Highway Program Planning and TPM Implementation 2017 TAM Peer Exchange

Craig Newell Michigan Department of Transportation

November 2017



Michigan

MICHIGAN DEPARTMENT OF TRANSPORTATION

Fast Facts 2017

The Michigan Department of Transportation (MDOT) has jurisdiction over:

9,668 route miles (M, US and I routes) 32,045 lane miles (including ramps)



miles of state-owned railroad (126 miles as bridges)

4
state-owned airports
(Houghton Lake Ĥeights,
Linden, Plymouth, Romeo)

85 roadside parks

78 rest areas (including 14 Michigan Welcome Centers)

MDOT also provides financial and/or technical assistance for portions of the transportation system owned and operated by others, including local transit systems, airports, intercity bus, trails, etc.

		MDOT	Area (SFT)	Local	Area (SFT)
	Highway Bridges	4,484	51,050,381	6,588	17,444,272
	Railroad Bridges	126	867,125	251	1,137,209
'n	Pedestrian Bridges	148	473,390	57	62,697
	Other Bridges	15	410,209	7	491,812
	Total Bridges	4,773	52,801,105	6,903	19,135,990

		Route Miles
10	Interstate	1,252
ິລີ	Freeway	1,944
Ň	Non-Freeway Trunkline	7,723
g	National Highway System (NHS)	6,470
2	Non-Trunkline NHS	1,215
	Federal Aid Highways	36,558
	Source: Highway Performance Management System (H	PMS).

Note: Excludes bridges less than 20 feet long and those currently under construction or not yet let for construction.



Michigan

- State Transportation Commission
 - Policy making body
 - 6 appointed members
- Asset Management since 1997
 Pavement and Bridge goals
- Transportation Asset Management Council

 Established in 2002 by Michigan Legislature



MDOT Highway Capital Program Budget

FY 2018 MDOT Highway Program \$1.6 Billion



MDOT Asset Management

Balancing Investments

Asset Management Approach



MDOT Five-Year Transportation Program Development Process



MDOT Asset Management

Pavement and Bridge Goals Since 1997



- Life Cycle Planning Tools
 - Road Quality Forecasting Tool Remaining Service Life
 - Pavement Condition Forecasting Tool PASER
 - Bridge Condition Forecasting Tool NBI

Develop Investment Strategies

Highway Investment Program FY 2018-2022

	FY 2018-2022 Annual Average (millions)	Five-Year Total (millions)
REPAIR AND REBUILD ROADS AND BRIDGES		
REPAIR AND REBUILD ROADS		
Rehabilitation and Reconstruction	\$499	\$2,495
Capital Preventive Maintenance	\$135	\$673
Freeway Lighting	\$5	\$25
Freeway Resurfacing Program	\$20	\$100
Non-Freeway Resurfacing Program	\$47	\$235
Trunkline Modernization	\$197	\$987
TOTAL - Repair and Rebuild Roads	\$903	\$4,515
REPAIR AND REBUILD BRIDGES		
Bridge Replacement	\$76	\$380
Bridge Preservation	\$67	\$338
Big Bridges	\$23	\$114
Special Needs	\$22	\$108
Blue Water Bridge-Appropriated Capital Outlay Projects	\$5	\$26
TOTAL - Bridges	\$193	\$965
ROUTINE MAINTENANCE	\$321	\$1,604
TOTAL - REPAIR AND REBUILD ROADS AND BRIDGES	\$1,417	\$7,084
SAFETY AND SYSTEM OPERATIONS	\$165	\$824
TRANSPORTATION ALTERNATIVES	\$9	\$47
ROADSIDE FACILITIES	\$7	\$37
WORKFORCE DEVELOPMENT	\$7	\$35
NON-FEDERALLY FUNDED PROGRAMS	\$36	\$182
TOTAL - FIVE-YEAR TRUNKLINE PROGRAM	\$1,672	\$8,208

