



Documentation Checklist

Region:	Southeast
Proposed Project Name:	Northbound DMS on I43 just south of Exit 78
Requested By:	Jon Riehl

1 Each of the following items should be completed and included in the potential project documentation package. Upload one combined PDF with all documentation in the appropriate regional SharePoint folder. The file should be named by the convention: Region_Project Name_Contact_date.pdf

- ☒ Documentation Checklist
- ☒ Project Information Sheet
- ☒ Project Needs Maps
- ☒ Project Needs Reports
- ☒ Project Benefit Analysis
- ☒ Project Operations and Maintenance Considerations
- ☒ Any supporting information as deemed necessary



Project Information

Region:	Southeast
Proposed Project Name:	Northbound DMS on I43 just south of Exit 78
Requested By:	Jon Riehl

- 1 Using each of the following Needs Analysis Tool presets, provide the anticipated level of need in the vicinity of the proposed project:

Default TIP	MEDIUM
Safety	HIGH
Mobility (Present)	HIGH
Mobility (Future)	MEDIUM
Service	HIGH
Freight Performance	MEDIUM

- 2 Briefly describe the proposed project. Please include the purpose and any relevant information.

Install DMS on I43 northbound just south of Exit 78 (W Silver Spring Dr) to offer Wisconsin State Route 32 as an alternate route if necessary.

- 3 Identify any stakeholders who have been involved with the development of this project.

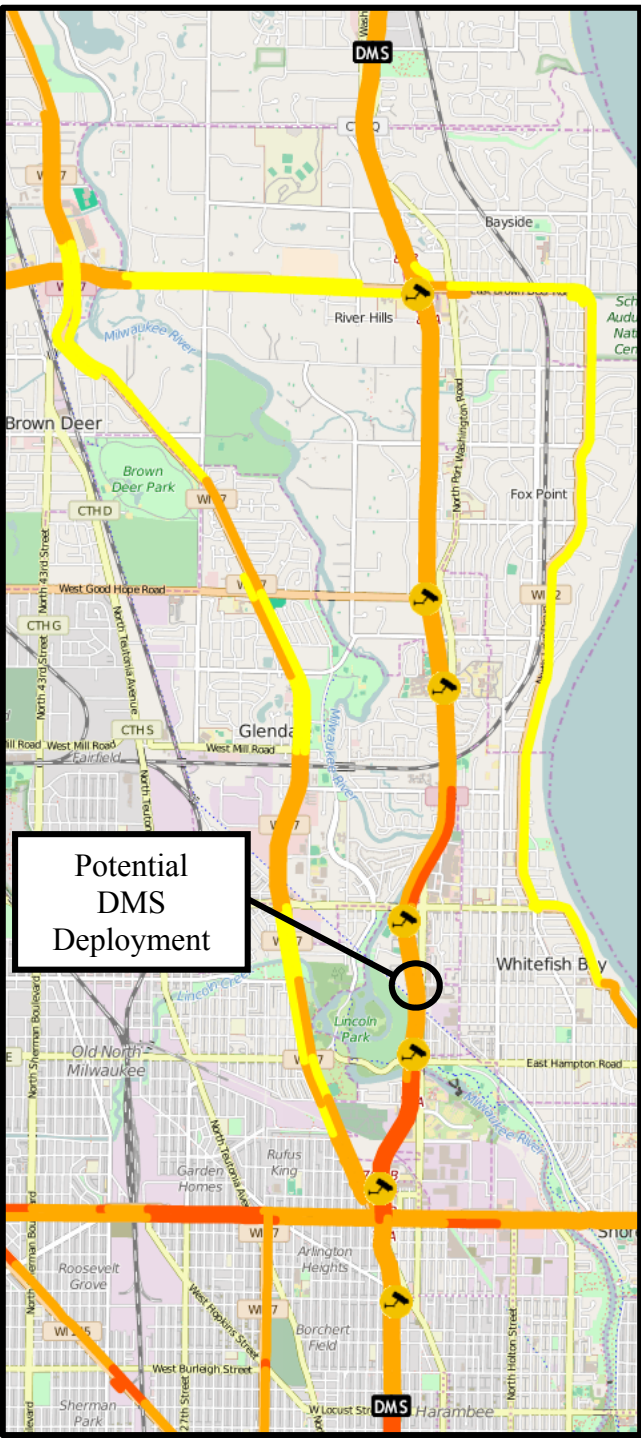
☐ State Patrol	specify:
☐ TOPS Lab (UW)	specify:
☐ Project Team	specify:
☐ Regional Stakeholders	specify:
☐ BTO Stakeholders	specify:
☒ Local Agencies	specify: City of Milwaukee; Milwaukee PD
☐ Other Agencies:	specify:

- 4 Briefly describe the outcome of the collaboration identified above.

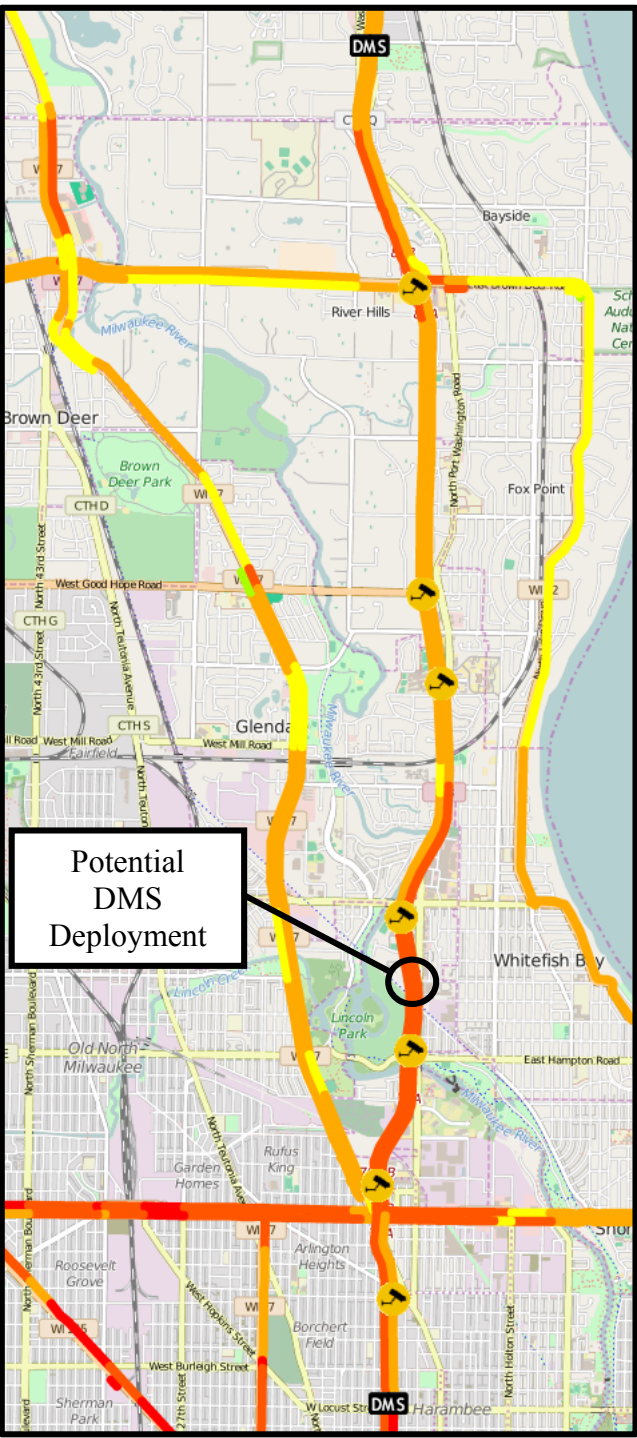
A meeting was held on 04/02/2016 with the City of Milwaukee and Milwaukee PD for another project. This potential project was discussed and both agencies expressed support of the DMS. The attached email from Milwaukee PD sites specific reasons for support.

