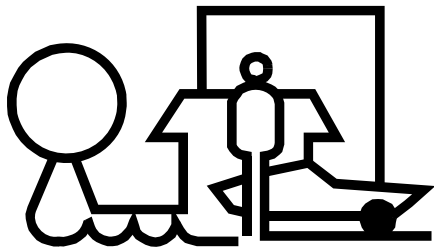


APPENDICES FOR SUBMITTALS OF
CAPACITY EXPANDING
PROJECT OPTIONS FOR THE REGIONAL
2035 TRANSPORTATION PLAN
ALTERNATIVES ANALYSIS
OCTOBER, 2008



Prepared by:

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October, 2008

TABLE 5-24 : 2025 DEFICIENCIES: AM AND PM PEAK HOUR MODELED VOLUMES BY NETWORK ALTERNATIVE BASED ON THE 2025 "PREFERRED ALTERNATIVE" BY LOCATION

Except where links are one way, these are bi-directional forecast counts based on the 7:00-9:00 a.m. and 3:00-6:00 p.m. peak travel periods.

Note: Links with a peak hour volume/capacity (V/C) ratio greater than 1.0 are identified in bold type. Those not in bold type may be approaching capacity. A V/C ratio is a common measure of congestion.			Peak Capacity		High Transit		Medium High Transit		Demand Reduction / Improved Operations		Combination of 2, and 3		Combination of 2, 3, and 6a		Preferred Alternative <small>includes potential optional projects - SE based on preferred alternative</small>		Business as Usual <small>includes potential optional projects - SE based on business as usual</small>		Highways only <small>includes potential optional projects</small>	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Corridor	Link	Principal Jurisdiction																		
Bogue s.b.*	M-43 (Grand River) to Shaw	East Lansing	1626	2627	1152	3044	1331	3363	1209	2740	1223	2754	1249	2842	1208	2649	1216	2663	1136	2546
Harrison	Forest to Mt. Hope	East Lansing	1984	3204	1499	3655	1613	3394	1471	3142	1509	3262	1362	3633	1382	3593	1372	3303	1511	4277
Harrison s.b.	Trowbridge to Crescent	East Lansing	1871	3024	1684	4122	1494	4034	1303	3862	1320	3895	1360	4181	1577	4092	1283	3981	1548	4612
Harrison n.b.	Crescent to Wilson	East Lansing	1871	3024	1987	3365	1902	3390	1687	3078	1678	3026	1677	3312	1688	3341	1790	3784	1977	3586
Kalamazoo*	Clippert to Hicks	East Lansing	1826	2950	1152	2826	1331	2884	1310	2579	1264	2781	1181	2428	1271	2329	1115	2253	1172	2155
Lake Lansing	US 127 ramps n.b. to Harrison	East Lansing	4214	6808	3821	7747	3858	7720	3432	7147	3845	6990	3410	7049	3463	7051	3421	7030	3200	6612
Trowbridge w.b.	Harrison to Arbor	East Lansing	2590	4184	2996	3931	3050	3992	2645	3726	2628	3538	2522	3437	2512	3459	2322	3286	2596	3235
Trowbridge e.b.*	Arbor to Harrison	East Lansing	2504	4045	1907	6373	2078	6007	1788	5411	1820	5264	1683	5096	1706	5118	1686	4711	1698	5645
Hagadorn n.b.	Shaw to M-43 (Grand River)	ICRC/East Lansing	1871	3024	2328	4327	2422	4351	2219	3906	2212	3841	2152	3917	2152	3855	2062	3853	2210	4037
Hagadorn s.b.	M-43 (Grand River) to Shaw	ICRC/East Lansing	1871	3024	1992	4591	1900	4358	1773	4221	1780	4077	1807	4182	1787	4221	1753	4000	1800	4299
Hagadorn*	Sand Hill to Jolly	ICRC	2040	3296	1494	3157	1451	3366	1404	3009	1404	2900	1359	3189	1351	3353	1517	3121	1618	3942
Lake Lansing	Eastwood Mall entrance to US 127 ramps n.b.	ICRC	4358	7040	4305	9982	4339	9993	3786	9032	3741	8886	3812	8944	3908	8598	3769	8684	3809	8591
Lake Lansing*	I-69 BL to Okemos	ICRC	2050	3312	1508	3686	1501	3193	1389	3174	1377	2941	1831	4406	1766	4494	1706	4483	1743	4137
Marsh*	Central Park to Tihart	ICRC	4070	6576	3140	6756	3119	6666	2936	6264	2940	6339	2786	5869	2806	5887	2688	5695	2780	5932
Mt. Hope*	Beaumont to Maumee	ICRC	4214	6808	3784	7633	3774	7428	3418	7313	3466	7121	3579	7227	3597	7154	3506	7069	3479	7128
Okemos	Science Parkway to Hamilton	ICRC	4532	7324	5198	11229	5207	11141	4934	10489	4930	10525	2716	6062	2703	5977	2433	6300	2995	6435
Waverly	Malibu to Old Lansing	ICRC/Lansing	4694	7786	4230	8614	4207	8588	3792	7723	3748	7775	3750	7580	3827	7597	3581	7412	3154	7992
Aurelius	Forest to Mt. Hope	Lansing	2268	3664	1653	4158	1810	4185	1967	3867	2048	3472	1678	3603	1782	3622	1597	3407	1640	3801
Cedar	Willoughby to American	Lansing	4934	7970	4838	9187	4816	9089	4399	8699	4378	8859	4327	7927	4141	8849	4235	7782	4328	7725
Clemens*	Main to Kalamazoo	Lansing	1734	2802	1196	3271	1309	3308	1234	3315	1292	3207	1167	2897	1196	2738	1030	2660	1212	3051
Forest	Collins to Harrison	Lansing	1808	2922	1455	3680	1522	3707	1333	3554	1264	3078	1203	3262	1286	3044	1083	3057	927	2769
Greenlawn	Washington to I-96 BR (Cedar)	Lansing	1582	2558	1411	3168	1417	3357	1333	3283	1296	2976	1331	2973	1331	2974	1148	2658	1333	2897
Lake Lansing	US 27 BR (East) to Massachusetts	Lansing	2050	3312	2971	6172	2777	5803	2635	5359	2579	5665	3069	6074	3096	6365	3036	6293	3088	6243
M-99 (MLK)	Southland to Victor	Lansing	5970	9644	4979	11147	4992	11217	4540	10051	4401	10110	4340	9917	4333	9883	4087	9529	3353	9783
Main Street*	Washington to Grand	Lansing	2893	4675	1801	5325	1811	5260	1708	4293	1664	4416	1527	4012	1738	3907	1439	3735	1582	4085
Main*	Holmes to Aurelius/Clemens	Lansing	1826	2950	1075	2743	1215	2988	1259	2458	1262	2387	1080	2426	1133	2497	990	2374	916	2440
Michigan*	Marshall to Foster	Lansing	4014	6484	2432	6403	3142	6101	2647	5463	2744	5616	2706	5348	2065	5512	2372	5406	2516	5027
Mt. Hope*	I-96 BR (Cedar) to Aurelius	Lansing	2268	3664	1897	3884	1824	3779	1806	3531	1841	3516	1882	3563	1888	3590	1770	3537	2605	5496
Pennsylvania	Health Care Court to Mt. Hope	Lansing	4070	6576	3451	7329	3444	7199	3144	6772	3022	6618	3171	7085	3068	6754	3070	6443	3318	6412
Pennsylvania*	Cavanaugh to Health Care Court	Lansing	3936	6360	2827	5930	2735	5869	3099	5538	2441	5346	2501	5863	2452	5417	2476	5272	2173	5105
Pennsylvania*	Mt. Hope to Main	Lansing	3936	6360	2896	6503	3077	6428	2758	6030	2707	5822	2567	5912	2558	5473	2553	5236	2766	5012
Pleasant Grove	Holmes to Boston	Lansing	1424	2302	1215	2537	1136	2525	858	2176	974	2157	925	2078	833	2114	868	2079	935	2011
Washington	Rockford to Mt. Hope	Lansing	1808	2922	1329	3145	1420	3111	1404	2980	1428	2831	1380	2846	1379	2841	1350	2839	1502	2953
I-96 BR (Cedar)*	Cavanaugh to Mt. Hope	MDOT	5772	9328	4500	9902	4549	9920	4067	8686	3937	8826	4125	8402	4133	8434	3906	8327	3842	8312
I-96 BR (Cedar)*	Mt. Hope to I-496 ramp w.b.	MDOT	5772	9328	3787	8876	4125	8998	3322	7745	3291	8081	3533	7240	3501	7030	3278	7272	3188	6862
M-43 (Grand River)	Hagadorn to Hamilton (west leg)	MDOT	6478	10468	6000	13312	6019	13239	5528	12254	4581	12192	4124	11437	5224	11347	4998	11093	5188	11398
Michigan e.b.	Harrison to Highland	MDOT	4526	7313	1539	5774	1461	5818	1272	5004	1283	5090	1214	4804	1230	4765	1194	4695	1201	4469
Michigan w.b.	Harrison to Highland	MDOT	4686	7551	3831	4578	3879	4626	3132	4041	3106	3962	3044	3875	2981	3844	2715	3725	2973	3754
US 127 n.b. ramp	Approaching Kalamazoo	MDOT	1441	2329	1550	2213	1463	2303	1604	2464	1667	2441	1655	2235	1644	2179	1692	2245	1706	1991
US 127 s.b. ramp	Approaching I-496 w.b.	MDOT	2711	4380	2890	5101	2949	4998	2699	4656	2654	4683	2658	4933	2683	4603	2691	4436	2727	4636
US 127 n.b. ramp	Approaching Lake Lansing	MDOT	1585	2561	1582	2708	1723	2609	1411	2251	1359	2212	1402	2204	1390	2129	1405	2195	1404	2142
Farm Lane	North Shaw to Circle Drive	MSU	3252	5254	1830	4160	1741	4064	1445	3154	1436	3073	1383	3062	1373	3030	1213	2816	1366	3045
Dobie	Kinawa to Forest Hills	ICRC	1748	2824	1645	3889	1691	3623	1598	3360	1587	3333	1406	3002	1433	3036	1353	2928	1619	3529
Marsh (new project)	Mt. Hope to Hamilton	ICRC	NA	NA	0	0	0	0	0	0	0	0	3241	6949	3281	6999	3316	6414	2995	6501
College	Bennett to Forest	ICRC	1870	3024	1648	3564	1578	3318	1471	2947	1487	2867	1651	3436	1518	3685	1577	3262	1821	4339
Hagadorn	Bennett to Mt. Hope	ICRC	2050	3312	1739	3385	1750	3751	1618	2855	1609	3267	1619	3409	1660	3457	1612	3394	2046	4438
Okemos Road	At I-96 (Ramp to Ramp)	ICRC	3002	4850	2662	4396	2928	4997	2600	5100	2605	5046	2596	5065	2581	4937	2603	5012	2796	4424

