State of California
DEPARTMENT OF TRANSPORTATION

California State Transportation Agency

Tab 28

M e m o r a n d u m

To: CHAIR AND COMMISSIONERS
CALIFORNIA TRANSPORTATION COMMISSION

CTC Meeting: March 21-22, 2018

Reference No.: 4.9
Action Item

From: NORMA ORTEGA
Chief Financial Officer

Prepared by: Michael Johnson
State Asset Management Engineer

Subject: **ESTABLISHMENT OF ASSET CLASS PERFORMANCE BENCHMARKS**

RECOMMENDATION:

The California Department of Transportation (Department) recommends the California Transportation Commission (Commission) approve the following benchmarks and update frequency for the State Highway Operation and Protection Program (SHOPP) primary asset classes.

The performance benchmarks (projections), as shown in Attachments 1-6, were developed with certain assumptions as detailed in the background section below. In light of the sensitivity of the projections to these assumptions, the Department recommends that Commission adopt an update frequency for these benchmark projections of every two years, corresponding with the adoption of the SHOPP.

BACKGROUND:

The California Transportation Asset Management Plan (TAMP) and Senate Bill 1 (SB 1) established performance targets for the SHOPP primary asset classes (pavement, bridges, culverts and traffic management system elements). To measure progress toward meeting the defined performance targets, the Commission adopted an addendum to SHOPP Guidelines in October of 2017. The addendum called on the Department to develop annual benchmarks (future condition projections) to measure progress made for each of the four primary asset classes.