- The core of MDOT's planning/programming process
- Supports the asset management process
- Guides annual and multi-year investment decisions
- Result of interdisciplinary team discussions and tools
 analysis

Trade Off Analysis Tool



Trade Off Analysis Tool - Data

. A	В	С	D	E	F	G	Н	1	J	K	L	М	N	0	P	Q	R	S	Т	U	٧	W	Х	Y	Z	AA	AB	AC	AD	AE	AF	AG	AH	AL A
1																																		
2				1	nvestmen	0		2	3	4	5	6	7	8	9	10		12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
3 2015	85%		_		2015	0.8519	0.8519	0.8519	0.8519	0.8519	0.8519	0.8519	0.8519	0.8519	0.8519	0.8519	0.8519	0.8519	0.8519	0.8519	0.8519	0.8519	0.8519	0.8519	0.8519	0.8519	0.8519	0.8519	0.8519	0.8519	0.8519	0.8519	0.8519	0.8
4 2016	85%		2		2016	0.8455	0.8455	0.8455	0.8455	0.8455	0.8455	0.8455	0.8455	0.8455	0.8455	0.8455	0.8455	0.8455	0.8455	0.8455	0.8455	0.8455	0.8455	0.8455	0.8455	0.8455	0.8455	0.8455	0.8455	0.8455	0.8455	0.8455	0.8455	0.8
5 2017	83%		0		2017	0.7513	0.751656	0.752012	0.752368	0.752724	0.753079	0.753435	0.753791	0.754147	0.754503	0.754859	0.755215	0.755571	0.755926	0.756282	0.756638	0.756994	0.75735	0.757706	0.758062	0.758418	0.758774	0.759129	0.759485	0.759841	0.760197	0.760553	0.760909	0.761
6 2018	87%		Š		2018	0.718	0.718691	0.719382	0.720074	0.720765	0.721456	0.722147	0.722838	0.723529	0.724221	0.724912	0.725603	0.726294	0.726985	0.727676	0.728368	0.729059	0.72975	0.730441	0.731132	0.731824	0.732515	0.733206	0.733897	0.734588	0.735279	0.735971	0.736662	0.737
7 2019	88%		2		2019	0.6401	0.641459	0.642818	0.6441/6	0.645535	0.646894	0.648253	0.649612	0.650971	0.652329	0.653688	0.655047	0.656406	0.657765	0.659124	0.660482	0.661841	0.6632	0.664559	0.665918	0.667276	0.668635	0.669994	0.671353	0.672712	0.674071	0.675429	0.676788	0.67
8 2020	90%		Ĕ		2020	0.3681	0.570355	0.572612	0.574868	0.077124	0.578378	0.081630	0.583831	0.586147	0.588403	0.530653	0.532315	0.535171	0.537425	0.533682	0.601938	0.504194	0.50545	0.608706	0.610362	0.613218	0.510474	0.617729	0.619985	0.622241	0.524497	0.525753	0.623003	0.63
3 2021	90%		ĔĿ	L	2021	0.4735	0.482006	0.480512	0.488668	0.491/24	0.494779	0.497835	0.000891	0.503947	0.507003	0.510053	0.013110	0.0161/1	0.019225	0.522282	0.525338	0.528394	0.03140	0.034006	0.037062	0.400080	0.043674	0.046723	0.043785	0.002841	0.000897	0.558353	0.062009	0.060
10 2022	30%		ea st	ea	2022	0.3343	0.330300	0.910070	0.400303	0.900052	0.933344	0.936430	0.920079	0.944900	0.927303	0.9531376	0.957274	0.930312	0.992373	0.990297	0.974194	0.970362	0.90720	0.900200	0.969363	0.966200	0.900363	0.403441	0.407030	0.402324	0.466031	0.430233	0.433320	0.437
