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TECHNICAL MEMORANDUM

To: Heather Stouder, Planning Division
Madison Municipal Building, Suite 017
215 Martin Luther King Jr. Blvd.
Madison, WI 53703

From: KL Engineering, Inc.

CC: Ho-Chunk Nation and Four Lakes District Design Team

Date: June 5, 2019

RE: Ho-Chunk Madison Planned Development – Initial Traffic and Access Review

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INTRODUCTION & PURPOSE OF MEMO

KL Engineering was retained by the Ho-Chunk Gaming Madison (HCGM) design team to perform an initial evaluation of traffic flow, and to identify alternatives for improving access to the proposed Four Lakes District development located at 4002 Evan Acres Road, Madison, WI. The design team has recently submitted a site plan and land use application for City of Madison Plan Commission review and approval of a General Development Plan (GDP), currently scheduled for consideration on June 10th. City of Madison staff has evaluated the submittal and sent feedback on the site plan, land uses, and access to the site. The primary concern from staff was in regard to providing safe and efficient traffic flow to and from the site.

The purpose of this technical memorandum is to provide an initial response to the concerns raised by City of Madison staff regarding traffic flow, roadway safety, and access to the redeveloped site. This memo includes an initial evaluation of existing and proposed traffic patterns, and provides a scoping-level assessment of multiple access concepts that warrant further consideration as part of a more comprehensive study of the site.

The primary goal of this initial assessment is intended to demonstrate that multiple options can be evaluated individually, or in combination, in order to provide short and/or long term access to the Four Lakes District development and adjacent properties. Further evaluation of the alternatives, and coordination with the City of Madison, Wisconsin Department of Transportation (WisDOT), and Dane County will be required to fully evaluate traffic flow and access to the site. It is anticipated that any further traffic and access evaluation would occur upon conditional approval of the current GDP as submitted to the City of Madison Plan Commission.

BACKGROUND INFORMATION

The planned Four Lakes District redevelopment site shown in Figure 1 is located to the east of Interstate Highway (IH) 39/90 and to the south of United States Highway (USH) 12/18 and is part of City of Madison's Yahara Hills Neighborhood Development Plan. It includes the development of a cultural and entertainment destination campus that includes the following: casino expansion/remodeling, hotel, conference center, parking structures, heritage center, outdoor dining, outdoor event space, restored wetlands and interpretive paths, and athletic & retail facilities. The redevelopment will be completed in four phases, with the majority of the buildings being built in phase 2. The overall construction timeframe of this site is still undetermined.

The only access to the existing site is via the two-way stop-controlled intersection of Millpond Road and USH 12/18. This intersection not only services the HCGM property, but also provides access to a gas station, restaurant, supply store, Harley Davidson, a hotel, apartment building, and the Yahara Hills Golf Course. From 2013 to 2017, this intersection ranks second worst in severity (*using a weighted scale considering injury severity developed by Wisconsin TOPS Lab*) in the City of Madison and has inadequate capacity to efficiently handle traffic movements in and out of the area.

Vehicles making a left turn from Millpond Road onto westbound USH 12/18 have to cross several lanes of traffic travelling at 55 mph before merging into the westbound direction. This creates challenges for drivers to judge appropriate gaps in traffic, results in long delays, and subsequently a high number of injury related crashes have been occurring. Improvements to mitigate existing safety and operational issues at the USH 12/18 & Millpond Road intersection are being considered by the Madison & WisDOT.

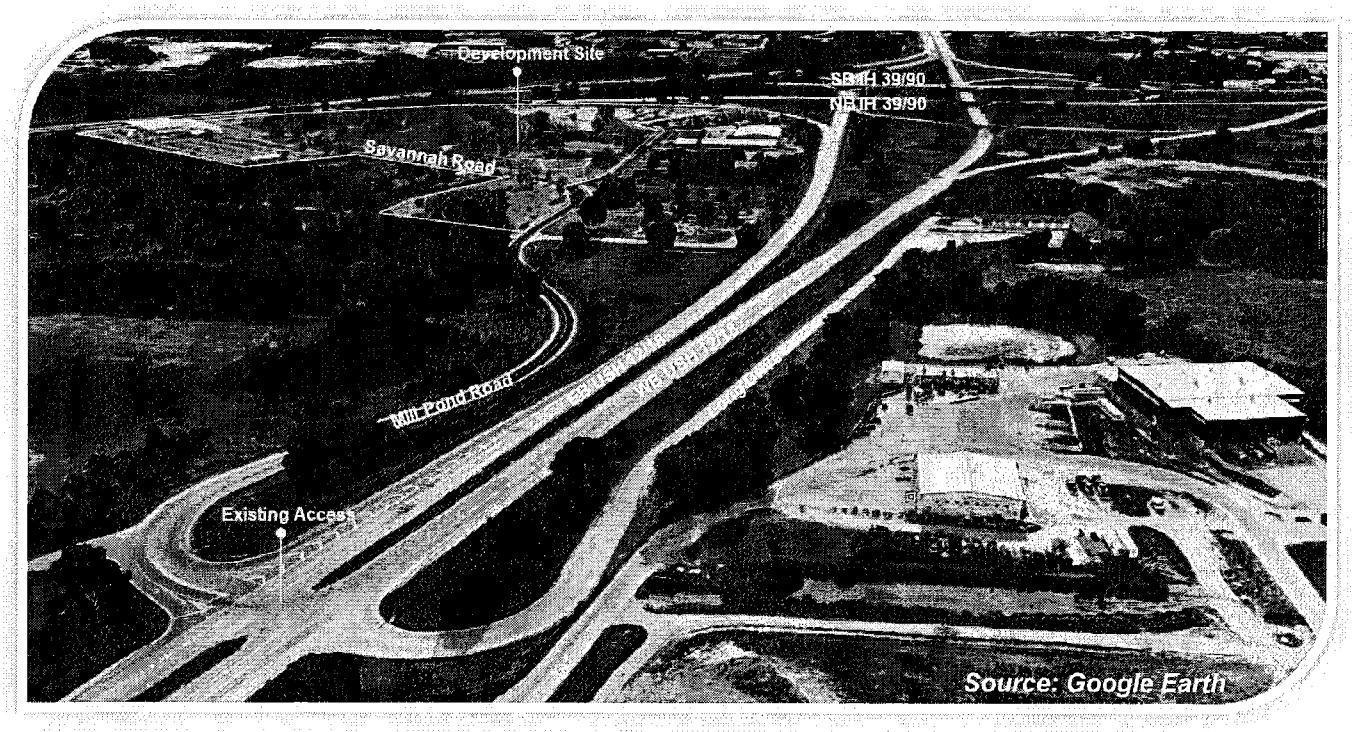

Figure 1. Planned Four Lake District Development Site and Existing Access.

HCGM General Development Plan

HCGM's Four Lakes District Redevelopment Plan acknowledges that access improvements need to be made in order to provide safe and efficient movements to and from the site. The HCGM General Development Plan Land Use Application Submittal from March 20, 2019 provided a community connectivity diagram from the Yahara Hills Neighborhood Development Plan and a proposed site access circulation exhibit shown in Figure 2 and Figure 3, respectively. Figure 2 shows that there is the ability to include multiple access points along CTH AB to alleviate traffic impacts from the Four Lakes District development if USH 12/18 freeway conversion occurs.

Based on feedback from City of Madison, HCGM's current site circulation and access proposal may not meet Section 28.098(2)(d) of the Zoning Code which prevents a proposed development from creating traffic demand disproportionate to the existing facilities. Due to the amount of vehicle trips that will be added to the USH 12/18 & Millpond Road intersection (*specifically left-turns from Millpond Rd onto westbound USH 12/18*) and the safety issues the City already has at this location, it is the City's opinion that this zoning code is not currently met.

Long Range Roadway Improvement Plans

WisDOT completed a Freeway Conversion Study for USH 12/18 between IH 39/90 to CTH N in 2015 that designated future improvements which designated grade-separated access to areas north and south of USH 12/18, including the Four Lakes District redevelopment site. This study included constructing an interchange at the CTH AB intersection and adding overpasses and frontage roads that would provide connections for local traffic and direct vehicles to the interchanges. At this time, no further steps have been taken by WisDOT to move forward with freeway conversion.

The City of Madison has included multiple long-term transportation concepts in the Yahara Hills Neighborhood Plan, adopted in January 2017, to provide access and circulation to areas north and south of USH 12/18. Figure 2 shows the planned transportation network included in the study.

The proposed USH 12/18 freeway conversion and Yahara Hills Neighborhood Plan roadway improvements will result in significant modifications to the existing transportation network. This will include new local roadway connections, roadway realignments, and property acquisition. There is currently no designated timeframe for these improvements. This study is evaluating all short-term improvements considered for providing access to Four Lakes District redevelopment site for compatiblity with these long-range plans.

