

Component			Source
Service	Function	Sub-Function	Requirement
Road Maintenance	Roadside	Equipment	
	TC		
		MSNEO	
		CSM	
		5.2.1.004	Signals shall be capable of operating in manual override using using secured wire and wireless communications MnA 976
		5.2.1.005	Signal pre-emption shall be available on-demand for emergency vehicles at traffic signal intersections to minimize delays in responding to emergencies and reduce safety hazards when passing through intersections by providing preference over others. GGO 65.3, MnA 973,9
		ISTP	
		5.2.2.001	Real-time, adaptive control of signaling devices shall be provided throughout the traffic control system network to allow traffic flow optimization via rapid modification of signal controls on arterials. GGO 6.10.1, USR 1.6.3.
		MSR	
		5.2.3.003	Individual signal resource operation shall be capable of being passed to a different agency in accordance with documented operating agreements. Derived
		MSNO	
		CSM	
		5.3.1.001	Signs shall be capable of operating in automatic messaging mode. Derived
		5.3.1.002	Signs shall be capable of operating in manual messaging mode. Derived
		5.3.1.003	Sign controls shall be determined by the selected signing plans when in the automatic messaging mode. Derived
		5.3.1.004	Sign controls shall be operator controlled when in the manual messaging mode. Derived
		ISCP	
		5.3.2.001	Real-time, adaptive control of signing devices shall be provided throughout the traffic control system network to allow flow optimization via rapid modification of sign controls on arterials. GGO 6.10.1, USR 1.6.3.

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	5.3.2.002	Real-time, adaptive control of signing devices shall be provided throughout the traffic control system network to allow flow optimization via rapid modification of sign controls on highways.	GGO 6.10.1, USR 1.6.3.
	5.3.2.003	Real-time, adaptive control of signing devices shall be provided throughout the traffic control system network to allow flow optimization via rapid modification of sign controls integrated with freeways.	GGO 6.10.1, USR 1.6.3.
	5.3.2.004	Signing plans shall be integrated, coordinated and consistent across wide areas including multiple jurisdictions to avoid issuing conflicting messages and to minimize traffic delays.	USR 1.6.3.2, 1.6.3.2.1
	5.3.2.005	Signing plans shall be maintained and modifiable on-demand in real-time.	USR 5.2.3.1
	5.3.2.006	Sign controls shall be maintained and modifiable on-demand in real-time.	MnA 993
	5.3.2.007	Signing systems shall be programmable.	GGO 6.5.1, MnA 968
	5.3.2.008	Signing plans and sign controls shall be selectable/modifiable by traffic control operators in real-time to respond to changing traffic requirements and to modify system response.	USR 1.6.3.1, 1.6.3.3.1, 1.6.3.3.2
	5.3.2.009	Signing plans and sign controls shall be selectable/modifiable via a single agency across multiple jurisdictions.	MnA 972
	5.3.2.010	Signing plans and sign controls shall be selectable/modifiable in a coordinated manner across multiple jurisdictions to reduce traffic flow impact of an incident report.	USR 1.6.3.6, 1.7.2.5
	5.3.2.011	Signing plans shall be dynamically adaptable in real-time based on traffic situations including but not limited to traffic volume/occupancy data feedback.	USR 1.6.3.3.2, 1.6.1.6
	5.3.2.012	Signing plans shall be dynamically adaptable in real-time based on traffic situations including but not limited to current traffic conditions feedback.	USR 1.6.3.3.2, MnA 9 14
	5.3.2.013	Signing plans shall be dynamically adaptable in real-time based on traffic situations including but not limited to incident reports.	USR 1.6.3.3.2, MnA ?
	5.3.2.014	Signing plans shall be dynamically adaptable in real-time based on traffic situations including but not limited to current and predicted/forecast travel conditions.	USR 1.6.3.3.2, MnA ?
	5.3.2.015	Signing plans shall be dynamically adaptable in real-time based on traffic situations including but not limited to reversible lane change requirements.	USR 1.6.3.3.2, 1.6.3.3.4