The benchmark projections were established using the following general steps:

1. Begin with the most recent inventory and condition information available
2. Reduce the condition by the expected annual deterioration
3. Improve the condition with annual project level accomplishments
4. Incorporate inventory growth

These four steps are repeated for each of the 10 years in the analysis horizon 2017-18 through 2026-27. If the annual project accomplishments exceeds the annual deterioration then the condition of the asset improves by the net difference.

The benchmark projections are presented in graphical form with each stack column representing a fiscal year. The green color represents the projected good condition percentage of the asset, yellow represent the fair condition and red represents the percentage in poor condition. The initial condition is shown in the far left column and the Commission adopted Asset Management targets are shown in the far right column. It is important to note that the combined good and fair condition targets adopted by the Commission for pavement, drainage and TMS elements meets the expected performance outcomes in SB 1.

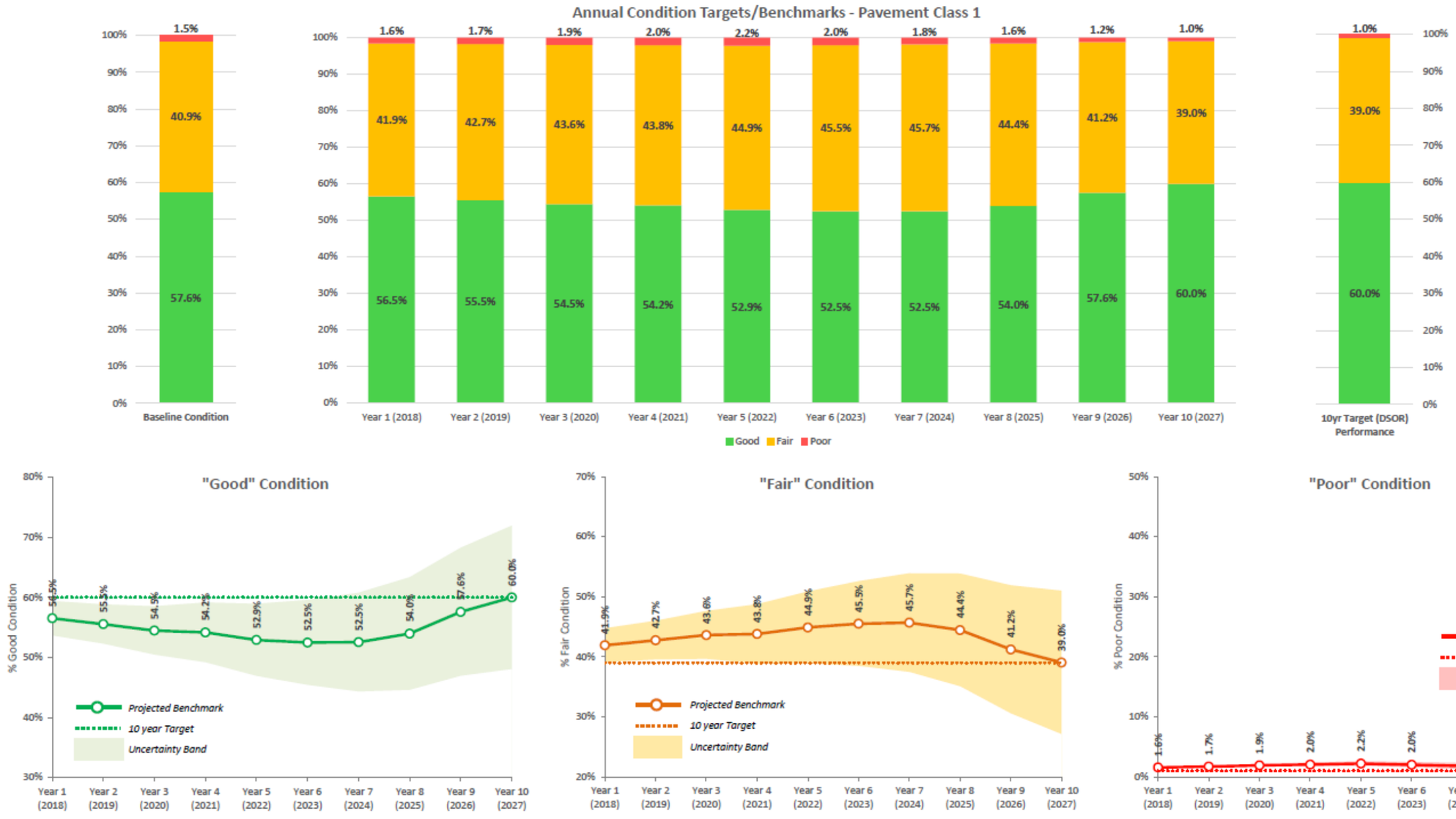
Senate Bill 1 included two addition performance objectives related to pavement and bridges; Level of Service (LOS) for pavement cracking and spalling and a number of bridges fixed. These two metrics will be achieved through the same project accomplishments and maintenance strategies included in the benchmark analysis for the core assets. The Department is committed to reporting progress made toward these specific objectives on an ongoing basis so that the Commission can evaluate progress.