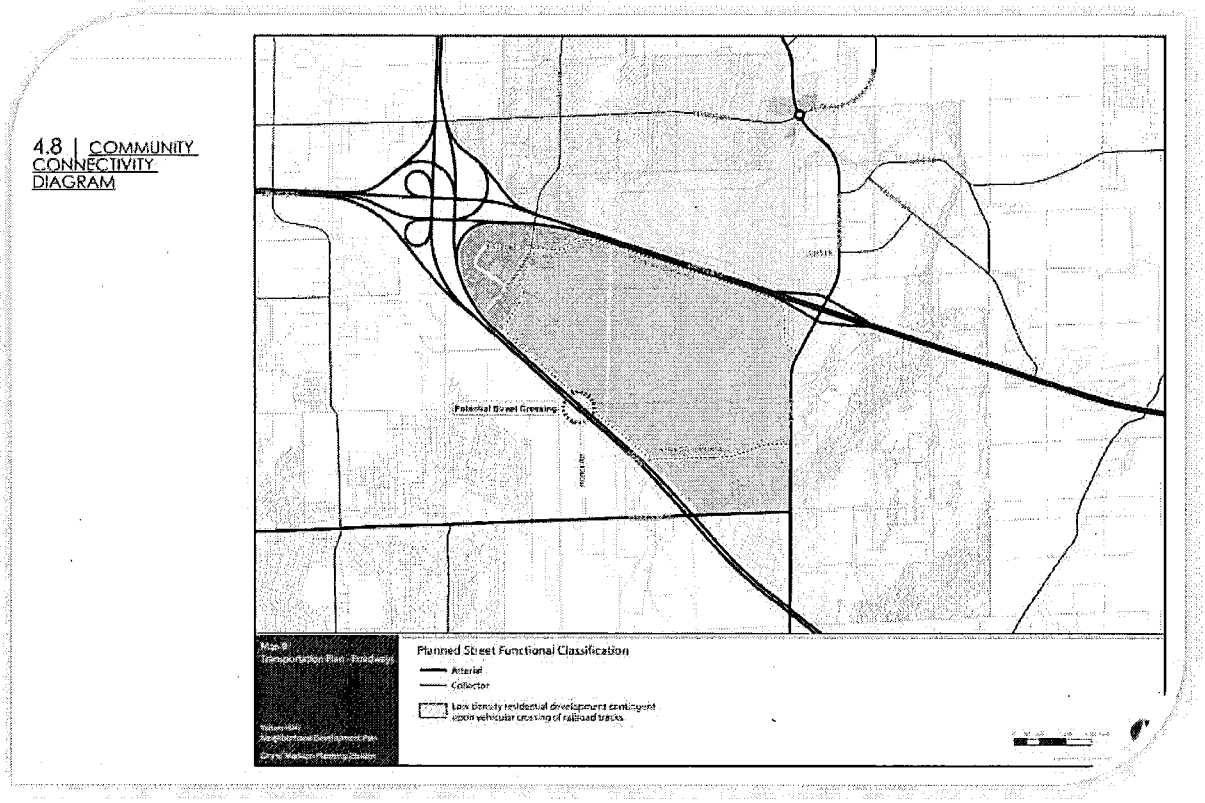

Figure 2. Community Connectivity Diagram.

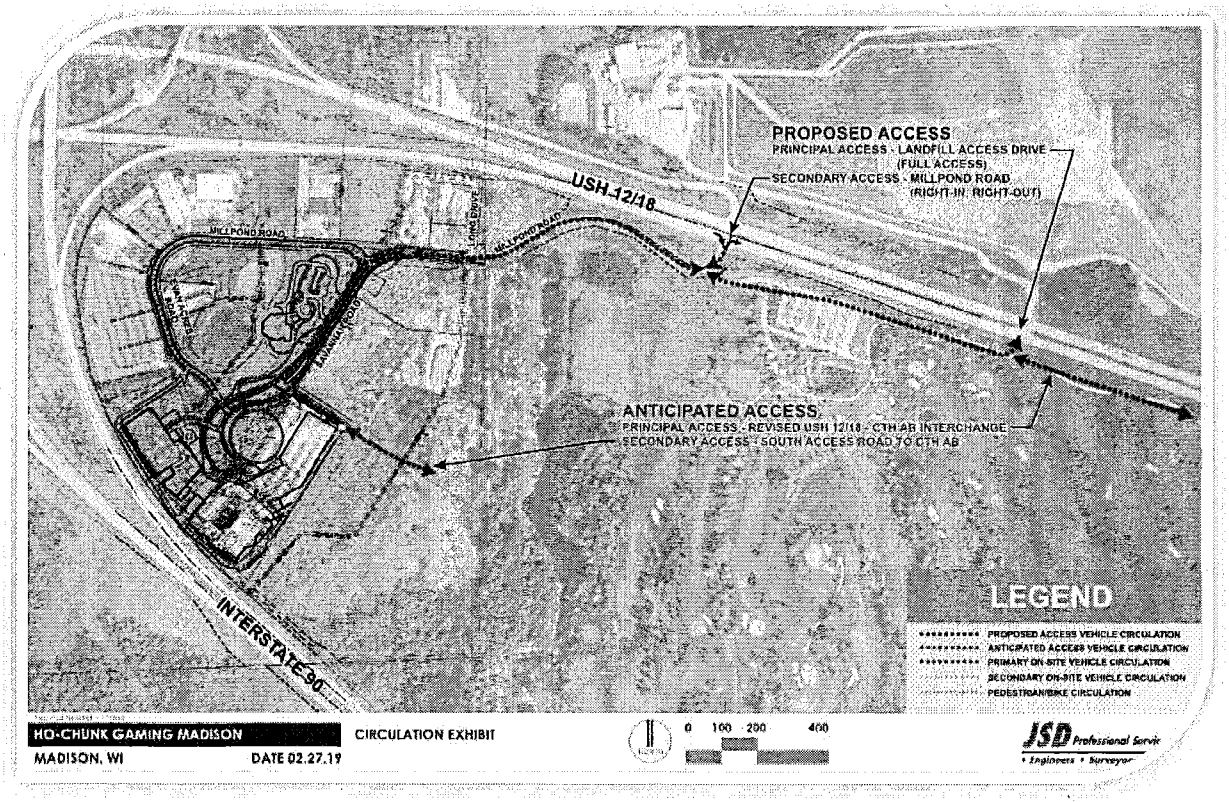

Figure 3. Circulation Exhibit.

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PLANNED ROADWAY PROJECTS

Prior to long range improvement projects and possible USH 12/18 freeway conversion, several adjacent roadway projects are being considered by WisDOT and the City of Madison. These projects are in early phases of planning and will not be constructed prior than 2022 under current funding plans.

USH 12/18 Intersection Projects

Through coordination with WisDOT, it has been identified that there are two projects currently being scoped for both the Millpond Road and CTH AB intersections with USH 12/18. WisDOT is proposing a Restricted Crossing U-Turn (RCUT), which is sometimes referenced as a J-Turn, at both locations. RCUT intersections reduce the number and type of conflict points to simplify a driver's decision-making. Crossing conflicts are reduced from 24 to 4, which has been shown to reduce right angle-crashes. A study completed by the Federal Highway Administration (FHWA) found RCUT intersections can reduce right angle crashes by up to 75 percent.

The transition to a RCUT intersection at these locations will provide a low-cost, interim safety improvement that will help reduce the number of injury crashes. However, the RCUT provides limited operational benefits compared to the existing two-way stop control intersections and is not a permanent solution after USH 12/18 freeway conversion.

See Figure 4 for the movements and conflict points associated with an RCUT intersection.

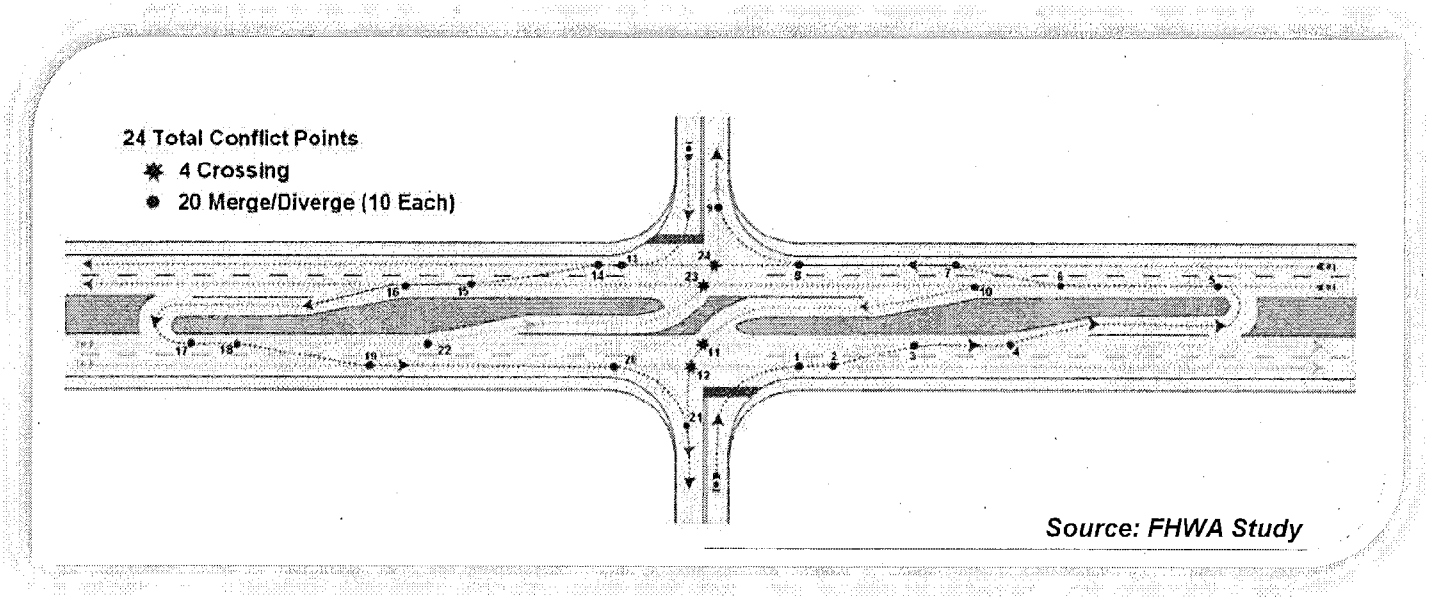

Figure 4. RCUT Intersection.

Meier Road Overpass Connection

The City of Madison is planning a Meier Road overpass of USH 12/18 that will provide a north-south connection extending from the south side of USH 12/18 to Femrite Drive as defined in the Yahara Hills Neighborhood Plan. This overpass would ultimately provide connectivity to areas south of the development site via an overpass of IH 39/90 aligned with Storck Road, which is also shown in the long range plan.