10 2023	03%		l ≶ ≻	~	2023	0.3113	0.313400	0.313010	0.323003	0.320033	0.332241	0.000420	0.340010	0.344000	0.340334	0.305102	0.307371	0.361333	0.303747	0.363333	0.374124	0.376312	0.3023	0.300000	0.330070	0.333063	0.333233	0.962771	0.407023	0.91010	0.910000	0.920134	0.424302	0.920
13 2025	92%		E		2024	0.2301	0.200334	0.200000	0.210102	0.213010	0.200071	0.203403	0.230303	0.235255	0.300147	0.303041	0.303333	0.314023	0.313724	0.324010	0.323312	0.334400	0.3333	0.344134	0.343000	0.353362	0.336676	0.303771	0.300003	0.373333	0.370403	0.363347	0.300241	0.33
14 2026	92%		6		2025	0.2110	0.164491	0.2220	0.220	0.12565	0.197256	0.2442	0.199638	0.205	0.2004	0.2000	0.2214.03	0.227094	0.202	0.2014	0.244169	0.2302	0.25555	0.261241	0.266932	0.272624	0.0202	0.284006	0.330	0.0414	0.301079	0.306771	0.312462	0.315
15 2027	92%		2		2020	0.1500	0.1044879	0.130759	0.136638	0.101000	0.148397	0.154276	0.160156	0.166035	0.171915	0.210112	0.183674	0.189553	0.195432	0.201312	0.207191	0.213071	0.21895	0.201241	0.230709	0.236588	0.242468	0.248347	0.254226	0.260106	0.265985	0.271865	0.277744	0.283
16 2028	92%		ŏ		2028	0.0854	0.091453	0.097506	0.103559	0.109612	0.115665	0 121718	0.127771	0.133824	0.139876	0.145929	0 151982	0 158035	0.164088	0.170141	0.176194	0.182247	0.1883	0.194353	0.200406	0.206459	0.212512	0.218565	0.224618	0.230671	0.236724	0.242776	0.248829	0.254
17 2029	93%		0		2029	0.0632	0.069256	0.075312	0.081368	0.087424	0.093479	0.099535	0 105591	0.111647	0.117703	0.123759	0.129815	0 135871	0 141926	0.147982	0.154038	0.1600.94	0.16615	0.172206	0.178262	0.184318	0.190374	0.196429	0.202485	0.208541	0.214597	0.220653	0.226709	0.232
18 2030	94%		*		2030	0.0576	0.063559	0.069518	0.075476	0.081435	0.087394	0.093353	0.099312	0.105271	0.111229	0.117188	0.123147	0.129106	0.135065	0.141024	0.146982	0.152941	0.1589	0.164859	0.170818	0.176776	0.182735	0.188694	0.194653	0.200612	0.206571	0.212529	0.218488	0.224
19	*174				2000	0.0010				0.001100						4.111100						0.104011			0.00 00 10		0.102100						0.610100	
20				1	nvestmen	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
21 2015	90%				2015	0.8987	0.8987	0.8987	0.8987	0.8987	0.8987	0.8987	0.8987	0.8987	0.8987	0.8987	0.8987	0.8987	0.8987	0.8987	0.8987	0.8987	0.8987	0.8987	0.8987	0.8987	0.8987	0.8987	0.8987	0.8987	0.8987	0.8987	0.8987	0.85
22 2016	87%		P		2016	0.8742	0.8742	0.8742	0.8742	0.8742	0.8742	0.8742	0.8742	0.8742	0.8742	0.8742	0.8742	0.8742	0.8742	0.8742	0.8742	0.8742	0.8742	0.8742	0.8742	0.8742	0.8742	0.8742	0.8742	0.8742	0.8742	0.8742	0.8742	0.8