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			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM
Corridor	Link	Principal Jurisdiction																			
Harrison	Grand River to South Lawn	East Lansing	1582	2558	1497	2985	1535	2939	1983	2600	1413	2442	1375	2428	1366	2408	1305	2355	1299	2735	
Aurelius	Cavanaugh to Forest	Lansing	3664	1682	4306	1917	4269	1989	3780	1967	3494	1739	3635	1844	3724	1591	3520	1635	4013		
Aurelius	Dell to Miller	ICRC/Lansing	2050	3312	1642	3425	1758	3900	2041	3455	2003	3332	1727	3360	1850	3525	1669	3518	1645	3529	
Pennsylvania	I-96 off ramp to Miller	Lansing	4214	6808	3784	7519	3819	7399	3442	6815	3414	6739	3771	7731	3601	7629	3549	7275	3931	7486	
Pennsylvania	At Jolly	Lansing	4070	6576	3275	7915	3273	7663	3089	6893	2994	6895	3141	7249	2975	7116	2617	6592	3235	6851	
Saginaw e.b.	At Grand River Split	MDOT	3699	5977	1952	6712	1980	5374	1859	5281	1891	6308	1783	5847	1804	4099	1721	3874	1676	4563	
US 127 n.b.	Off ramp at Saginaw	MDOT	1441	2329	1027	1961	1205	2117	1191	2202	1154	2590	1173	2558	1168	2447	1115	2017	1129	1862	
Albert*	Division to Gunson	East Lansing	1582	2558	1409	2602	1203	2576	1175	2490	1247	2411	1248	2305	1243	2251	1157	2399	1213	2439	
Bogue n.b.*	Shaw to M-43 (Grand River)	East Lansing	1626	2627	1244	2755	1246	2217	1356	2639	1030	2475	992	2455	1003	2446	971	2201	903	1772	
Hagadorn*	I-69 BL (Saginaw) to Crestwood	East Lansing	2107	3404	1467	3030	1460	2865	1339	2752	1307	2841	1246	2667	1306	2737	1304	2690	1329	2773	
Harrison s.b.*	Kalamazoo to Shaw	East Lansing	1871	3024	988	2805	886	2701	761	2414	724	2394	656	2381	658	2431	654	2230	718	2405	
Harrison n.b.	Shaw to Kalamazoo	East Lansing	1871	3024	1328	2689	1700	2414	1546	2254	1530	2280	1420	2478	1444	2464	1371	2170	1476	2474	
Harrison n.b.*	Mt. Hope to Crescent	East Lansing	1141	1843	1113	2584	1020	2602	968	2447	962	2377	994	2658	964	2667	1099	2675	1230	3097	
Harrison s.b.	Wilson to Trowbridge	East Lansing	1871	3024	1663	2690	1686	2554	1491	2337	1466	2276	1499	2317	1512	2275	1263	2283	1464	2305	
Harrison, s.b.*	Crescent to Mt Hope	East Lansing	1141	1845	1455	2855	1489	2873	1308	2592	1316	2619	1371	2741	1398	2750	1283	2645	1554	3358	
Harrison*	Southlawn to I-69 BL (Saginaw)	East Lansing	1582	2558	1114	2376	1153	2614	1120	2337	1119	2106	1079	2499	1251	2068	1072	2251	1088	2207	
Lake Lansing*	Harrison to Abbott	East Lansing	4214	6808	2883	5892	2943	5876	2633	5423	2622	5293	2657	5431	2691	5676	2579	5353	2704	5044	
Creys*	I-496 w.b. ramps to Michigan	ECRC	4428	7154	2584	6208	2632	7019	2437	5401	2438	5485	2248	5302	2328	5222	2017	5119	2248	5242	
Elmwood*	St. Joe to M-43 (Saginaw)	ECRC	3904	6308	2051	5568	2037	5070	1810	4690	1816	4826	1813	4800	1790	4641	1758	4643	1837	4577	
Old Lansing Road	Mt. Hope to Waverly	ECRC	1808	2922	1399	2891	1478	2871	1367	2511	1359	2771	1345	2566	1328	2367	1331	2727	1466	2740	
Cedar*	Aurelius to Willowby	ICRC	4934	7970	4091	6838	3966	7146	3507	6815	3474	7160	3659	7495	3193	7385	3767	7490	3339	7406	
College*	Sand Hill to Jolly	ICRC	1870	3024	1301	2575	1012	2484	1147	2430	1154	2357	1222	2290	1214	2357	1265	2382	1086	2076	
College*	Jolly to Bennett	ICRC	1870	3024	1206	2568	1136	2478	999	2217	989	2403	829	1681	750	1679	701	1380	712	1787	
Farm Lane	Mt. Hope to Service	ICRC	1808	2922	1461	3198	1508	3066	1284	2704	1275	2707	1321	2647	1291	2665	1249	2662	1432	2697	
Forest	College to Farm Lane	ICRC	1870	3024	1663	3545	1545	3310	1381	3009	1270	3079	1541	3246	1498	3282	1351	3183	1281	2973	
Forest*	Harrison to College	ICRC	1808	2922	1195	2760	1211	2749	1222	2557	1139	2586	1018	2916	1077	2702	868	2707	942	2829	
Hagadorn	Bennett to Mt. Hope	ICRC	2050	3312	1739	3385	1750	3751	1616	3455	1609	3267	1619	3409	1660	3457	1612	3394	2046	4438	
Hagadorn n.b.*	Service to Shaw	ICRC	1871	3024	1375	2889	1365	2895	1257	2641	1253	2548	1211	2672	1215	2601	1229	2559	1164	2802	
Hagadorn n.b.	Mt. Hope to Service	ICRC	2107	3404	1553	3489	1582	3598	1447	3185	1421	3180	1364	3220	1391	3212	1373	3019	1448	3513	
Hagadorn s.b.	Service to Mt. Hope	ICRC	2107	3404	1860	3490	1740	3596	1537	3241	1551	3207	1628	3283	1650	3339	1462	3168	1618	3475	
Hagadorn s.b.	Shaw to Service	ICRC	1871	3024	1566	2603	1530	2484	1409	2500	1435	2586	1437	2482	1435	2464	1333	2432	1459	2625	
Hagadorn*	Jolly to Bennett	ICRC	2050	3312	1754	2739	1376	2901	1244	2624	1256	2522	1251	2985	1324	2987	1282	2996	1634	3643	
Hamilton*	M-43 (Grand River) to Kent	ICRC	1808	2922	1043	2339	1160	2476	900	2521	990	2371	1100	2401	1113	2374	1045	2302	1128	2414	
Hamilton*	Okemos to Manitou	ICRC	1808	2922	1385	2723	1423	2693	1355	2715	1349	2592	1410	2764	1378	2770	1296	2658	1389	2785	
Haslett	Marsh to Carlton	ICRC	1984	3204	1665	3473	1712	3493	1627	3235	1630	3211	1565	3135	1559	3095	1493	3014	1696	3434	
Haslett*	Park Lake to Okemos	ICRC	4214	6808	2564	5580	2650	5982	2429	5452	2464	5247	2247	4879	2234	4661	2178	4577	2192	4868	
Holt*	Washington to Onondaga	ICRC	2050	3312	1455	3254	1495	3182	1419	2906	1406	2893	1485	2927	1523	2965	1516	2980	1546	2869	
Jolly	College to Hagadorn	ICRC	2286	3692	1839	3674	1724	3893	1680	3533	1643	3408	2120	4897	2234	4957	2329	5074	2053	4731	
Lake Lansing*	Wood to Eastwood Mall Entrance	ICRC	4358	7040	3086	6034	2738	5991	2706	5238	2421	4523	2814	5692	2752	5601	2779	5399	2829	6368	
Lake Lansing*	Abbott to Towar	ICRC	4214	6808	2986	6405	2948	6315	2669	5882	2702	5785	2712	5763	2679	5676	2635	5801	2704	5715	
Marsh*	M-43 (Grand River) to Meridian Mall entrance	ICRC	4276	6910	2757	5251	2498	5420	2370	5271	2469	5282	2762	5963	2821	4911	2877	5557	2899	5707	
Marsh*	Tihart to Haslett	ICRC	4276	6910	2934	6394	2905	6325	2730	5879	2738	5949	2546	5401	2576	5398	2487	5282	2563	5502	
Marsh*	Haslett to Lake Lansing Park entrance	ICRC	4428	7154	2735	5817	2692	5795	2945	5411	2581	5492	2602	5347	2587	5293	2555	5310	2568	5359	
Mt. Hope*	Harrison to Beaumont	ICRC	4214	6808	3061	6392	3114	6254	2950	5860	2992	5834	2905	5732	2930	5704	2858	5483	2973	5858	
Okemos	I-96 ramps e.b. to Jolly	ICRC	4852	7840	4283	8669	4473	8379	4274	8368	4263	8331	4341	8333	4327	8065	4240	8203	4537	7573	
Okemos	M-43 (Grand River) to Haslett	ICRC	1870	3024	1338	3297	1412	3232	1344	3164	1348	3008	1984	4666	1932	4655	1918	4602	1919	4482	
Okemos*	Sand Hill to I-96 ramps e.b.	ICRC	2110	3410	1399	3230	1454	3075	1365	3371	1358	3282	1199	3224	1412	3704	1517	3308	1447	3308	