The Meier Road overpass would provide indirect access for Four Lakes District development traffic to the Madison Beltline and IH 39/90 interchange by the following three connections:

- *USH 12/18 Connection* (will be eliminated upon USH 12/18 freeway conversion):
  - *Route:* "Jug Handle" type connection to westbound USH 12/18 via Long Drive
  - *Distance:* Approx. 1.75 miles from HCGM to SB IH 39/90 entrance ramp
- *Femrite Drive Westbound Connection:*
  - *Route:* Femrite Dr to E Broadway to Stoughton Road to Madison Beltline interchange
  - *Distance:* 4.1 miles from HCGM to SB IH 39/90 entrance ramp
- *Femrite Drive Eastbound Connection:*
  - *Route:* Femrite Dr to CTH AB interchange to westbound USH 12/18
  - *Distance:* 4.0 miles from HCGM to SB IH 39/90 entrance ramp

See Figure 5 for a conceptual drawing of the Meier Road overpass with possible access connections from the proposed Four Lakes District development site. The exact location of the Meier Road connection is still to be determined and will require further coordination to determine compatibility with future Yahara Hills development plans and Four Lakes District site plan.

In the short-term, the USH 12/18 connection via the Long Drive "jug handle" can serve as a secondary access route for HCGM traffic to the Madison Beltline and IH 39/90 interchange. However, this connection is only viable prior to the USH 12/18 freeway conversion, and if made in conjunction with other access improvements. This access alternative as a stand-alone project will not provide adequate capacity for the projected traffic of the Four Lakes District redevelopment.

This connection to USH 12/18 will be challenging to implement due to the proximity of Millpond Road to the IH 39/90 interchange, and as a result of impacts to multiple properties north of USH 12/18, most significantly an existing hotel and the Dane County landfill. After the freeway conversion, this connection to USH 12/18 will be eliminated, making access from the redevelopment site to the major roadway arterials more complicated.

In the long-term, after freeway conversion, the two Femrite Drive connections from the Meier Road overpass will provide access to the Four Lakes District redevelopment. These connections utilize several local and county roads, which are already heavily travelled corridors, to gain indirect access to the interstate and the Madison Beltline. In addition, these routes include long travel distances and require passage through multiple intersections, several of which are already highly congested. These connections will not provide direct connectivity for the Four Lakes District redevelopment site to either the Madison Beltline or IH 39/90.

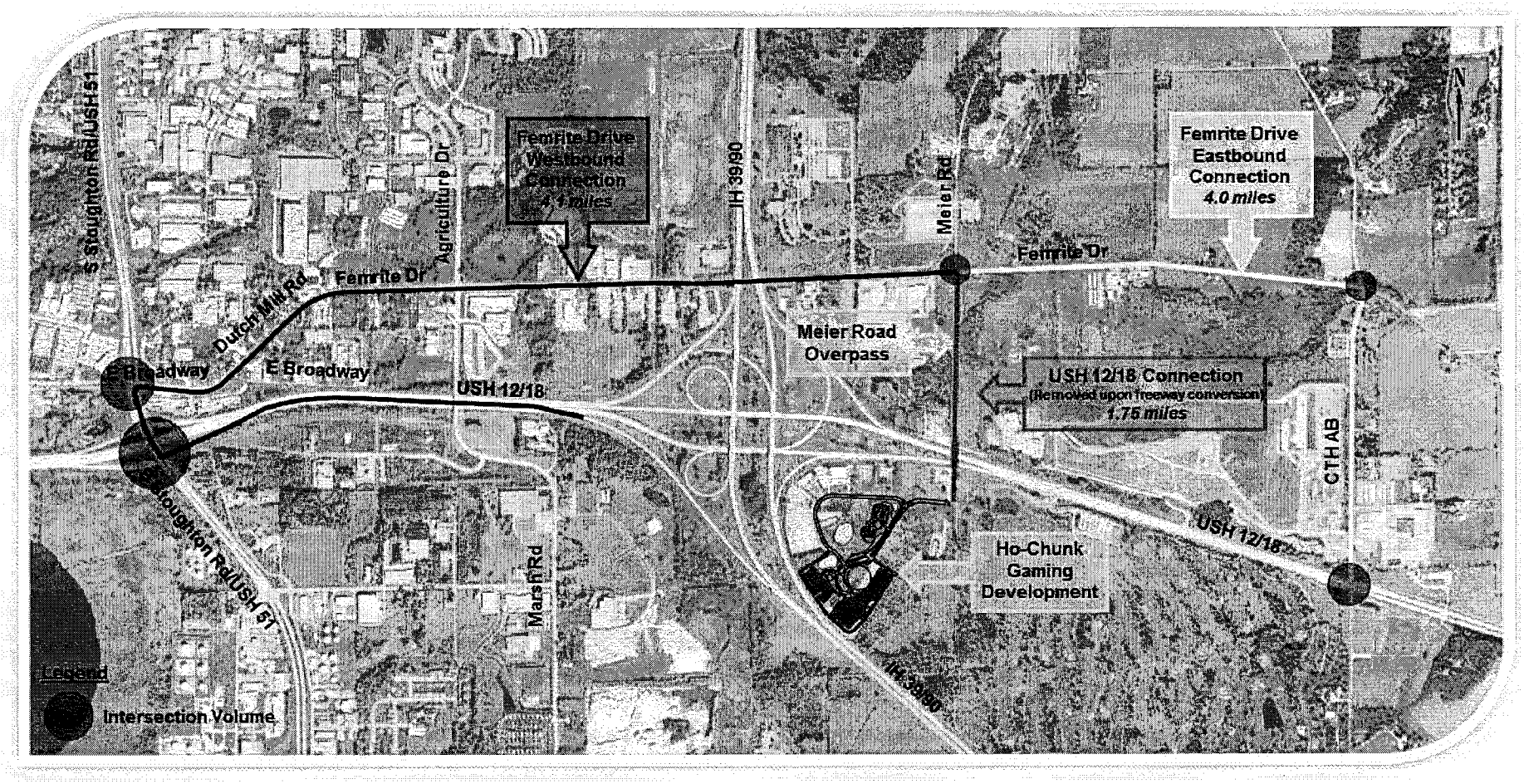

Figure 5. Meier Road Overpass Connections.

TRAFFIC ANALYSIS METHODOLOGY

Traffic Volumes

Traffic volumes used for this initial traffic and access study were obtained from several publicly available resources. The most recent (*WisDOT – Year 2018*) annual average daily traffic (AADT) on USH 12/18 between IH 39/90 interchange and CTH AB is 18,400 vehicles per day. Intersection turning movement traffic counts were conducted at the USH 12/18 & CTH AB intersection on Wednesday, September 14, 2016. The AM and PM peak traffic volume hours were found to be 6:30 – 7:30 am and 4:15 – 5:15 pm. With current traffic volumes at the intersection, traffic signal warrants are met.

Intersection turning movement traffic count data entering and exiting Millpond Road from USH 12/18 were collected during a non-event Saturday and during an event weekday in August 2016. This data was used along with AADT information and the USH 12/18 & CTH AB traffic count to develop existing intersection turning movement traffic volumes for the USH 12/18 & Millpond Road/Long Drive intersection to establish a baseline for the traffic analysis.

HCGM Proposed Development Traffic and Trip Distribution

The existing land uses on the HCGM site currently generate approximately 8,400 vehicles per day on average. Based on the HCGM's GDP submittal documents, proposed vehicular trips were generated by JSD Professional Services using the Institute of Transportation Engineers (ITE) Trip Generation, 10th Edition. It is projected that the Four Lakes District redevelopment will generate an average of 18,000 vehicles per day (includes existing and proposed land uses).

Trip distribution was determined using traffic count data taken at the USH 12/18 & Millpond Road intersection in August 2016 and projections for the origin of visitors provided by the Ho-Chunk Nation. The trip distribution to and from the HCGM site is projected to be the following:

- 75% to/from USH 12/18 west of Millpond Road (via Madison Beltline & IH 39/90)
- 15% to/from USH 12/18 east of Millpond Road
- 5% to/from CTH AB south of USH 12/18
- 5% to/from CTH AB north of USH 12/18

Projected development trips were assigned to the roadway network according to the proposed trip distribution pattern and the specific access points that will be available. Although the trip distribution will be the same for all the access alternatives mentioned later in this memorandum, trip assignments will change as access alternatives change. For the purposes of this preliminary analysis, favorable dispersion rates were assumed to all proposed access to and from the HCGM site.

Detailed information including traffic count data, trip generation, trip distribution, and trip assignment is available for review upon request, and will be included in future traffic studies completed for the Four Lakes District redevelopment.

Traffic Operations Analysis

Preliminary traffic operations were analyzed at the USH 12/18 & Millpond Road/Long Drive and USH 12/18 & CTH AB intersections to determine a cursory understanding of traffic impacts due to the proposed redevelopment. This initial evaluation was completed to a level that establishes feasibility of

each access alternative. A more detailed analysis and review of the internal and external roadway network will be necessary to determine a recommended access solution.

Qualitative results of the preliminary traffic analysis provided in this memorandum are based on methodologies established in the Highway Capacity Manual (HCM) 6. Synchro/SimTraffic (*stop control & traffic signal*), Sidra (*roundabout*), and HCS (*RCUT*) software programs were used to complete the evaluation. Adequate operations at access locations was based upon providing a level of service (LOS) E or better for all turning movements.

Technical Resources

All geometric evaluations followed guidance from WisDOT's Facilities Development Manual (FDM) and AASHTO's, A Policy on Geometric Design of Highways and Streets 2011 Edition.