The benchmark projection analysis includes uncertainty factors associated with assumptions made relative to the size of the inventory, condition, deterioration rates and expected project accomplishments. These factors were incorporated into the analysis using a Monte Carlo simulation that develops a range of potential outcomes given these uncertainties. These potential outcomes are represented graphically using a shaded range on each side of projection line shown in the lower trend line set of three charts for each asset. Caltrans will update the benchmark projections every two years to reflect the annual project accomplishments and future uncertainties, and will adjust the work plan where necessary to meet the SB 1 performance outcomes.

Attachment 1 – Pavement Class 1

SENATE BILL 1 TARGET = 98% GOOD OR FAIR PAVEMENT

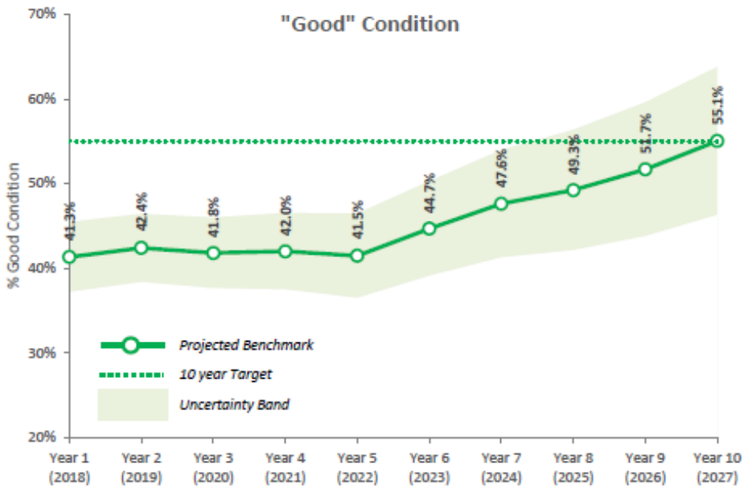
10 Year Analysis – Pavement Class 1

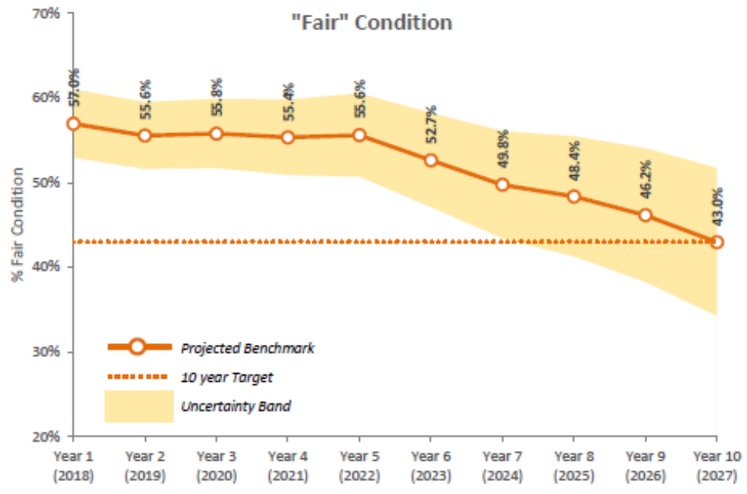


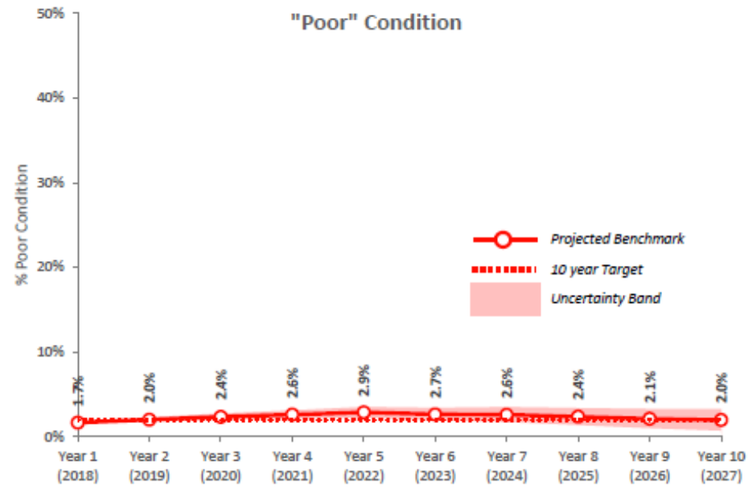
Attachment 2 – Pavement Class 2

SENATE BILL 1 TARGET = 98% GOOD OR FAIR PAVEMENT

10 Year Analysis – Pavement Class 2



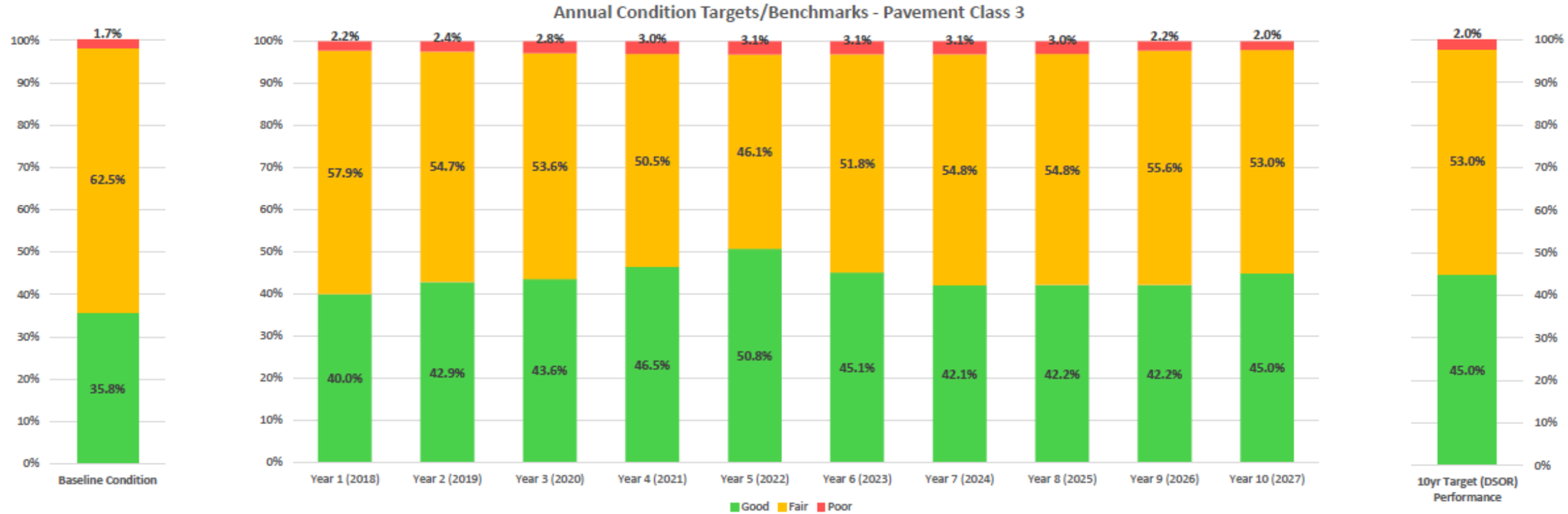


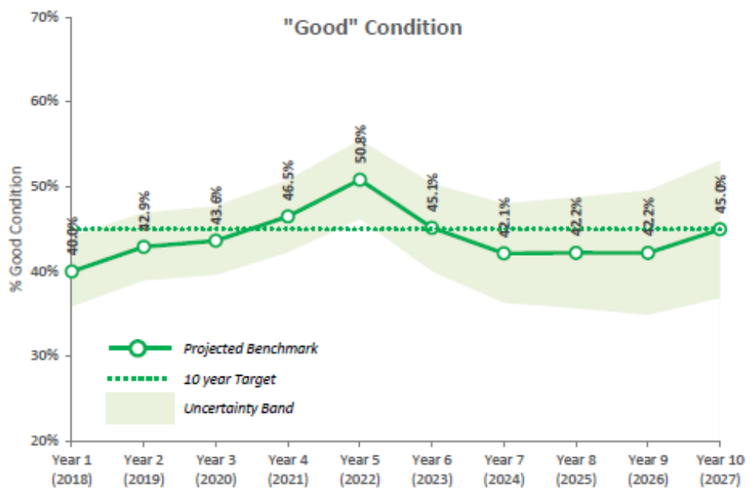


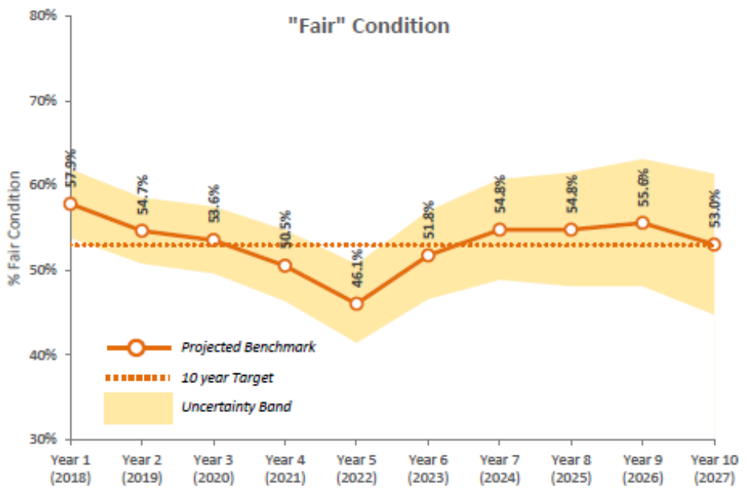
Attachment 3 – Pavement Class 3

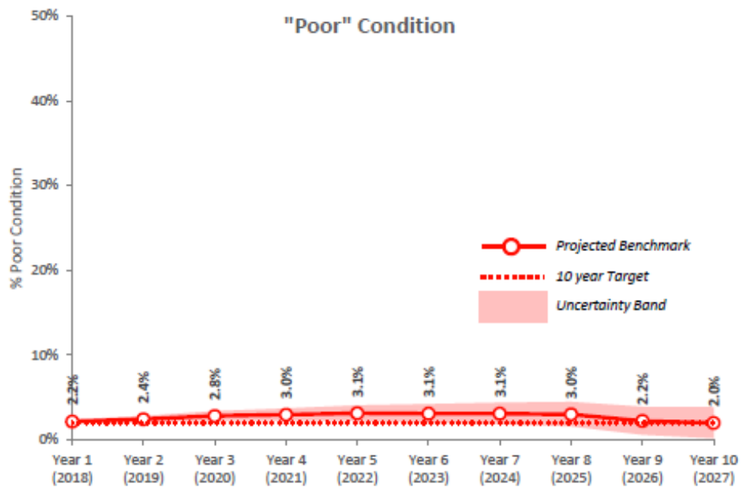
SENATE BILL 1 TARGET = 98% GOOD OR FAIR PAVEMENT