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			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Corridor	Link	Principal Jurisdiction																				
Okemos*	Bennett to Shawnee Trail	ICRC	4852	7840	3696	8117	3693	7757	3201	7681	3520	7996	4020	8581	4009	8534	3928	8454	3813	8248		
Okemos*	Hamilton to M-43 (Grand River)	ICRC	4694	7586	2280	6673	2529	6635	2596	6344	2534	6230	2280	5552	5310	2174	5511	2164	5324			
Waverly*	Holmes to Malibu	ICRC/Lansing	4694	7586	3278	6792	3275	6771	2966	6169	2931	6178	2941	6021	2984	6025	2862	5968	3154	4113		
Waverly*	I-496 ramps w.b. to St. Joe	ICRC	5102	8244	3404	7442	3533	7019	3131	6871	3202	6327	3110	6912	3156	7143	3037	6510	3198	6386		
Aurelius*	Miller to Jolly	Lansing/ICRC	2050	3312	1594	3419	1750	3264	1879	3426	1908	3329	1586	3325	1788	3589	1524	3266	1636	3439		
Aurelius*	Jolly to Cavanaugh	Lansing	2268	3664	1217	2608	1338	3294	1474	2864	1483	2692	1226	2807	1319	3296	1145	2531	1208	2868		
Cavanaugh	Cedar to Pennsylvania	Lansing	1424	2302	1206	2948	1220	2786	1184	2457	1120	2046	1120	2396	1168	2704	1035	2232	1090	2371		
Cavanaugh*	Aurelius to Dunckel	Lansing	1808	2922	1224	2400	1189	2542	1131	2436	1115	2279	1167	2488	1151	2402	1119	2436	1080	2482		
Collins*	Dunckel to Forest	Lansing/ICRC	2050	3312	1244	2879	1233	2688	1472	2753	1119	2374	957	2697	1029	2470	882	2453	702	2084		
Dunckel*	Between I-496/US 127 ramps	Lansing	2120	3426	1414	3611	1522	3567	1377	3192	1364	3449	1780	4621	1724	4638	1729	4346	1630	4324		
Edgewood*	End divided to M-99 (MLK)	Lansing	2050	3312	1084	2723	1082	2728	1002	2534	959	2507	933	2476	909	2480	929	2436	908	2509		
Foster*	M-43 (Saginaw) to Hopkins	Lansing	1582	2558	901	2444	980	2061	829	2016	842	1823	798	1812	766	1939	827	1735	756	1812		
High*	Grand River to Lake Lansing	Lansing	1720	2780	799	2517	885	2134	850	1831	753	1938	829	1736	767	1774	775	1448	868	1718		
Jolly	Belle Chase to Collins	Lansing/ICRC	2525	4084	1985	4296	1994	4268	1805	4019	1783	3693	1827	3834	1902	3574	1789	3747	1823	3475		
Jolly*	M-99 (MLK) to Washington	Lansing	4224	6824	2885	5862	3127	6146	2722	5544	2802	5934	2708	5568	2666	6023	2710	4699	2612	5609		
Jolly*	Ora to Aurelius	Lansing	4224	6824	2353	5565	2402	6072	2157	4821	2156	4839	2100	4923	2192	4992	2039	4506	2197	4980		
Jolly*	Aurelius to Dunckel	Lansing/ICRC	4694	7586	3046	6409	3023	6431	2876	5976	2830	6072	2996	6077	3027	6218	2888	6070	2986	6054		
Kalamazoo*	Pine to Capitol	Lansing	1404	2268	848	1851	771	1852	1029	1558	814	1490	921	1649	986	1651	898	1700	874	1652		
Lake Lansing*	Massachusetts to Wood	Lansing/ICRC	2050	3312	2988	6172	2785	5848	2648	5389	2595	5676	3069	6460	3096	6749	3023	6678	3088	6683		
Michigan	Verlinden to Jenison	Lansing	1582	2558	1271	2659	1282	2616	1190	2456	1169	2285	1157	2316	1193	2056	1147	2037	1143	2385		
Michigan e.b.*	Mifflin to Harrison	Lansing/MDOT	4526	7313	1539	5774	1461	5893	1272	5004	1263	5090	1214	4804	1230	4765	1194	4695	1201	4469		
Michigan*	US 27 BR (Larch) to Marshall	Lansing	4014	6484	2979	6178	3000	6093	2448	5484	2479	5774	2526	5400	2065	5313	2339	4804	2412	5140		
Michigan*	Foster to Mifflin	Lansing	4014	6484	2976	5867	3112	5850	2623	5396	2627	5344	2527	5100	2506	5142	2398	4976	2466	5669		
MLK s.b.*	Ottawa to Lenawee	Lansing	4846	7830	1925	6906	2261	6767	1803	5790	1776	6095	1786	5655	1770	5662	1717	5318	1627	6181		
MLK*	I-96 BR (Grand River) to Sheridan	Lansing	4214	6808	1712	3679	1708	3778	1491	3248	1498	3216	1286	3235	1475	3300	1456	2857	1478	3275		
MLK*	Shiawassee to M-43 (Saginaw)	Lansing	5492	8874	3602	7496	3575	7230	3156	6621	3127	6809	3130	6748	3172	6722	3052	6759	3190	6857		
Mt. Hope*	Washington to I-96 BR (Cedar)	Lansing	3742	6048	1784	3234	1598	3158	1489	2963	1541	2798	2468	4791	2349	4855	2104	4699	2449	5344		
Pennsylvania*	Cedar to Miller	Lansing	2107	6808	2765	5585	2805	5512	2454	5188	2443	5020	2753	5718	2592	4625	2572	5269	2920	5357		
Pennsylvania*	Enterprise to Cavanaugh	Lansing	4070	6576	3275	7915	3273	7663	3089	7013	2994	6895	3141	7249	3041	7116	2860	6569	3235	6857		
Pennsylvania*	Main to Kalamazoo	Lansing	3936	6360	2785	6053	2744	5718	2292	6257	2471	4941	2395	5023	2355	5328	2403	5300	2478	4910		
Pleasant Grove*	Jolly to Mary	Lansing	1628	2632	1211	2435	1232	2430	1094	2191	1080	2149	1074	2112	1033	2162	1003	2007	1047	2132		
Pleasant Grove	Mary to Holmes	Lansing	1628	2632	1143	2096	1070	2105	1186	1892	949	1892	926	1882	927	1826	732	1779	929	1753		
Shiawassee*	Larch to Cedar	Lansing	1692	2734	1236	2429	1207	2393	1236	2514	1256	2393	1199	2202	1136	2007	1177	2332	1202	2022		
St. Joe*	Capitol to Walnut	Lansing	2893	4675	894	3782	1049	4079	878	3178	858	3062	863	3582	824	3483	898	3066	849	2939		
Turner*	Douglas to Gier	Lansing	1808	2922	1077	2221	1095	2171	1038	1963	1025	1973	956	1981	964	2001	982	1967	967	2292		
Washington	Dunlap to Greenlawn	Lansing	1808	2922	1341	2972	1431	3109	1441	2922	1421	2891	1424	2661	1461	2699	1366	2659	1493	2875		
Washington*	Holmes to Dunlap	Lansing	1808	2922	1273	2972	1366	2981	1374	2812	1359	2670	1368	2661	1394	2673	1366	2659	1418	2730		
Willow*	Jenison to MLK	Lansing	1582	2558	1048	2111	1109	2064	1098	1939	1084	1963	1173	2118	1187	2160	1169	2109	1185	2077		
I-69 BL (Saginaw)	M-43 (Grand River) to Rosewood	MDOT	5970	9644	4733	9804	4668	10517	4370	9233	4397	9237	4286	8766	4276	8931	4115	8735	4184	8583		
I-69 BL (Saginaw)*	Rosewood to Abbott	MDOT	6478	10468	4602	8829	4573	9763	4370	8961	4411	8961	4277	8659	4257	8729	4196	8459	4174	8491		
I-96 BR (Cedar)*	Miller to Cavanaugh	MDOT	6268	10128	4417	9321	4409	9187	4010	8334	3849	7160	3801	7836	3775	8015	3767	8459	3576	8033		
I-96 BR (Larch)*	M-43 (Oakland) to U.S. 27 BR (East)	MDOT	5594	9038	2220	6436	2261	6185	2082	5255	1951	5270	2029	5614	2122	5624	1949	5361	1996	5786		
I-96 w.b.*	Okemos Road on ramp to Cedar/Pennsylvania off ramp	MDOT	6721	10860	5008	9057	4992	8978	4696	8108	4912	8468	4522	8275	4502	8186	4446	8494	4433	8354		
I-96 e.b.*	M52 to Livingston County line	MDOT	6760	10922	4566	9559	4566	9581	4608	9491	4608	9507	4608	9490	4608	9470	4609	9480	4576	9503		
I-96 e.b.*	Cedar/Pennsylvania on ramp to Okemos Road	MDOT	6721	10860	4139	9037	4109	9067	3965	8528	3945	8448	3864	8247	3853	8315	3922	8167	3936	8294		
I-96 w.b.*	Livingston County line to M-52	MDOT	6760	10922	4571	9548	4571	9547	4545	9557	4547	9562	4547	9559	4546	9565	4546	9570	4546	9560		