Various development plans and roadway studies have been completed in the surrounding area of the proposed Four Lakes District redevelopment. A review of these previous plans and studies was completed by the team in order to identify potential access alternatives that were compatible with the vision of the surrounding transportation facilities and future land uses. The following resources were reviewed during this process:

- USH 12/18 Freeway Conversion Study Environmental Assessment
- IH 39/90 Expansion project (IH 39/90 & USH 12/18 Beltline Interchange)
- Beltline PEL study
- Yahara Hills Neighborhood Development Plan

ACCESS ALTERNATIVES PLANNED BY OTHERS

Based on the anticipated projects by both WisDOT and the City of Madison, KL Engineering has completed a preliminary traffic evaluation of possible access alternatives if some or all these projects are completed. The evaluation included the following three alternatives:

- *Alternative 1:* Construct a RCUT at Millpond Rd (WisDOT)
- *Alternative 2:* Construct a RCUT at Millpond Rd and CTH AB (WisDOT)
- *Alternative 3:* Construct a RCUT at Millpond Rd and CTH AB and provide Meier Rd overpass connection (City of Madison)

These alternatives were evaluated for access, operations, safety, and feasibility. Table 1 shows a preliminary comparison of potential alternatives related to the anticipated WisDOT and City of Madison projects. See Figure 6, Figure 7, and Figure 8 for conceptual drawings of the alternatives. All three alternatives provide compatibility with a future diamond interchange at USH 12/18 & CTH AB, as defined by WisDOT's long-range plans and the Yahara Hills Neighborhood plan.

Table 1. Access Alternatives Planned by Others.

Alternative	Access	Operations & Safety	Feasibility
Alternative 1: **Millpond Rd RCUT** *Provide a RCUT at Millpond Rd/Long Dr. CTH AB would remain as a two-way stop-controlled intersection.*	• Re-routes left-turn & through vehicles at Millpond Rd / Long Dr to make a right-turn and then a U-turn at downstream median opening[1] • Provides only one USH 12/18 access to and from HCGM development	• Long delays and queues at Millpond Rd intersection with only one access to and from proposed development • Reduction in intersection conflict points and right-angle crashes • No operational and/or safety improvements provided at CTH AB intersection	• Short-term improvement that would improve safety at Millpond Rd • Does not provide adequate access or operations with full build-out of redevelopment • Does not allow for eastbound movements from the north due to proximity to IH 39/90 • Requires WisDOT coordination
Alternative 2: **Millpond Rd & CTH AB RCUT** *Provide a RCUT at Millpond Rd/Long Dr and CTH AB intersections.*	• Provides same access to USH 12/18 as Alt 1, with a 2nd U-turn opportunity for traffic headed westbound on USH 12/18	• Similar operations & safety at Millpond Rd intersection as Alt 1 • Potential for improved operations at U-turn locations • Improved operations & safety for left-turning vehicles from CTH AB to USH 12/18 compared to existing stop control	• Short-term improvement that would improve safety at intersections • Does not provide adequate access or operations with full build-out of redevelopment • Requires WisDOT and Dane County coordination.
Alternative 3: **Millpond Rd & CTH AB RCUT w/ Meier Rd Connection** *Provide a RCUT at Millpond Rd/Long Dr and CTH AB intersections. Connect Meier Rd to Millpond Rd with bridge over USH 12/18.*	• Provides same access to USH 12/18 at Millpond Rd / Long Dr and CTH AB as Alt. 2 • Allows for one direct access to USH 12/18 (*via Millpond Rd*) and one secondary access to westbound USH 12/18 (*via Meier Rd connection)*	• Decreased delays and queues at Millpond Rd with additional access • Disperses traffic by providing an additional route in and out of development • Improved operations & safety for left-turning vehicles from CTH AB to USH 12/18 compared to existing stop control	• Provides an additional access to redevelopment though indirect access via Meier Rd • Improved operations compared to Alt. 1 & 2 • May not provide adequate operations even with 2nd access • Roadway construction schedule may not coincide with redevelopment schedule • Requires WisDOT, Dane County, and City of Madison coordination

[1] Downstream median opening for eastbound U-turn from the north on Long Drive may be eliminated due to the close proximity to the IH 39/90 interchange.

Overall, these access alternatives planned by others will improve safety for USH 12/18 movements, but will likely need additional improvements to provide for adequate operations and direct access to facilitate the projected traffic demand created by the Four Lakes District development.

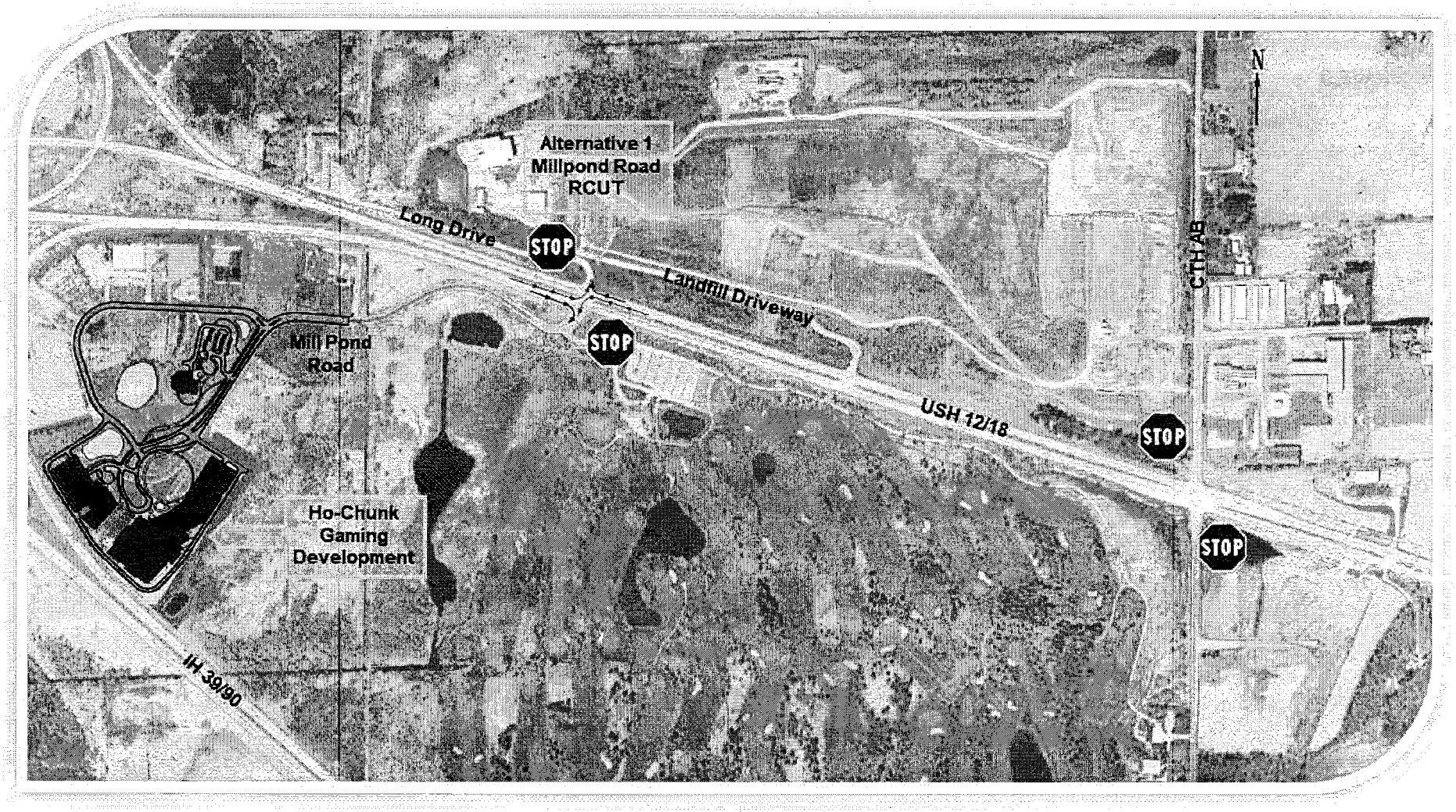

Figure 6.
Alternative 1: Millpond Rd RCUT.