- 5 Please provide any further information that will be relevant when considering this project.

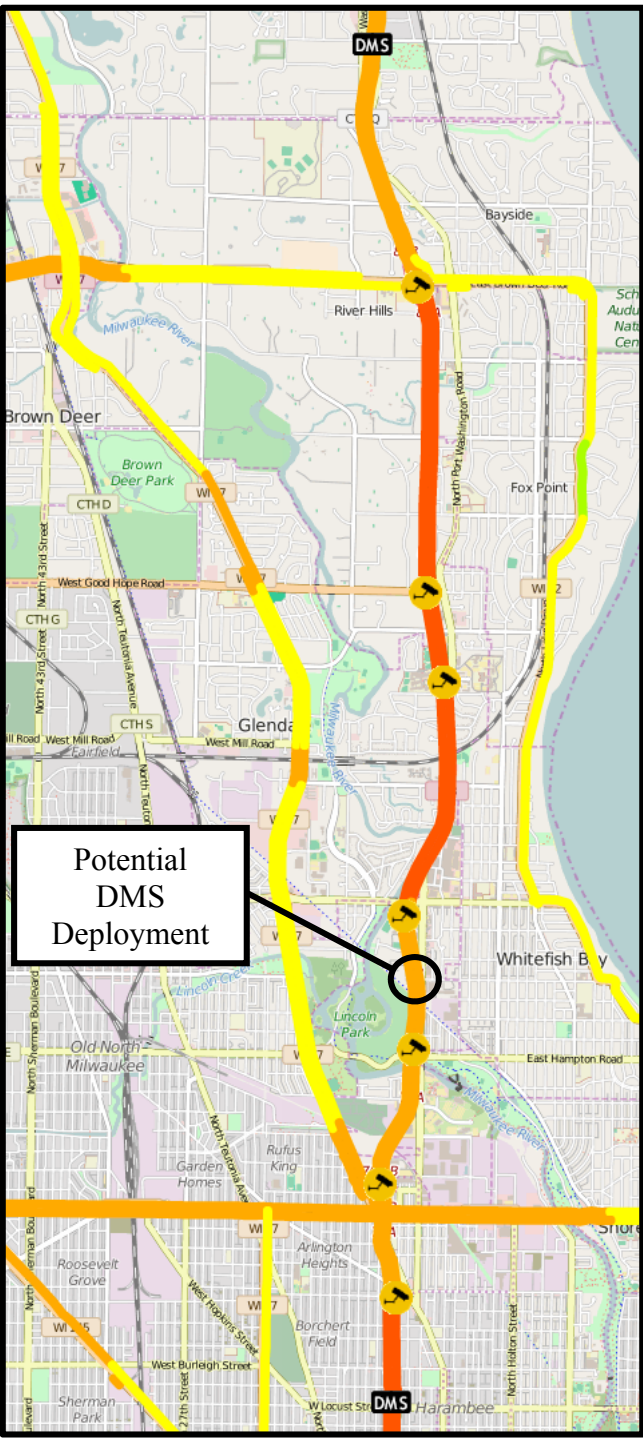
Along I43 north of downtown Milwaukee, two southbound DMS are currently deployed (just south of Exit 85 and at Exit 74). One northbound DMS is currently deployed (south of Exit 73).