TABLE 5-24 : 2025 DEFICIENCIES: AM AND PM PEAK HOUR MODELED VOLUMES BY NETWORK ALTERNATIVE BASED ON THE 2025 "PREFERRED ALTERNATIVE" BY LOCATION

Except where links are one way, these are bi-directional forecast counts based on the 7:00-9:00 a.m. and 3:00-6:00 p.m. peak travel periods.

Note: Links with a peak hour volume/capacity (V/C) ratio greater than 1.0 are identified in bold type. Those not in bold type may be approaching capacity. A V/C ratio is a common measure of congestion.			Peak Capacity		High Transit		Medium High Transit		Demand Reduction / Improved Operations		Combination of 2, and 3		Combination of 2, 3, and 6a		Preferred Alternative <small>includes potential optional projects - SE based on preferred alternative</small>		Business as Usual <small>includes potential optional projects - SE based on business as usual</small>		Highways only <small>includes potential optional projects</small>	
			AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
Corridor	Link	Principal Jurisdiction																		
I-496/US 127 n.b.*	I-96 ramp to I-496 w.b. ramp	MDOT	6721	10860	5998	9418	6054	9447	5590	9123	5594	9318	5594	8913	5514	8950	5538	8454	5436	8755
I-496/US 127 s.b.*	US 127 (from Clare) ramp to I-96 ramp	MDOT	6721	10860	4786	10511	4786	10721	4495	9895	4978	10409	4362	9391	4367	9595	4261	9946	4301	8977
I-496 e.b. ramp	Approaching US 127 n.b.	MDOT	2711	4380	2131	3722	2185	3816	2255	4143	2273	4458	2260	3802	2267	4039	2288	4301	2254	4636
I-496 e.b. ramp*	Approaching Trowbridge	MDOT	2711	4380	1751	5512	1404	5124	1479	4779	1486	4781	1457	4853	1449	4771	1443	4403	1527	5245
I-496 w.b.	Cedar on ramp to Walnut off ramp	MDOT	6721	10860	5598	9856	5606	9921	3993	9415	5171	9377	5003	9939	5077	9575	5115	9218	3837	9310
I-496 w.b.*	Walnut to Lansing Road at MLK	MDOT	6721	10860	2829	10280	2808	10583	1999	7852	2709	7697	2670	8167	2685	8259	2821	7469	3201	9473
M-43 (Grand River) w.b.	M.A.C. to Abbott	MDOT	4367	7055	3304	5932	3122	5991	2871	5299	2893	5409	2427	5025	2831	5107	2427	5000	2846	6321
M-43 (Saginaw)*	East Mall Drive to Waverly	MDOT	6478	10468	4439	9360	4412	9267	4047	8509	4014	8438	4016	8482	3955	8431	3876	8390	3973	8422
M-43 (Grand River)	Bogue to Hagadorn	MDOT	5772	9328	4817	9229	4805	9257	4696	8472	4433	8311	4177	7957	4271	7816	3980	7674	4231	7855
M-43 (Grand River)	Hamilton (west leg) to Okemos	MDOT	6478	10468	6000	10575	4926	10443	4445	9344	4581	9597	4124	9169	4175	9289	4020	8694	4129	8772
M-43 (Grand River)*	Cornell to Meridian (east leg)	MDOT	2760	4458	2140	4682	2235	4635	2344	4467	2128	4457	2097	4442	2075	4351	2041	4308	2055	4291
M-43 (Saginaw)*	Waverly to Rosemary	MDOT	6478	10468	4371	8716	4362	8786	3929	8028	3914	8031	3929	7948	3899	7910	3745	7793	3857	7924
M-43 (Saginaw)*	Pennsylvania to I-69 BL (Saginaw)	MDOT	7494	12108	3053	10900	2963	10666	2517	9437	2506	9243	2315	7745	2392	9031	2216	8690	2274	9051
M-43 (Grand River)e.b.	Michigan to Abbott	MDOT	4367	7055	3350	7992	3409	8168	3139	7264	3130	7215	2427	7855	2490	7913	2892	7808	2903	6689
M-43 (Grand River) w.b.	Abbott to Michigan	MDOT	4367	7055	3304	7550	4142	7489	3701	6858	3670	6833	2891	6532	2831	6425	3392	6350	3428	6322
M-43 (Grand River) e.b.*	Abbott to Bogue	MDOT	4367	7055	2319	5708	2410	5713	2210	5044	2233	5075	2086	4885	2130	5121	2043	4890	2087	4992
M-99 (Canal)	M-50 (Clinton Trail/Dexter) to Michigan (Bridge Constraint)	MDOT	2486	4016	1959	3715	1942	3685	1862	4108	1856	3527	1876	3527	1862	3540	1888	3559	1835	3455
M-99 (MLK) s.b.*	Main to Mt. Hope	MDOT	5787	9350	2502	9306	2510	9184	2250	8183	2210	8193	2196	8164	2225	8227	2024	7913	2119	8238
M-99 (MLK)*	Jolly to Southland	MDOT	5970	9644	4122	9220	4208	9044	3905	8679	3803	8639	3738	8365	3070	8514	3589	8807	3815	8818
M-100 (Bridge)*	Jefferson to Main (Bridge Constraint)	MDOT	2402	3880	1980	3773	1952	3773	1876	3572	1847	3546	1798	3502	1794	3439	1932	3695	1790	3498
Michigan e.b.*	Harrison to M-43 (Grand River)	MDOT	3202	5174	1986	5804	2050	5923	1906	5128	1876	5235	1763	4959	1808	4952	1756	4871	1784	4808
US 27 BR (Lansing Road) w.b.*	I-496 off ramp to Old Lansing	MDOT	3434	5549	1215	4760	1263	4934	1107	4381	1129	4398	1142	4388	1123	4583	1247	4459	1094	4227
US 127 s.b.*	Lake Lansing ramp to M-43 (Oakland) ramp	MDOT	6721	10860	5094	9313	5110	9307	4994	8719	4978	8812	4904	8491	4888	8439	5280	8617	4959	8207
US 127 n.b.*	M-43 (Oakland) on ramp to I-69 ramps	MDOT	6721	10860	4076	9359	4161	9241	3691	8920	3642	8932	3639	8750	3613	8753	3526	8922	3465	8684
Chestnut*	Wilson to Shaw	MSU	1744	2818	1349	2732	1352	2724	1104	2351	1078	2260	1113	2261	1134	2255	949	2093	901	2163
Circle Drive East*	Circle Drive West to M-43 (Grand River)	MSU	3086	4986	2813	5951	2814	5818	2438	5132	2470	5174	2396	4983	2396	4965	2146	4676	2360	4968
Farm Lane*	Service to Wilson	MSU	3252	5254	2115	4432	2106	4395	1751	3824	1688	3994	1829	3785	1773	3262	1663	3206	1809	3802
Kalamazoo	Harrison to Chestnut	MSU	1692	2734	1008	1995	812	2303	889	1766	852	1725	766	1651	875	1709	662	1674	757	1784
Kalamazoo	Red Cedar to Circle Drive (Bridge Constraint)	MSU	1692	2734	1528	2952	1697	3104	1394	2841	1358	2805	1328	2774	1446	2909	1203	2652	1302	2751
Service	Farm Lane to Bogue	MSU	1582	2558	1198	2504	1187	2565	1113	2319	1126	2324	1085	2271	1167	2296	1035	2261	1056	2147
Shaw w.b.*	Hagadorn to Wilson	MSU	1626	2627	849	3023	851	2265	549	2579	768	2527	787	2546	776	2591	761	2297	759	2526
Shaw e.b.	Wilson to Hagadorn	MSU	1626	2627	1523	2463	1538	2472	1396	2123	1383	2154	1359	2092	1361	2086	1173	2023	1319	2088
Wilson	Harrison to Chestnut	MSU	1582	2558	1528	2512	1467	2125	1255	2004	1237	2075	1282	1979	1271	2009	1113	1845	1272	1959

