

Component			Source
Service	Function	Sub-Function	Requirement
Decentralized Control Signal Center(s)			
IM			
MIRP			
CRI			
6.2.3.001	Incidents shall be classified based on incident data.		GGO20.10. I
6.2.3.002	Incidents shall be classified according to standard categories. (Rational: Requirements specify a wide range of classifications which are covered by this standard e.g., HAZMAT chemical spills, breakdown/disable vehicle, accidents within injuries, major events).		USR 5.1.2.2.3,5.1.1.1,4
6.2.3.003	Incident reports for each incident shall be retained in an incident file.		Derived
DAI			
6.2.1.001	Incidents shall be detected and incident data collected for planned (predicted) incidents.		USR 1.7.1, 1.7.1.1, 1.7.1
6.2.1.002	Incidents shall be detected and incident data collected for unplanned incidents.		USR 1.7.1, 1.7.1.2,4.5.1
6.2.1.004	Incidents shall be detected using incident data collected from media sources.		USR 1.7.1.1.1, 1.7.1.2.1
6.2.1.005	Incidents shall be detected using incident data collected from weather information sources.		USR 1.7.1.1.1, 1.7.1.2.1
6.2.1.007	Incidents shall be detected using incident data collected from sponsors of special events.		USR 1.7.1.1.1
6.2.1.010	Incidents data shall be detected using incident data collected from traffic control agencies.		USR 1.7.1.1.1, 1.7.1.2.1
6.2.1.011	Incident data shall be detected using incident data collected via traffic flow sensors.		USR 1.7.1.1.1, 1.7.1.2.1
6.2.1.014	Incidents shall be detected using incident data collected via telephone.		USR 2.4.4.1
6.2.1.016	Incidents shall be detected using incident data collected via video surveillance.		USR 2.4.2.2, 2.4.4.2
6.2.1.017	Incidents shall be detected using incident data collected via audio surveillance.		USR 5.1.2.2, MCTO 4/2
6.2.1.018	Incident data shall include type of incident classification.		USR 1.7.1.1.2, 1.7.1.2.2,
6.2.1.019	Incident data shall include location.		USR 1.7.1.1.2, 1.7.1.2.2,

Component	Service Function	Sub-Function	Requirement	Source
		6.2.1.020	Incident data shall include severity.	USR 4.5.1.2
		6.2.1.021	Incident data shall include time of occurrence.	USR 4.5.1.2
		6.2.1.026	Incident detection shall be available 24 hours/day, 7 days/week.	Derived
		IRPPR		
		6.2.4.003	Response plans and response procedures shall provide for coordination of all responding agency activities at the incident scene pertaining to traffic flow control.	MnA 3.2.1
		6.2.4.005	Resource requests shall be sent to the appropriate agencies based on the response plans and response procedures that have been selected to resolve the incident.	Derived
		6.2.4.006	A resource request shall contain, the most current incident data.	Derived
		6.2.4.011	Emergency response vehicles and personnel shall be advised of travel conditions along the response route. (Rationale: reduce response time to an incident by helping emergency vehicles avoid delays due to travel conditions).	Derived
		6.2.4.015	A resource cancellation shall be issued for any incident response resource that is no longer needed to respond to an incident.	Derived
		PIR		
		MRPP		
		6.1.2.030	Measures of effectiveness data shall be collected to support improvements on incident management plans.	Derived
TC		MSNEO		
		CSM		
		5.2.1.001	Signals shall be capable of operating in automatic signal timing mode.	Derived
		5.2.1.002	Signals shall be capable of operating in manual override mode.	GGO 6.5.2, USR 1.6.3.5
		5.2.1.003	Signals shall be capable of operating in pre-emption or priority mode.	Derived