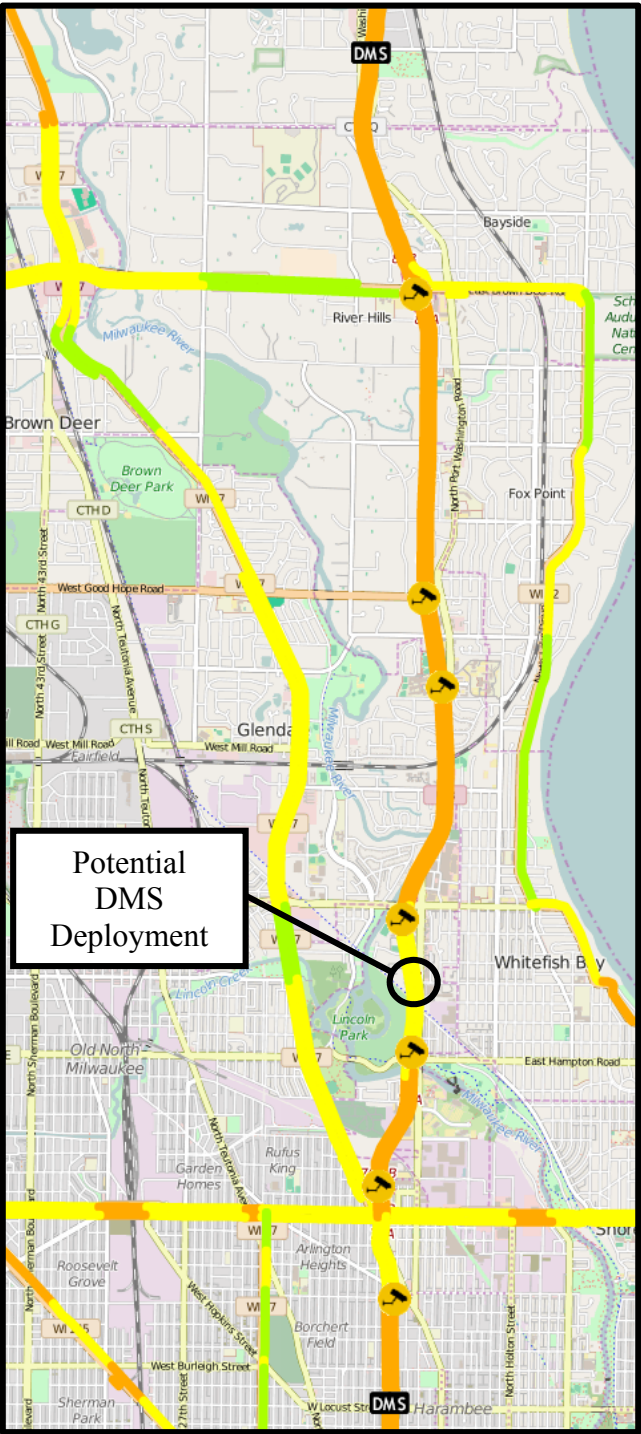
Default TIP



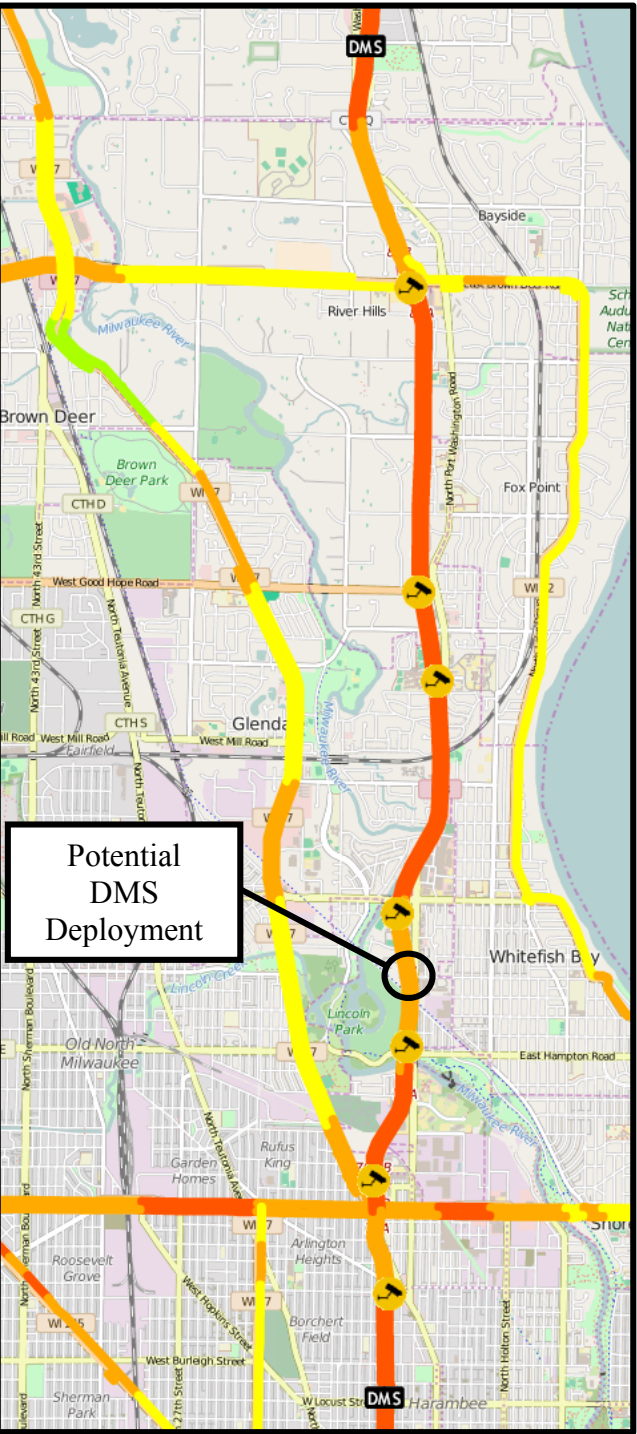
Safety



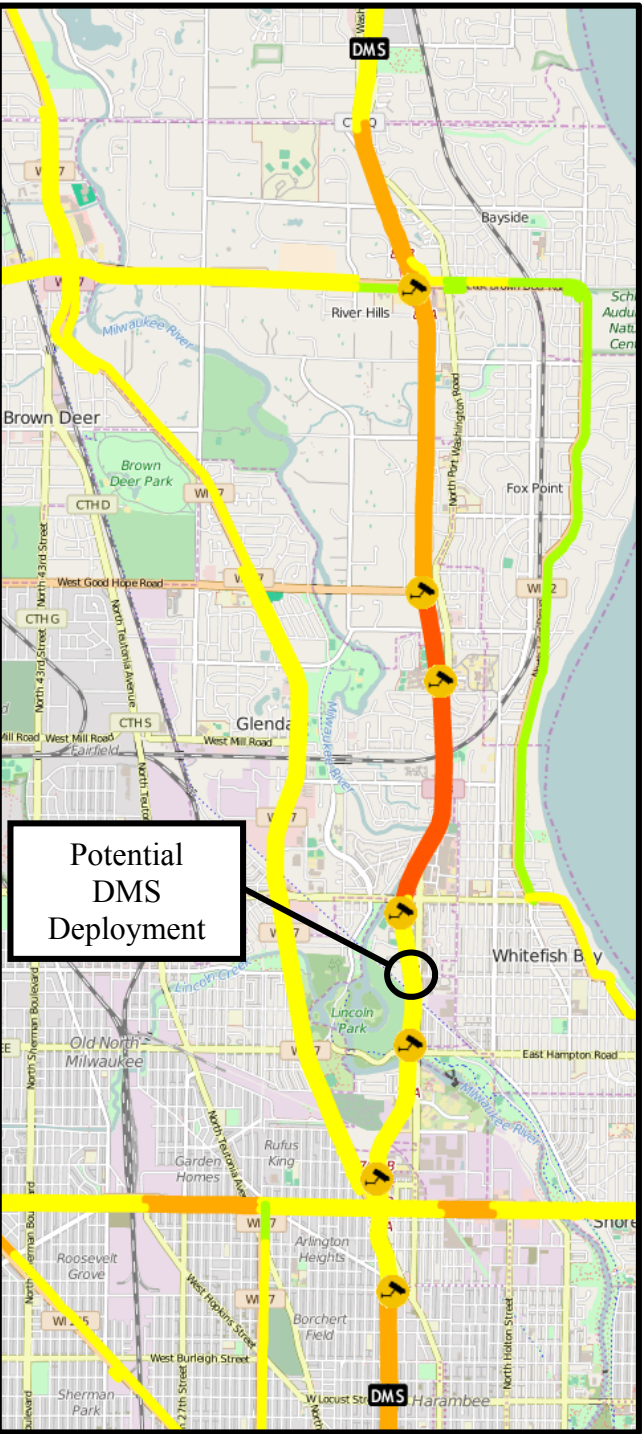
Mobility Present



Mobility Future



Service



Freight Performance

pdp_id	hwy_dir	Default TIP	Safety	Mobility Present	Mobility Future	Service	Freight Perform.	aadtyr_1	aadtyr_2_0	crash_rate	crash_severity	event	growth_2_0	losyr_1	losyr_20	trkdyr_1	weather
6171	032N	0.3316	0.8812	-0.4684	-0.2027	-0.5133	-0.4752	4550	5560	505.72	36	29	22.2	2.09	2.14	8.8	42
6172	032N	-0.1252	-0.046	-0.365	-0.7741	-0.6496	-0.4203	5510	5920	202.27	5	29	7.44	2.17	2.2	8.8	42
6173	032N	0.6819	0.7294	0.4877	-0.0597	0.7417	0.1	14040	15100	358.78	23	29	7.55	4.03	4.57	8.8	42
6174	032N	0.8517	0.5048	0.5296	0.7039	1.1797	0.1233	14450	17630	198.76	22	29	22.01	4.16	5.58	8.8	42
6175	032N	0.977	0.6698	0.7678	0.5948	1.443	0.2991	15870	18540	148.01	38	28	16.82	5.48	6.08	8.8	42
6176	032N	0.4857	0.4787	0.0481	0.3245	0.2877	-0.2144	10980	13400	191.4	24	28	22.04	2.52	3.51	8.8	42
6177	032N	0.3633	-0.3692	0.2297	0.5469	0.7064	-0.0913	12480	15230	65.75	1	28	22.04	3	4.65	8.8	42
6178	032N	0.4732	0.1085	0.3832	0.1605	0.705	0.0235	13290	14940	96.78	12	28	12.42	3.59	4.48	8.8	42
6179	032N	0.1657	0.2998	0.0586	-0.4823	-0.16	-0.2031	11120	11960	146.01	18	28	7.55	2.56	2.67	8.8	42
6180	032N	0.565	0.5469	0.3491	0.0408	0.5894	-0.0003	13100	14520	142.92	32	28	10.84	3.46	4.21	8.8	42
6181	032N	0.8957	1.1343	0.2544	0.5823	0.7652	-0.0757	12780	15600	303.37	62	28	22.07	3.06	4.85	8.8	42
6182	032N	0.3916	0.8215	0.0736	-0.4017	-0.0275	-0.1859	10800	11610	185.11	51	28	7.5	2.66	3.04	8.8	42
6183	032N	0.3685	1.3713	-0.356	-0.8344	-0.496	-0.7257	7610	8180	340.93	93	27	7.49	2.26	2.29	7.2	42
6184	032N	0.005	-0.0841	-0.2256	-0.5586	-0.2007	-0.6414	8490	9390	60.13	11	26	10.6	2.53	2.6	7.2	42
6185	032N	0.2042	0.29	-0.3724	-0.1906	-0.1772	-0.7174	6530	7960	118.1	26	26	21.9	2.4	2.49	7.2	42
6186	032N	-0.0538	-0.2575	-0.5337	-0.291	-0.3365	-0.7942	4830	5890	71.41	7	25	21.95	2.3	2.36	7.2	41
6187	032N	0.0271	0.1457	-0.3415	-0.6178	-0.3209	-0.6996	6940	7700	108.89	18	25	10.95	2.43	2.48	7.2	41
6188	032N	0.0624	0.1699	-0.3345	-0.521	-0.279	-0.6972	7040	7950	150.34	15	24	12.93	2.43	2.49	7.2	41
6189	032N	0.0092	-0.3406	-0.2837	-0.1264	-0.0775	-0.6735	7640	9320	50.18	4	24	21.99	2.47	2.59	7.2	41