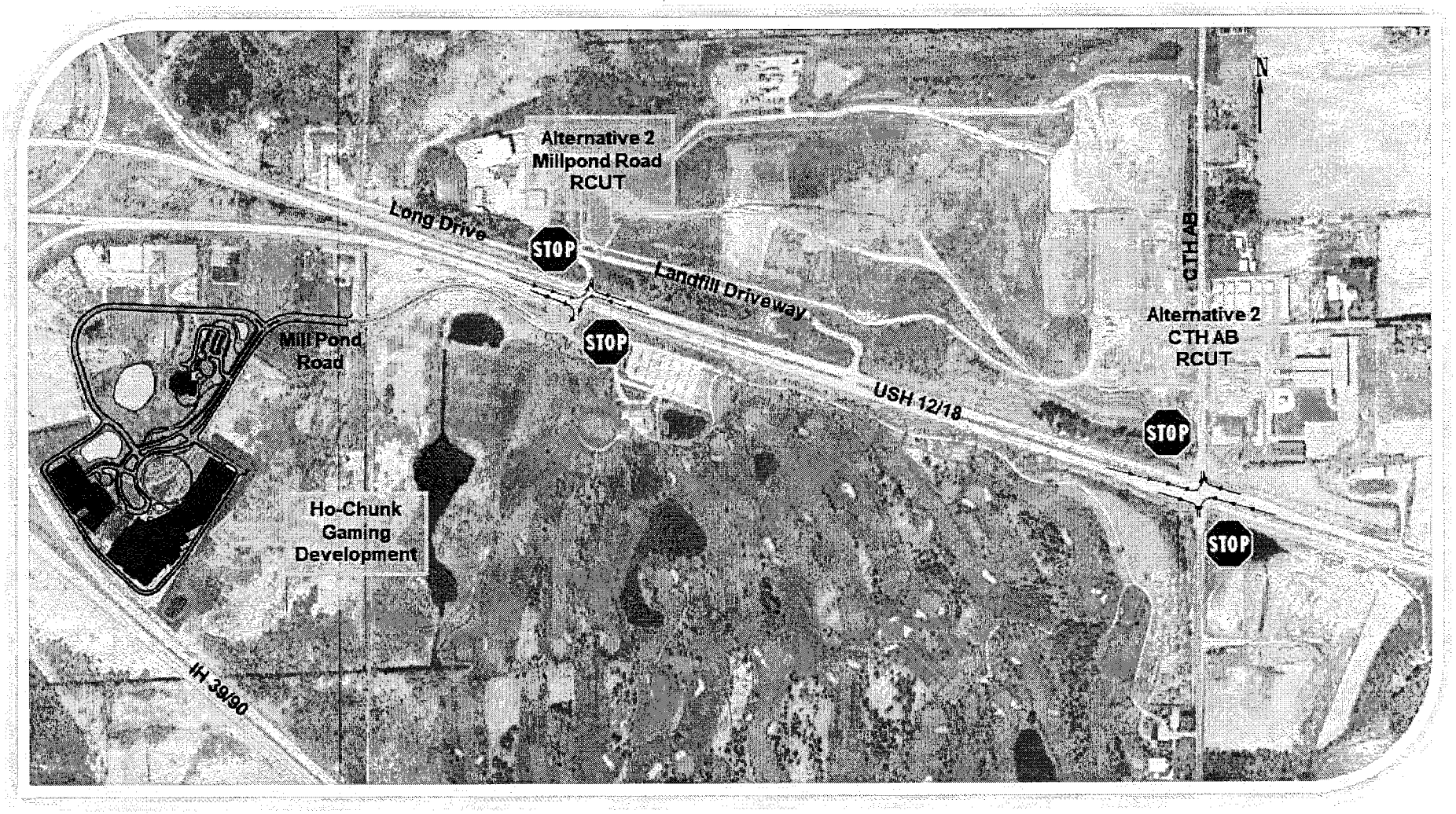

Figure 7.
Alternative 2: Millpond Rd & CTH AB RCUT.

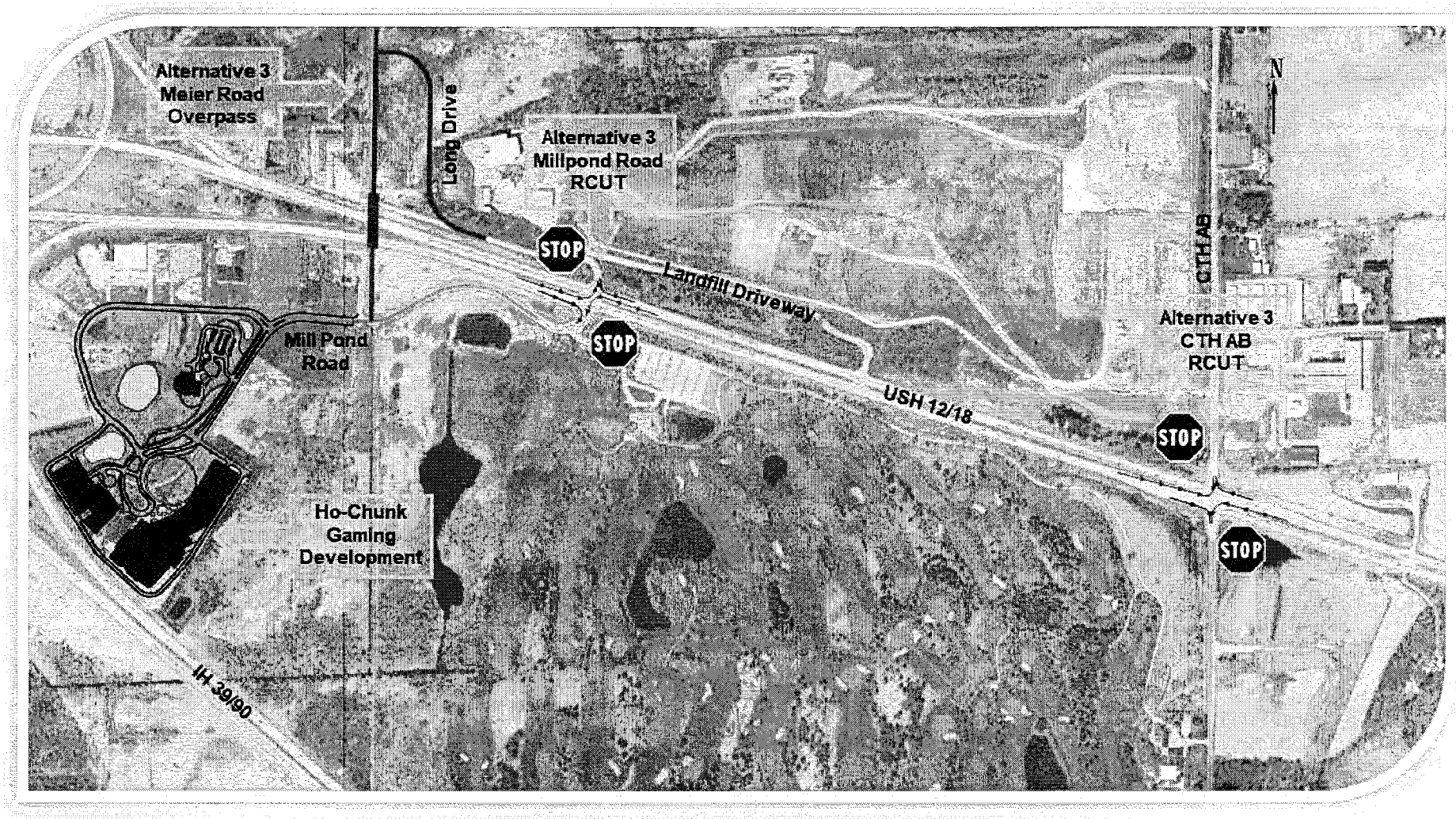

Figure 8.
Alternative 3: Millpond Rd & CTH AB RCUT w/ Meier Rd Connection.

ADDITIONAL ACCESS ALTERNATIVES

Several other at-grade alternatives were considered for the Millpond Rd and CTH AB intersections that could improve operations and safety of these locations and provide access to the Four Lakes District redevelopment. KL Engineering has completed a preliminary traffic evaluation of these additional access alternatives:

- *Alternative 4A*: Construct a RCUT at Millpond Rd and CTH AB with Frontage Road connection to CTH AB from HCGM development
- *Alternative 4B:* Construct a RCUT at Millpond Rd and CTH AB with Frontage Road and provide Meier Rd overpass connection
- *Alternative 5:* Construct a RCUT at Millpond Rd and signal at CTH AB with Frontage Road
- *Alternative 6:* Construct a RCUT at Millpond Rd and roundabout at CTH AB with Frontage Road

These alternatives were evaluated for access, operations, safety, and feasibility. Table 2 shows a preliminary comparison of potential additional at-grade intersection alternatives that could be considered. See Figure 9, Figure 10, and Figure 11 for conceptual drawings of the alternatives. All alternatives provide compatibility with future diamond interchange plans at USH 12/18 & CTH AB.

Table 2. Additional Traffic Access Alternatives.

Alternative	Access	Operations & Safety	Feasibility
Alternative 4A: **Millpond Rd & CTH AB RCUT w/ Frontage Rd** *Provide a RCUT at Millpond Rd/Long Dr and CTH AB intersections. Connect HCGM development to CTH AB via Frontage Rd.*	• Re-routes left-turn & through vehicles at intersections to make a right-turn and then a U-turn at downstream median opening • Provides secondary USH 12/18 access to and from redevelopment • Creates new intersection on CTH AB w/ frontage rd	• Decreased delays and queues at Millpond Rd compared to Alt. 1 & 2 with additional access • Disperses development traffic by providing an additional access point • Improved safety at intersections with RCUT configuration	• Provides 2nd access to the redevelopment • Short-term improvement that will improve safety & operations at intersections • Frontage Road will require land from the City golf course • Requires WisDOT and Dane County coordination
Alternative 4B: **Millpond Rd & CTH AB RCUT w/ Frontage Rd and Meier Rd Connection** *Alternative 4A with Meier Rd connection to Millpond Rd with bridge over USH 12/18.*	• Provides same access as Alt 4A, plus an additional indirect access to and from redevelopment via Meier Rd connection	• Will provide improved operations & safety at intersections in the short term • Provides traffic dispersion with three access points to and from the development site • Improved safety at intersections with RCUT configuration	• Provides 3rd access to the redevelopment • Overpass requires new alignment in complex setting north of USH 12/18 • Frontage Road will require land from the City golf course • Requires WisDOT, Dane County, and City of Madison coordination
Alternative 5: **Millpond Rd RCUT and CTH AB Signal w/ Frontage Rd** *Provide a RCUT at Millpond Rd/Long Dr intersection and a signal at CTH AB intersection. Connect HCGM development to CTH AB via Frontage Rd.*	• Provides same access to Millpond Rd as Alt. 4A • Maintains full access at CTH AB intersection • Provides secondary USH 12/18 access to and from redevelopment	• Decrease delays and queues for sideroad traffic & increase delay for USH 12/18 traffic • Disperses development traffic by providing an additional access point • Safety concerns with the addition of traffic signals to the high speed USH 12/18 approaches	• Provides 2nd access to redevelopment • Short-term improvement that will improve safety & operations at intersections • Likely will require special USH 12/18 approach treatments to mitigate high speeds • Frontage Road will require land from the City golf course • Requires WisDOT and Dane County coordination
Alternative 6: **Millpond Rd RCUT and CTH AB Roundabout w/ Frontage Rd** *Provide a RCUT at Millpond Rd/Long Dr intersection and a roundabout at CTH AB intersection.*	• Provides same access as Alt. 5	• Similar operations and dispersion of redevelopment traffic as Alt 5 • Eliminates right-angle, left-turn, and head-on crashes at roundabout location	• Provides similar feasibility as Alt 5 • Roundabout may be more feasible on high-speed expressway

Overall, it is expected that a minimum of two improved at-grade connections to USH 12/18 will be required in order to provide safe and efficient access to the redevelopment site. Additional analysis will be needed to verify operational feasibility and evaluate USH 12/18 impacts based on the different access alternatives to accommodate projected Four Lakes District development trips.