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Service	Function	Sub-Function Requirement
5.2.1.004	Signals shall be capable of operating in manual override 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 6.5.3, MnA 973,9
5.2.1.006	Signal priority shall be available on-demand for transit vehicles and other authorized vehicles at traffic signal intersections along transit routes to facilitate adherence to transit schedules by providing preference over others.	GGO 6.5.3, USR 1.6.1.2.
5.2.1.007	Signal pre-emption and signal priority timing shall be determined automatically when signal pre-emption requests and/or signal priority requests are received from authorized emergency, transit, or railroad vehicles.	UST 5.2.3.2
5.2.1.008	Signal pre-emption shall be available on-demand for railroad trains at traffic signal intersections to minimize safety hazards when passing through grade level crossings by providing highest priority to the railroad.	Derived
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.
5.2.2.002	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 highways.	GGO 6.10.1, USR 1.6.3.
5.2.2.003	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 integrated with freeways.	GGO 6.10.1, USR 1.6.3.
5.2.2.004	Signal timing plans shall be integrated, coordinated and consistent across wide areas including multiple jurisdictions to avoid issuing conflicting controls and to minimize traffic delays.	USR 1.6.3.2, 1.6.3.2.1
5.2.2.005	Signal timing plans shall be maintained and modifiable on-demand in real-time.	USR 5.2.3.1
5.2.2.006	Signal control plans shall be maintained and modifiable on-demand in real-time.	MnA 993

Component		Source
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5.2.2.007	Signaling systems shall be programmable and fully adaptive.	GGO 6.5.1, MnA 968
5.2.2.008	Signal timing plans and signal controls shall be selectable/modifiable by traffic control operators in real-time to respond to changing traffic requirements and modify system response.	USR 1.6.3.1, 1.6.3.3.1, 1
5.2.2.010	Signal timing plans and signal 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
5.2.2.011	Signal timing 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
5.2.2.012	Signal timing 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 914
5.2.2.013	Signal timing 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 ?
5.2.2.014	Signal timing 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 ?
5.2.2.015	Signal timing 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
5.2.2.016	Signal timing 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
5.2.2.019	Signal controls for currently selected signal timing plans shall be transmitted to the respective traffic signal devices throughout the signal network including HOV lane signals.	USR 1.6.3.4
5.2.2.020	Signal controls for currently selected signal timing plans shall be transmitted to the respective traffic signal devices throughout the signal network including human operator.	USR 1.6.3.4
5.2.2.021	Signal controls shall be updated via on-demand real-time communications along arterials.	MnA 915
5.2.2.023	Signal controls shall be updated via on-demand real-time communications between arterials and freeways.	MnA 947
MSR		
5.2.3.001	Signal resources throughout the network shall be maintained by the respective owner agencies.	Derived

Component		Source
Service	Function	Sub-Function Requirement
	5.2.3.002	Signal resources throughout the network shall be operated by the mutually agreed upon agencies. Derived
	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.
	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

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Service	Function	Sub-Function Requirement	
	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 914
	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
	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

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Service	Function	Sub-Function Requirement	
		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
	5.4.1.002	Traffic surveillance data shall be collected throughout large geographic areas.	USR 1.6.2.3
	5.4.1.003	Traffic surveillance data shall be collected multiple jurisdictions.	USR 1.6.2.3
	5.4.1.004	Traffic surveillance data shall be collected for a large number of roadway segments.	USR 1.6.2.3.2
	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	
	5.4.3.001	Traffic conditions information shall be distributed to requesting agencies and other ITS services to support sharing within/between agencies across jurisdictions.	MnA 984
	5.4.3.002	Traffic conditions information shall be distributed to requesting agencies and other ITS services to support in-vehicle navigation.	USR 1.6.4
	5.4.3.003	Traffic conditions information shall be distributed to requesting agencies and other ITS services to support trip planning.	USR 1.6.4
	5.4.3.004	Traffic conditions information shall be distributed to requesting agencies and other ITS services to support routing and guidance.	USR 1.6.4
	5.4.3.005	Traffic conditions information shall be distributed to requesting agencies and other ITS services to support fleet management.	USR 1.6.4

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	5.4.3.006	Traffic conditions information shall be distributed to requesting agencies and other ITS services to support Travel Conditions Information.	USR 1.6.4
	5.4.3.007	Traffic volume/occupancy data feedback shall be provided to facilitate traffic performance analysis and traffic control plan updates/improvements.	USR 1.6.2.2.1
	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 920,921
	5.4.2.002	Traffic surveillance data shall be processed to determine link-specific as 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
	5.4.2.006	Traffic surveillance data shall be processed to determine identify presence of pedestrians in crosswalks.	GGO 29.5.1
	5.4.2.007	Traffic speeds shall be accurate to (+/- TBD).	Derived
	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
	5.4.2.010	A common roadway segment geographical reference system shall be supported.	Derived