10 Year Analysis – Pavement Class 3



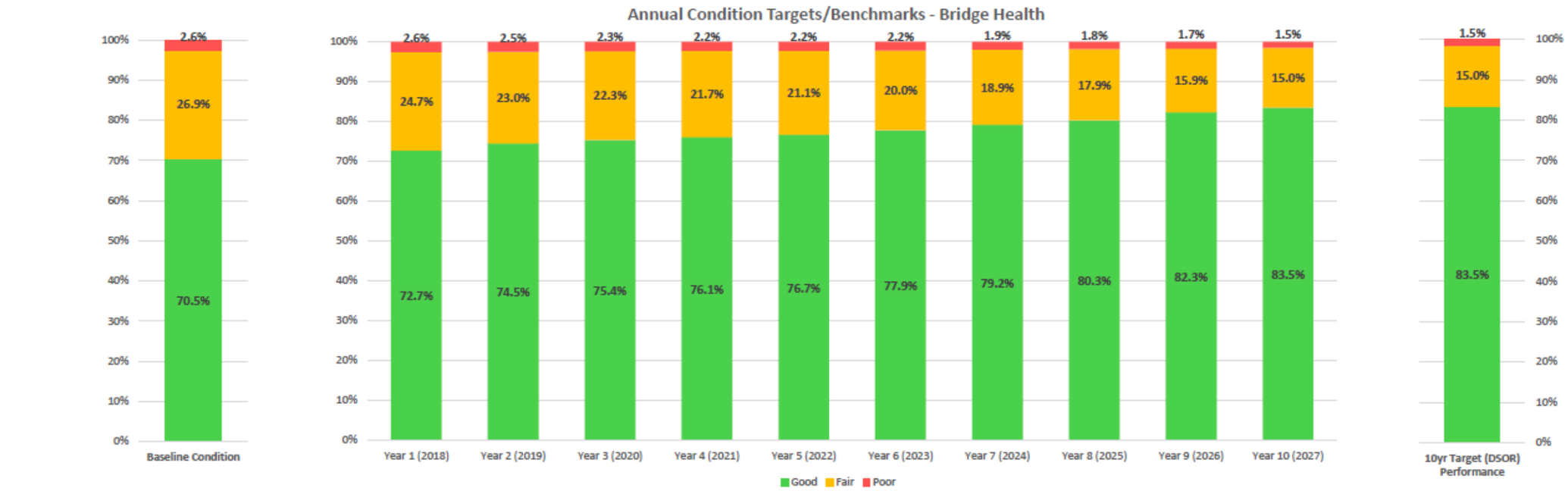


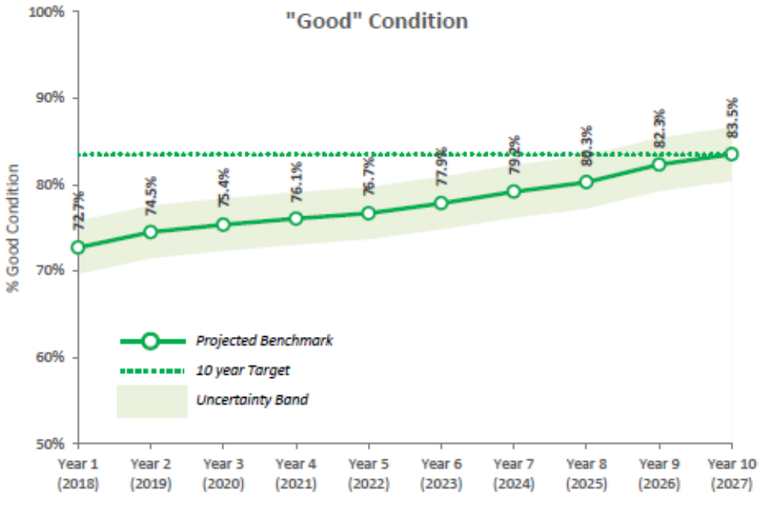


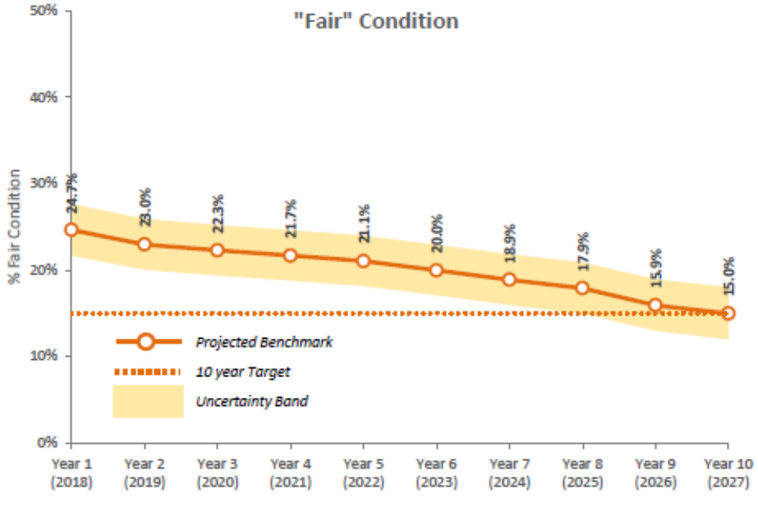


