HIGHWAY 10 CORRIDOR STUDY
VICTORIA-CHASKA AREA

Highway 10 Corridor Study – Victoria/Chaska
Purpose and Need Framework

July 2, 2019 - DRAFT

PURPOSE

Carver County, in collaboration with Chaska, Victoria and Laketown Township, has initiated the Highway 10 Corridor Study – Victoria/Chaska Area, to identify transportation system improvements on Highway 10 (Engler Boulevard) from Highway 43 in western Laketown Township to Highway 61 (Chaska Boulevard) in the City of Chaska. The goal of the study is to identify long-term corridor improvements to support local and regional transportation needs.

The purpose of proposed improvements is to:

- Effectively serve all users including passenger and freight vehicles, pedestrians, bicyclists, transit, and emergency services
- Accommodate anticipated development and increased traffic volumes on the corridor
- Plan for and maintain reasonable and convenient access to adjacent properties
- Improve the safety, reliability, and operations of the corridor for all users
- Support economic development and responsible growth in communities adjacent to Highway 10 (Engler Boulevard)

BACKGROUND

Route Importance

Highway 10 (Engler Boulevard) is one of Carver County's most important roadways due to the connections made and traffic volumes served. The highway serves as a minor arterial roadway connecting Watertown, Waconia, Victoria/Laketown Township, and Chaska. It serves a diverse mix of personal vehicle, freight, transit and pedestrian/bicycle traffic. Trunk Highway (TH) 212, a principal arterial, intersects with Highway 10 (Engler Boulevard) in the central portion of the project area. Additional minor arterials (Highway 11 (Jonathan Carver Parkway/Victoria Drive), Highway 15 (Audubon Road), Highway 61 (Chaska Boulevard)), major collectors (Victoria Drive/Bavaria Road), and minor collectors (Clover Ridge Drive) intersect the corridor. Overall, existing local residential, commercial, industrial, and recreational uses and future growth areas in Chaska and Victoria depend on the successful function of Highway 10 (Engler Boulevard).

NEED

Study partners seek to address the following needs for Highway 10 (Engler Boulevard) and its supporting roadway network.

Consistency with State and Local Plans

Previous planning efforts for the study area emphasize the importance of the Highway 10 corridor for local and regional transportation, and the need to make improvements to address existing deficiencies and accommodate future growth. These studies include:

- Highway 61/Highway 41 (Chestnut Street) Improvements Project (2018)
- Carver County 2040 Draft Comprehensive Plan (2018)
- Carver County – County Roadway Safety Plan (2013)
- City of Chaska 2030 Comprehensive Plan (2008)
- City of Chaska 2040 Draft Comprehensive Plan (2018-2019)
- Highway 44 (Big Woods Boulevard) and TH 212 Interchange Design Project (2011)
- Southwest Chaska Plan (2012)
- Chaska Creek AUAR/EAW/Independent Traffic Analysis (2010)
- City of Chaska Safe Routes to School Plan (2016)
- City of Victoria 2040 Draft Comprehensive Plan (2018)

Proposed improvements identified through these studies include roadway expansion, roadway realignment and/or reconstruction, intersection reconfiguration, and pedestrian oriented safety improvements.

Previous planning efforts have also identified Carver County and the study area communities are projected to realize significant growth within the next 20 years. **Table 1** shows the County is projected to grow from approximately 108,000 in 2020 to 161,000 by 2040, a 49 percent increase. Chaska is planning for a 35 percent increase and Victoria projects a near doubling of their existing population for an increase of 54 percent. A large portion of Victoria's and Chaska's growth will occur near the Highway 10 (Engler Boulevard) study area. Specifically, near-term projects are planned for the properties in the northwest quadrant of the Highway 10 (Engler Boulevard)/Highway 11 (Victoria Drive) intersection as well as south of Highway 10 (Engler Boulevard) surrounding TH 212. Additional collector roadways will be needed to connect future development to Highway 10 (Engler Boulevard). Access spacing and supporting local roadway networks will be important to ensure mobility and safety on Highway 10 (Engler Boulevard).