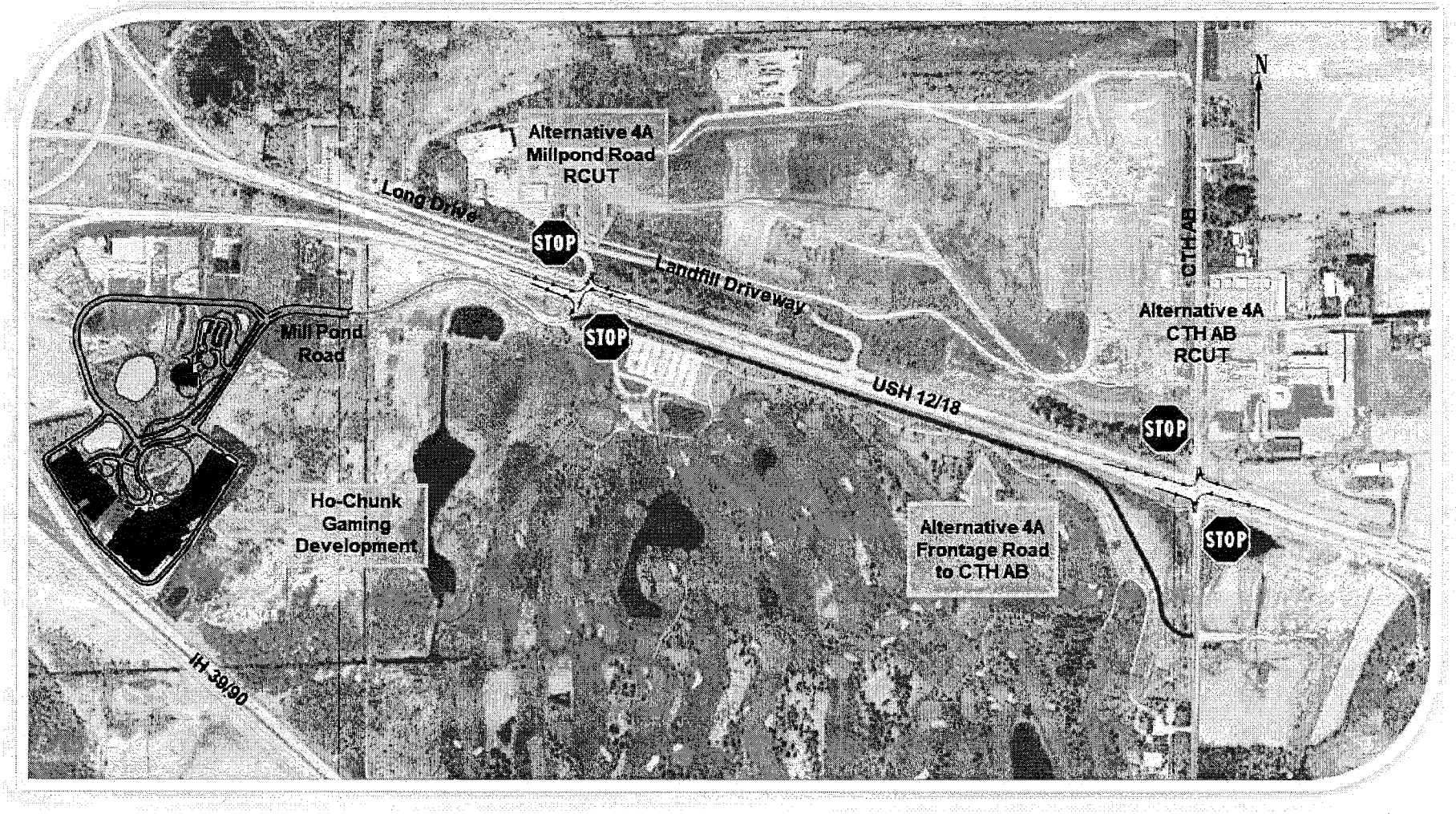

Figure 9.
Alternative 4A: Millpond Rd & CTH AB RCUT w/ Frontage Rd.

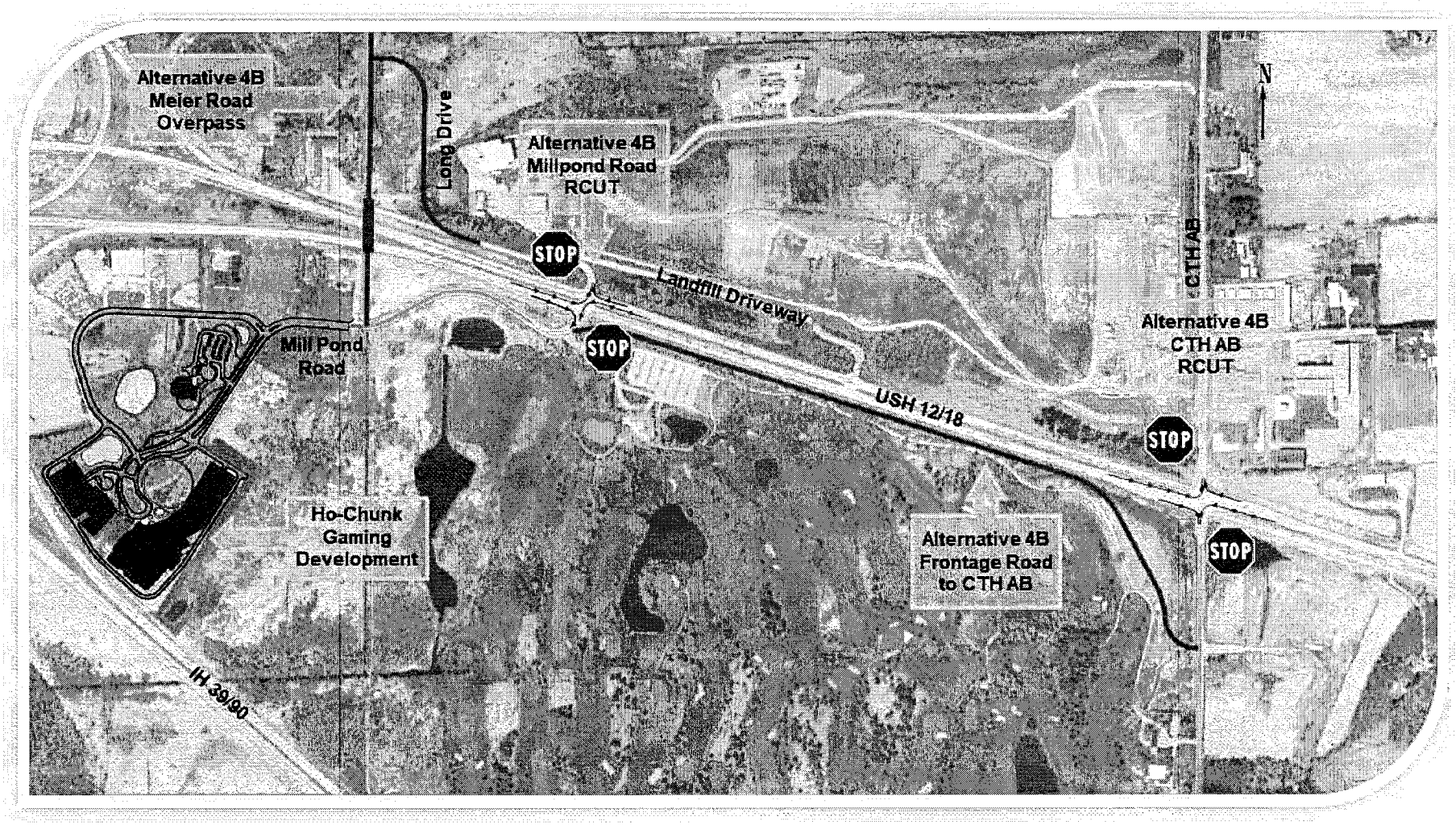

Figure 10.
Alternative 4B: Millpond Rd & CTH AB RCUT w/ Frontage Rd and Meier Rd Connection.