23 2017	91%		ភ		2017	0.8004	0.803415	0.806431	0.809446	0.812462	0.815477	0.818492	0.821508	0.824523	0.827538	0.830554	0.833569	0.836585	0.8396	0.840312	0.841024	0.841736	0.842448	0.84316	0.843872	0.844584	0.845296	0.846008	0.84672	0.847432	0.848144	0.848856	0.849568	0.85
24 2018	93%		e.		2018	0.7123	0.718131	0.723962	0.729792	0.735623	0.741454	0.747285	0.753115	0.758946	0.764777	0.770608	0.776438	0.782269	0.7881	0.789524	0.790948	0.792372	0.793796	0.79522	0.796644	0.798068	0.799492	0.800916	0.80234	0.803764	0.805188	0.806612	0.808036	0.80
25 2019	92%		ē		2019	0.6324	0.638569	0.644738	0.650908	0.657077	0.663246	0.669415	0.675585	0.681754	0.687923	0.694092	0.700262	0.706431	0.7126	0.714736	0.716872	0.719008	0.721144	0.72328	0.725416	0.727552	0.729688	0.731824	0.73396	0.736096	0.738232	0.740368	0.742504	0.74
26 2020	96%		뉟		2020	0.588	0.595385	0.602769	0.610154	0.617538	0.624923	0.632308	0.639692	0.647077	0.654462	0.661846	0.669231	0.676615	0.684	0.686848	0.689696	0.692544	0.695392	0.69824	0.701088	0.703936	0.706784	0.709632	0.71248	0.715328	0.718176	0.721024	0.723872	0.72
27 2021	100%		E.		2021	0.5321	0.541531	0.550962	0.560392	0.569823	0.579254	0.588685	0.598115	0.607546	0.616977	0.626408	0.635838	0.645269	0.6547	0.65826	0.66182	0.66538	0.66894	0.6725	0.67606	0.67962	0.68318	0.68674	0.6903	0.69386	0.69742	0.70098	0.70454	0.1
28 2022	100%		La La	ā	2022	0.4366	0.448515	0.460431	0.472346	0.484262	0.496177	0.508092	0.520008	0.531923	0.543838	0.555754	0.567669	0.579585	0.5915	0.595744	0.599988	0.604232	0.608476	0.61272	0.616964	0.621208	0.625452	0.629696	0.63394	0.638184	0.642428	0.646672	0.650916	0.65
29 2023	98%		éĕ	ž	2023	0.3306	0.344077	0.357554	0.371031	0.384508	0.397985	0.411462	0.424938	0.438415	0.451892	0.465369	0.478846	0.492323	0.5058	0.510672	0.515544	0.520416	0.525288	0.53016	0.535032	0.539904	0.544776	0.549648	0.55452	0.559392	0.564264	0.569136	0.574008	0.57
30 2024	99%		5		2024	0.26	0.2752	0.2904	0.3056	0.3208	0.336	0.3512	0.3664	0.3816	0.3968	0.412	0.4272	0.4424	0.4576	0.463044	0.468488	0.473932	0.479376	0.48482	0.490264	0.495708	0.501152	0.506596	0.51204	0.517484	0.522928	0.528372	0.533816	0.53
31 2025	96%		2		2025	0.1732	0.188915	0.204631	0.220346	0.236062	0.251777	0.267492	0.283208	0.298923	0.314638	0.330354	0.346069	0.361785	0.3775	0.38346	0.38942	0.39538	0.40134	0.4073	0.41326	0.41922	0.42518	0.43114	0.4371	0.44306	0.44902	0.45498	0.46094	0.4
32 2026	96%		5		2026	0.1323	0.147438	0.162577	0.177715	0.192854	0.207992	0.223131	0.238269	0.253408	0.268546	0.283685	0.298823	0.313962	0.3291	0.335528	0.341956	0.348384	0.354812	0.36124	0.367668	0.374096	0.380524	0.386952	0.39338	0.399808	0.406236	0.412664	0.419092	0.42
