

FHWA P/N Guidelines	Corridor Relationship	Highway 22 Segment 1 - US 169 to CSAH 2 Relevance / Documentation of Need
Vehicle Mobility	Corridor Congestion	Existing Conditions - Based on Highway Capacity Manual methodology, corridor level of service is currently LOS D during a.m. and p.m. peak hours along the Highway 22 corridor in Segment 1. Note this is quantified based on the amount of time a vehicle spends following another vehicle.
		Year 2030 Conditions - LOS D/E (LOS E between CSAH 21 and US 169) during a.m. peak hours. LOS E during p.m. peak hours.
		Year 2045 Conditions - LOS E during a.m. and p.m. peak hours.
	Intersection Congestion	US 169 Intersection - Existing Conditions - LOS D noted for southbound US 169 during p.m. peak hour. During p.m. peak queues approximately 500 feet for southbound US 169 left-turn lane exceeds turn lane storage capacity (storage length of 380 feet).
		US 169 Intersection - Year 2030 Conditions - LOS E noted for northbound US 169 during p.m. peak hour after signal retiming to prioritize SBL movement. Queues approximately 430 feet for southbound US 169 left-turn lane exceeds turn lane storage capacity.
		US 169 Intersection - Year 2045 Conditions - LOS E noted for northbound US 169 during p.m. peak hour after signal retiming to prioritize SBL movement. Queues approximately 500 feet for southbound US 169 left-turn lane exceeds turn lane storage capacity.
		CSAH 45 Intersection - Year 2045 Conditions - LOS E noted for eastbound CR 45 during a.m. and p.m. peak hours. Queues up to 170 feet blocking right turning traffic in the shared left/right turn lane.
		County Road 101 Intersection - Year 2045 Conditions - LOS D noted for eastbound and westbound CR 101 during p.m. peak hour. Queueing up to 92 feet blocking right turning traffic in the shared left/right turn lane.
	Connectivity	Based on the O-D analysis, most of the trips using the corridor are one of three local trip types (i.e. local to local, local to regional, or regional to local), with a low percentage of trips being true regional to regional.
		Select link analysis of segment 1 indicates that a significant amount of trip ends are local to regional trips to or north of Saint Peter (40 percent and 60 percent, respectively).
		95+ percent of all traffic through Segment 1 has a trip end within a corridor zone south of Kasota.
		Pass through travel accounts for less than five percent of all trip ends.

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Modal Interrelationships	Bikeability/Walkability	Per the Minnesota River State Trail Master Plan completed in 2015, the MnDNR identified the need for a trail segment from the City of Mankato to the Cities of Kasota and Saint Peter. A goal of this trail segment is to provide a connection to the Sakatah Singing Hills State Trail in Mankato. This study has an opportunity to coordinate regarding the trail alignment with the potential Highway 22 alternatives.
		MnDOT's Complete Streets Policy (effective May 20, 2016) was created to ensure compliance with Minnesota Statutes 174.75. Primary goals of MnDOT's Complete Streets Policy are to increase bicycling and walking as a percentage of all trips and increase use of transit as a percentage of all trips.
	Freight	Between Saint Peter and Mankato, approximately 5% (up to 10% in some non-peak hours) of the daily traffic volume on Highway 22 is heavy vehicle (truck) traffic. There are several quarries located within Segment 1 that utilize the Highway 22 corridor. The statewide freight policy established in the Minnesota Go Statewide Freight System Plan is to "Provide an integrated system of freight transportation in Minnesota - highway, rail, water, air cargo, and intermodal terminals - that offers safe, reliable, and competitive access to statewide, national, and international markets."
Safety	Crashes	Intersections within the corridor segment had observed crash rates above the statewide average crash rate and critical crash rate based on data gathered between 2011 and 2015. The intersection exceeding the critical crash rate indicates a disproportionate number of crashes have taken place at this location in this most recent five year period.
		US 169 - had an observed crash rate of 0.85 crashes per million entering vehicles (MEV), which exceeds the statewide critical crash rate of 0.65 crashes per MEV for similar locations. There were a total of 39 crashes reported (12 rear-end, 12 right-angle, and nine left-turn type crashes). The critical index at this intersection is 1.31.
		CSAH 21 - had an observed crash rate of 0.28 crashes per MEV, which exceeds the statewide average crash rate of 0.25 crashes per MEV for similar locations. There were a total of 5 crashes reported (3 head-on and 1 right-angle type crashes). The critical index at this intersection is 0.48. Intersection geometry is skewed.
		470th Street - had an observed crash rate of 0.43 crashes per MEV, which exceeds the statewide average crash rate of 0.25 crashes per MEV for similar locations. There were a total of 6 crashes reported (5 rear-end type crashes). The critical index at this intersection is 0.68. No northbound and southbound left-turn lanes.