APPENDIX 2

TABLE 5-27: 2005-2008 IMPROVE EXPAND PROJECTS NOT COMPLETED

Local Jurisdiction	Year	Project	Miles	Location	Improvement Proposed	Total Estimated Cost (1,000's)		Funding Source	Treatments to be Considered	Responsibility for Implementation and Review
						Federal	Total			
Clinton County	2005 (not built or in TIP)	Eaton Highway	.56	M-100 east 3000 feet	Widen to 3 lanes	240.0	300.0	STPT	DR/MO 4-5% INT; TIS	REF
Clinton County	2007 (not built or in TIP)	Felton Road	1.00	Grand River to State	Widen to 3 lanes	320.0	400.0	STPT	DR/MO 11-13%; AM; TIS	REF
Clinton County	2007 (not built or in TIP)	State Road	3.20	US 27 BR to Chandler	Widen to 3 lanes	512.0	640.0	STPT	DR/MO 11-13%; TIS	REF
East Lansing	2007 (not built or in TIP)	Lake Lansing Road	.78	US 127 to Harrison	Add e.b. and s.b. right turn lanes at Coolidge and Lake Lansing; add e.b. and w.b. left turn lanes at Harrison and widen Lake Lansing from 4 to 5 lanes from Marfitt to Abbott	560.0	700.0	STPT	TR 33% DR/MO 11-13% AM ITS COR TIS INT	REV/REF

TABLE 5-27: 2005-2008 IMPROVE EXPAND PROJECTS NOT COMPLETED - continued

East Lansing	2007 (not built or in TIP)	Harrison Avenue	1.04	Saginaw to Lake Lansing	Reconstruct; reduce from 4 to 3 lanes with bike lanes	320.0	400.0	STPT	TR 33% DR/MO 11-13% INT; TIS	REF
Ingham County	2007 (not built or in TIP)	Marsh Road	.57	Central Park to Tihart	Add center turn lane	400.0	500.0	STPT	TR 33% DR/MO 8-9% ITS; TIS; AM	REF
Ingham County	2007 (not built or in TIP)	Old Lansing Road	.66	Waverly to US 127 BR	Widen from 2 to 3 lanes	480.0	600.0	STPT	DR/MO 11-13% INT; TIS	REF
Lansing	2007 (not built or in TIP)	Washington at Mt. Hope	.10	Intersection improvements	Add n.b. and s.b. left turn lanes; head up intersection	100.0	125.0	STPT	TR 20%; DR/MO 11-13% INT; TIS	REF
Eaton County	2011 (2008 TIP)	Willow Highway	1.00	Canal to Creyts	Widen from 2 to 4 lanes	1360.0	1700.0	STPT	DR/MO 11-13%; INT; TIS PRCAP	REF

TABLE 5-28: 2009-2025 IMPROVE EXPAND PROJECTS

Local Jurisdiction	Year	Project	Miles	Location	Improvement Proposed	Total Estimated Cost (1,000's)		Funding Source	Treatments to be Considered	Responsibility for Implementation and Review
						Federal	Total			
Clinton County	2009 (not in TIP)	Chandler Road	3.5 4	South County line to Clark	Widen to 4 lanes	1132.8	1416.0	STPT	TR 33%; DR/MO 11-13%; AM; TIS; NM; COR	REF
Clinton County	2009 (not in TIP)	DeWitt Road	.75	I-69 to Herbison	Widen to 3 lanes	120.0	150.0	STPT	DR/MO 8-9%; NM; TIS	REF
East Lansing	2009 (not in TIP)	Harrison Road	.50	Forest to Mt. Hope	Widen from 2 to 4 lanes	304.0	380.0	STPT	TR 33%; DR/MO 11-13%; INT; ITS; TIS; AM	REF
East Lansing	2009 (not in TIP)	Forest Avenue	.75	Harrison to College	Widen from 2 to 4 lanes	228.0	285.0	STPT	DR/MO 11-13%; INT; ITS; TIS; AM	REF
East Lansing	2009 (not in TIP)	Harrison n.b.	.13	Service to Trowbridge	Widen from 2 to 3 lanes; add s.b. left turn lane at Wilson	80.0	100.0	STPT	TR 33%; DR/MO 16-18%; ITS; TIS; AM; INT	REF
Eaton County	2010	Creyts Road	2.0 0	Lansing Road to Dimondale Village limit	Widen from 2 to 4 lanes	2720.0	3400.0	STPT	TR 50% DR/MO 11-13%; AM; NM; TIS; COR PRCAP	REF/REV

TABLE 5-28: 2009 – 2025 IMPROVE EXPAND PROJECTS (continued)