6190	032N	0.4924	0.1539	0.0432	0.4119	0.7145	-0.4934	12220	14920	151.05	10	24	22.09	2.93	4.84	7.2	41
6191	032N	0.2078	0.5801	-0.12	-0.4849	-0.251	-0.6283	12780	14310	352.94	16	24	11.97	2.29	2.32	7.2	41
6192	032N	0.6867	1.5174	0.3498	-0.1117	0.0722	-0.0932	22410	25170	905.36	38	24	12.32	2.51	2.59	8.8	41
6193	032N	0.1895	0.3157	-0.2083	-0.0986	-0.2964	-0.3525	3720	4500	489.35	4	24	20.97	2.23	2.27	8.8	41
6527	032S	-0.6318	0.1738	-1.1116	-1.392	-2.0822	-0.9435	1790	1930	517.12	3	24	7.82	1	1	8.8	41
6529	032S	0.6885	1.895	-0.12	-0.4849	-0.251	-0.6283	12780	14310	1852.95	31	24	11.97	2.29	2.32	7.2	41
6530	032S	0.3078	0.3094	0.0161	0.0226	0.1025	-0.5535	7640	9320	334.52	5	24	21.99	2.47	2.59	7.2	41
6531	032S	-0.2376	-0.8634	-0.0347	-0.372	-0.0989	-0.5772	7040	7950	0	0	24	12.93	2.43	2.49	7.2	41
9200	043N	1.772	2.6424	1.6384	0.6711	1.9712	0.6804	150470	162180	167.71	268	30	7.78	6.1	6.99	8.8	43
9201	043N	1.195	1.1809	1.5674	0.5079	1.7756	0.6326	143230	152610	59.55	75	29	6.55	5.7	6.23	8.8	43
9202	043N	0.9643	1.3465	1.1206	0.193	1.0177	0.3431	96510	103780	108.98	88	29	7.53	3.89	4.11	8.8	43
9203	043N	1.5771	2.0645	1.3713	1.1194	1.7873	0.4956	123750	150980	111.62	185	28	22	4.7	5.92	8.8	43
9204	043N	1.2957	1.985	1.3453	0.36	1.3778	0.4853	119960	128930	88.6	181	28	7.48	4.66	4.91	8.8	42
9205	043N	1.603	1.7441	1.9831	1.3819	2.0273	1.8305	94130	107560	139.68	133	27	14.27	6.51	7	16.4	42
9206	043N	1.3202	0.7633	2.1585	1.4691	2.1326	1.9007	94130	107560	131.82	25	27	14.27	6.51	7	16.4	42
9207	043N	1.4599	1.2167	2.1585	1.4691	2.1326	1.9007	94130	107560	63.52	78	27	14.27	6.51	7	16.4	42
9208	043N	1.2536	1.4916	1.7795	0.8188	1.5822	1.4211	78080	83970	60.8	117	26	7.54	5.2	5.63	13.9	41
9209	043N	0.895	0.3977	1.7795	0.8188	1.5822	1.4211	78080	83970	110.93	10	24	7.54	5.2	5.63	13.9	41
9210	043N	1.0127	0.9263	1.3618	0.802	1.449	0.7137	67520	77340	60.52	55	24	14.54	4.46	5.04	10.2	41
9212	043N	0.9399	0.7131	1.2849	0.761	1.5241	0.4886	68860	79140	38.78	42	23	14.93	4.55	5.33	9	40
9451	043S	1.0609	1.0692	1.2849	0.761	1.5241	0.4886	68860	79140	74.33	65	23	14.93	4.55	5.33	9	40
9453	043S	1.2432	1.613	1.3618	0.802	1.449	0.7137	67520	77340	123.91	117	24	14.54	4.46	5.04	10.2	41
9454	043S	1.2982	1.5962	1.7795	0.8188	1.5822	1.4211	78080	83970	279.96	81	24	7.54	5.2	5.63	13.9	41
9455	043S	1.2231	1.3991	1.7795	0.8188	1.5822	1.4211	78080	83970	57.36	106	26	7.54	5.2	5.63	13.9	41