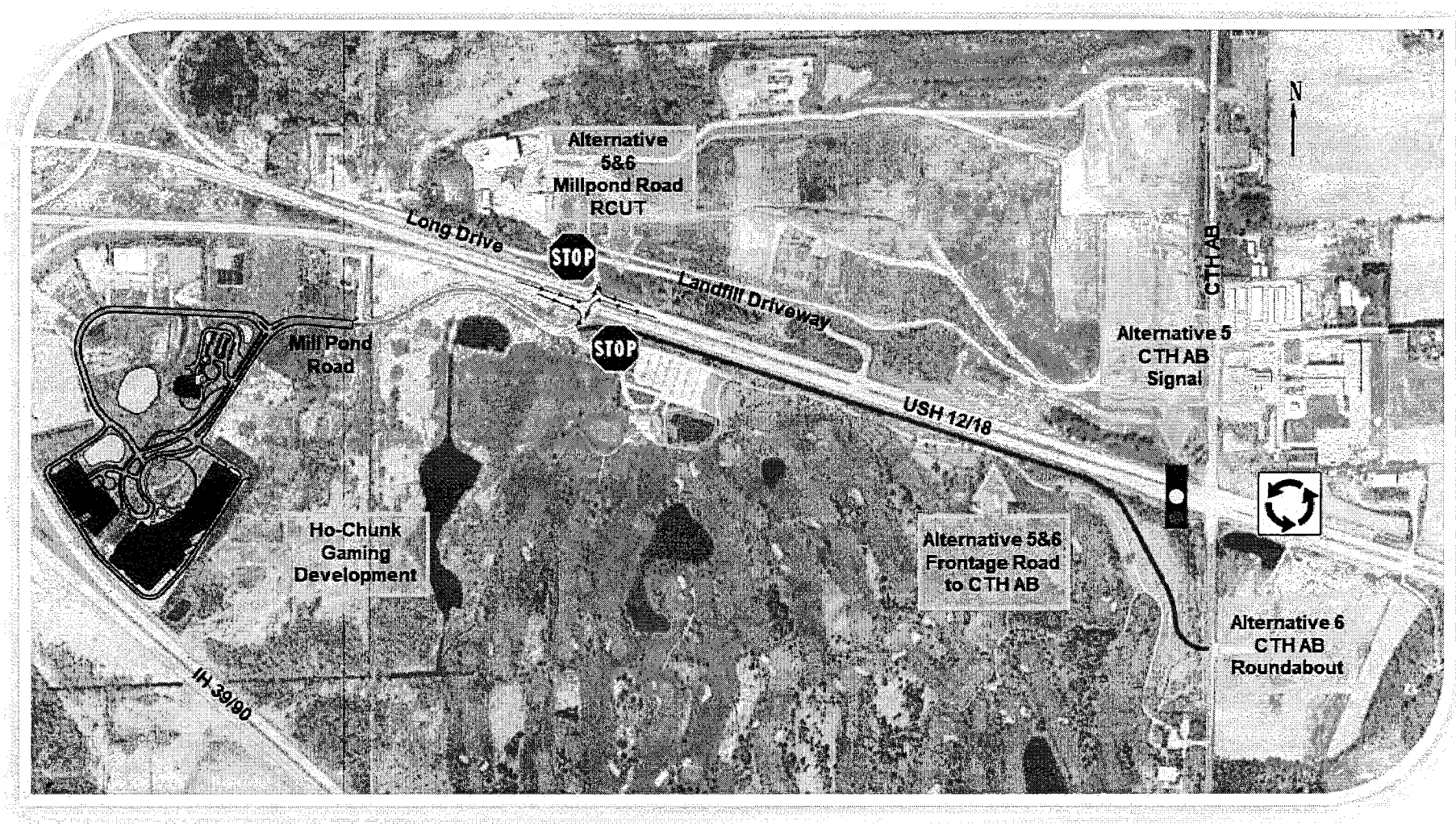

Figure 11.
Alternative 5: Millpond Rd RCUT and CTH AB Signal w/ Frontage Rd
and
Alternative 6: Millpond Rd RCUT and CTH AB Roundabout w/ Frontage Rd.

FUTURE ACCESS CONCEPTS

In the long term as future growth occurs within areas of the Yahara Hills Neighborhood (outside of the proposed Four Lakes District development) it is expected that any at grade improvements along USH 12/18 will likely be unable to accommodate the increased traffic demand. Options for long term access to be considered by jurisdictional agencies that will be compatible with USH 12/18 freeway conversion include the following alternatives.

Diamond Interchange along USH 12/18 at CTH AB

This concept would require a frontage road along the south side of USH 12/18 as shown in Figure 12 to accommodate redevelopment traffic after the freeway conversion. CTH AB would likely be realigned to reduce impacts to existing businesses on the north side of USH 12/18 along CTH AB. A new intersection would be created to connect the frontage road with CTH AB to accommodate traffic with the elimination of at grade access along USH 12/18. This concept was initially developed by WisDOT as part of USH 12/18 freeway conversion planning study, and was adopted into the Yahara Hills Neighborhood Plan.

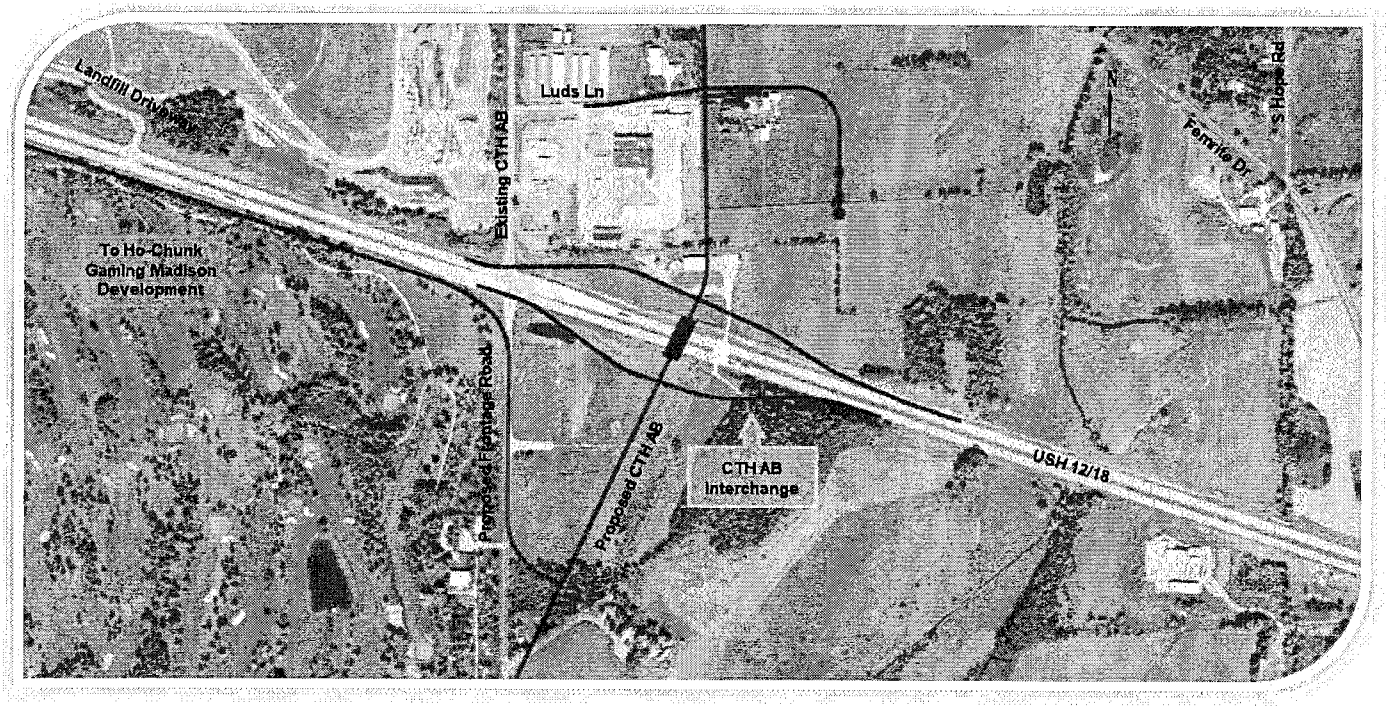

Figure 12.

Future Alternative: CTH AB Interchange on USH 12/18.

Overpass of IH 39/90 along Storck Road

This connection would provide an additional access from the south for not only the Four Lakes District redevelopment, but also a north-south connection for the Yahara Hills Neighborhood. The existing Storck Road would require a complete reconstruction and realignment from Siggelkow Road north to the overpass and would most likely follow the Yahara Hills Golf Course maintenance drive north of IH 39/90 as shown in Figure 13. Environmental concerns will include impacts to a significant wetland and golf course property to the north of IH 39/90. This connection is also likely to align with the Meier Road overpass of USH 12/18. This concept was initially developed by the City of Madison as part of the Yahara Hills Neighborhood Plan.

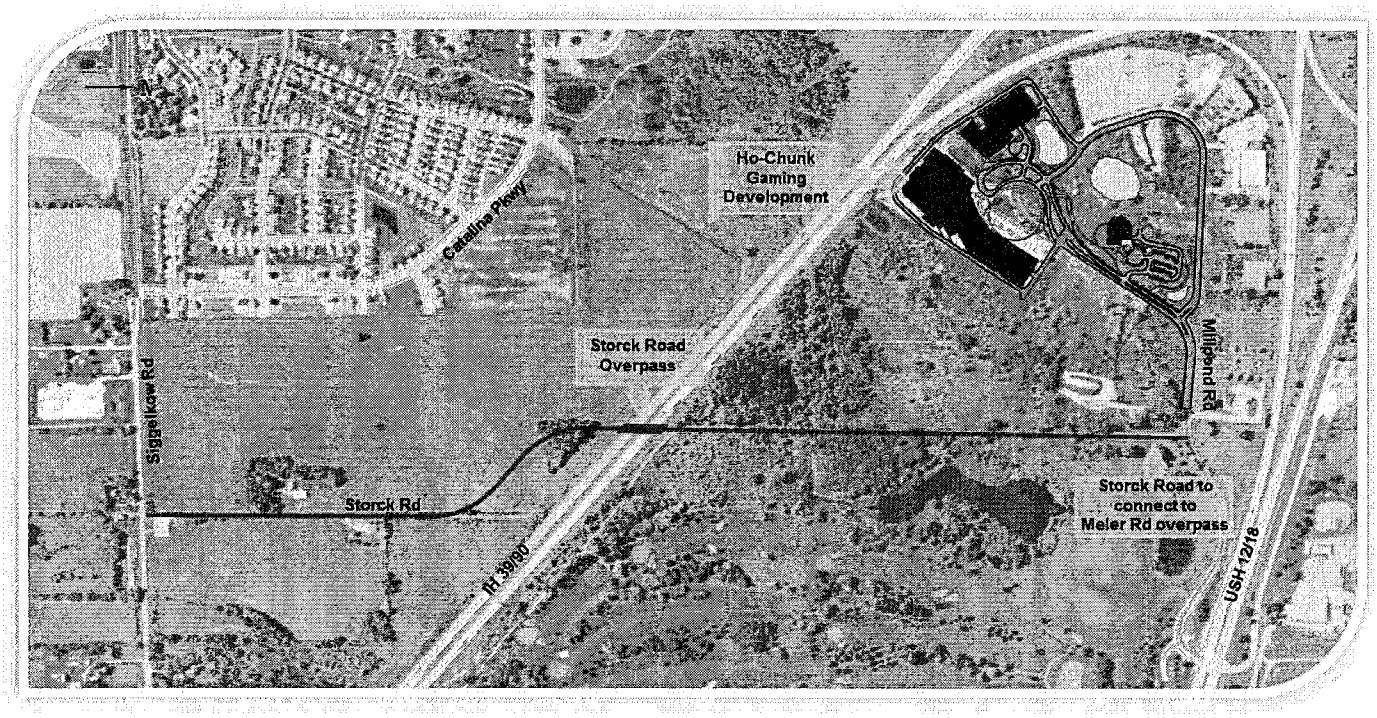

Figure 13.