TABLE 1. Population, Household, and Employment Forecasts (2010-2040)

	Chaska	Victoria	Laketown Township	Carver County
Population				
2010	23,770	7,345	2,243	91,042
2020	27,100	10,000	1,430	108,520
2030	32,000	12,600	640	135,960

2040	36,600	15,400	0	161,240
Change 20-40	35%	54%	n/a	49%
Households				
2010	8,816	2,435	660	32,891
2020	10,400	3,500	530	40,940
2030	12,300	4,570	260	52,180
2040	14,200	5,700	0	62,590
Change 20-40	37%	63%	n/a	53%
Employment				
2010	11,123	1,502	116	31,836
2020	13,600	2,100	170	42,190
2030	16,000	2,380	80	48,100
2040	17,600	2,600	0	54,738
Change 20-40	29%	24%	n/a	30%

Source: US Census, Metropolitan Council

Key Finding: Highway 10 (Engler Boulevard) traverses through major development areas for the City of Victoria and the City of Chaska. Substantial population, household and employment growth are expected to occur throughout the study area through 2040, adding demands to the roadway network. Supporting roadways, new accesses, and improvements to existing infrastructure will need to be carefully planned.

Capacity

Existing Operations

Highway 10 (Engler Boulevard) carries between 3,350 to 14,100 vehicles per day. **Table 2** shows intersections along the corridor mostly operate at acceptable levels today with the exception of the Highway 10 (Engler Boulevard)/Creek Road intersection which exhibits LOS E from certain approaches during peak traffic periods. Unacceptable turning movements and delays exist at the corridor's intersections with Highway 11 (Jonathan Carver Parkway/Victoria Avenue), Creek Road, the TH 212 westbound ramp, Bavaria Road, Highway 41 (Chestnut Street), and Highway 15 (Audubon Road).

TABLE 2. Existing Traffic Operations Analysis Results

Intersection	A.M. Peak Hour		P.M. Peak Hour	
	LOS	Delay	LOS	Delay
CSAH 10 & CSAH 43[(1)]	A/D	30 sec.	A/D	25 sec.
CSAH 43 & CSAH 10[(1)]	A/C	15 sec.	A/C	24 sec.
CSAH 11 & CSAH 10[(2)]	D	50 sec.	C	30 sec.
Creek Rd & CSAH 10[(1)]	B/E	45 sec.	A/E	43 sec.
Clover Ridge Dr & CSAH 10	B	14 sec.	A	9 sec.

TH 212 WB Ramp & CSAH 10	B	12 sec.	B	16 sec.
TH 212 EB Ramp & CSAH 10	B	12 sec.	A	9 sec.
CSAH 10 & Prescott Ln[(1)]	A/B	11 sec.	A/C	15 sec.
CSAH 10 & Victoria Dr[(1)]	A/B	12 sec.	A/B	11 sec.
Bavaria Rd & CSAH 10	B	14 sec.	B	12 sec.
White Oak Dr & CSAH 10[(1)]	A/C	20 sec.	A/C	23 sec.
TH 41 & CSAH 10[(3)]	C	29 sec.	D	36 sec.
Crest Dr & CSAH 10[(1)]	A/C	15 sec.	A/B	11 sec.
Park Ridge Dr & CSAH 10[(1)]	A/B	11 sec.	B/C	15 sec.
CSAH 15 & CSAH 10	C	20 sec.	C	20 sec.

1) Indicates an unsignalized intersection with side-street stop/yield control, where the overall LOS is shown followed by the worst approach LOS. The delay shown represents the worst side-street approach delay.
2) Queues exceed 975 feet on the eastbound approach during the a.m. peak hour.
3) Queues exceed 600 feet on the southbound approach during the p.m. peak hour.

2040 No-Build Operations

Traffic volumes along the corridor are anticipated to nearly double as planned growth in the City of Victoria/Laketown Township, Chaska and areas to the west is realized. Without improvements, extended vehicle queuing is drastically increased along the corridor, particularly along the EB and WB approaches to Highway 11 (Jonathan Carver Parkway/Victoria Drive). Various intersections along the corridor are anticipated to be over capacity, exhibiting LOS F in AM, PM, or both peak hour periods as shown in **Table 3**. These intersections include Highway 10 (Engler Boulevard) with Highway 43 (east and west intersections), Highway 11 (Jonathan Carver Parkway/Victoria Drive), Creek Road, Prescott Lane, Victoria Drive, Bavaria Road, White Oak Drive, Highway 41 (Chestnut Street), Crest Drive, and Park Ridge Drive. Almost all intersections exhibit unacceptable traffic delays by movement.