33 2027	94%		ē		2027	0.076	0.090146	0.104292	0.118438	0.132585	0.146731	0.160877	0.175023	0.189169	0.203315	0.217462	0.231608	0.245754	0.2599	0.266736	0.273572	0.280408	0.287244	0.29408	0.300916	0.307752	0.314588	0.321424	0.32826	0.335096	0.341932	0.348768	0.355604	0.36
34 2028	95%		ŏ		2028	0.0597	0.073338	0.086977	0.100615	0.114254	0.127892	0.141531	0.155169	0.168808	0.182446	0.196085	0.209723	0.223362	0.237	0.24414	0.25128	0.25842	0.26556	0.2727	0.27984	0.28698	0.29412	0.30126	0.3084	0.31554	0.32268	0.32982	0.33696	0.2
35 2029	94%		%		2029	0.0376	0.050562	0.063523	0.076485	0.089446	0.005040	0.115369	0.128331	0.141292	0.154254	0.167215	0.180177	0.193138	0.2061	0.213444	0.220788	0.228132	0.235476	0.24282	0.250164	0.257508	0.264852	0.272196	0.27954	0.286884	0.294228	0.301572	0.308916	0.31
36 2030	30%				2030	0.0329	0.040363	0.057838	0.070308	0.082777	0.035246	0.107710	0.120185	0.132604	0.149123	0.197992	0.170062	0.182931	0.199	0.20244	0.20388	0.21732	0.22476	0.2322	0.23364	0.24708	0.29492	0.26136	0.2634	0.27689	0.28928	0.23172	0.23316	0.3
31					nuactman	0	-	2	2		F	e	7	0	٩	10	- 11	12	12	14	15	16	17	10	10	20	21	22	22	24	25	26	27	20
29 2015	94.4				2015	0 9 2 6 9	0300	0 0 2 6 0	0 0 2 6 0	00200	0 0 2 5 0 1	03000	0 0 2 6 0	0 0 2 2 0	0 0 2 6 0	0300	0.0260	0 0 2 6 0	0.0200	0.0200	03000	0300	0.0260	0 0 2 6 0	0 0 2 2 0	0.0260	0300	0.0260	0.0260	0.0200	0.0260	0.0260	0 0 2 5 0 1	0.95
40 2016	81%		τ		2015	0.0300	0.8125	0.8125	0.0300	0.0300	0.8125	0.8125	0.8125	0.8125	0.8125	0.0300	0.8125	0.8125	0.0300	0.0300	0.8125	0.8125	0.8125	0.8125	0.0300	0.8125	0.8125	0.8125	0.8125	0.8125	0.8125	0.8125	0.8125	0.0
40 2010	83%		B		2010	0.0123	0.736304	0.0123	0.0123	0.737818	0.0123	0.0123	0.739331	0.0123	0.0123	0.0123	0.741349	0.741853	0.0123	0.0123	0.743367	0.0123	0.0123	0.0123	0.0123	0.0123	0.746393	0.0123	0.0123	0.747907	0.0123	0.0123	0.0123	0.749
42 2018	85%		-		2018	0.6586	0.659656	0.660711	0.661767	0.662822	0.663878	0.664933	0.665989	0.667044	0.6681	0.669156	0.670211	0.671267	0.672322	0.673378	0.674433	0.675489	0.676544	0.6776	0.678656	0.679711	0.680767	0.681822	0.682878	0.683933	0.684989	0.686044	0.6871	0.688
43 2019	84%	N	S		2019	0 553	0.554496	0.555991	0.557487	0.558982	0.560478	0.561973	0.563469	0.564964	0.56646	0.567956	0.569451	0.570947	0.572442	0.573938	0.575433	0.576929	0.578424	0.57992	0.581416	0.582911	0.584407	0.585902	0.587398	0.588893	0.590389	0.591884	0.59338	0.594