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Safety	Crashes	County Road 101 - had an observed crash rate of 0.60 crashes per MEV, which exceeds the statewide average crash rate of 0.25 crashes per MEV for similar locations. There were a total of 9 crashes reported (6 rear-end and 1 sideswipe type crashes). The critical index at this intersection is 0.98. Northbound and southbound left-turn lanes were installed in 2015.
		CSAH 2 - had an observed crash rate of 0.34 crashes per MEV, which exceeds the statewide average crash rate of 0.25 crashes per MEV for similar locations. There were a total of 5 crashes reported (3 rear-end, 1 right-angle, and 1 left-turn type crashes). The critical index at this intersection is 0.55. No southbound left-turn lane.
	Access	Public-private access along the corridor segment exceeds the MnDOT-preferred access spacing. Private access contributes to this issue. Three public access/mile vs. two MnDOT-preferred public accesses/mile (and 4.9 and 7.8 total accesses/mile in two sub-segments).
Transportation System Deficiencies	Pavement	Between US 169 and CSAH 2, 2017 RQI for the pavement on Highway 22 is fair condition, RQI predicted to be 2.0 by the year 2022, and remaining service life for 2017 is 0-4 years.
	Drainage	MnDOT maintenance staff provided documented needs along Highway 22 corridor through Segment 1.
		Field on west side of road fills with water and occasionally overtops Highway 22. The water from the field also pours into MnDOT ditch and runs north, then under the highway and outlets, flowing north across a field on the east (~mile marker 61.5). Preliminary analysis of drainage along the corridor shows that between mile markers 61.0 and 61.5 there is an approximately 1,800 foot stretch of Highway 22 that is a low point with flat side slopes.
		Back slopes are higher than road and trap snow (~mile marker 59.4 and 60.5)
	Box culverts need repair or replacement (~mile markers 58.9 and 60.6)	
Other Considerations	Between US 169 and CSAH 2, the right-of-way ranges from 140 feet to 230 feet. Per the MnDOT Road Design Manual for a two-lane rural highway the minimum right-of-way width is 150 feet and the desired right-of-way width is 200 feet. Additional right-of-way may be needed to accommodate improvements, if necessary.	

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Other Environmental Factors	Natural Resources	<p>Within the study area, there are several natural resources adjacent to the Highway 22 corridor (potential wetlands, steep slopes, floodplain, DNR public waters and potential hazardous materials and/or waste sites). MnDNR-owned forest land is located in the vicinity of Segment 1. This land may be subject to Section 4(f) protections, depending upon the use of the property; any determination regarding State forests and Section 4(f) involvement should be made in consultation with OES and the FHWA Minnesota Division office. Data from the Minnesota Pollution Control Agency (MPCA) indicates hazardous waste sites may exist within Segment 2 (approximately nine sites). Off-site data sources including the National Wetland Inventory (NWI), NRCS soil mapping and recent aerial photography were utilized to identify wetlands and aquatic resources in the study area; various NWI wetlands are immediately adjacent to the Highway 22 corridor in Segment 1.</p>
	Social and Cultural Resources	<p>Some archaeological, cultural, and/or historic resources are located near the corridor in Segment 2. Fifteen sites are identified as having cultural/historic significance within the vicinity of the study area.</p>
	Environmental Justice	<p>Impacts to low-income and minority communities. The 2011 U.S. Census Bureau's American Community Survey data indicates low-income and minority populations may be present adjacent to the Highway 22 corridor. Low-income and minority populations appear to be concentrated near the City of Kasota and potentially adjacent to the corridor based on available geospatial data.</p>