TABLE 3. No-Build Traffic Operations Analysis Results

Intersection	A.M. Peak Hour		P.M. Peak Hour	
	LOS	Delay	LOS	Delay
CSAH 10 & CSAH 43[(1)]	F/F	> 2 min.	A/F	93 sec.
CSAH 43 & CSAH 10[(1)]	F/F	> 2 min.	F/F	> 2 min.
CSAH 11 & CSAH 10[(2)]	F	> 2 min.	F	> 2 min.
Creek Rd & CSAH 10[(1)]	F/F	> 2 min.	F/F	> 2 min.
Clover Ridge Dr & CSAH 10	B	18 sec.	C	25 sec.
TH 212 WB Ramp & CSAH 10	C	20 sec.	D	40 sec.
TH 212 EB Ramp & CSAH 10	C	28 sec.	B	12 sec.
CSAH 10 & Prescott Ln[(1)]	E/F	> 2 min.	A/E	35 sec.
CSAH 10 & Victoria Dr[(1)]	F/F	> 2 min.	A/C	23 sec.

Bavaria Rd & CSAH 10[3]	F	56 sec.	F	96 sec.
White Oak Dr & CSAH 10[1]	B/E	47 sec.	F/F	> 2 min.
TH 41 & CSAH 10[4]	D	39 sec.	F	> 2 min.
Crest Dr & CSAH 10[1]	A/D	25 sec.	D/F	> 2 min.
Park Ridge Dr & CSAH 10[1]	B/C	17 sec.	F/F	103 sec.
CSAH 15 & CSAH 10	C	29 sec.	D	46 sec.

1) Indicates an unsignalized intersection with side-street stop/yield control, where the overall LOS is shown followed by the worst approach LOS. The delay shown represents the worst side-street approach delay.
2) Queues exceed 3,100 feet on the eastbound approach, 2,000 feet on the northbound approach, and 1/2 mile on the southbound approach during the a.m. peakhour. Queues exceed 3/4 miles on the westbound approach during the p.m. peak hour.
3) Queues exceed 1/2 miles on the eastbound approach during the a.m. peakhour and 2,500 feet on the westbound approach during the p.m. peak hour.
4) Queues exceed 2/3 miles on the southbound approach and 1,000 feet on the westbound approach during the p.m. peakhour.

Key Finding: Traffic volumes are anticipated to nearly double in the study area causing many intersections to exceed capacity and significant traffic delays along the corridor. Roadway capacity improvements will be essential for future roadway efficiency.

Safety

Highway 10 (Engler Boulevard) is experiencing crash issues. Tables 4 and 5 show crash counts are above expected range at Highway 11 (Jonathan Carver Parkway/Victoria Drive), the TH 212 westbound ramp, and Bavaria Road. Six pedestrian crashes have occurred at the Highway 10 (Engler Boulevard)/Highway 41 (Chestnut Street) intersection which is near Chaska's Middle Schools, Elementary School, and Community Center. The Highway 41 (Chestnut Street)/61 Corridor Study identified possible solutions for improving pedestrian crossings at this intersection that will need further consideration.

Access to neighborhoods such as the White Oak Drive neighborhood can be problematic as residents experience difficulties exiting the neighborhood onto Highway 10 (Engler Boulevard) eastbound. This neighborhood is served by only one access onto Highway 10 (Engler Boulevard) provides which exacerbates the issue in peak traffic times. In addition, this access is located approximately 800 feet from the Highway 41 (Chestnut Street)/Highway 10 (Engler Boulevard) signalized intersection which leads to traffic stacking at the signal through the White Oak Drive intersection.