Local Jurisdiction	Year	Project	Miles	Location	Improvement Proposed	Total Estimated Cost (1,000's)		Funding Source	Treatments to be Considered	Responsibility for Implementation and Review
						Federal	Total			
Ingham County	2009 (not in TIP)	Holt Road	.25	Washington to Onondaga	Widen from 2 to 4 lanes	400.0	500.0	STPT	DR/MO 4-5%; PRCAP; PRNM	REF
Ingham County	2009 (not in TIP)	Lake Lansing Road	.69	I-69 BL to Okemos	Widen from 2 to 4 lanes	600.0	750.0	STPT	DR/MO 4-5%; INT; COR; TIS; AM	REF/REV
Clinton County	2010 (not in TIP)	Airport Road	5.00	Grand River Ave to Howe	Widen to 3 lanes	800.0	1000.0	STPT	DR/MO 11-13%; AM; INT; TIS	REF
Eaton County	2010	Michigan Avenue	2.00	Canal to Creyts	Construct new 3 lane road	1600.0	2000.0	STPT	DR/MO 11-13%; TIS; AM; COR	REF
Lansing	2010 (not in TIP)	Willow	.63	Sunset to MLK	Widen from 2 to 3 lanes	560.0	700.0	STPT	TR 50%; DR/MO 11-13%; INT; TC; TIS	REF
Ingham County	2011	Waverly Road	1.00	Miller to Jolly	Widen from 2 to 4 lanes	504.0	630.0	STPT	TR 50%; DR/MO 11-13%; NM/COR; TIS	REV/REF
Eaton County	2012	Mt. Hope Avenue	4.10	M-100 to Canal	Widen from 2 to 3 lanes	1200.0	1500.0	STPT	DR/MO 4-5%; INT	REF

TABLE 5-28: 2009 – 2025 IMPROVE EXPAND PROJECTS (continued)

Ingham County	2013	Jolly Road	.75	Collins to College	Widen from 2 to 4 lanes	600.0	750.0	STPT	DR/MO 11-13%; COR; PRNM; PRCAP; TIS	REV; REF
Eaton County	2014	Willow Highway	4.10	Canal to M-100	Widen from 2 to 4 lanes	4800.0	6000.0	STPT	DR/MO 4-5%; INT; TC; TIS PRCAP	REF
Ingham County	2014	Jolly Road	1.00	College to Hagadorn	Widen from 2 to 4 lanes	800.0	1000.0	STPT	DR/MO 4-5%; TIS; COR; PRNM; PRCAP; AM	REV; REF
Eaton County	2015	St. Joe Highway	4.10	M-100 to Canal	Widen from 2 to 3 lanes	1200.0	1500.0	STPT	DR/MO 4-5%; INT; TIS	REF
Eaton County	2015	St. Joe Highway bridge	-	Bridge over I-96	Widen from 2 to 4 lanes	800.0	1000.0	STPT	DR/MO 11-13%; TIS	REF
Eaton County	2016	Canal Road	.70	Delta Commerce to Willow	Widen from 2 to 4 lanes	640.0	800.0	STPT	DR/MO 11-13%; AM; NM; TIS	REF
Ingham County	2016	Holt Road	.66	US 127 to Hagadorn	Widen from 2 to 4 lanes	560.0	700.0	STPT	DR/MO 4-5%; AM; TIS; PRNM; PRCAP	REF
Ingham County	2017	Hagadorn Road	.50	Mt. Hope to Service	Widen from 2 to 4 lanes	560.0	700.0	STPT	TR 33%; DR/MO 16-18%; INT; TIS; ITS; COR; AM PRCAP	REV/REF
Clinton County	2019	Herbison Road	3.24	Airport Road to US 127 BR	Widen to 3 lanes	518.4	648.0	STPT	DR/MO 8-9%; INT; TC; TIS	REF

TABLE 5-28: 2009 – 2025 IMPROVE EXPAND PROJECTS (continued)

Eaton County	2020	Snow Road bridge	--	Bridge over I-496	Widen from 2 to 4 lanes	800.0	1000.0	BRRP	DR/MO 11-13%	REF
Lansing	2020	Dunckel Road	.25	Bridge over US 127/I-496	Widen from 2 to 4 lanes	1600.0	2000.0	STPT	TR 33%; DR/MO 11-13%	REF
Lansing	2020	MLK Blvd	.25	South of Saginaw to north of Oakland	Widen from 4 to 5 lanes	1200.0	1500.0	STPT	TR 20%; DR/MO 11-13%; INT; ITS; NM; PRNM; TIS	REF
Eaton County	2021	Nixon Road bridge	–	Bridge over Grand River	New 2 lane bridge	1600.0	2000.0	STPT	DR/MO 4-5%; NM; TIS; COR; AM	REF
Clinton County	2023	State Road	1.75	Chandler to Webster	Construct new 2 lane road	560.0	700.0	STPT	DR/MO 11-13%; TIS; COR; AM	REF
Clinton County	2023	Clark Road	2.00	Wood to Chandler	Widen to 3 lanes	640.0	800.0	STPT	DR/NM 4-5%; TIS	REF
Eaton County	2023	East-West Collector	.65	Mall Drive West to Creyts	Construct new 3 lane roadway	600.0	750.0	STPT	DR 50%; DR/MO 11-13%; NM; TIS; COR; AM	REF
Clinton County	2024	DeWitt Road	3.20	Sheridan to I-69	Construct new 2 lane road	1024.0	1280.0	STPT	DR/MO 11-13%; AM; TIS; COR;	REV/REF
Clinton County	2025	Grand River Avenue	5.50	M-100 to I-69	Widen to 3 lanes	880.0	1100.0	STPT	DR/MO 4-5%; TIS	REF
Clinton County	2025	Webster Road	1.50	Park Lake to Ann Drive	Construct new 2 lane road	480.0	600.0	STPT	DR/MO 4-5%; TIS; COR; AM	REF

TABLE 5-28: 2009 – 2025 IMPROVE EXPAND PROJECTS (continued)

Eaton County	2025	East-West Collector	1.00	Creyts to Canal	Construct new 3 lane roadway	960.0	1200.0	STPT	DR/MO 11-13%; TIS; COR; AM	REF
Lansing	2025	Lake Lansing	.75	West of US 127 BR (East Street) to city limit	Widen from 3 to 4/5 lanes	800.0	1000.0	STPT	TR 20%; DR/MO 11-13%; AM; TIS;	REF/REV
Mason	2025	Columbia Street	.10	State to Park	Construct connector street	1500.0	1875.0	STPT	TR 50%; DR/MO 8-9%; TIS; COR; AM	REF

APPENDIX 3

Improve-Expand

(Constructing new roads or major widenings that add capacity to transportation system)

Twenty Year Strategy:

1. Only consider improve-expand projects that are consistent with the Regional Growth project
2. Conduct a freeway modernization study (after the current Long Range Plan is completed and prior to the next update) which includes evaluation and consideration of all alternative modes, prior to undertaking any freeway expansions, constructing new interchanges or major interchange modifications.
3. Capacity improvements must be within the context of an approved Congestion Management System.
4. Identify arterial and collector roadways and intersections with a level of service (LOS) rating of “E” or worse.
5. Raise the rating of all arterial roadways to LOS “E” or better.
6. Consider spot locations for high occupancy vehicles (HOV) treatments in high congestion areas.
7. Consider an access management strategy, management and operations improvements, Intelligent Transportation Systems (ITS) and congestion management prior to adding new capacity.
8. Consider completing priority corridors to enhance continuity of the existing system. Examples of some potential priority corridors may include:
 - Creyts Road
 - Waverly Road
 - Hagadorn Road
 - Willow Road
 - Holt Road
 - Jolly Road
 - U.S. 27 (from St. Johns to the north Clinton County line)
 - Limits and scope of these improvements will be determined but should be consistent with the regional growth plan.

Five Year Strategy:

9. Give priority to:
 - Roadways with an unacceptable level of service (LOS “E” or worse).
 - Improvements on high volume arterial roadways.
 - Capacity improvements which provide additional benefits, i.e., accident

- reduction.
- Improvements that encourage the viability of transit as a mode choice, such as HOV lanes, sidewalks and signal and sign upgrades.
10. Incorporate non-motorized components in all proposed projects based on the Michigan of Uniform Traffic Control Devices (MMUTCD) and American Association of State Highway and Transportation Officials (AASHTO) guidelines and consistent with the Regional Growth and non-motorized facility plans.
 11. Consider an access management strategy, management and operations improvements and Intelligent Transportation Systems (ITS) prior to adding new capacity.
 12. Consider concentrating investments to upgrade highest priority corridors consistent with the Regional Growth plan.
 13. Require congestion and access management strategies consistent with the Long Range Transportation Plan prior to implementing improve and expand projects.
 14. Transportation agencies should consider traffic impact studies and local governments with land use authority should adopt traffic impact study ordinances for new developments in congested corridors prior to implementing improve and expand projects.
 15. Where appropriate, remove on-street parking to maximize capacity and reduce need for additional system expansions.
 16. Identify locations to implement passing relief programs.
 17. Target intersection improvements (wide nodes, narrow road) as preferred means of reducing congestion instead of major road widenings.
 18. Conduct a freeway modernization study (after the current Long Range Plan is completed and prior to the next update) which includes evaluation and consideration of all alternative modes, prior to undertaking any freeway expansions, constructing new interchanges or major interchange modifications.