44 2020	83%		L L		2020	0.4446	0.446636	0.448671	0.450707	0.452742	0.454778	0.456813	0.458849	0.460884	0.46292	0.464956	0.466991	0.469027	0.471062	0.473098	0.475133	0.477169	0.479204	0.48124	0.483276	0.485311	0.487347	0.489382	0.491418	0.493453	0.495489	0.497524	0.49956	0.501
45 2021	82%	- E	e -		2021	0.3318	0.334596	0.337391	0.340187	0.342982	0.345778	0.348573	0.351369	0.354164	0.35696	0.359756	0.362551	0.365347	0.368142	0.370938	0.373733	0.376529	0.379324	0.38212	0.384916	0.387711	0.390507	0.393302	0.396098	0.398893	0.401689	0.404484	0.40728	0.410
46 2022	83%		<u>۾</u> ا	ar	2022	0.2341	0.237744	0.241389	0.245033	0.248678	0.252322	0.255967	0.259611	0.263256	0.2669	0.270544	0.274189	0.277833	0.281478	0.285122	0.288767	0.292411	0.296056	0.2997	0.303344	0.306989	0.310633	0.314278	0.317922	0.321567	0.325211	0.328856	0.3325	0.336
47 2023	86%		Yes	, e	2023	0.1703	0.174584	0.178869	0.183153	0.187438	0.191722	0.196007	0.200291	0.204576	0.20886	0.213144	0.217429	0.221713	0.225998	0.230282	0.234567	0.238851	0.243136	0.24742	0.251704	0.255989	0.260273	0.264558	0.268842	0.273127	0.277411	0.281696	0.28598	0.290
48 2024	87%		lδĺ		2024	0.1118	0.116556	0.121311	0.126067	0.130822	0.135578	0.140333	0.145089	0.149844	0.1546	0.159356	0.164111	0.168867	0.173622	0.178378	0.183133	0.187889	0.192644	0.1974	0.202156	0.206911	0.211667	0.216422	0.221178	0.225933	0.230689	0.235444	0.2402	0.244
43 2025	89%		5		2025	0.0757	0.080738	0.085776	0.090813	0.095851	0.100889	0.105927	0.110964	0.116002	0.12104	0.126078	0.131116	0.136153	0.141191	0.146229	0.151267	0.156304	0.161342	0.16638	0.171418	0.176456	0.181493	0.186531	0.191569	0.196607	0.201644	0.206682	0.21172	0.216
50 2026	89%		Ó		2026	0.0505	0.055427	0.060353	0.06528	0.070207	0.075133	0.08006	0.084987	0.089913	0.09484	0.099767	0.104693	0.10962	0.114547	0.119473	0.1244	0.129327	0.134253	0.13918	0.144107	0.149033	0.15396	0.158887	0.163813	0.16874	0.173667	0.178593	0.18352	0.188
51 2027	89%		8		2027	0.0409	0.045573	0.050247	0.05492	0.059593	0.064267	0.06894	0.073613	0.078287	0.08296	0.087633	0.092307	0.09698	0.101653	0.106327	0.111	0.115673	0.120347	0.12502	0.129693	0.134367	0.13904	0.143713	0.148387	0.15306	0.157733	0.162407	0.16708	0.171
52 2028	88%		ß		2028	0.0247	0.029116	0.033531	0.037947	0.042362	0.046778	0.051193	0.055609	0.060024	0.06444	0.068856	0.073271	0.077687	0.082102	0.086518	0.090933	0.095349	0.099764	0.10418	0.108596	0.113011	0.117427	0.121842	0.126258	0.130673	0.135089	0.139504	0.14392	0.148
		Trac	le Off	Anal	ysis	Perfo	ormanc	e Dasł	nboard	d Pa	vemei	nt Dat	a Bi	ridge D)ata	(+)				E 🔳													F