TABLE 4. Intersection Crash Summary (January 1, 2013-December 31, 2017)

Intersection	Total Crashes	Severe Crashes (K + A)	Actual Crash Rate	Statewide Average	Critical Rate	Critical Index
CSAH 10 & CSAH 43	5	0	0.22	0.25	0.54	0.41
CSAH 43 & CSAH 10	7	0	.34	0.25	.56	0.61
CSAH 11 & CSAH 10	27	2	0.95	0.40	0.72	1.32
Creek Rd & CSAH 10	4	0	0.14	0.25	0.52	0.27
Clover Ridge Dr & CSAH 10	9	0	0.39	0.40	0.76	0.51

TH 212 WB Ramp & CSAH 10	8	1	0.31	0.40	0.74	0.42
TH 212 EB Ramp & CSAH 10	2	0	0.12	0.40	0.82	0.15
CSAH 10 & Prescott Ln	0	0	0.00	0.18	0.51	0.00
CSAH 10 & Victoria Dr	2	0	0.14	0.18	0.51	0.27
Bavaria Rd & CSAH 10	19	0	0.81	0.35	0.69	1.17
White Oak Dr & CSAH 10	8	0	0.38	0.25	0.56	0.68
TH 41 & CSAH 10	53	0	0.98	0.70	1.00	0.98
Crest Dr & CSAH 10	0	0	0.00	0.18	0.51	0.00
Park Ridge Dr & CSAH 10	9	0	0.58	0.25	0.61	0.95
CSAH 15 & CSAH 10	5	0	0.22	0.52	0.92	0.24

TABLE 4. Segment Crash Summary (January 1, 2013-December 31, 2017)

Segment	Total Crashes (Segment)	Severe Crashes (K + A)	Actual Crash Rate	Statewide Average	Critical Rate	Critical Index
CSAH 10 – CSAH 43 to Creek Road	53	0	1.22	0.77	1.12	1.09
CSAH 10 – Creek Road to Prescott Lane	27	1	2.74	2.77	4.19	0.65
CSAH 10 – Prescott Lane to CSAH 10	61	0	2.95	2.13	2.98	0.99

Key Finding: The corridor exhibits high crash counts at various intersections including areas of high pedestrian traffic surrounding schools. Safety improvements including safe routes to school infrastructure will need to be incorporated into study recommendations.

Pedestrian and Bicycle

Gaps exist in the pedestrian/bicycle system along the corridor through the western project area and from Ridge Lane to Old Audubon Road. Carver County plans to incorporate a linking trail to complete the missing segments for a more complete system. Children have been observed walking along the shoulders of corridor on their way to area schools. Regional trails are planned along the corridor from the Southwest Regional Trail in the east to points west and also along the Twin Cities Western Railroad (TCWR) rail line. An existing regional trail exists along Highway 11 (Jonathan Carver Parkway) south of the corridor. Highway 11 (Jonathan Carver Parkway), CSAH 10 (Engler Boulevard), and Highway 41 (Chestnut Street) are designated as Tier 2 Alignments on the Regional Bicycle Transportation Network (RBTN). Highway 11 (Victoria Drive) and new roads extending through the Southwest Chaska Growth Area are designated as Tier 2 Corridors on the RBTN as well.

There is an uncontrolled pedestrian crossing at the intersection of Highway 10 (Engler Boulevard) with the East Chaska Creek Trail. This crossing is located in a 50 mile per hour zone at the beginning of a curve in the roadway in which there is a warning sign.

Key Finding: Pedestrian and bicycle facilities are present along and across the corridor including off-street trails and regional trail connections, however, the system is incomplete and lacks safe connections to area schools. Completing pedestrian and bicycle connections along the corridor will be essential for vehicle and pedestrian/bicyclist safety as traffic volumes increase and growth occurs.

Environmental Considerations

There are various Social, Economic, and Environmental (SEE) resources in proximity to the study area that need to be considered that include prime farmland resources, threatened & endangered species, contaminated locations, Section 4(f) and 6(f) properties, and potential environmental justice populations. The East Chaska Creek is a Section 6(f) resource that crosses the corridor in the Chaska East Subarea. The Brandondale Mobile Home Park is a low-income housing development likely containing environmental justice populations. Table _ provides a summary of the initial environmental screening.