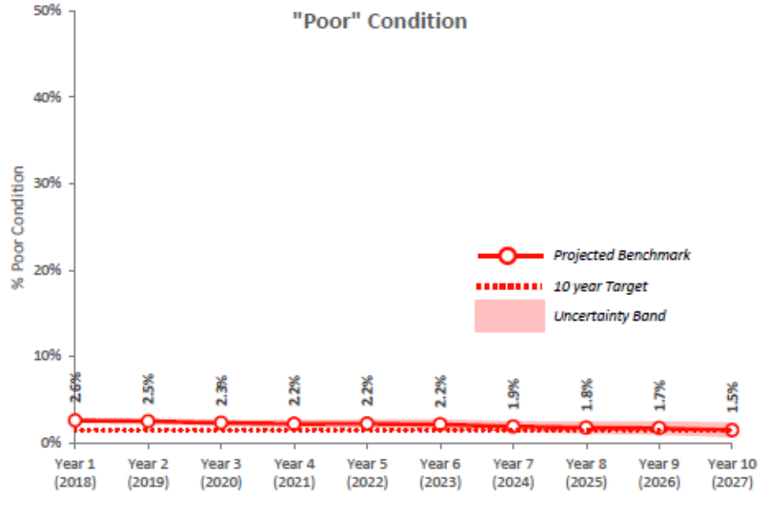
Attachment 4 – Bridge Health

10 Year Analysis – Bridge Health





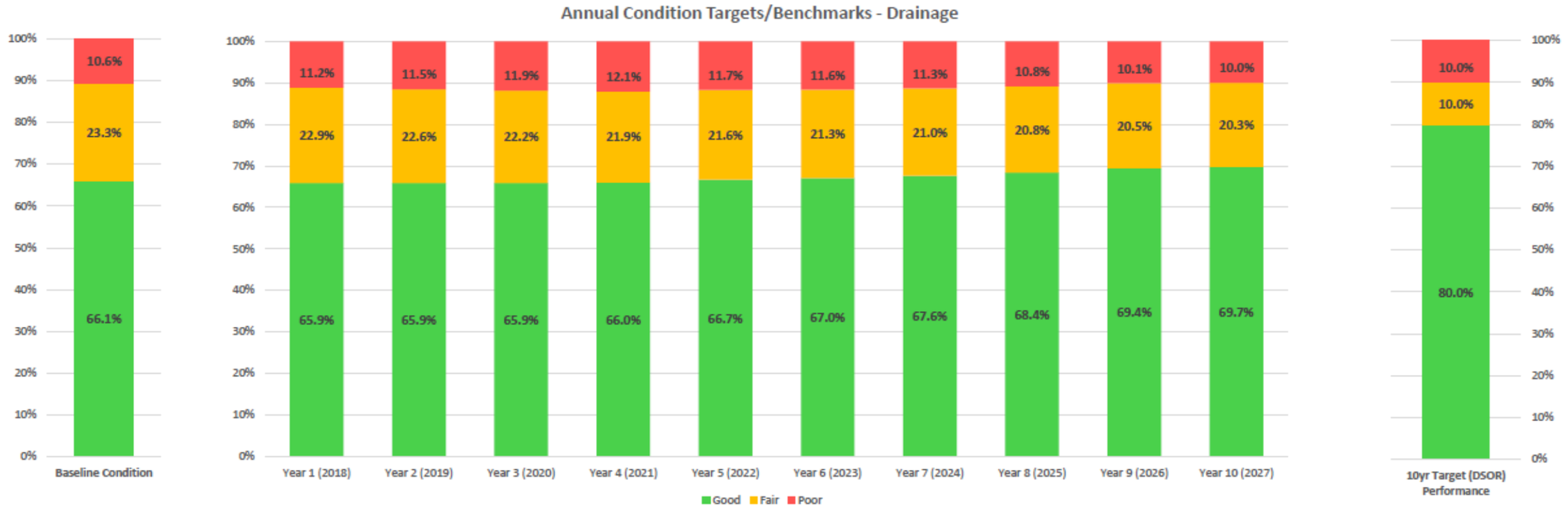


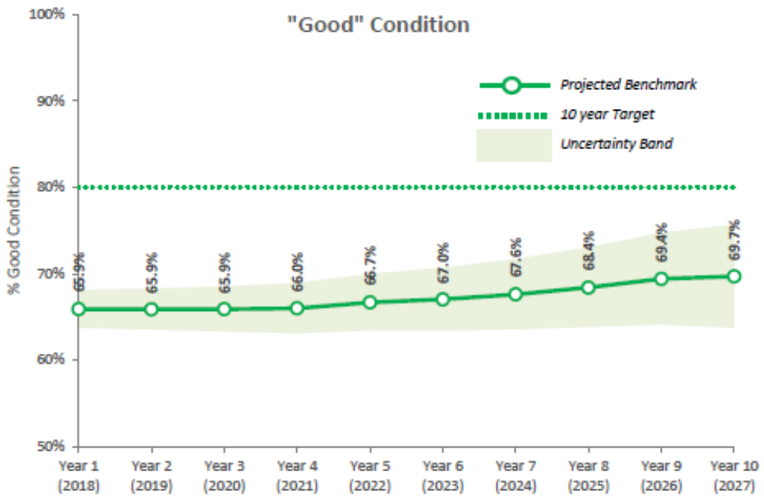


