Executive Summary

US 12 is a *Corridors 2030* Connector Route, recognized by the Wisconsin Department of Transportation (WisDOT) as an important regional corridor and long truck route. Within the study area, it is predominantly a two-lane rural roadway with short four-lane segments, one short urban segment, and at-grade intersections. West of US 18, the *State Access Management Plan* designates US 12 as a Tier 1 highway; east of Cambridge it is a Tier 2A highway. Increased traffic volumes are expected to degrade the function of most segments of the corridor to unacceptable levels of service. The corridor serves as an important regional route that connects the Madison region, Fort Atkinson, Whitewater, and Lake Geneva to Backbone routes such as I-39/90, I-43, and northeastern Illinois. The *Connections 2030* long-range transportation plan identifies US 12 as a candidate for potential capacity expansion.

Reason for Study

Current high and growing traffic volumes, population and economic growth, and land development are prompting consideration of long-range access alternatives for the corridor to ensure a safe and efficient roadway that will function within the existing cross section for as long as possible. It should be noted that this study is not intended to precipitate a capacity expansion project. The study has three primary purposes:

- Collect, record, and distribute environmental, transportation, and socio-economic data pertaining to US 12 between Cottage Grove and Fort Atkinson. The study report will then be used as a source of information for future transportation decisions related to the corridor.
- Conduct a needs analysis to identify existing operational deficiencies and future corridor needs.
- Develop options to preserve the function of US 12, increase safety, and identify long-term strategies and recommendations that will preserve the corridor as a two-lane facility for as long as possible.

There are several specific conditions that are anticipated to contribute to the need for corridor preservation along US 12:

- Anticipated increase in traffic from regional and local sources between 2011 and 2040.
- Reduced intersection function at existing locations not designed to accommodate higher numbers of entering vehicles.
- Anticipated safety issues stemming from increased traffic and fewer gaps for entering US 12 from local road and driveway connections.
- Transition and intensification of land uses and human activities from rural agriculture to commercial agriculture, agribusiness, and community expansion with potential to add more traffic to the corridor or change existing travel patterns.

Agency Coordination and Public Involvement

Two meetings were held with agencies and local communities as part of the needs identification process. Meeting minutes and map comments were recorded documenting local environmental, cultural, agricultural, and transportation facilities and issues, as well as planning and development factors. In addition, a survey of agricultural operations was conducted.

Traffic Operations

Traffic volumes are expected to grow concurrent with community and economic growth and land development along the corridor. Increased traffic will lead to a further reduction in gaps necessary for safe access to US 12 from side roads and private driveways.

Level of service (LOS) analyses were conducted based on existing and forecast traffic volumes for four rural corridor segments and several intersections. All four rural segments of US 12 currently experience peak-hour levels of service that are worse than LOS C; during peak traffic hours, segments east of Cambridge currently experience LOS D and are forecast to experience LOS E by 2020, while segments to the west of Cambridge currently experience LOS E. Operations within Cambridge were not analyzed because HCS software requires signal control at urban intersections to assess level of service.

All interchange ramps and many public intersections on the US 12 study corridor are expected to operate at acceptable levels of service through 2040. All public intersections east of Cambridge, with the exception of County C/Hoard Road, are expected to function at LOS C or better through 2040. Several intersections west of Cambridge now function at unacceptable levels of service during some part of the day, with operations expected to worsen if traffic volumes increase as forecasted through 2040. Four rural intersections on the western half of the study corridor currently function at LOS D or worse during some part of the day: County BN/Nora Road, County W/Oak Park Road, WIS 73 (north), and WIS 73 (south). By 2030, the function of all four is expected to fall to LOS F during the AM or PM peak hour. Two intersections in Cambridge (urban) currently operate at LOS E or F: WIS 134 and US 18. By 2030, the function of County B/Spring Street is also expected to fall to LOS E during the PM peak hour.

Four intersections within the corridor were evaluated through a preliminary risk assessment to identify those that could be candidates for a future traffic signal. The intersections at WIS 73 (north) and US 18 met the criteria for Case 1 in 2011, while County W/Oak Park Road, WIS 73 (north), and WIS 73 (south) met Case 2 criteria in 2011. With additional data collection, these intersections could be evaluated to determine if traffic signals are warranted.

A safety analysis was conducted using crash data from the years 2005 through 2009. A total of 241 non-deer crashes occurred within the study area. Intersection-related crashes accounted for 90 (37 percent) of the total non-deer crashes. The four rural corridor segments had crash rates below state averages, while Cambridge experienced a crash rate of 215, which is slightly above the state average of 195 for its functional peer group. Two segments had fatal crash rates above the state average of 1.1 fatal crashes per 100 million vehicle miles: the County N to WIS 73 segment had a fatal crash rate of 2.7 and the WIS 73 to US 18 segment had a fatal crash rate of 2.2. Intersections at the County N interchange, County W/Oak Park Road, WIS 73 (north leg), WIS 73 (south leg) and US 18 were identified as having potential safety issues based on an initial analysis of the crash records.

Strategies and Recommendations

It is possible that traffic volumes on US 12 could reach the highway's capacity and impair its safety and function, making corridor preservation an important objective in the near term. Furthermore, it should be emphasized that bypass corridors and capacity expansion are outside the scope of this study. Even though the *Connections 2030* plan identifies portions of US 12 for future capacity expansion, the state

legislature has not authorized WisDOT to study capacity improvements. Even if a capacity expansion project were approved, undertaking an environmental impact statement (EIS) would likely be required, meaning that construction would not begin until several years after approval.

Therefore, it is prudent to pursue measures that focus on corridor preservation. Strategies and recommendations have been crafted to extend the useful life of the existing facility for as long as possible. In order to meet WisDOT standards, numerous intersections have been identified for recommended improvements that include adding bypass lanes and improving turning radii, vision triangles, and shoulders. The measures listed below have been tailored to address the most pressing current and projected safety and operational issues on the US 12 corridor and selected intersections.

West Corridor. Constructing eastbound and westbound passing lanes between County N and WIS 73 could reduce vehicle percent time spent following, thus improving the level of service on the west corridor segments.

County BN/Nora Road. Adding eastbound and westbound left-turn lanes at this intersection could reduce the incidence of vehicles passing on the shoulder.

County W/Oak Park Road. Adding eastbound and westbound left-turn lanes at this intersection could reduce the incidence of rear-end crashes and vehicles passing on the shoulders. Adding a southbound right-turn lane could improve the function of this intersection.

State Farm Road and Clearview Roads. Realigning State Farm Road across from Clearview Road could improve safety at this location.

US 18. Signalization could improve intersection function, reduce westbound right-turn crashes, improve the levels of service at nearby intersections, and improve pedestrian safety and comfort.

County B/Spring Street. Future signalization, removing parking, and adding turn lanes could improve intersection function and the levels of service at other nearby intersections.

Lake Ripley Area Corridor. Relocating portions of US 12 onto a new parallel alignment could provide safer access to private properties and local public roads.

County A (north leg). Adding an eastbound bypass or left-turn lane and a westbound right-turn lane could improve safety and meet driver expectation.

County J. Adding eastbound and westbound left and right-turn lanes could improve safety and meet driver expectation.

County G. Adding an eastbound left-turn lane and a westbound right-turn lane could improve future safety and function.

County C/Hoard Road. Adding mainline left and right-turn lanes and managing access could improve safety and function as traffic volumes grow and adjacent properties develop.

Finally, an access management plan was created to improve safety and long-term function of the highway. Recommendations include relocating and consolidating driveway connections and field entrances, enhancing intersection spacing and geometry, and providing local street connections at some locations.