APPENDIX 4
LONG RANGE TRANSPORTATION PLAN GOALS AND OBJECTIVES

Goal I: Accessibility

Encourage development of a multi-modal transportation system that provides accessibility to all persons and goods consistent with the Regional Growth plan.

Objectives:

- A. Provide reasonable access through planned capacity and routing for all modes.
- B. Give priority to multi-modal projects that relieve localized congestion problems.
- C. Maximize accessibility to all persons regardless of economic, physical and social characteristics.
- D. Assure compliance with the Americans with Disabilities Act by addressing special needs of persons with mobility challenges. Consider these needs in project design, work zone safety and construction management plans.
- E. Provide balance in the multi-modal transportation system to enhance overall accessibility.

Goal II: Mobility Options

Provide multi-modal transportation choices for efficient movement of people and goods throughout the region.

Objectives:

- A. Provide intra- and inter –regional routing and modal options.
- B. Improve operations or circulation by giving priority to projects that enhance all modes and provide balance to the transportation system.
- C. Stage programs and projects in priority corridors in a manner which minimizes disruptions and provides alternative routes and modes.
- D. Reduce congestion in corridors identified in the Congestion Management System and the transportation plan.
- E. Promote Transportation Demand Management (TDM) strategies such as

ridesharing, flex-time policies and increased transit use as preferred alternatives to construction of additional capacity.

- F. Encourage events, businesses and facilities managers to advertise alternative travel modes and services such as transit stops, pedestrian access and bicycle parking in their promotions.
- G. Undertake pre-emptive measures, such as access management, to discourage congestion at the corridor level.
- H. Use the guidebook, “Evaluating Traffic Impact Studies – A Recommended Practice for Michigan Communities”, in local and inter-governmental reviews to mitigate traffic impacts of new development.
- I. Consider and expand public transit and other modal choices to address mobility needs in rural areas.

Goal III: **Safety**

Transportation systems should be designed, managed and maintained consistent with accepted multi-modal safety standards, community character goals and the Regional Growth plan.

Objectives:

- A. Use the Safety Management System or an appropriate alternative to strive to reduce the number, severity and resultant casualties of traffic crashes for all modes. Roadways identified as safety deficient should be subject to stronger planning and engineering efforts.
- B. Encourage traffic control measures and Intelligent Transportation Systems (ITS) applications on a multi-modal basis throughout the transportation system to enhance safety and efficiency for all modes.
- C. Minimize conflicts between transportation modes through the use of safety methods and programs including improvements to the following:
 - Traffic calming measures (including trees, wide nodes and narrow roads)
 - Sidewalks
 - Pedestrian crossings
 - Railroad crossings
 - Paved shoulders
 - Bicycle facilities
 - Safety education
 - Enforcement programs
 - Multi-use paths

- To accommodate horse drawn carriages where present.
 - Access Management
- D. Encourage the installation and improvement of sidewalks where missing or substandard along major and minor arterials and collector streets within the urbanized area.
- E. Provide adequate safety lighting in pedestrian areas or transit stops consistent with community character goals.

Goal IV: System Efficiency

Maximize efficiencies in utilization and performance of the multi-modal transportation system.

Objectives:

- A. Use transportation system management techniques to maximize operating efficiency, including:
- Ridesharing
 - Public bus transit
 - Walking
 - Biking
 - Traffic sign and signal system improvements
 - Intersection improvements
 - Wayfinding (directional signs and design features)
- B. Develop policies and incentives to increase vehicle occupancies for all motorized modes.
- C. Coordinate movement of both people and goods for maximum efficiency.
- D. Guide transportation expenditures using a systematic analysis of financial return considering the seven mandatory planning factors listed in federal law (TEA-21) and in addition:
- Social, economic development and land use goals
 - Travel time
 - Operating cost
 - Accident risk
 - Performance standards
- E. Provide alternative forms of travel connecting neighborhoods, workplaces, services, recreational facilities, schools and other attractions to encourage more efficient trip-making.

Goal V: Environmental Impacts

Develop a transportation system which is compatible with federal, state, and local environmental standards.

Objectives:

- A. Reduce air pollutant emissions and concentrations consistent with the Clean Air Act.
- B. Reduce energy consumption with the transportation system.
- C. Promote the use of alternative fuels and new technologies.
- D. Minimize transportation-generated noise.
- E. Minimize disruptions to open space, wetlands and natural areas by supporting development that utilizes existing infrastructure.
- F. Encourage alternate modes of transportation.
- G. Encourage design standards and practices which mitigate micro-climate impacts of pavement and impervious surfaces (e.g. heat reflection and absorption, flooding).

Goal VI: Land Use

Develop a transportation system which maximizes positive impacts and minimizes conflicts between transportation facilities and land use.

Objectives:

- A. Encourage local governments to adopt and implement land use plans consistent with the Regional Growth plan and the Regional 2025 Transportation Plan.
- B. Strengthen the regional metropolitan center, discourage sprawl and encourage efficient use of existing infrastructure.
- C. Develop transportation services consistent with:
 - Regional Growth plan
 - Preservation of agricultural lands and open space
 - Promoting regional greenways
 - Existing public utilities
 - Local land use plans
 - Regional non-motorized transportation plan

- Growth centers and land use options to prioritize transportation investments within the region.
- D. Prioritize sidewalks in development reviews; sidewalks should be a prerequisite to parcel development.
 - E. Provide non-motorized links connecting neighborhoods, workplaces, services, recreational facilities, schools and other attractions to encourage more efficient trip-making.
 - F. Encourage non-motorized connectivity across jurisdictional boundaries.
 - G. Encourage transit-oriented development patterns in the urbanized area.
 - H. Consider transit access, access management and appropriate design standards in siting new public buildings and major developments.

Goal VII: Financial Considerations

Seek financial resources sufficient to preserve, maintain and improve the multi-modal regional transportation system.

Objectives:

- A. Give highest priority to preserving and enhancing the existing multi-modal system to encourage development in existing growth centers.
- B. Seek maximum state and federal transportation funds consistent with area needs.
- C. Seek adequate local governmental funding to address financially constrained unmet needs.
- D. Seek alternative sources of transportation funding such as private sector funds, user fees and developer-funded fees.
- E. Encourage economic development in the Tri-County region while maximizing efficient use of financial resources to achieve regional land use goals.
- F. Maintain and modernize the existing multi-modal transportation infrastructure system.
- G. Coordinate and negotiate concurrent public and private infrastructure investments through the local development review process.

- H. Use Surface Transportation Program (STP) flexible funding provisions to fund highest priority projects regardless of mode.
- I. Demonstrate wise management and efficient operations for all modes of transportation to ensure existing federal and state revenue sources continue at maximum levels.
- J. Consider life cycle costs to maximize long term benefits of transportation improvements.

Goal VIII: Economic Development

Develop a multi-modal transportation system that fosters economic development and results in reduced costs and better opportunities consistent with the Regional Growth plan.

Objectives:

- A. Provide transportation services and intermodal connectivity that helps retain existing businesses and attracts new businesses to the region.
- B. Enhance air and rail passenger travel and freight services within the Tri-County region.
- C. Foster regional cooperation and management regarding land use and transportation infrastructure decisions.
- D. Provide non-motorized transportation enhancements to business districts.
- E. Provide for flexible and timely response and enhanced funding for priority land use and economic development projects.
- F. Consider transit access when siting new employment locations.

Goal IX: Public Involvement

Proactively involve the public in planning and development of the transportation system and its facilities or services consistent with the adopted public participation plan.

Objectives:

- A. Provide opportunities for participation early and throughout the plan and program development process, including review and comment opportunities.

- B. Maintain opportunities for continued feedback from all segments of the community throughout the planning and plan implementation process
- C. Identify and involve concerned interest groups to address requirements such as: Americans With Disabilities Act, Clean Air Act and Environmental Justice.
- D. Implement an active ongoing process of public information and education, to include developing performance indicators to monitor success of plan implementation.

Goal X: Transit

Develop, maintain and expand the public bus transit system to provide convenient alternative transportation on a regional basis.

Objectives:

- A. Decrease auto dependency.
- B. Reduce demands on the regional roadway system.
- C. Increase public transit's respective modal share in the community.
- D. Consider transit to relieve and/or manage congestion.
- E. Reduce the need for high cost highway improvements.
- F. Effectively serve the transit dependent (non-drivers, poor, young, elderly and handicappers).
- G. Develop and maintain the most cost effective public transit system possible.
- H. Increase opportunities for intermodal transportation linkages between transit, auto, intercity travel and non-motorized travel modes.
- I. Direct adequate resources and efforts into educational and marketing outreaches to ensure optimal exposure of transit systems, resulting in increased ridership.
- J. Provide transit service to accommodate passenger rail service in the Lansing to Detroit corridor if feasible.
- K. Provide transit service at such levels as to make transit an attractive alternative to automobile use.