PTCS

MTCP

Component			Source
Service	Function	Sub-Function Requirement	
	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
	5.1.2.004	Traffic control plans shall be developed based on traffic control requirements and strategies that consider users requests/complaints.	Derived
	5.1.2.005	Traffic control plans shall be developed based on traffic control requirements and strategies that consider results of traffic flow optimization models.	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
	5.1.2.007	Traffic control plans shall facilitate traffic movement in a manner that minimizes energy use.	USR 1.6.1.1.4
	5.1.2.008	Traffic control plans shall facilitate traffic movement in a manner that maximizes traffic-movement efficiency.	USR 1.6.1.1
	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

Component			Source
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	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
	5.1.2.015.a	Traffic control plans shall include provisions for moving traffic in inclement weather.	Derived
	5.1.2.016	Traffic control plans shall address requirements for optimizing traffic movement across multiple jurisdictions.	USR 1.6.1.2
	5.1.2.017	Traffic control plans shall address requirements for optimizing traffic movement throughout large geographic areas.	USR 1.6.1.3
	5.1.2.018	Traffic control plans shall be based on integrated traffic control strategies and traffic volume/occupancy data that are coordinated across multiple agencies/jurisdictional boundaries.	MnA 919,912
	5.1.2.019	Traffic control plans shall be based on integrated traffic control strategies and traffic volume/occupancy data that are coordinated along arterial/freeway corridors.	MnA 9 19,964
	5.1.2.020	Traffic control plans shall be based on integrated traffic control strategies and traffic volume/occupancy data that are coordinated for streets and highways.	MnA 919, USR 1.6.0
	5.1.2.021	Traffic volume/occupancy data shall be collected, stored and maintained to support traffic management performance analysis.	MnA 913,916
	5.1.2.022	Traffic volume/occupancy data shall be collected, stored and maintained to support growth planning analysis.	MnA 916
	5.1.2.023	Traffic volume/occupancy data shall be collected, stored and maintained to support problem intersection analysis.	MnA 918,983
	5.1.2.024	Traffic volume/occupancy data collection and analysis shall be coordinated across multiple agencies and jurisdictions.	MnA 923
	5.1.2.025	Traffic control plans shall be updated based on traffic control requirements changes and improvements identified from traffic volume/occupancy data analyses.	MnA 977
	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

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	5.1.2.028	Traffic control resources consisting of signals and signs, maintenance equipment, operations and maintenance staff, and funding shall be shared within between agencies, and across jurisdictions in a manner that enables traffic management to be efficiently and effectively provided across large geographic areas.	MnA 974,975,978
	5.1.2.029	Signal resources and signing resources shall be allocated in a manner that optimizes implementation of documented traffic control strategies and traffic control plans.	Derived
	MTCR		
	5.1.1.001	Traffic control requirements shall be collected, stored and maintained to support traffic control planning activities.	Derived
	5.1.1.002	Traffic control requirements shall reflect the needs of counties and cities.	MnA 969
	5.1.1.003	Traffic control requirements shall reflect the needs traveler expectations and human factors.	USR 1.6.1.7
	5.1.1.004	Traffic control requirements shall reflect the needs key stakeholder agencies (e.g. MnDOT, TMC, road maintenance, highway helper, emergency response, etc.).	MnA 956,981,988
TCI	MTCD		
	CTCD		
	1.1.2.001	Travel conditions source data shall include traffic conditions.	MnE 1.3
	1.1.2.002	Travel conditions source data shall include traffic surveillance data.	Derived
	1.1.2.003	Travel conditions source data shall include weather conditions.	MnE 1.3
	1.1.2.004	Travel conditions source data shall include weather surveillance data.	MnE 1.3
	1.1.2.005	Travel conditions source data shall include road surface conditions.	MnE 1.3
	1.1.2.006	Travel conditions source data shall include road surface surveillance data.	MnE 1.3
	1.1.2.007	Travel conditions source data shall include incident conditions.	MnE 1.3
	1.1.2.008	Travel conditions source data shall include planned event information.	MnE 1.3