FHWA P/N Guidelines	Corridor Relationship	Highway 22 Segment 2 - CSAH 2 to CSAH 90 Relevance / Documentation of Need
Vehicle Mobility	Corridor Congestion	Existing Conditions - Based on Highway Capacity Manual methodology, corridor level of service is currently LOS E during the a.m. peak hour for the portion of Segment 2 that is two-lane north of CSAH 57 (North Riverfront Drive); the portion of Segment 2 that is two lanes south of South Victory Drive/206th Street is LOS D during the a.m. and p.m. peak hours.
		Year 2030 Conditions - LOS C on 4-lane segment in urbanized Mankato and LOS E on 2-lane segments north and south of urbanized Mankato during a.m. peak hours. LOS C/D on 4-lane segment in urbanized Mankato and LOS E on 2-lane segments north and south of urbanized Mankato during p.m. peak hours.
		Year 2045 Conditions - LOS C on four-lane segment in urbanized Mankato and LOS E on two-lane segments north and south of urbanized Mankato during a.m. peak hours. LOS C/F on four-lane segment in urbanized Mankato and LOS E on two-lane segments north and south of urbanized Mankato during p.m. peak hours.
	Intersection Congestion	CSAH 57 (North Riverfront Drive) - 2030 Conditions - LOS D for eastbound approach during p.m. peak hours.
		CSAH 57 (North Riverfront Drive) - 2045 Conditions - LOS F noted for eastbound approach during p.m. peak hours. Spillback queue issues noted for eastbound approach during p.m. peak hours.
		Augusta Drive - Existing Conditions - LOS D for westbound approach during p.m. peak hour. An Intersection Control Evaluation completed in 2015 recommended a reduced conflict intersection for a short-term improvement and a roundabout as a long-term improvement at this intersection.
		Augusta Drive - Year 2030 Conditions - LOS F noted for eastbound approach during p.m. peak hours and westbound approaches during a.m. and p.m. peak hours. Spillback queue issues noted for eastbound and westbound during a.m. and p.m. peak hours.
		Augusta Drive - Year 2045 Conditions - LOS F noted for eastbound and westbound approaches during a.m. and p.m. peak hour. Spillback queue issues noted for eastbound and westbound during a.m. and p.m. peak hours and for northbound left-turn lane during p.m. peak hours.
		CSAH 3 (North Victory Drive) - Existing Conditions - LOS D noted for westbound approach during a.m. peak hour and LOS D noted for eastbound and westbound approach during p.m. peak hour. During p.m. peak queues approximately 427 feet for westbound left-turn lane that exceeds turn-lane storage capacity (storage length of 240 feet); during p.m. peak queues approximately 377 feet for eastbound left-turn lane blocking adjacent right-turn and left-turn lanes (storage length of 240 feet for both).

FHWA P/N Guidelines	Corridor Relationship	Highway 22 Segment 2 - CSAH 2 to CSAH 90 Relevance / Documentation of Need
Vehicle Mobility	Intersection Congestion	CSAH 3 (North Victory Drive) - Year 2030 Conditions - LOS D noted for eastbound and westbound approach during a.m. and p.m. peak hours and LOS D noted for northbound through during p.m. peak hour. Intersection LOS D noted during p.m. peak hour. Spillback queue issues noted for eastbound and westbound left-turn lane during p.m. peak hours and northbound through during a.m. and p.m. peak hours.
		CSAH 3 (North Victory Drive) - Year 2045 Conditions - LOS D noted for eastbound and westbound approach during a.m. peak hour and p.m. peak hour. LOS D noted for northbound approach in p.m. peak hour. Intersection LOS D noted during p.m. peak hours. Spillback queue issues noted for eastbound and westbound left-turn lane during p.m. peak hours and northbound through during a.m. and p.m. peak hours, and southbound through during p.m. peak hours.
		US 14 North Ramp - Year 2030 Conditions - LOS D noted for westbound approach during p.m. peak hours.
		US 14 North Ramp - Year 2045 Conditions - LOS D noted for westbound approach during p.m. peak hours. Spillback queue issues noted for northbound left-turn lane during a.m. and p.m. peak hours.
		US 14 South Ramp - Year 2030 Conditions - Spillback queue issues noted for southbound through during a.m. peak hours.
		US 14 South Ramp - Year 2045 Conditions - Spillback queue issues noted for southbound through during a.m. peak hours.
		Adams Street - Existing Conditions - LOS F noted for eastbound and westbound approaches during p.m. peak hours. LOS D noted for intersection during p.m. peak hours. During p.m. peak hours, eastbound approach queues approximately 972 feet and westbound approach queues approximately 598 feet.
		Adams Street - Year 2030 and 2045 Conditions - LOS F noted for eastbound and westbound approaches during p.m. peak hours and LOS F noted for intersection during p.m. peak hours. Spillback queue issues noted for eastbound and westbound approaches during p.m. peak hours.
CSAH 17 (Madison Avenue) - Year 2030 and 2045 Conditions - LOS F noted for eastbound approach during p.m. peak hours and LOSE noted for intersection during p.m. peak hours. Spillback queue issues noted for eastbound approach during p.m. peak hours.		