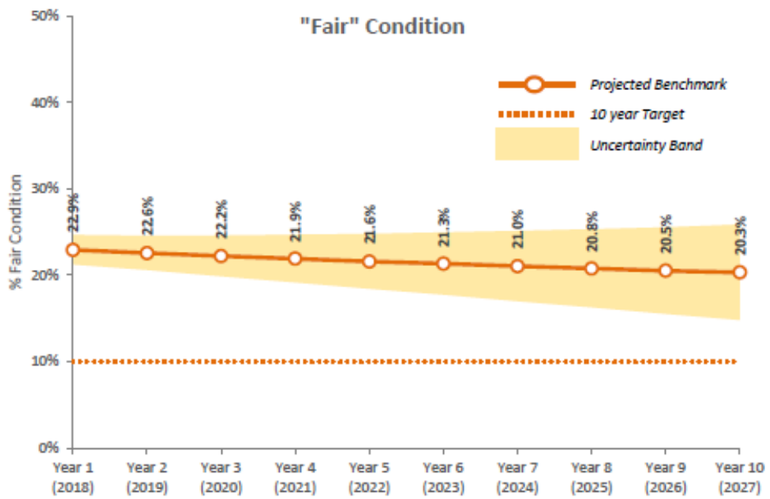
Attachment 5 – Drainage (Culverts)

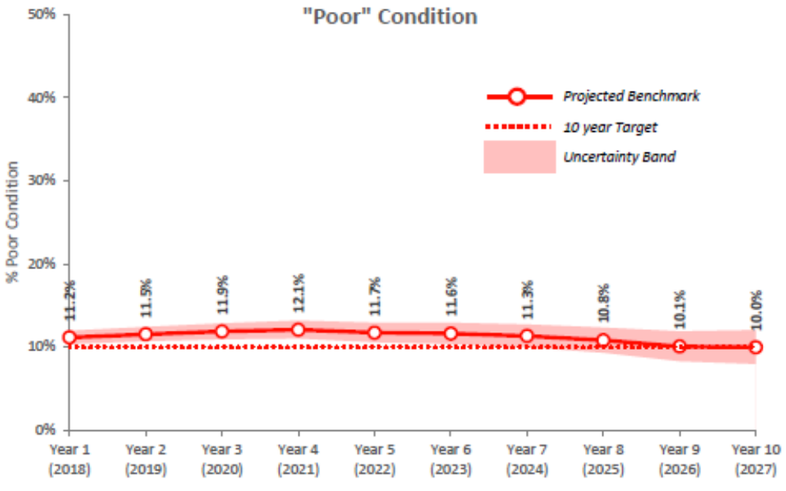
SENATE BILL 1 TARGET = 90% GOOD AND FAIR CULVERTS

