
OPR >= 1.0		1.00	0	
0.90=<OPR<1.0	0.90	1.00	2.5	
0.80=<OPR<0.90	0.80	0.90	7.5	
0.60=<OPR<0.80	0.60	0.80	12.5	
0.30=<OPR<0.61	0.30	0.61	17.5	
OPR<0.3	0.00	0.30	20	
ADT				
ADTT>1250		1250.00	10	
>750ADTT<=1250	750.00	1250.00	7.5	
>250 ADTT<=750	250.00	750.00	5	
>100ADTT<=250	100.00	250.00	2.5	
ADTT<=100	0.00	100.00	0	
Deck Condition				
Deck>=6		6.00	0	
Deck=5		5.00	2.5	
Deck<=4		4.00	5	
Superstructure Condition				
Super>=6		6.00	0	
Super=5		5.00	5	
Super<=4		4.00	7.5	
Substructure Condition				
Sub>=6		6.00	0	
Sub=5		5.00	5	
Sub<=4		4.00	7.5	
Culvert Condition				**OR**
Culvert>=6		6	0	
Culvert=5		5	5	
Culvert=4		4	7.5	
Culvert<=3		3	10	
District/BMO Input			10	
Freight Network				
Yes		Yes	5	
No		No	0	
Evacuation Route				
Yes		Yes	5	
No		No	0	
Detour Length/ADT Total			10	

Detour Length

ADT	**2.5**	**5**	**7.5**	**10**	
250	0.0000	1.2500	2.5000	3.7500	5.0000
750	1.2500	2.5000	3.7500	5.0000	6.2500
2500	2.5000	3.7500	5.0000	6.2500	7.5000
8800	3.7500	5.0000	6.2500	7.5000	8.7500
	5.0000	6.2500	7.5000	8.7500	10.0000