pdp_id	hwy_dir	Default TIP	Safety	Mobility Present	Mobility Future	Service	Freight Perform.	aadtyr_1	aadtyr_2_0	crash_rate	crash_severity	event	growth_2_0	losyr_1	losyr_20	trkdyr_1	weather
9456	043S	1.4996	1.3331	2.1585	1.4691	2.1326	1.9007	94130	107560	77.95	87	27	14.27	6.51	7	16.4	42
9457	043S	1.1329	0.2249	2.1585	1.4691	2.1326	1.9007	94130	107560	34.39	10	27	14.27	6.51	7	16.4	42
9458	043S	1.3979	1.1363	1.9831	1.3819	2.0273	1.8305	94130	107560	69.84	75	27	14.27	6.51	7	16.4	42
9459	043S	1.1805	1.6305	1.3453	0.36	1.3778	0.4853	119960	128930	88.18	126	28	7.48	4.66	4.91	8.8	42
9460	043S	1.5618	2.0173	1.3713	1.1194	1.7873	0.4956	123750	150980	111.61	177	28	22	4.7	5.92	8.8	43
9461	043S	1.0255	1.5218	1.1206	0.193	1.0177	0.3431	96510	103780	153.15	99	29	7.53	3.89	4.11	8.8	43
9462	043S	1.4001	1.795	1.5674	0.5079	1.7756	0.6326	143230	152610	104.9	140	29	6.55	5.7	6.23	8.8	43
9463	043S	1.5606	2.0065	1.6384	0.6711	1.9712	0.6804	150470	162180	116.3	168	30	7.78	6.1	6.99	8.8	43
12409	057N	0.8431	1.7209	-0.0137	-0.5101	0.2782	-0.4597	7960	8560	1006.43	66	30	7.54	3.53	3.59	7.2	43
12410	057N	0.9835	2.1946	-0.0782	-0.5503	0.2072	-0.493	7160	7700	1429.69	91	30	7.54	3.44	3.5	7.2	43
12411	057N	1.7505	3.9964	0.1088	-0.3912	0.448	-0.3949	9630	10400	5911.83	95	30	8	3.73	3.87	7.2	43
12412	057N	0.716	1.4512	-0.0788	-0.55	0.2071	-0.4933	7150	7690	676.62	66	30	7.55	3.44	3.5	7.2	43
12413	057N	0.9002	1.3519	0.0194	0.1584	0.5804	-0.4465	8350	10190	798.11	45	29	22.04	3.56	3.79	7.2	42
12414	057N	0.8093	1.9767	-0.3632	-0.7019	-0.0687	-0.6317	4270	4610	1852.64	53	29	7.96	3.16	3.19	7.2	42
12415	057N	1.5847	2.455	1.0839	0.3277	1.4965	0.4343	32030	34440	1787.85	69	29	7.52	5.61	6.2	8.8	42
12416	057N	1.1404	2.2773	0.6589	-0.0538	0.6093	0.1284	26260	28360	629.9	148	29	8	3.51	3.66	8.8	42
12417	057N	0.8856	1.4793	0.6328	-0.1102	0.5548	0.1148	25220	27110	1135.38	23	29	7.49	3.47	3.56	8.8	43
12420	057N	0.6385	0.4888	0.7119	0.0999	0.8237	0.1593	28060	30300	318.25	8	29	7.98	3.63	4.48	8.8	43
12421	057N	0.7555	1.1499	0.6777	-0.0681	0.6384	0.1442	26190	28160	216.59	63	28	7.52	3.61	3.73	8.8	42
12422	057N	0.5131	0.7671	0.4021	-0.258	0.3145	0.0017	16680	17930	300.45	28	28	7.49	3.23	3.27	8.8	42
12423	057N	0.3043	0.1376	0.4197	-0.2434	0.3343	0.0105	17190	18490	138.77	8	28	7.56	3.25	3.29	8.8	42
12424	057N	0.753	1.4576	0.4114	-0.2525	0.3239	0.0063	16950	18220	517.9	66	28	7.49	3.24	3.28	8.8	42
12425	057N	0.3377	0.6108	0.3238	-0.6621	0.1248	-0.0278	13920	14270	209.96	28	28	2.51	3.24	3.25	8.8	42
12426	057N	0.7636	0.9523	0.4336	0.4003	0.6023	0.0144	17400	21240	247.57	47	28	22.07	3.26	3.39	8.8	42
12427	057N	0.5923	0.9072	0.5146	-0.1865	0.4343	0.0581	20250	21770	351.92	31	27	7.51	3.36	3.41	8.8	41
12428	057N	0.2139	-0.2411	0.3748	0.0627	0.3766	-0.0253	16910	19370	38.68	4	27	14.55	3.07	3.16	8.8	41
12429	057N	0.4358	0.5205	0.3279	-0.0233	0.3046	-0.0485	15630	17700	151.87	27	26	13.24	3.02	3.1	8.8	41
12430	057N	1.2643	1.7853	0.6394	0.4038	1.2211	0.209	14890	16840	1264.88	46	26	13.1	4.78	5.88	8.8	41
12431	057N	0.6517	0.0981	0.6394	0.4038	1.2211	0.209	14890	16840	40.25	18	26	13.1	4.78	5.88	8.8	41
12432	057N	0.4608	0.5514	0.1117	0.1433	0.3601	-0.1774	12090	13750	178.32	29	25	13.73	2.61	4.14	8.8	40
12433	057N	0.0126	0.5741	-0.3184	-0.7651	-0.7137	-0.4254	7030	7560	245.67	30	25	7.54	2	2.05	8.8	40
12434	057N	-0.2844	-0.2847	-0.3184	-0.7651	-0.7137	-0.4254	7030	7560	93.13	3	24	7.54	2	2.05	8.8	40
12435	057N	0.2656	1.2272	-0.3184	-0.7651	-0.7137	-0.4254	7030	7560	1319.33	15	24	7.54	2	2.05	8.8	40
12436	057N	0.0804	0.2088	0.2325	-0.2475	-0.2248	-0.1916	23040	25750	71.86	15	24	11.76	2.1	2.19	8.8	40
12437	057N	0.0916	0.2165	0.2325	-0.2475	-0.2248	-0.1916	23040	25750	154.3	8	24	11.76	2.1	2.19	8.8	40
12438	057N	0.679	1.6498	0.2455	-0.3653	0.1086	-0.0862	13440	14450	460.33	99	24	7.51	2.96	2.99	8.8	39
12439	057N	0.8435	0.8765	0.4187	0.5197	0.9106	0.0625	12300	15000	934.42	7	23	21.95	3.93	4.51	8.8	39
12440	057N	0.5527	0.1347	0.4187	0.5197	0.9106	0.0625	12300	15000	62.89	18	23	21.95	3.93	4.51	8.8	39
12629	057S	0.5671	0.1133	0.4187	0.5197	0.9106	0.0625	12300	15000	311.47	2	23	21.95	3.93	4.51	8.8	39
12630	057S	0.5887	1.3932	0.2455	-0.3653	0.1086	-0.0862	13440	14450	419.41	74	23	7.51	2.96	2.99	8.8	39
12631	057S	-0.1238	-0.3966	0.2325	-0.2475	-0.2248	-0.1916	23040	25750	25.72	1	24	11.76	2.1	2.19	8.8	40
12632	057S	0.2153	0.5922	0.2325	-0.2475	-0.2248	-0.1916	23040	25750	172.46	25	24	11.76	2.1	2.19	8.8	40
12633	057S	-0.1302	0.1532	-0.3184	-0.7651	-0.7137	-0.4254	7030	7560	226.17	9	24	7.54	2	2.05	8.8	40