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Vehicle Mobility	Intersection Congestion	Bassett Drive - Existing Conditions - During a.m. peak queues approximately 350 feet for eastbound through blocking adjacent left-turn lane (storage length of 110 feet). During a.m. peak queues approximately 153 feet for westbound through blocking adjacent turn lanes (storage length of 125 feet). During p.m. peak queues approximately 173 feet for eastbound through lane and approximately 129 for eastbound left-turn lane blocking adjacent turn lanes (storage length of 110 feet). During p.m. peak queues approximately 280 feet for eastbound through lane and approximately 271 for eastbound left-turn lane blocking adjacent turn lanes (storage length of 125 feet).
		Bassett Drive - Year 2030 Condition - LOS D noted for eastbound and westbound approaches during p.m. peak hour and LOS E noted for eastbound approach during a.m. peak hours. Spillback queue issues noted for eastbound and westbound approaches during p.m. peak hours.
		Bassett Drive - Year 2045 Condition - LOS D noted for eastbound approach during p.m. peak hours and westbound approaches during a.m. peak hour. LOS E noted for eastbound approach during a.m. peak hours. LOS F noted for westbound approach during p.m. peak hours. Spillback queue issues noted for eastbound and westbound approaches during p.m. peak hours.
		Hoffman Road - Existing Conditions - LOS D noted for eastbound approach during p.m. peak hour and westbound approach during a.m. and p.m. peak hours. LOS E noted for eastbound approach during p.m. peak hours. An Intersection Control Evaluation completed in 2015 recommended a roundabout as a long-term improvement at this intersection.
		Hoffman Road - Year 2030 Conditions - LOS D noted for eastbound approach during a.m. and p.m. peak hours. Spillback queue issues noted for southbound approach during a.m. and p.m. peak hours. An Intersection Control Evaluation completed in 2015 recommended a roundabout as a long-term improvement at this intersection.
		Hoffman Road - Year 2045 Conditions - LOS D noted for eastbound approach during a.m. and p.m. peak hours and westbound approach during p.m. peak hours. LOS F noted for southbound approach during a.m. peak hours. Spillback queue issues noted for southbound approach during a.m. and p.m. peak hours and northbound through during a.m. and p.m. peak hours. An Intersection Control Evaluation completed in 2015 recommended a roundabout as a long-term improvement at this intersection.

