

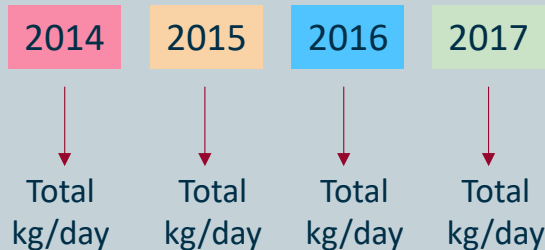
CMAQ Emission Reduction Performance Measures

Background

- Task assigned in the FAST Act
- Intended to facilitate performance-based planning
- MPOs in nonattainment regions must develop CMAQ emission reduction targets
- Initial performance measures were developed in 2018
- Developed a procedure with TxDOT and other TX MPOs
 - Based on a four-Year average (2014-2017) of CMAQ emissions
 - Designed to smooth out annual spending fluctuations
 - Takes account of an incomplete TIP for future performance years – 2019-2022

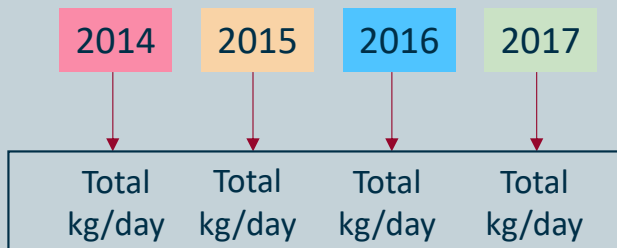
1

CMAQ PROJECT BENEFITS REPORTED IN PAS FY Reports



2

CMAQ PROJECT BENEFITS REPORTED IN TIP



2a

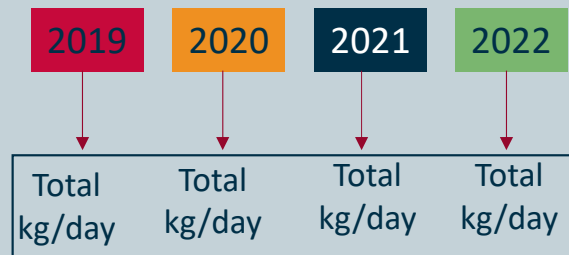
Calculate Average Emissions Benefits of 4 Years (kg/day)

3

$$\frac{\text{PAS}}{\text{TIP}} \frac{1}{2} = \frac{2014\% + 2015\% + 2016\% + 2017\%}{4} = \text{4 YEAR AVG \%}$$

4

CMAQ PROJECT BENEFITS REPORTED IN TIP



4a

Calculate Average Emissions Benefits of 4 Years (kg/day)

5

Compare Annual Average between 2a and 4a to determine higher annual average

6

Higher Annual Average (kg/day)

x2

x4

2 Years (kg/day)

4 Years (kg/day)

7

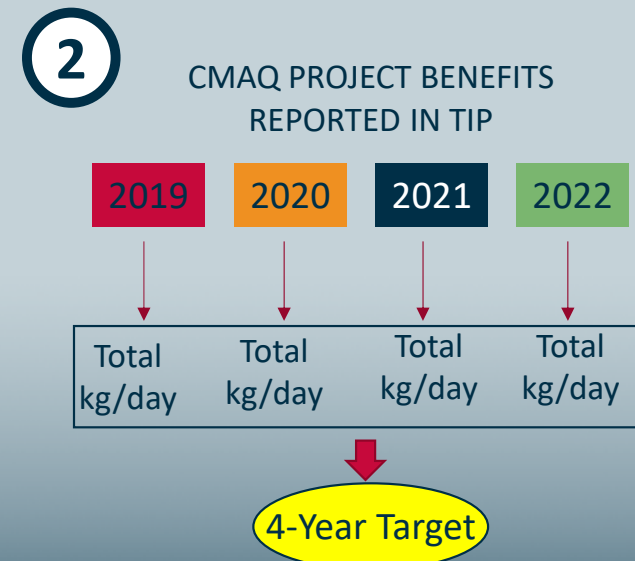
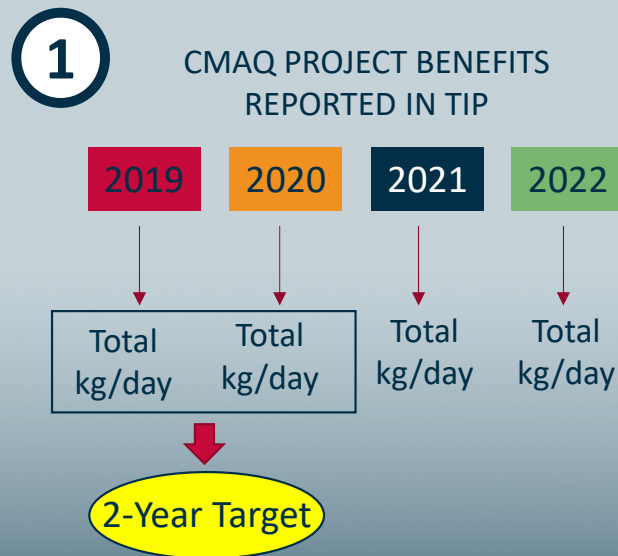
x 4 YEAR AVG %