TABLE 6. Environmental Screening Summary

Topic	Considerations	Existing and Planned Conditions
Social and Community	Access and compatibility considerations	Social and institutional resources are located east of TH 212 and include parks, churches, the Chaska Middle School and the Community Center.
Environmental Justice	Avoid/mitigate disproportionate impacts to low income and minority populations	The Brandondale Mobile Home Park is a large manufactured housing development in the Chaska East Subarea and has high potential for housing environmental justice populaions.
Section 4(f) and 6(f) Resources	Special evaluation, coordination, and documentation, and possible mitigation	Meadow Park, Community Center Park, and Lion's Park are potential Section 4(f) resources in the study area. The East Chaska Creek Trails is a Section 6(f) resource.
Traffic Noise	Identify noise receptors and comply with federal and state requirements	There are various potential noise receptors adjacent to the study corridor, primarily residential neighborhoods but also including parks, trails, and schools.
Farmland	Farmland conservation policies	Land adjacent to the corridor, west of TH 212 is agricultural and much is designated prime farmland. Improvements will need to comply with applicable regional and local farmland conservation policies.
Historic/Archaeological	Special evaluation, coordination, and documentation, as well as possible mitigation	No listed historic sites were identified in the vicinity of the project that have potential to be impacted from improvements.

TABLE 6. Environmental Screening Summary		
Topic	**Considerations**	**Existing and Planned Conditions**
Soils/Erosion	Compatibility with construction/drainage design	Soils data does not indicate soils in the study area are highly susceptible to erosion. Geotechnical analysis will be needed for suitability and correction.
Utilities	Conflicts with utilities may increase schedule and cost requirements	Overhead and buried power lines, sanitary sewer, as well as storm sewer are located along the corridor and will need to be considered in improvement design.
Water Resources	Impacts need to be avoided/limited per regulatory requirements	National Wetland Inventory (NWI) wetland areas, calcareous fens, and FEMA 100-year floodplains have been identified. Considerations will need to be addressed in corridor planning and design particularly near the Seminary Fen Wetland Complex in the Chaska East Subarea.
Drainage	Existing drainage systems, sensitive waters and regulatory requirements	The western half of the project has rural section design with drainage conveyed via ditches. The urban sections are primarily associated with the crossings at TH 212, TH 41, and Highway 15. Drainage generally runs to the Minnesota River from the corridor which is an impaired waterway.
Contaminated Properties	Potential construction delays/costs and potential cleanup liability	The Minnesota Pollution Control Agency (MPCA) identifies one known fuel spill site associated with Chaska Middle School West, but this was addressed and administratively closed by MPCA in 2004. The spill would have been well off the study corridor. No other sites of concern were identified.
Fisheries	Trout streams, fish migrations, spawning runs, and unique habitat conditions	There are no trout streams within a mile of the project corridors or known unique fisheries considerations.
Vegetation	Native plant communities, landscape vegetation, functional vegetation, high value vegetation, and hazard trees	Land adjacent to the corridor is generally agricultural, residential, commercial, or institutional/civic. There are regionally significant ecological areas as defined by the MnDNR in or adjacent to the Seminary Fen area, within Lions Park south of CSAH 10 at the east end of the corridor, and adjacent to CSAH 10 on the north side at the railroad crossing in Laketown Township.
Protected Species	Federal and state designations, coordination and review requirements, potential mitigation	There are three federally protected species known to be in Carver County: northern long-eared bat, Minnesota dwarf trout lily, and rusty-patched bumble bee. The Natural Heritage Information System (NHIS) shows no occurrences of state-

TABLE 6. Environmental Screening Summary		
Topic	**Considerations**	**Existing and Planned Conditions**
		protected species or habitat within ¼ mile of the corridor.

Key Finding: Roadway design options will need to carefully consider sensitive social, environmental, and economic resources and environmental justice populations. It is possible that mitigation may be necessary in the case of direct impacts.

HOW THIS FRAMEWORK IS USED

Relevant portions of this text may be reported in the purpose and need section(s) of future NEPA and Minnesota Environmental Policy Act (MEPA) documentation required for implementation of recommendations resulting from the Highway 10 Corridor Study – Victoria-Chaska Area process. Based on MnDOT guidance which reflects FHWA requirements, need statements in NEPA documents are to focus on existing documented deficiencies. While there clearly are existing deficiencies in the study area which need to be addressed, this planning study, by definition, also looks to the future to anticipate future and/or network needs so that forward-thinking and coordinated decisions may be made.