FHWA P/N Guidelines	Corridor Relationship	Highway 22 Segment 2 - CSAH 2 to CSAH 90 Relevance / Documentation of Need
Vehicle Mobility	Intersection Congestion	Highway 83/CSAH 60 (Stadium Road) - Existing Conditions - LOS E noted for eastbound approach during p.m. peak hour. LOS D noted for westbound approach during a.m. peak hours. During a.m. peak queues approximately 282 feet for eastbound left-turn lane exceed turn lane storage capacity (storage length of 210 feet). During a.m. peak queues approximately 256 feet for westbound through block adjacent left-turn and right-turn lanes (storage length of 210 feet for both). During p.m. peak queues approximately 389 feet for eastbound left-turn lane exceed turn lane storage capacity (storage length of 210 feet). An Intersection Control Evaluation completed in 2015 recommended a roundabout as a long-term improvement at this intersection.
		Highway 83/CSAH 60 (Stadium Road) - Year 2030 Conditions - LOS D noted for eastbound and westbound approaches during a.m. and p.m. peak hours. Spillback queue issues noted for eastbound left-turn lane during a.m. and p.m. peak hours, eastbound through during p.m. peak hour and westbound through during a.m. peak hours. An Intersection Control Evaluation completed in 2015 recommended a roundabout as a long-term improvement at this intersection.
		Highway 83/CSAH 60 (Stadium Road) - Year 2030 Conditions - LOS D noted for eastbound and westbound approaches during a.m. peak hours. LOS F noted for eastbound approach during p.m. peak hours. LOS E noted for southbound approach during p.m. peak hours. Overall LOS F noted for p.m. peak hours. Spillback queue issues noted for eastbound left-turn lane during a.m. and p.m. peak hours, eastbound through during p.m. peak hour and westbound through during a.m. peak hours. An Intersection Control Evaluation completed in 2015 recommended a roundabout as a long-term improvement at this intersection.
		South Victory Drive/206th Street - Year 2045 Conditions - LOS D noted for eastbound approach during p.m. peak hour.
	Connectivity	Select link analysis of Segment 2 was performed at three different points – north of US 14, south of US 14, and north of CSAH 90; a significant amount of trip ends are local to local trips along the corridor in the immediate Mankato area.
		Looking at the point north of US 14, approximately 25 percent of trip ends are local to regional trips to or north of Saint Peter (10 percent and 15 percent, respectively).
		Looking at the point north of US 14, approximately 10 percent of trip ends are local to regional trips east on US 14.
		Looking at the point south of US 14, approximately 25 percent of trip ends are also local to regional trips to or north of Saint Peter (10 percent and 15 percent, respectively).
		Looking at the point south of US 14, approximately 15 percent of trip ends are local to regional trips east on US 14.

FHWA P/N Guidelines	Corridor Relationship	Highway 22 Segment 2 - CSAH 2 to CSAH 90 Relevance / Documentation of Need
Vehicle Mobility	Connectivity	Looking at the point north of CSAH 90, less than 10 percent of trip ends are local to regional trips to or north of Saint Peter (<5 percent a piece).
		Looking at the point north of CSAH 90, approximately 20 percent of trip ends are local to regional trips south of Mapleton.
Social Demand or Economic Goals	Corridor Aesthetics	Highway 22 between US 14 in Mankato through the City of Mapleton is designated as "Victory Drive" to honor local veterans, MnDOT is scheduled to landscape this section of Highway 22 in year 2019.
Modal Interrelationships	Bikeability/Walkability	Per the Minnesota River State Trail Master Plan completed in 2015, the MnDNR identified the need for a trail segment from the City of Mankato to the Cities of Kasota and Saint Peter. A goal of this trail segment is to provide a connection to the Sakatah Singing Hills State Trail in Mankato. This study has an opportunity to coordinate regarding the trail alignment with the potential Highway 22 alternatives.
		MnDOT's Complete Streets Policy (effective May 20, 2016) was created to ensure compliance with Minnesota Statutes 174.75. Primary goals of MnDOT's Complete Streets Policy are to increase bicycling and walking as a percentage of all trips and increase use of transit as a percentage of all trips.
	Trail/sidewalk gaps in the current network along Highway 22 were identified within the City of Mankato.	
	Freight	Through Mankato, approximately 5% of the daily traffic volume on Highway 22 is heavy vehicle (truck) traffic. The results of the origin-destination analysis show that there is a high percentage of commercial vehicles that travel to Mankato via US 14 mostly from east of Mankato. The statewide freight policy established in the Minnesota Go Statewide Freight System Plan is to "Provide an integrated system of freight transportation in Minnesota - highway, rail, water, air cargo, and intermodal terminals - that offers safe, reliable, and competitive access to statewide, national, and international markets."
Safety	Crashes	Intersections within the corridor segment had observed crash rates above the statewide average crash rate and critical crash rate based on data gathered between 2011 and 2015. The intersections exceeding the critical crash rate indicates a disproportionate number of crashes have taken place at these locations in this most recent five year period.
		CSAH 2 - had an observed crash rate of 0.34 crashes per MEV, which exceeds the statewide average crash rate of 0.25 crashes per MEV for similar locations. There were a total of 5 crashes reported (3 rear-end type crashes). The critical index at this intersection is 0.62. No southbound left-turn lane.
		CSAH 57 (North Riverfront Drive) - had an observed crash rate of 0.41 crashes per MEV, which exceeds the statewide average crash rate of 0.25 crashes per MEV for similar locations. There were a total of 7 crashes reported (2 injury crashes). The critical index at this intersection is 0.60.

