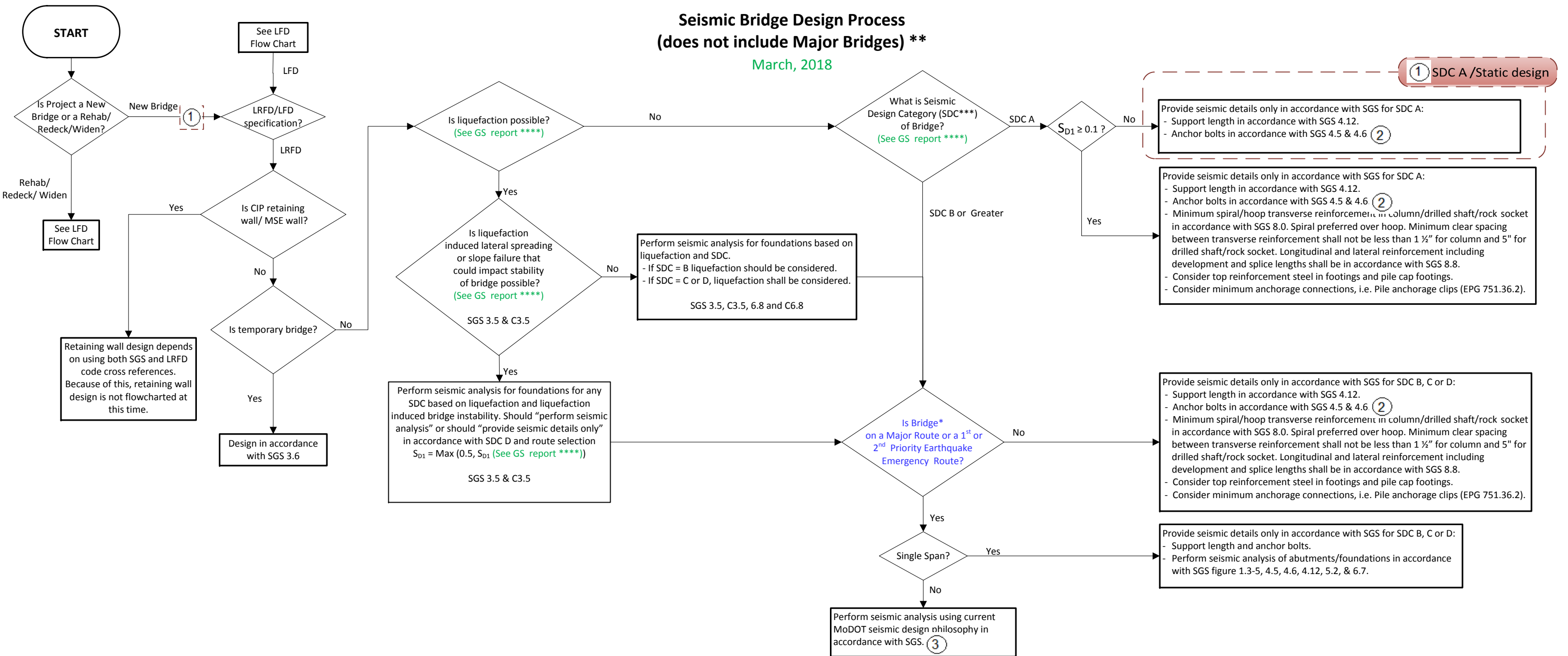


Seismic Bridge Design Process (does not include Major Bridges) **

March, 2018



New Bridge Analysis and Design Procedure (Based on AASHTO Guide Specifications For LRFD Seismic Bridge Design)

Seismic Design Categories/Zones by Code		
Value of design spectral acceleration coefficient at 1.0 second period, $S_{D1} = F_v \cdot S1$ SGS 3.4.1-3	¹ AASHTO Guide Specifications for LRFD Seismic Bridge Design (SGS) SGS 3.5 Seismic Design Category (SDC)	² AASHTO LRFD Bridge Design Specifications (LRFD) LRFD 3.10.6 Seismic Zones
$S_{D1} < 0.15$	A	1
$0.15 \leq S_{D1} < 0.30$	B	2
$0.30 \leq S_{D1} < 0.50$	C	3
$0.50 \leq S_{D1}$	D	4

¹SGS required for seismic design. LRFD shown because SGS refers to LRFD for support, and understanding equivalent categories and zones may be important.

²LRFD inequalities are different. Use SGS as shown.

Notes:

- 1** All static design shall include SDC A detailing requirements per SGS.
- 2** If $A_s < 0.05$, The horizontal design connection force in the restrained directions = $0.15 \times$ the vertical reaction due to the tributary permanent load. If $A_s \geq 0.05$, The horizontal design connection force in the restrained directions = $\text{Max}(A_s, 0.25) \times$ the vertical reaction due to the tributary permanent load.
- 3** If member size needs to be increased to meet SDC B, C or D then re-check SDC A/Static design requirements.

* **Also consider bridges, vehicular and pedestrian, over these types of routes if there is not a readily available alternate detour. For MoDOT Earthquake Emergency Routes, See EPG 948 Incident Response Plan and Emergency Response Management, Section G, Appendix A.**

** See State Bridge Engineer for Major Bridges.

*** AASHTO Guide Specifications for LRFD Seismic Bridge Design (SGS) uses Seismic Design Categories ("SDC") and AASHTO LRFD Bridge Design Specifications (LRFD) uses "Seismic Zone". They are categorically equivalent for purpose of detailing when SGS refers to LRFD.

**** Geotechnical Section (GS) is responsible for the determination of SDC, S_{D1} and the liquefaction potential including liquefaction induced lateral spreading or slope failure.