10 Year Analysis – Drainage

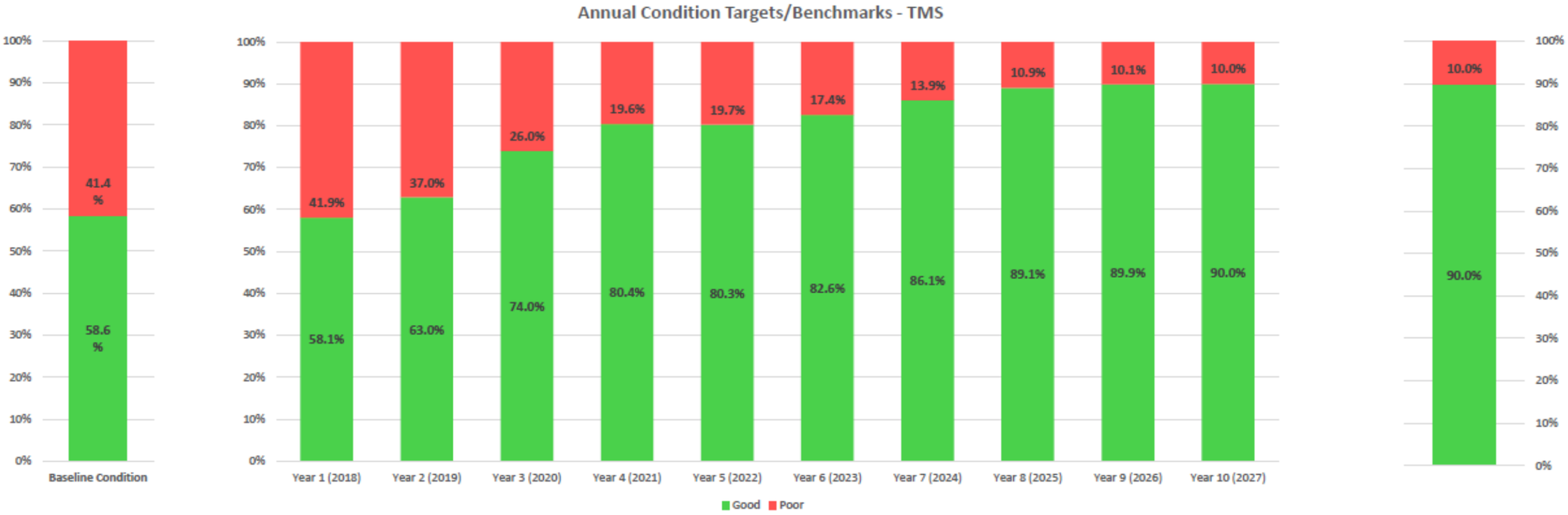
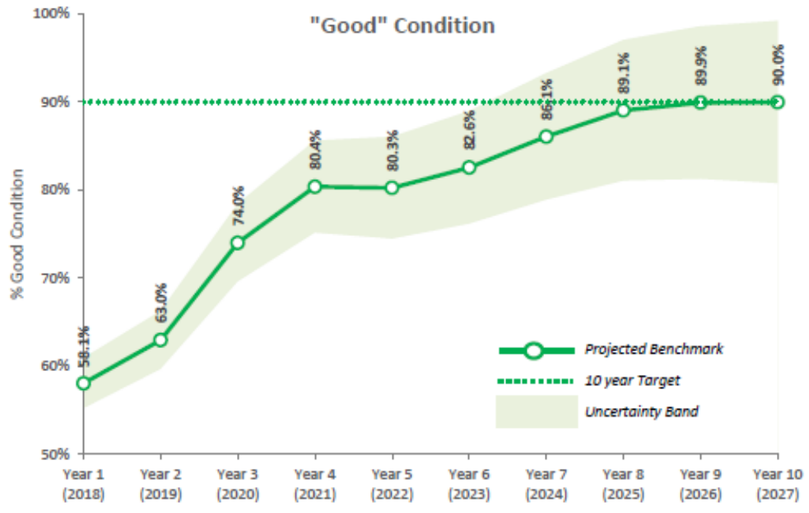
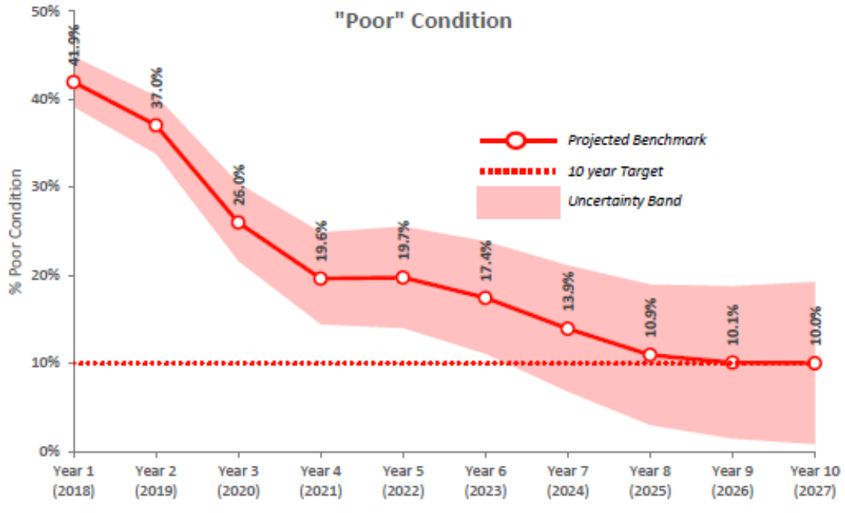








Attachment 6 – Transportation Management System (TMS) Elements

SENATE BILL 1 TARGET = 90% GOOD

10 Year Analysis -- Transportation Management Systems