2-Year Target

4-Year Target

Background

- Based on internal discussions, H-GAC opted for an alternate procedure – took into account our largely complete TIP
- Used actual TIP emissions estimates from 2019-2022 to determine the emissions targets.



Initial 2018 Targets

Year	# of TIP Projects	CMAQ Funding	NOx Reductions (kg/day)	VOC Reductions (kg/day)
2018	8	\$ 43,155,763	453.741	66.850
2019	12	\$ 43,772,184	985.805	98.681
2020	15	\$ 108,039,913	433.621	70.620
2021	5	\$ 45,242,905	230.000	9.450
2022	4	\$ 23,423,200	233.870	22.060

	NOx (kg/day)	VOC (kg/day)
2018 Baseline	453.741	66.850
Two-Year Target	1,419.426	169.301
Four-Year Target	1,883.296	200.811

Initial 2018 Targets

	NOx (kg/day)	VOC (kg/day)
2018 Baseline	453.741	66.850
Two-Year Target	1,419.426	169.301
Four-Year Target	1,883.296	200.811

- Targets were reviewed by H-GAC staff and advisory committees: TAQ, TAC, TPC
- Final 2018 targets approved by TPC on September 28, 2018
- Submitted to TxDOT by October 1, 2018
- Guidance published by FHWA in January of 2019

2020 Revision

- Statute indicates that targets should be revisited and reassessed after two years
 - Track progress on two-year targets
 - Revise four-year targets if necessary
- Quickly found issues with original analysis:
 - FHWA guidance indicated a time range problem
 - Initially used 2019-2022 - Guidance says we should have used 2018-2021
 - Two-year progress will report progress for both 2018-2019 and 2019-2020
 - Revisions to four-year progress will use 2018-2021
 - Our TIP wasn't as complete as we had expected – using direct TIP accounting left us open to problems from mid-period TIP changes
 - For revised four-year targets we are using a revised methodology