- L. Provide transit service to connect employment centers, public facilities, educational centers, recreational facilities and high density residential areas.
- M. Provide all-season safety, comfort and aesthetic improvements to existing and future bus stops.

Goal XI: **Parking/Parking Management**

Provide for parking needs throughout the region in a manner consistent with the need to minimize urban congestion.

Objectives:

- A. Encourage employers, businesses, and individual commuters to find alternatives to parking at their work site and enhance the effectiveness of other modes of travel, such as transit, park and ride, ridesharing and non-motorized.
- B. Evaluate removal or restriction of on-street parking, where appropriate, to add roadway capacity or to accommodate bicycle travel in the roadway.
- C. Support land use and development patterns that are conducive to transit and other multiple occupancy vehicle commutes.
- D. Promote an overall reduction in motor vehicle parking demand by encouraging use of other travel modes.
- E. Maintain parking supplies for motor vehicles and increase parking facilities for bicycles.
- F. Promote the construction and use of multi-level parking facilities to reduce the land consumed by surface parking lots.
- G. Improve pedestrian access to traffic generators in accordance with best site design practices.
- H. Develop parking facilities which are in conformance with access management standards and community character goals.
- I. Use flexible, shared and maximum parking standards in combination with employer parking cash-out and transit pass programs and similar incentives for non-motorized and transit users to reduce parking demand.

Goal XII: Community Impact

Design transportation improvements compatible with existing neighborhoods, public facilities, community character, environmental impacts and equal access.

Objectives:

- A. Coordinate transportation improvement projects to minimize disruptions and enhance community goals.
- B. Use traffic calming measures and context sensitive design to enhance community character.
- C. Provide non-motorized transportation enhancements to business districts, employment centers and neighborhoods.
- D. Consider community impact goals and aesthetic treatments in the design and construction of roads, bridges, transit and non-motorized facilities.
- E. Prioritize aesthetic enhancement projects which are coordinated with transportation improvement projects.

Goal XIII: Intermodal

(e.g. air, auto, bicycle, bus, pedestrian, rail, truck interfaces and linkages)

Increase opportunities for intermodal passenger and freight transportation connections.

Objectives:

- A. Encourage passenger and freight facilities and services that provide multi-modal connections.
- B. Encourage efficiency in freight movement by incorporating rail, truck and air transport, including land side access, into a seamless transportation system.
- C. Give priority to projects which improve access to intermodal transportation facilities.
- D. Complete alternatives analysis, preliminary engineering and implement Lansing-Detroit passenger rail service if appropriate.
- E. Consider convenient transit-oriented park and ride facilities along commuter routes in addition to traditional park and ride facilities.
- F. Encourage shippers and receivers to use rail freight where available and practical as a means of improving highway safety and reducing

congestion.

Goal XIV: Non-Motorized

Encourage pedestrian and bicycle modes as viable, safe and enjoyable alternatives.

Objectives:

- A. Provide economically and physically efficient bicycle facilities in rural, suburban and urban areas that conform to existing engineering standards, and which:
 - Utilize the natural and aesthetic character of the landscape.
 - Utilize paved and widened shoulders, bicycle lanes and exclusive bikeways.
 - Provide bike parking and storage facilities at significant traffic generators.
 - Consider the privacy of adjoining properties in design and acquisition of non-motorized facilities.
- B. Complete the regional River Trail system and its connections.
- C. Encourage pedestrian and multi-use pathways.
- D. Encourage the creation of bicycle parking standards in local land use regulations and site plan review procedures.
- E. Provide a convenient and direct bicycle transportation system serving high travel demand corridors and major activity centers, such as Michigan State University.
- F. Encourage education and enforcement activities to improve pedestrian and bicycle safety.
- G. Provide “close to home” and regional recreational activities by creating bicycling opportunities using a variety of funding sources.
- H. Provide non-motorized links connecting neighborhoods, workplaces, services, recreational facilities, schools and other attractions to encourage more efficient trip-making.
- I. Encourage the use of non-motorized transportation systems to promote clean air, TEA-21 requirements, regional growth goals, economic and recreational development.
- J. Encourage safe pedestrian access to transportation rights-of-way including increased mobility in major business centers, through such

facilities as walkways, pedestrian overpasses and crosswalks.

- K. Encourage non-motorized connectivity within and across jurisdictional boundaries, as well as into the statewide system.
- L. Consider a regional greenway system.
- M. Complete route location and design studies for priority corridors. Examples include:
 - Sycamore Creek Corridor
 - River Trail North
 - River Trail West
 - River Trail East, MSU to Lake Lansing
 - Red Cedar Corridor
 - N-S and E-W roadway corridors. Examples include:
 - M-43, from the west Eaton County line to Webberville
 - Holt Road, from Williamston Road to Dimondale, and connection to Lansing Road on into Charlotte
 - Jolly Road from Meridian Road to Waverly
 - Aurelius from Holt Road, to the Lansing River Trail, then Turner to DeWitt Township and continuing on DeWitt Road into St. Johns.
 - Waverly Road, from North Grand River Avenue to Colombia, to Onondaga Road on into Onondaga
 - BR-27, I-96 BL Cedar-Larch Corridor
- N. Encourage installation of sidewalks consistent with regional land use goals.
- O. Encourage responsible agencies to develop and implement non-motorized facilities plans, maintenance policies, public input mechanisms and site plan review standards.
- P. Consider acquisition of abandoned rail corridors.
- Q. Consider projects within active rail and utility corridors where appropriate.

Goal XV: Management Systems

Evaluate alternate transportation investments and strategies using management systems which integrate problem identification, analysis, alternative strategies, priority setting and programming to enable informed investments and coordinated decision-making.

Objectives:

- A. Use the Congestion Management System (CMS) to help determine and evaluate various congestion reduction strategies including Transportation Demand Management (TDM) strategies (e.g. ridesharing, flex-time policies, and increased transit use) as preferred alternatives to constructing additional capacity. Highway projects which significantly increase capacity for single-occupant vehicles must be part of an approved CMS. Integrate the non-motorized facilities inventory including surface types and conditions into the CMS.
- B. Use the Safety Management System (SMS) to evaluate traffic safety projects and to develop strategies to reduce crash frequency.
- C. Use the Intermodal Management System (IMS) facilities inventory to develop strategies to reduce delays, particularly where the facility connects with other modes.
- D. Use the Pavement Management System (PMS) as a tool in selecting cost-effective strategies to maintain the desired quality of pavement.
- E. Use the Bridge Management System (BMS) to analyze condition, functionality and usable life cycles of bridges, and to prioritize rehabilitation and replacement projects.
- F. Use the Public Transportation Management System (PTMS) to encourage efficient use of transit resources.

Goal XVI: Airport Issues

Transportation investment decisions should promote and be supportive of the region's air facilities.

Objectives:

- A. Support local policies that ensure land uses in the vicinity of airports are compatible with airport uses and improvements.
- B. Maintain or improve ground access to the region's air facilities.
- C. Evaluate alternative access routes to Capital City Airport to avoid at-grade rail crossings.
- D. Pursue balanced regional funding for Capital City Airport.
- E. Encourage gateway and wayfinding improvements between the airport

and city center.

- F. Consider emissions, noise pollution and public input relative to airport expansion concerns.
- G. Encourage airport authority partnerships with local governments, agencies and educational institutions to enhance regional economic development.
- H. Incorporate intermodal connections to provide airport access options.

Goal XVII: Intelligent Transportation System (ITS)

Use information technologies to better manage existing transportation resources and enhance the efficiency of the transportation system consistent with the Lansing Sector ITS Architecture Report (incorporated in this plan by reference) for all modes.

Objectives:

- A. Improve safety of the regional transportation system by:
 - Detecting and reporting potentially hazardous conditions to system users and managers.
 - Improving timeliness and effectiveness of emergency response.
- B. Improve transportation system management during special events, incidents, weather, construction or other non-recurring system disruptions.
- C. Increase system capacity while minimizing community and land use impacts of new infrastructure.
- D. Manage parking demand and supply where parking is at a premium.
- E. Enhance the level of service and attractiveness of bus mass transit by electronic communication.
- F. Reduce energy consumption and environmental costs of the transportation system.