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	5.3.2.016	Signing plans shall be dynamically adaptable in real-time based on traffic situations including but not limited to turn restriction change requirements.	USR 1.6.3.3.2, 1.6.3.3.4
	5.3.2.017	Sign controls for currently selected signing plans shall be transmitted to the respective signing devices throughout the signal network including changeable message signs (fixed).	Derived
	5.3.2.018	Sign controls for currently selected signing plans shall be transmitted to the respective signing devices throughout the signal network including fixed-location variable message signs.	Derived
	5.3.2.019	Sign controls for currently selected signing plans shall be transmitted to the respective signing devices throughout the signal network including portable variable message signs.	Derived
	5.3.2.020	Sign control shall be updated via on-demand real-time communications along arterials.	MnA 915
	5.3.2.021	Sign control shall be updated via on-demand real-time communications along freeways.	MnA 985
	5.3.2.022	Sign control shall be updated via on-demand real-time communications between arterials and freeways.	MnA 947
	MSR		
	5.3.3.001	Sign resources throughout the network shall be maintained by the respective owner agencies.	Derived
	5.3.3.002	Sign resources throughout the network shall be operated by the mutually agreed upon agencies.	Derived
	5.3.3.003	Individual sign resource operation shall be capable of being passed to a different agency in accordance with documents operating agreements.	Derived
MTC	CTD		
	5.4.1.001	Traffic surveillance data, needed for determining current traffic conditions and predicting future conditions, shall be collected and maintained.	USR 1.6.2.2
	5.4.1.005	Traffic surveillance data shall be collected at specific locations as needed.	USR 1.6.2.4
	5.4.1.006	Traffic surveillance data shall be collected in real-time.	USR 1.6.2.1
	DITC		

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	5.4.3.008	Traffic surveillance data feedback shall be provided to signal network operations and sign network operations agencies to facilitate real-time, adaptive signaling and signing control.	USR 1.6.2.2.1
	5.4.3.009	Traffic conditions information feedback shall be provided to the signal network operations and sign network operations agencies to facilitate real-time, adaptive signaling and signing control.	USR 1.6.2.2.1
	DTC		
	5.4.2.001	Traffic surveillance data shall be processed to determine link-specific traffic speeds.	MnA 920,92 1
	5.4.2.002	Traffic surveillance data shall be processed to determine link-specific as traffic flow parameters.	USR 1.6.2.3.1
	5.4.2.003	Traffic surveillance data shall be processed to determine link-specific congestion levels.	MnA 962
	5.4.2.004	Traffic surveillance data shall be processed to determine link-specific vehicle presence.	USR 1.6.2.1
	5.4.2.005	Traffic surveillance data shall be processed to determine identify HOV vehicles.	USR 1.6.2.1.1
	5.4.2.008	Traffic flow shall be accurate to +/- TBD)	Derived
	5.4.2.009	Link-specific traffic conditions information shall be determined for geographically referenced roadway segments.	Derived
	PTCS		
	MTCP		
	5.1.2.001	Traffic control plans shall be developed based on traffic control requirements and strategies that consider traffic volume occupancy data analysis.	Derived
	5.1.2.002	Traffic control plans shall be developed based on traffic control requirements and strategies that consider traffic conditions data.	Derived
	5.1.2.003	Traffic control plans shall be developed based on traffic control requirements and strategies that consider safety statistics (accident statistics by location, etc.).	Derived
	5.1.2.006	Traffic control plans shall facilitate traffic movement in a manner that minimizes traffic delay times.	USR 1.6.1.1.3
	5.1.2.008	Traffic control plans shall facilitate traffic movement in a manner that maximizes traffic-movement efficiency.	USR 1.6.1.1

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	5.1.2.009	Traffic control plans shall facilitate traffic movement in a manner that minimizes air quality impacts.	USR 1.6.1.1.5
	5.1.2.010	Traffic control plans shall facilitate traffic movement in a manner that incorporates current traffic demand.	USR 1.6.1.4
	5.1.2.011	Traffic control plans shall facilitate traffic movement in a manner that incorporates expected traffic demand.	USR 1.6.1.4
	5.1.2.012	Traffic control plans shall facilitate traffic movement in a manner that predicts travel patterns.	USR 1.6.1.5
	5.1.2.013	Traffic control plans shall include provisions for dissipating traffic congestion.	USR 1.6.1.4.1
	5.1.2.014	Traffic control plans shall include provisions for moving traffic around incidents.	MnA 988
	5.1.2.015	Traffic control plans shall include provisions for handling predictable fluctuations in traffic patterns/volume (e.g.; workday rush hours, weekends, holidays, etc.).	Derived
	5.1.2.026	Traffic control plans shall be selectable to suit the current or predicted traffic situations.	Derived
	5.1.2.027	The active traffic control plan shall include coordinated signal timing plans and signing plans that implement the traffic control strategy appropriate for the current or predicted traffic situation.	Derived
TCI			
	MTCI		
		DTCI	
	1.2.1.012.b	Travel conditions shall be made available to humans	Derived
	1.2.1.023	Travel conditions shall be distributed via variable message signs.	MnE 1.3.3,2.4.3, GGO