FHWA P/N Guidelines	Corridor Relationship	Highway 22 Segment 2 - CSAH 2 to CSAH 90 Relevance / Documentation of Need
Safety	Crashes	<p>Augusta Drive - had an observed crash rate of 0.51 crashes per MEV, which matches the statewide critical crash rate of 0.51 crashes per MEV for similar locations. There were a total of 15 crashes reported (11 right-angle crashes, 1 incapacitating injury crash). The critical index at this intersection is 1.00. An Intersection Control Evaluation completed in 2015 recommended a reduced conflict intersection for a short-term improvement and a roundabout as a long-term improvement at this intersection.</p>
		<p>CSAH 3 (North Victory Drive) - had an observed crash rate of 0.66 MEV, which exceeds the statewide average crash rate of 0.52 MEV for similar locations. There were a total of 27 crashes reported (11 rear-end and 7 right angle type crashes). The critical index at this intersection is 0.81.</p>
		<p>Adams Street - data and analysis at this intersection is not entirely indicative due to the implementation of a roundabout here in 2014, replacing a traffic signal. It had an observed crash rate of 2.09 crashes per MEV, which exceeds the statewide critical crash rate of 1.00 crashes per MEV for similar locations. There were a total of 111 crashes reported (39 rear-end, 30 right-angle, and 32 sideswipe crashes) during the data period 2011-2015. The critical index at this intersection is 2.09.</p>
		<p>CSAH 17 (Madison Avenue) - data and analysis at this intersection is not entirely indicative due to the implementation of a roundabout here in 2014, replacing a traffic signal. It had an observed crash rate of 2.66 crashes per MEV, which exceeds the statewide critical crash rate of 1.00 crashes per MEV for similar locations. There were a total of 144 crashes reported (45 rear-end, 46 right-angle, and 31 sideswipe crashes) during the data period 2011-2015. The critical index at this intersection is 2.66.</p>
		<p>Bassett Drive - had an observed crash rate of 1.23 crashes per MEV, which exceeds the critical crash rate of 0.83 crashes per MEV for similar locations. There were a total of 46 crashes reported (21 rear-end crashes). The critical index at this intersection is 1.48.</p>
		<p>Hoffman Road - had an observed crash rate of 0.76 crashes per MEV, which exceeds the statewide average crash rate of 0.52 crashes per MEV for similar locations. There were a total of 26 crashes reported (12 rear-end type crashes). The critical index at this intersection is 0.89. An Intersection Control Evaluation completed in 2015 recommended a roundabout as a long-term improvement at this intersection.</p>

FHWA P/N Guidelines	Corridor Relationship	Highway 22 Segment 2 - CSAH 2 to CSAH 90 Relevance / Documentation of Need
Safety	Crashes	Highway 83/CSAH 60 (Stadium Road) - had an observed crash rate of 0.86 crashes per MEV, which exceeds the statewide average crash rate of 0.52 crashes per MEV for similar locations. There were a total of 24 crashes reported (10 rear-end, 6 sideswipe, and 5 right-angle type crashes). The critical index at this intersection is 0.98. An Intersection Control Evaluation completed in 2015 recommended a roundabout as a long-term improvement at this intersection.
		CSAH 2 to CSAH 57 (North Riverfront Drive) - the segment had an observed crash rate of 1.42 crashes per MVM, which exceeds the critical crash rate of 1.02 crashes per MVM for similar locations. There were a total of 35 crashes reported (11 rear-end and 14 run-off-the-road crashes) on the segment. The critical index along this segment is 1.39.
		CSAH 57 (North Riverfront Drive) to South Victory Drive/206th Street - during the study period of 2011-2015, the segment had an observed crash rate of 3.26 crashes per MVM which exceeds the statewide critical crash rate of 1.08 crashes per MVM for similar locations. There were a total of 425 crashes reported (166 rear-end and 114 right-angle crashes) on the segment. The critical index along this segment is 3.02. Fifty-two percent of the crashes on this segment occurred at the intersections of Adams Street and CSAH 17 (Madison Avenue) which were converted from signal control to multilane roundabout control in 2014.
		South Victory Drive/206th Street to CSAH 90 - during the study period of 2011-2015, the segment had an observed crash rate of 0.92 crashes per MVM which exceeds the statewide average crash rate of 0.76 crashes per MVM for similar locations. There were a total of 31 crashes reported (14 right-angle crashes) on the segment. The critical index along this segment is 0.80.
	Access	Public-private access along the corridor segment exceeds the MnDOT-preferred access spacing. Five and one-half public access/mile Vs. four MnDOT-preferred public accesses/mile (and 6.2 total accesses/mile).