Pavement Funding Allocation Process – Formula Driven

	weight		Bay	Grand	Metro	North	Southwest	Superior	University	Statewide
		Cost								
	10.0%	% Lanemiles - Urban over 50K Pop.	7.0%	6.1%	72.1%	0.0%	6.4%	0.0%	8.4%	100.0%
52%	10.0%	TAMP (I & II) Cost	13.9%	10.4%	17.7%	13.6%	13.3%	13.4%	17.6%	100.0%
	5.0%	TAMP (III & IV) Cost	12.5%	11.6%	19.7%	13.3%	14.0%	12.2%	16.6%	100.0%
		Condition								
	6.0%	% IRI >=95 TAMP I	15.5%	12.5%	28.6%	2.1%	15.1%	0.1%	26.2%	100.0%
	3.5%	% IRI >=95 TAMP II	15.0%	18.5%	28.1%	0.1%	12.3%	0.0%	26.1%	100.0%
	3.5%	% IRI >=95 TAMP III	15.7%	10.3%	36.5%	7.6%	10.3%	6.2%	13.4%	100.0%
	2.0%	% IRI >=95 TAMP IV	24.4%	16.0%	4.3%	12.8%	19.1%	8.1%	15.3%	100.0%
*	12.0%	% RSL <=7 - TAMP I	13.7%	4.4%	31.2%	7.4%	17.8%	1.0%	24.5%	100.0%
ន	7.0%	% RSL <=7 - TAMP II	24.8%	20.6%	13.7%	6.4%	7.8%	0.0%	26.7%	100.0%
	7.0%	% RSL <=7 - TAMP III	18.9%	7.4%	24.5%	13.6%	8.0%	15.2%	12.5%	100.0%
	4.0%	% RSL <=7 - TAMP IV	24.8%	11.1%	2.1%	19.7%	13.1%	16.1%	13.0%	100.0%
	3.0%	PASER<=6 TAMP I & II	17.6%	12.8%	22.7%	11.7%	10.3%	1.7%	23.2%	100.0%
	2.0%	PASER<=6 TAMP III & IV	16.9%	8.8%	21.0%	14.6%	6.7%	20.5%	11.5%	100.0%
		Usage								
	5.0%	% VMT RSL<=7	14.8%	8.7%	35.7%	5.6%	10.7%	2.7%	21.8%	100.0%
*	7.0%	% Commercial VMT RSL <=7	11.5%	8.1%	24.3%	4.2%	20.3%	2.6%	28.9%	100.0%
3	7.0%	% Lanemiles RSL <=7 Comm AADT 5,000+	1.1%	2.4%	38.9%	0.0%	24.1%	0.0%	33.5%	100.0%
	6.0%	% Lanemiles RSL <=7 AADT 50,000+	4.6%	2.5%	64.4%	0.0%	3.4%	0.0%	25.1%	100.0%
	100.0%									
	100.0%		Вау	Grand	Metro	North	Southwest	Superior	University	Statewide
	100.0%	Resulting 2023 New Target with updated data	\$ 80.88	\$ 54.00	\$ 187.46	\$ 41.20	\$ 75.77	\$ 29.24	\$ 122.95	\$ 591.50
	\$ 591.50	Resulting 2023 % of Total Distribution before redistribution	13.7%	9.1%	31.7%	7.0%	12.8%	4.9%	20.8%	100.0%
		2022 Target approved	\$72.39	\$51.87	\$191.26	\$49.74	\$69.08	\$35.46	\$121.71	\$591.5
			11.7%	4.1%	-2.0%	-17.2%	9.7%	-17.5%	1.0%	
		Difference (2022 to 2023)	\$8.5	\$2.1	(\$3.8)	(\$8.5)	\$6.7	(\$6.2)	\$1.2	\$0.0
		Final '23 After Metro re-distribution	\$ 90.26	\$ 60.26	\$ 140.60	\$ 45,98	\$ 84.56	\$ 32.64	\$ 137.21	\$ 591.50
			15.3%	10.2%	23.8%	7.8%	14.3%	5.5%	23.2%	100.0%