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	1.1.2.012	Traffic conditions data shall be collected.	Derived
	1.1.2.013	Weather conditions shall be collected.	Derived
	1.1.2.016	Road surface conditions shall be collected from humans	Derived
	1.1.2.017	Road surface conditions shall be collected from other systems.	Derived
	1.1.2.018	Incident conditions shall be collected from humans.	Derived
	1.1.2.019	Planned event information shall be collected from humans	Derived
	1.1.2.020	Planned event information shall be collected from other systems.	Derived
	1.1.2.023	Travel conditions source data shall be accepted for input in to the system via voice.	Derived
	1.1.2.024	Travel conditions source data shall be accepted for input in to the system via fax	Derived
	1.1.2.025	Travel conditions source data shall be accepted for input into the system via paper copy	Derived
	1.1.2.026	Travel conditions source data shall be accepted for input into the system via magnetic medium	Derived
	1.1.2.028	Travel conditions source data shall be accepted in the system via manual entry.	Derived
	1.1.2.029	Travel conditions source data shall be accepted into the system via electronic entry. (ITS standard format).	Derived
	1.1.2.029.a	Travel conditions source data shall be accepted into the system when in NTCIP format.	Derived
	1.1.2.029-b	Travel conditions source data shall be accepted into the system when in ITIS BAP format.	Derived
	1.1.2.030	Travel conditions source data shall be accepted into the system via electronic entry. (ITS non-standard format)	Derived
	1.1.2.031	Travel conditions source data received in a non-standard format shall be converted to standard format.	Derived
	1.1.2.032	Travel conditions source data shall be stored and maintained as an operator selectable option.	Derived

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	1.1.2.033	Travel conditions source data that is no longer active shall be identified.	Derived
	1.1.2.034	Travel conditions source data that is no longer active shall be manually deletable.	Derived
	1.1.2.035	Travel conditions source data shall be logged upon initial receipt, change, and deletion.	Derived
	1.1.2.036	Condition start time shall be assigned when travel conditions source data is generated.	Derived
	1.1.2.037	Condition stop time shall be assigned to travel conditions source data.	MnE 2.2, 2.6.2, 1.5.3, 1.
	1.1.2.038	Expected duration shall be assigned when travel conditions source data is generated.	MnE 2.2, 2.6.2, 1.5.3, 1.
	1.1.2.039	Weather surveillance data shall be collected.	USR 3.1.2.5
	1.1.2.040	Road surface surveillance data shall be collected.	
	1.1.2.042	Traffic surveillance data shall be collected.	Derived
	1.1.2.044	Incident conditions shall be collected from other systems.	Derived
	1.1.2.045	Multiple sources of travel conditions source data shall be compared to improve the accuracy of the data.	Derived
	1.1.2.046	Multiple sources of travel conditions source data shall be compared to improve the consistency of the data.	Derived
DBTCTE			
	1.1.3.004	Travel conditions shall be referenced to a physical location.	MnE 1.1.1, 1.2
	1.1.3.005	Travel effects shall be referenced to a physical location.	MnE 1.1.1
	1.1.3.007	Link reference model data shall be stored and maintained.	Derived
	1.1.3.008	Travel conditions shall include current traffic conditions	USR 5.2.2.1
	1.1.3.009	Travel conditions shall include current weather conditions.	USR 5.2.2.1, GGO 10.5.
	1.1.3.010	Travel conditions shall include forecasted weather conditions.	MnE 1.1.2, 1.6.1, GGO

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	1.1.3.011	Travel conditions shall include current road surface conditions.	USR 5.2.2.1
	1.1.3.012	Travel conditions shall include forecasted road surface conditions	Derived
	1.1.3.013	Travel conditions shall include current incident conditions.	USR 5.2.2.1
	1.1.3.014	Travel conditions shall include planned event information	MnE 1.6.1
	1.1.3.018	Travel conditions shall be stored and maintained.	Derived
	1.1.3.019	Traffic conditions shall include congestion	USR 5.2.2.1, MnE 1.4.1,
	1.1.3.020	Traffic conditions shall include freeway data.	USR 5.2.2.1, GGO 1.5.1
	1.1.3.021	Traffic conditions shall include traffic speeds	USR 5.2.2.1, USR 1.1.2.
	1.1.3.022	Traffic conditions shall include traffic levels (volume and occupancy)	USR 5.2.2.1, MnE 1.4.1,
	1.1.3.023	Traffic conditions shall include approaching trains at railroad crossings	USR 5.2.2.1, GGO 2.5.1
	1.1.3.024	Weather conditions shall include rain.	MnE 1.1, 1.4.1, MnA 1.
	1.1.3.025	Weather conditions shall include snow.	MnE 1.1, 1.4.1, MnA 1.
	1.1.3.026	Weather conditions shall include fog.	MnE 1.1, 1.4.1, MnA 1.
	1.1.3.027	Weather conditions shall include clear weather.	MnE 1.1, 1.4.1, MnA 1.
	1.1.3.028	Forecast weather conditions shall be maintained.	MnE 1.1.2, 1.6.1,2.5.2.
	1.1.3.029	Road surface conditions shall include dry pavement.	MnE 1.1, 1.4.1, MnA 1.
	1.1.3.030	Road surface conditions shall include wet pavement.	MnE 1.1, 1.4.1, MnA 1.
	1.1.3.031	Road surface conditions shall include flooded pavement	MnE 1.1, 1.4.1, MnA 1.
	1.1.3.032	Road surface conditions shall include snow covered pavement	MnE 1.1, 1.4.1, MnA 1.