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Transportation System Deficiencies	Pavement	<p>Between CSAH 2 to CSAH 57 (North Riverfront Drive) 2017 RQI is fair condition, RQI predicted to be 2.0 by year 2023 and remaining service life is 2017 is 0-4 years. Between CSAH 57 (North Riverfront Drive) to CSAH 26 (227th Street) 2017 RQI is fair condition, RQI predicted to be 2.0 by year 2029 and remaining service life is 2017 is 0-4 years. Between CSAH 26 (227th Street) to CSAH 3 (North Victory Drive) 2017 RQI is fair condition, RQI predicted to be 2.0 by year 2029 and remaining service life is 2017 is 0-4 years. Between CSAH 3 (North Victory Drive) to US 14 2017 RQI is fair condition, RQI predicted to be 2.0 by year 2030 and remaining service life is 2017 is two years. Between US 14 to Highway 83/CSAH 60 (Stadium Road) 2017 RQI is good condition, RQI predicted to be 2.0 by year 2027 and remaining service life is 2017 is five years. Between Highway 83/CSAH 60 (Stadium Road) to CSAH 90 2017 RQI is good condition, RQI predicted to be 2.0 by year 2029 and remaining service life is 2017 is 5-12 years.</p>

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Transportation System Deficiencies	Bridge	Bridge number 8436 (~mile marker 58.447) was classified as structurally deficient with a sufficiency rating of 48.2 during the last inspection period. Bridge number 7033 (~mile marker 55.830) was classified as ADEQ (not structurally deficient, not obsolete) with a sufficiency rating of 78.8 during the last inspection period.
Transportation System Deficiencies	Other Considerations	<p>Between CSAH 2 and CSAH 57 (North Riverfront Drive), and South Victory Drive/206th Street and CSAH 90, the right-of-way ranges from 150 feet to 230 feet. Per the MnDOT Road Design Manual for a two-lane rural highway the minimum right-of-way width is 150 feet and the desired right-of-way width is 200 feet. Additional right-of-way may be needed to accommodate improvements, if necessary.</p> <p>Between CSAH 57 (North Riverfront Drive) and South Victory Drive/206th Street, the right-of-way ranges from 230 feet to 300 feet. Per the MnDOT Road Design Manual for a four-lane rural highway the minimum right-of-way width is 214 feet and the desired right-of-way width is 290 feet. Additional right-of-way may be needed to accommodate improvements, if necessary.</p>
Other Environmental Factors	Natural Resources/Threatened and Endangered Species	Some natural resources and threatened and endangered species are located in proximity to the corridor. Potential 6(f) property crosses the Highway 22 corridor with the Sakatah Singing Hills State Trail. Data from the Minnesota Pollution Control Agency (MPCA) indicates hazardous waste sites may exist within Segment 2 (approximately 23 sites). Based on U.S. Fish & Wildlife Service data, a high potential zone for encountering the rusty patched bumble bee is located within Segment 2 (CSAH 90 to approximately 200th Street) and Segment 3A of the study corridor.
	Social and Cultural Resources	Some archaeological, cultural, and/or historic resources are located near the corridor in Segment 2. Seven sites are identified as having cultural/historic significance.
	Environmental Justice	Impacts to low-income and minority communities. The 2011 U.S. Census Bureau's American Community Survey data indicates low-income and minority populations may be present adjacent to the Highway 22 corridor. Low-income and minority populations appear to be concentrated near the City of Mankato based on available geospatial data.