pdp_id	hwy_dir	Default TIP	Safety	Mobility Present	Mobility Future	Service	Freight Perform.	aadtyr_1	aadtyr_2_0	crash_rate	crash_severity	event	growth_2_0	losyr_1	losyr_20	trkdyr_1	weather
12634	057S	0.3285	-0.8537	0.6394	0.4038	1.2211	0.209	14890	16840	0	0	26	13.1	4.78	5.88	8.8	41
12635	057S	0.5994	0.992	0.3279	-0.0233	0.3046	-0.0485	15630	17700	291.08	47	26	13.24	3.02	3.1	8.8	41
12636	057S	0.4004	0.3061	0.3748	0.0627	0.3766	-0.0253	16910	19370	103.14	19	27	14.55	3.07	3.16	8.8	41
12637	057S	0.6201	0.9853	0.5146	-0.1865	0.4343	0.0581	20250	21770	395.91	33	27	7.51	3.36	3.41	8.8	41
12638	057S	0.6897	0.7424	0.4336	0.4003	0.6023	0.0144	17400	21240	173.3	39	28	22.07	3.26	3.39	8.8	42
12639	057S	0.1872	0.1739	0.3238	-0.6621	0.1248	-0.0278	13920	14270	113.05	13	28	2.51	3.24	3.25	8.8	42
12640	057S	0.4573	0.6151	0.4114	-0.2525	0.3239	0.0063	16950	18220	164.21	31	28	7.49	3.24	3.28	8.8	42
12641	057S	0.6277	1.0599	0.4197	-0.2434	0.3343	0.0105	17190	18490	508.84	32	28	7.56	3.25	3.29	8.8	42
12642	057S	0.465	0.6192	0.4021	-0.258	0.3145	0.0017	16680	17930	300.45	19	28	7.49	3.23	3.27	8.8	42
12643	057S	0.7657	1.1646	0.6777	-0.0681	0.6384	0.1442	26190	28160	295.01	54	28	7.52	3.61	3.73	8.8	42
12647	057S	0.6163	0.7265	0.6328	-0.1102	0.5548	0.1148	25220	27110	504.61	10	29	7.49	3.47	3.56	8.8	43
12648	057S	0.9936	1.8463	0.6589	-0.0538	0.6093	0.1284	26260	28360	485.71	106	29	8	3.51	3.66	8.8	42
12649	057S	1.454	2.0386	1.0839	0.3277	1.4965	0.4343	32030	34440	1969.94	26	29	7.52	5.61	6.2	8.8	42
17153	100N	0.7481	1.3266	0.5425	-0.1679	0.5542	0.0957	27840	29820	313.07	74	24	7.11	3.68	3.72	8.8	40
17154	100N	0.3691	0.2039	0.5065	-0.1682	0.527	0.0781	26080	28030	213.49	6	24	7.48	3.64	3.68	8.8	40
17155	100N	0.6534	1.0523	0.5065	-0.1682	0.527	0.0781	26080	28030	343.96	45	24	7.48	3.64	3.68	8.8	40
17156	100N	-0.0415	-0.1859	0.2039	-0.3727	-0.156	-0.1663	26320	28690	25	7	24	9	2.38	2.42	8.8	40
17157	100N	0.0237	0.2799	0.0062	-0.5779	-0.3788	-0.26	18210	19570	79.51	24	24	7.47	2.26	2.28	8.8	40
17158	100N	0.1484	0.6174	-0.163	-0.8036	-0.2672	-0.9334	24080	25900	198.19	28	24	7.56	2.31	2.33	6	41
17159	100N	0.1918	0.0582	-0.0915	0.0344	-0.0556	-0.274	4050	4920	285.39	3	24	21.48	2.49	2.61	8.8	41
17162	100S	0.1142	0.5497	0.0062	-0.5779	-0.3788	-0.26	18210	19570	103.97	39	24	7.47	2.26	2.28	8.8	40
17163	100S	0.2306	0.6071	0.2039	-0.3727	-0.156	-0.1663	26320	28690	133.31	34	24	9	2.38	2.42	8.8	40
17164	100S	0.6052	0.9123	0.5065	-0.1682	0.527	0.0781	26080	28030	300.04	38	24	7.48	3.64	3.68	8.8	40
17165	100S	0.8695	1.6004	0.5065	-0.1682	0.527	0.0781	26080	28030	1280.94	29	24	7.48	3.64	3.68	8.8	40
17166	100S	0.5985	0.8955	0.5425	-0.1679	0.5542	0.0957	27840	29820	179.85	50	24	7.11	3.68	3.72	8.8	40
19897	190E	1.2057	2.2027	0.7222	0.0982	0.8507	0.166	28370	30500	575.72	142	29	7.51	3.66	4.63	8.8	42
19898	190E	0.8623	1.0018	0.6003	0.515	0.7608	0.0873	37040	45190	620.55	18	29	22	3.33	3.6	8.8	42
19899	190E	1.2682	2.2244	0.6003	0.515	0.7608	0.0873	37040	45190	831.54	118	29	22	3.33	3.6	8.8	42
19900	190E	1.7963	2.8658	1.2575	0.4538	1.732	0.5444	37750	40910	1103.63	175	29	8.37	6.46	6.6	8.8	42
19901	190E	1.5921	2.3159	1.273	0.4123	1.7286	0.553	38670	41570	635.01	143	29	7.5	6.51	6.62	8.8	42
19902	190E	1.7151	2.0522	1.3083	1.0612	2.0101	0.5681	40510	49420	1108.97	64	29	21.99	6.59	6.79	8.8	42
19903	190E	1.3032	1.7621	1.047	0.3271	1.4387	0.4004	32870	35340	508.14	88	29	7.51	5.25	6.15	8.8	43
19904	190E	1.5285	2.0537	1.2795	0.466	1.7492	0.5541	39520	42830	565.07	114	29	8.38	6.48	6.62	8.8	43
19905	190E	0.5814	0.2879	0.7316	0.1357	0.8811	0.165	29800	32040	169.83	8	29	7.52	3.6	4.81	8.8	43
19906	190E	1.1074	1.7277	0.5344	0.5655	0.7386	0.0336	24830	30300	800.92	62	29	22.03	3.03	3.86	8.8	43
19907	190E	1.0003	1.1784	0.8608	0.2514	1.1458	0.2619	30900	33290	541.27	31	29	7.73	4.21	5.52	8.8	43
19908	190E	0.506	0.7038	0.5368	-0.1993	0.3327	0.0381	25200	27090	257.77	23	29	7.5	3.04	3.13	8.8	43
19909	190E	0.8706	1.46	0.6519	-0.0652	0.6225	0.1072	28850	30660	740.45	40	29	6.27	3.29	4.05	8.8	42
19910	190E	0.5538	1.1277	0.4812	-0.4446	0.1784	0.0097	23120	24150	421.16	40	28	4.46	2.97	3	8.8	42
19911	190E	0.8519	1.5432	0.2732	-0.2068	0.4597	-0.021	10470	11260	744.06	63	28	7.55	3.57	4.05	8.8	42
19912	190E	0.3798	0.5901	0.0368	-0.4382	0.0851	-0.1481	7320	7870	380.52	20	28	7.51	3.19	3.25	8.8	42
19913	190E	0.2843	0.2152	-0.1482	-0.1795	0.0396	-0.2415	5240	6040	271.05	11	28	15.27	3	3.07	8.8	42
19914	190W	0.5963	1.2551	0.4812	-0.4446	0.1784	0.0097	23120	24150	440.31	49	28	4.46	2.97	3	8.8	42