Pavement Funding Allocation Process – Formula Driven

		ф Со	st			φ	Condit	ion		
	, 10.	.0% % Lanemiles -	Urban over 50K Pop.			6.0%	% IRI >=95 TAN	1P I		
59	10.	.0% TAMP (I & II)	Cost			3.5%	% IRI >=95 TAN	1P II		
	5.0	0% TAMP (III & IV	/) Cost			3.5%	% IRI >=95 TAN	1P III		
						2.0%	% IRI >=95 TAN	1P IV		
			90	_	%	12.0%	% RSL <=7 - TA	MP I		
	5.0		18e 7		й	7.0%	% RSL <=7 - TA	MP II		
		0% % Commercia	/ \/MT RSI <-7			7.0%	% RSL <=7 - TA	MP III		
259		0% % Lanomilos	$\frac{1}{2} = \frac{1}{2} = \frac{1}$	5 000+				4.0%	% RSL <=7 - TA	MP IV
	. 7.	0% % Lanemiles		5,000+		3.0%	PASER<=6 TAM	IP I & II	Sec.	
	0.0		K3L <= 7 AADT 50,000	T		2.0%	PASER<=6 TAM	IP III & IV		
				Resul	ts					
Bay	/	Grand	Metro	North	So	uthwest	Superior	University	Statewide	

\$	80.88	\$ 54.00	\$ 187.46	\$ 41.20	\$ 75.77	\$ 29.24	4	\$ 122.95	\$ 591.50
13.7%		9.1%	31.7%	7.0%	12.8%	4.9%		20.8%	100.0%

Develop Condition Strategies

- RQFS and BCFS used to forecast pavement and bridge condition
- Each MDOT region develops pavement & bridge condition strategies (lane miles/number by proposed fix type)
- Strategies are constrained to funding targets
- Subcommittee's review and approve the strategies



TAMP and TPM Implications

Transportation Performance Management





TAMP Investment Strategy Scenarios



TAMP SOGR Investment Strategy														
	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	10 Year Total			
	millions													
Renenue for NHS														
Revenue Available for NHS Trunkline Capital Program (less Maintenance)	\$893	\$850	\$899	\$960	\$1,026	\$1,154	\$1,163	\$1,195	\$1,196	\$1,207	\$10,543			
Expected Cost of Future Wor	k - Constra	ined Targ	get											
Maintenance	\$311	\$314	\$316	\$317	\$319	\$320	\$327	\$334	\$341	\$348	\$3,247			
Non 'Pavement/Bridge' Preservation Program	\$237	\$229	\$219	\$303	\$287	\$316	\$315	\$347	\$348	\$359	\$2,959			
Bridge	\$182	\$182	\$161	\$159	\$152	\$161	\$161	\$161	\$161	\$161	\$1,639			
Pavement	\$474	\$440	\$519	\$498	\$587	\$677	\$687	\$687	\$687	\$687	\$5,944			
Pavement STATE OF GOOD	REPAIR	(SOGR) E	Expected v	vork										
Reconstruction	\$323	\$261	\$767	\$771	\$737	\$735	\$764	\$803	\$843	\$876	\$6,880			
Rehabilitaion	\$217	\$175	\$636	\$881	\$698	\$973	\$1,042	\$1,220	\$555	\$578	\$6,974			
Preservation	\$187	\$151	\$179	\$125	\$149	\$93	\$96	\$100	\$104	\$108	\$1,292			
Total	\$726	\$586	\$1,582	\$1,777	\$1,584	\$1,801	\$1,903	\$2,123	\$1,502	\$1,562	\$15,146			
Pavement Revenue Gap - SOGR	(\$252)	(\$146)	(\$1,063)	(\$1,279)	(\$996)	(\$1,124)	(\$1,216)	(\$1,436)	(\$815)	(\$875)	(\$9,202)			

TAMP Development Issues

- Performance Measures and Forecasting
 - Legacy Measures (RSL, PASER)
 - New Federal Measures (IRI, Cracking, Rutting, Faulting)
- Excluding Non-NHS Assets

 Adjusting Revenue Forecasts
- Including Local NHS Assets
 How are the local's investing in their assets?
- 5YP Investment vs. Template Targets



Aligning Plans & Programs Revenue Forecasts & Investment Strategies



Federal Rules & Program Development Implications

- Stratified pavement network
- Developed new SOGR goals
- Reporting conundrum
- Investment strategy scenarios
- Revise formula allocation?



Questions