Component			Source
Service	Function	Sub-Function Requirement	
	1-1.3.033	Road surface conditions shall include icy pavement.	MnE 1.1, 1.4.1, MnA 1.
	1.1.3.034	Road surface conditions shall include plowed pavement	MnE 1.1, 1.4.1, MnA 1.
	1.1.3.035	Road surface conditions shall include salted pavement.	MnE 1.1, 1.4.1, MnA 1.
	1.1.3.036	Road surface conditions shall include sanded pavement.	MnE 1.1, 1.4.1, MnA 1.
	1.1.3.037	Forecasted road surface conditions shall be maintained.	Derived
	1.1.3.038	Planned event information shall include current construction and maintenance.	USR5.2.2.1, 1.1.2.1.1,
	1.1.3.039	Incident conditions shall include dangerous situations and hazards	USR5.2.2.1, 1.1.2.1.1,
	1.1.3.040	Incident conditions shall include accidents	USR5.2.2.1, 1.1.2.1.1,
	1.1.3.041	Planned event information shall include special events.	USR5.2.2.1, 1.1.2.1.1,
	1.1.3.042	Future planned event information such as future construction and maintenance shall be maintained.	MnE 1.6.1, 2.5,2.5.1,2.
	1.1.3.043	Future planned event information such as upcoming special events/event schedules shall be maintained.	MnE 1.6.1,2.5,2.5.1,2.6,
	1.1.3.054	Travel conditions that are no longer active shall be identified.	Derived
	1.1.3.055	Travel effects that are no longer active shall be identified.	Derived
	1.1.3.056	Travel conditions shall be manually deletable.	Derived
	1.1.3.057	Travel effects shall be manually deletable.	Derived
	1.1.3.059	Travel effects shall be stored and maintained.	Derived
	1.1.3.060	Travel conditions shall be logged upon initial receipt, change and deletion.	Derived
	1.1.3.061	Travel effects shall be logged upon initial receipt, change and deletion.	Derived

Component			Source
Service	Function	Sub-Function Requirement	
	1.1.3.062	Agencies shall be able to access travel conditions without having to manually replicate the information.	MnA 1.1.2
	1.1.3.068	Travel effects shall be determined based on travel conditions source data.	Derived
	1.1.3.068.a	Travel effects shall be determined based on using travel effects rules.	Derived
	1.1.3.069	Travel effects shall include delays.	GGO 2.10.3, MnE 1.5.1
	1.1.3.070	Travel effects shall include road/ramp closings.	GGO 2.10.3, MnE 1.5.2
	1.1.3.071	Travel effects shall include detours.	GGO 2.10.3, MnE 1.5.2
	1.1.3.072	Travel effects shall include reduced speeds.	GGO 2.10.3, MnE 1.5.1
	1.1.3.074	Future travel effects shall be determined and maintained, including expected delays.	MnE 1.7, MnE 1.7.1
	1.1.3.075	Future travel effects shall be determined and maintained, including planned road/ramp closings.	MnE 1.7, MnE 1.7.1
	1.1.3.076	Future travel effects shall be determined and maintained, including planned detours.	MnE 1.7, MnE 1.7.1
	1.1.3.077	Travel effects that are no longer active shall be identified.	Derived
	1.1.3.079	A capability to enter travel effects rules shall be provided.	Derived
	1.1.3.080	Travel effects rules shall include current condition specific rules.	Derived
	1.1.3.081	Travel effects rules shall include future/forecast condition specific rules.	Derived
	1.1.3.082	Travel effects rules shall be created, stored and updated.	Derived
	1.1.3.083	Travel conditions shall be determined using traffic conditions.	Derived
	1.1.3.084	Travel conditions shall be determined using weather conditions	Derived
	1.1.3.085	Travel conditions shall be determined using road surface conditions.	Derived
	1.1.3.086	Travel conditions shall be determined using incident conditions	Derived