pdp_id	hwy_dir	Default TIP	Safety	Mobility Present	Mobility Future	Service	Freight Perform.	aadtyr_1	aadtyr_2_0	crash_rate	crash_severity	event	growth_2_0	losyr_1	losyr_20	trkdyr_1	weather
19915	190W	0.5923	0.6713	0.6519	-0.0652	0.6225	0.1072	28850	30660	296.18	17	29	6.27	3.29	4.05	8.8	42
19916	190W	0.5769	0.8882	0.5368	-0.1993	0.3327	0.0381	25200	27090	441.89	21	29	7.5	3.04	3.13	8.8	43
19917	190W	0.8735	0.8121	0.8608	0.2514	1.1458	0.2619	30900	33290	388.6	18	29	7.73	4.21	5.52	8.8	43
19919	190W	0.6589	0.4472	0.5344	0.5655	0.7386	0.0336	24830	30300	185.1	15	29	22.03	3.03	3.86	8.8	43
19920	190W	1.0156	1.511	0.7316	0.1357	0.8811	0.165	29800	32040	883.09	35	29	7.52	3.6	4.81	8.8	43
19921	190W	1.4211	1.7331	1.2795	0.466	1.7492	0.5541	39520	42830	498.59	82	29	8.38	6.48	6.62	8.8	43
19922	190W	1.2504	1.6192	1.047	0.3271	1.4387	0.4004	32870	35340	387.15	86	29	7.51	5.25	6.15	8.8	43
19923	190W	1.7888	2.2686	1.3083	1.0612	2.0101	0.5681	40510	49420	1212.13	80	29	21.99	6.59	6.79	8.8	42
19924	190W	1.5752	2.2699	1.273	0.4123	1.7286	0.553	38670	41570	590.7	142	29	7.5	6.51	6.62	8.8	42
19925	190W	1.8427	2.9951	1.2575	0.4538	1.732	0.5444	37750	40910	1240.16	182	29	8.37	6.46	6.6	8.8	42
19926	190W	1.3622	2.3959	0.7756	0.6022	0.8661	0.1575	37040	45190	871.16	128	29	22	3.33	3.6	8.8	42
19927	190W	1.9474	3.9411	0.7756	0.6022	0.8661	0.1575	37040	45190	4530.01	112	29	22	3.33	3.6	8.8	42
19928	190W	1.2524	2.3366	0.7222	0.0982	0.8507	0.166	28370	30500	645.51	153	29	7.51	3.66	4.63	8.8	42



Project Benefits - ITS DMS Warrants

New DMS deployment.