FHWA P/N Guidelines	Corridor Relationship	Highway 22 Segment 3 - Mapleton Relevance / Documentation of Need
Vehicle Mobility	Corridor Congestion	Year 2030/2045 Conditions - LOS C through Mapleton during a.m. and p.m. peak hours.
	Connectivity	Select link analysis of Segment 3 indicates that a significant amount of trip ends are local to regional trips to or south of Mapleton (15 percent and 50 percent, respectively).
		Less than 10 percent of trip ends are local to regional trips to or north of Saint Peter (<5 percent a piece).
		Pass through travel accounts for approximately 10 percent of all trip ends.
Social Demand or Economic Goals	Corridor Aesthetics	Highway 22 between US 14 in Mankato through the City of Mapleton is designated as "Victory Drive" to honor local veterans, MnDOT is planning to landscape this section of Highway 22 in the year 2019.
Modal Interrelationships	Bikeability/Walkability	MnDOT's Complete Streets Policy (effective May 20, 2016) was created to ensure compliance with Minnesota Statutes 174.75. Primary goals of MnDOT's Complete Streets Policy are to increase bicycling and walking as a percentage of all trips and increase use of transit as a percentage of all trips.
	Freight	In the Mapleton area, truck percentages range between eight and 15 percent of daily traffic, with higher percentages through City of Mapleton. The statewide freight policy established in the Minnesota Go Statewide Freight System Plan is to "Provide an integrated system of freight transportation in Minnesota - highway, rail, water, air cargo, and intermodal terminals - that offers safe, reliable, and competitive access to statewide, national, and international markets."
Safety	Crashes	Intersections within the corridor segment had observed crash rates above the statewide average crash rate based on data gathered between 2011 and 2015.
		CSAH 15 - had an observed crash rate of 0.39 crashes per MEV, which exceeds the statewide average crash rate of 0.25 crashes per MEV for similar locations. There were a total of 4 crashes reported (2 right-angle type crashes). The critical index at this intersection is 0.55.
		CSAH 7 - had an observed crash rate of 0.29 crashes per MEV, which exceeds the statewide average crash rate of 0.25 crashes per MEV for similar locations. There were a total of 3 crashes reported (2 right-angle type crashes). The critical index at this intersection is 0.41.
		Highway 30/CSAH 29 - had an observed crash rate of 0.39 crashes per MEV, which exceeds the statewide average crash rate of 0.25 crashes per MEV for similar locations. There were a total of 2 crashes reported (1 right-angle type crashes). The critical index at this intersection is 0.43.

FHWA P/N Guidelines	Corridor Relationship	Highway 22 Segment 3 - Mapleton Relevance / Documentation of Need
Safety	Crashes	CSAH 90 to Highway 30/CSAH 29 - the segment had an observed crash rate of 0.64 crashes per MVM, which is above the statewide average crash rate of 0.60 crashes per MVM for similar locations. There were a total of 100 crashes reported (36 run-off-the-road and 21 right-angle crashes) on the segment. The critical index along this segment is 0.85.
	Access	Public-private access along the corridor segment does not exceed the MnDOT-preferred access spacing. However, there are a significant number of private access points through the City of Mapleton that contribute to corridor friction - 16.1 total accesses/mile through this area.
Transportation System Deficiencies	Pavement	Between County Road 162 and Highway 30/CSAH 29, 2017 RQI for the pavement on Highway 22 is fair condition, RQI predicted to be 2.0 by the year 2021-2024 and remaining service life for 2017 is 0-2 years.
	Other Considerations	Between County Road 162 and Highway 30/CSAH 29, the right-of-way ranges from 100 feet to 150 feet. Per the MnDOT Road Design Manual for a two-lane rural highway the minimum right-of-way width is 150 feet and the desired right-of-way width is 200 feet. Additional right-of-way may be needed to accommodate improvements, if necessary.
Other Environmental Factors	Natural Resources/Threatened and Endangered Species	Some natural resources and threatened and endangered species are located in proximity to the corridor. Based on U.S. Fish & Wildlife Service data, a high potential zone for encountering the rusty patched bumble bee is located within Segment 2 and Segment 3A (CSAH 90 to CSAH 15) of the study corridor. Minnesota County Biological Survey (MCBS) sites of moderate biodiversity significance are located between CSAH 90 and CSAH 15. Data from the Minnesota Pollution Control Agency (MPCA) indicates hazardous waste sites may exist on the south end of Segment 3 (approximately seven sites).
	Social and Cultural Resources	Some archaeological, cultural, and/or historic resources are located near the corridor in segment 2. One site between CSAH 90 and CSAH 15 identified as having cultural/historic significance and one site near CSAH 7 in Mapleton.