Component	Service Function	Sub-Function Requirement	Source
	1.1.3.087	Travel conditions shall be determined using planned event information.	Derived
	1.1.3.090	Traffic conditions shall be determined using traffic surveillance data.	Derived
	1.1.3.091	Traffic conditions shall include arterial data.	Derived
	1.1.3.092	Weather conditions shall be determined using weather surveillance data.	Derived
	1.1.3.093	Road surface conditions shall be determined using road surface surveillance data.	Derived
	1.1.3.095	Traffic conditions shall include road segment travel time.	Derived
	1.1.3.096	Traffic conditions shall include signal timing data.	Derived
MTCI			
		DTCI	
	1.2.1.011	Travel conditions shall be formatted to the user-specific delivery device.	Derived
	1.2.1.012	As a goal, travel conditions will be made available to users 24 hours/day, 7 days/week, 365 days/year.	MnE 1.3.1, 2.4.1, GGO
	1.2.1.0 12.a	Travel conditions shall be made available within the agreed to hours of operation.	Derived
	1.2.1.012.b	Travel conditions shall be made available to humans	Derived
	1.2.1.012.c	Travel conditions shall be made available to other systems	Derived
	1.2.1.017	Travel conditions shall be distributed via phone.	MnE 1.3.3, 2.4.3, MnA
	1.2.1.019	Travel conditions shall be distributed via fax.	MnE 1.3.3,2.4.3, MnA
	1.2.1.021	Travel conditions shall be distributed via electronic transfer to publicly owned computer.	MnE 1.3.3, 2.4.3, MnA
	1.2.1.023	Travel conditions shall be distributed via variable message signs.	MnE 1.3.3, 2.4.3, GGO
	1.2.1.027	Travel conditions shall be distributed via communications radio.	MnA 1.1.4

DTTC

Component			Source
Service	Function	Sub-Function Requirement	
	1.2.3.005	Travel conditions shall be received automatically upon occurrence of an event.	Derived
	1.2.3.006	Travel conditions shall be received automatically upon any change in an event.	Derived
	1.2.3.007	Travel conditions shall be received upon the issuing of a travel conditions request.	Derived
	1.2.3.024	Travel conditions shall contain active/or forecasted/future conditions.	Derived
	1.2.3.025	Forecasted travel conditions shall contain effects of active or forecasted/future conditions.	Derived
	1.2.3.027	Travel conditions shall contain conditions descriptions.	Derived
	1.2.3.030	Travel conditions information shall be compiled from travel conditions and travel effects for a local service area.	MnE 1.1.1,2.1.1
	1.2.3.031	Travel conditions information shall be compiled from travel conditions and travel effects for the metro area.	GGO 1.10.2
	1.2.3.033	Travel conditions information shall be compiled from travel conditions and travel effects for arterials.	MnA 1.1.3, GGO 1.10.2
	1.2.3.034	Travel conditions information shall be compiled from travel conditions and travel effects for multiple counties.	MnE 1.8.1,2.7.1
	1.2.3.038	Travel conditions information shall be compiled from travel conditions and travel effects for a geographic region.	MnE 1.8, 2.7
	1.2.3.039	Travel conditions shall be compiled for the current time frame.	MnE 1.1.2, MnA 1.4.1,
	1.2.3.040	Travel conditions shall be compiled for the future time frame.	MnE 1.1.2, 1.6.1, .usr 1.
	1.2.3.041	Travel conditions shall be compiled for the forecasted time frame.	MnE 1.1.2, 1.6.1, USR 1
DTTE			
	1-2.2.002	Travel effects shall be received automatically upon the occurrence of an event.	Derived
	1.2.2.003	Travel effects shall be received automatically upon any change in an event.	Derived

Component			Source
Service	Function	Sub-Function	Requirement
MFO			
		MSA	
	7.2.4.032		The cause of a schedule deviation shall be determined to select which FLEET OPERATING PROCEDURES should be used to resolve the schedule deviation.
			Derived