Region:	Southeast
Proposed Project Name:	Northbound DMS on I43 just south of Exit 78
Requested By:	Jon Riehl

- 1 What is the anticipated cost of the project (total design, construction, and communication cost)?

\$100,000

Estimated cost based on data provided in RITA's clearinghouse.

- 2 Please complete the Warrant Analysis below to determine which warrant best aligns to the project.
The summary of your results is listed here:

W1, Weather Conditions	NOT WARRANTED
W2, Traffic Conditions	WARRANTED
W3, Traffic Control	NOT WARRANTED
W4, Special Events	NOT WARRANTED
W5, Parking Availability	NOT WARRANTED
W6, Public Transportation	NOT WARRANTED

DMS Warrant Analysis:

DMS Warrant #1 - To Inform Travelers of Weather Conditions

Consideration	Response
1 If the location is prone to weather situations that travelers would not otherwise be forewarned about (e.g. spots where fog regularly forms, bridges that ice early, mountain passes with weather that differs from approaches).	NO
2 If there is available road weather information for the area downstream of the candidate DMS location.	NO
3 If there is the capability (either manually by staff members or automated through a condition reporting system) to create event specific descriptions of weather conditions to be displayed on the DMS.	NO
4 If there is a need to disseminate event specific descriptions (rather than simply activating a flashing warning sign that says "Weather Alert When Flashing").	NO
5 If there are options for either alternate routes or services, that might be described on the DMS, where travelers may wait out conditions.	NO
6 If flashing beacon signs have been tried and not proven to generate responses from travelers.	NO
7 If weather events contribute to a significant number of crashes or road closures which have major impacts to travelers.	NO

DMS Warrant #1 is: **NOT WARRANTED**

DMS Warrant #2 - To Inform Travelers of Traffic Conditions

Consideration		Response
1	If the target area is monitored by CCTV cameras, traffic detectors, or another method of monitoring the conditions, or has travel times for the downstream stretch of road.	YES
2	Events occurring in the area unexpectedly impact or impede traffic (e.g. close a lane, encounter slow traffic in one or more lanes, or events on the shoulder) an average of at least two times per month.	YES
3	If there are acceptable alternate routes with capacity to accept vehicles that may deviate based upon the information.	YES
4	If the location is a stretch of road where no alternate route are possible and travelers would benefit from information describing the cause and/or extent of delays in order to relieve driver anxiety or confusion.	NO
5	If there are horizontal or vertical curves that create safety issues when traffic is stopped unexpectedly.	NO
6	The route being considered for the DMS has on average at least 2 hours per day of peak period travel where traffic flow exceeds 1,100 veh/hr/lane.	YES
7	The route being considered for the DMS has on average experienced conditions considered Level of Service C.	YES
8	The route being considered for the DMS experiences average annual daily traffic (AADT) of 16,800 for a 2 lane road; 33,600 for a 4 lane road; 50,400 for a 6 lane road, 67,200 for an 8 lane road.	YES

DMS Warrant #2 is:

WARRANTED

DMS Warrant #3 - Changing Traffic Control or Conditions (Work

Consideration		Response
1	The candidate location is upstream of an area with construction or maintenance activities that are expected to cause at least 15 minutes of delay to the mainline traffic.	NO
2	If the candidate location is upstream of traffic control or construction/maintenance activities that are expected to change more frequently than once every 60 days.	NO
3	If the posted work zone speed limit is greater than 45 MPH.	NO

DMS Warrant #3 is:

NOT WARRANTED

DMS Warrant #4 - Special Events

Consideration		Response
1	If the location contains a venue that houses ticketed events (typically with rapid and tight arrival patterns for a specified start time).	NO
2	If the event venue typically houses at least two weekday (M-F) ticketed event per week (including seasonal sporting events that only occur during the season).	NO
3	If the event venue typically houses at least 10 events per year attracting 30,000 visitors or more.	NO
4	If the setting of the venue is such that mainline traffic (not attending the event) is impacted by the conditions.	NO
5	If there are alternate parking or traffic options that could be displayed on signs to direct visitors to more preferred options.	NO

DMS Warrant #4 is:

NOT WARRANTED

- 3 Using each of the following Needs Analysis Tool presets, provide the anticipated level of need in the vicinity of the proposed project:

Default TIP	MEDIUM
Safety	HIGH
Mobility (Present)	HIGH
Mobility (Future)	MEDIUM
Service	HIGH
Freight Performance	MEDIUM

- 4 Estimate the average number of traffic/weather/special events that occur per year that will be positively affected by use of the proposed DMS.

events per year

Estimated based on crash data from Needs Analysis Tool.

- 5 Estimate the average duration (minutes) of traffic events (due to weather or incidents) that occur and will be positively affected by use of the proposed DMS.

minutes

General estimate based on knowledge of the area.

- 6 Estimate the average travel time savings from adjusting one's route based on direction given on the proposed DMS.

minutes

General estimate based on knowledge of the area.

- 7 Provide the current AADT along the corridor where the proposed DMS will be deployed (the Needs Analysis Tool may be used to obtain the value).

veh per day

Based on Needs Analysis Tool.

Estimated Annual Mobility Benefit:	\$110,000
Estimated Annual Energy and Environment Benefit:	\$42,000
Estimated Annual Benefit:	\$152,000
Estimated Benefit/Cost Ratio:	1.52



Operations and Maintenance Considerations

Region:	Southeast
Proposed Project Name:	Northbound DMS on I43 just south of Exit 78
Requested By:	Jon Riehl

1 Indicate whether the following operations and maintenance items have been considered:

- ☒ Who – Who are the stakeholders involved with the system?
- ☒ What – What are the elements and the high-level capabilities of the system?
- ☒ What – What existing networks will be affected by the system?
- ☒ Where – What is the geographic and physical extent of the system?
- ☒ When – What is the sequence of activities that will be performed?
- ☒ Why – What is the problem or opportunity addressed by the system?
- ☒ How – How will the system be developed?
- ☒ How – How will the system be operated? Are there available resources to take on this responsibility or will additional resources be required? Will additional training be required?
- ☒ How – How will the system be maintained? Are there available resources to take on this responsibility or will additional resources be required?

2 Indicate any further information that will be helpful to document pertaining to operations and maintenance of the proposed deployment:

The proposed DMS will be operated in the same manner as existing DMS are being used. Maintenance will be conducted under the current maintenance contract.