Two-Year Progress

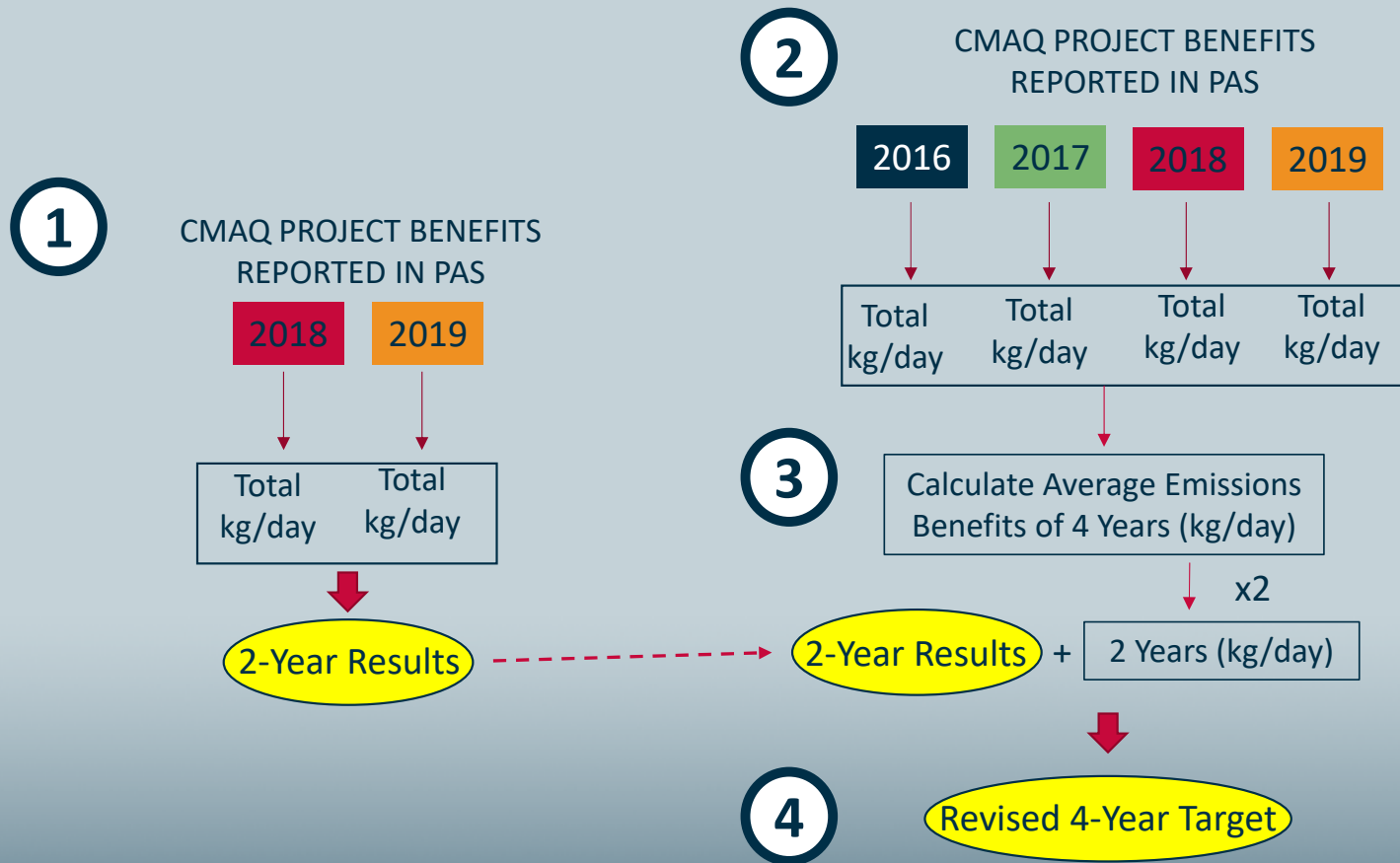
- Progress is determined based on TIP projects reported to FHWA's Public Access System

Year	NOx Reductions (kg/day)	VOC Reductions (kg/day)
2018 PAS	837.617	40.366
2019 PAS	81.828	28.204
2020 TIP	76.491	23.806

Original Time Frame	2018 Two-Year Target (2019-2020)	2020 Two-Year Progress (2019-2020)	Difference
NOx (kg/day)	1,419.426	158.319	(1,261.107)
VOC (kg/day)	169.301	52.010	(117.291)

- Why did we not meet our targets?
 - Funding category changes – Project timing changes – Project cancellations

Revised Joint Methodology



Four-Year Target Revision

- Using revised time frame: 2018 - 2021
- Texas Revised Joint Methodology
 - Two-Year Progress (2018-2019) with Average of 2016-2019 PAS
 - Additional Reductions due to expected fleet emissions improvements

Year	NOx Reductions (kg/day)	VOC Reductions (kg/day)
2016 PAS	553.065	545.079
2017 PAS	792.520	124.280
2018 PAS	837.617	40.366
2019 PAS	81.828	28.204
Average Annual Emissions Benefits (2016-2019)	566.258	184.482
Average Annual Emissions Benefits With Fleet Improvements (2016-2019)	254.816	83.017

Four-Year Target Revision

Year	Source	NOx Reductions (kg/day)	VOC Reductions (kg/day)
2018	2018 PAS	837.617	40.366
2019	2019 PAS	81.828	28.204
2020	2016-2019 Average	254.816	83.017
2021	2016-2019 Average	254.816	83.017
Four-Year Target Revised		1,429.077	234.604
Original Four-Year Target		1,883.296	200.811
Four-Year Target Delta		(454.219)	33.793

Conclusion

- Staff will report progress towards meeting two-year targets

	2018 Two-Year Target (2019-2020)	2020 Two-Year Progress (2019-2020)	Difference
NOx (kg/day)	1,419.426	158.319	(1,261.107)
VOC (kg/day)	169.301	52.010	(117.291)

- Staff recommends revisions to the four-year target

	NOx Reductions (kg/day)	VOC Reductions (kg/day)
Original Four-Year Target	1,883.296	200.811
Four-Year Target Revised	1,429.077	234.604