Future Alternative: Storck Road Overpass on IH 39/90.

Interchange with CTH AB and IH 39/90

This concept would provide direct access to IH 39/90 to the Yahara Hills Neighborhood area and the Four Lakes District redevelopment site, alleviating traffic demand to the USH 12/18 interchange. The existing CTH AB overpass is approximately 1.8 miles south of the Beltline interchange and approximately 2.7 miles north of the CTH N interchange. AASHTO/FHWA guidelines suggest minimum spacing not be less than 1 mile in urban areas and 3 miles in rural areas. The CTH AB overpass was replaced in 2017 with a clear width of 52' to accommodate a single 12' lane in each direction with 6' shoulders and 8' future sidewalks.

In the area of the interchange there are significant utilities including a high voltage ATC electrical line running parallel to the interstate, and a cell tower site. To accommodate the anticipated traffic demand, the newly built structure may have to be widened, along with moving the access from Freeway Court and Brandt Road to the north as shown in Figure 14. A driveway on the south side of IH 39/90 would also likely be required to move. The concept of adding an interchange to the south of USH 12/18 has been discussed by several agencies in the past.

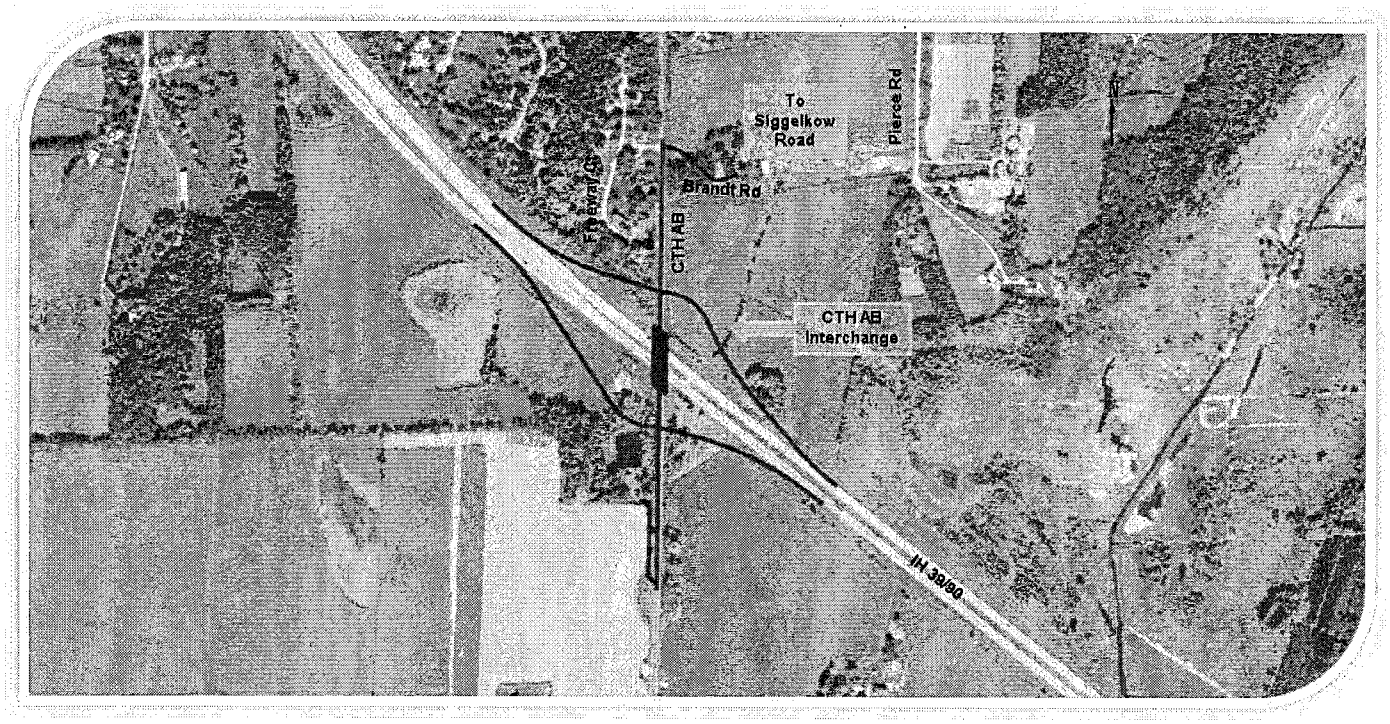

Figure 14.

Future Alternative: CTH AB Interchange on IH 39/90.

Interchange with Siggelkow Road and IH 39/90

This concept would provide direct access to IH 39/90 to the Yahara Hills Neighborhood area and redevelopment site, and would also alleviate the traffic demand to the USH 12/18 interchange. The interstate crossing of Siggelkow Road is approximately 1.2 miles south of the Beltline Interchange and approximately 3.3 miles north of the CTH N interchange. The southbound structure over Siggelkow Road was widened in 2014 and the northbound structure will be replaced in 2019 as part of the IH 39/90 Expansion Project. The new structures will accommodate the typical section of Siggelkow Road shown in Figure 16.

In the area of the interchange there is a significant high voltage ATC electrical line along with a pond in the southeast quadrant. In the northeast quadrant, the interchange may require the acquisition of a residential property. As shown in

Figure **15**, frontage roads on both the east and west side of the interstate would likely be required for access management along Siggelkow Road. Siggelkow Road would likely be realigned with CTH AB with roadway improvements northward to USH 12/18. The concept of adding an interchange to the south of USH 12/18 has been discussed by several agencies in the past.

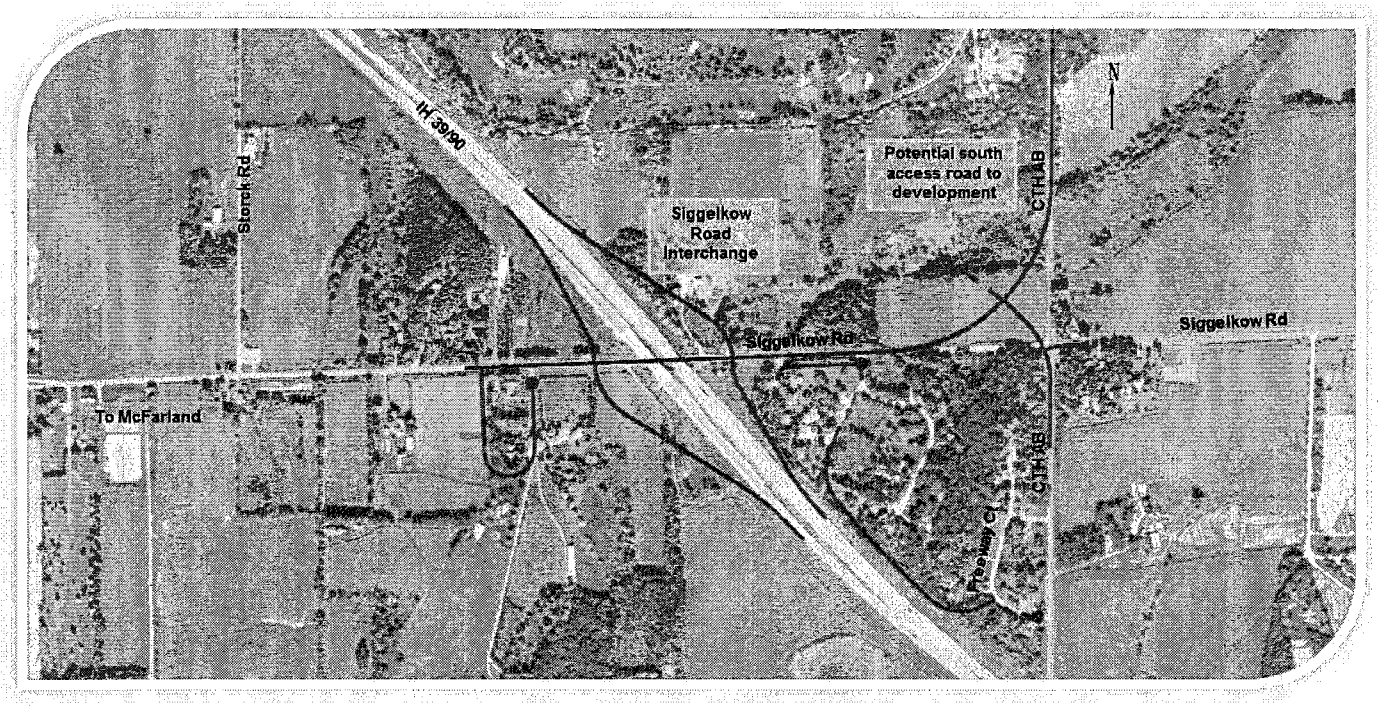

Figure 15.

Future Alternative: Siggelkow Rd Interchange on IH 39/90.

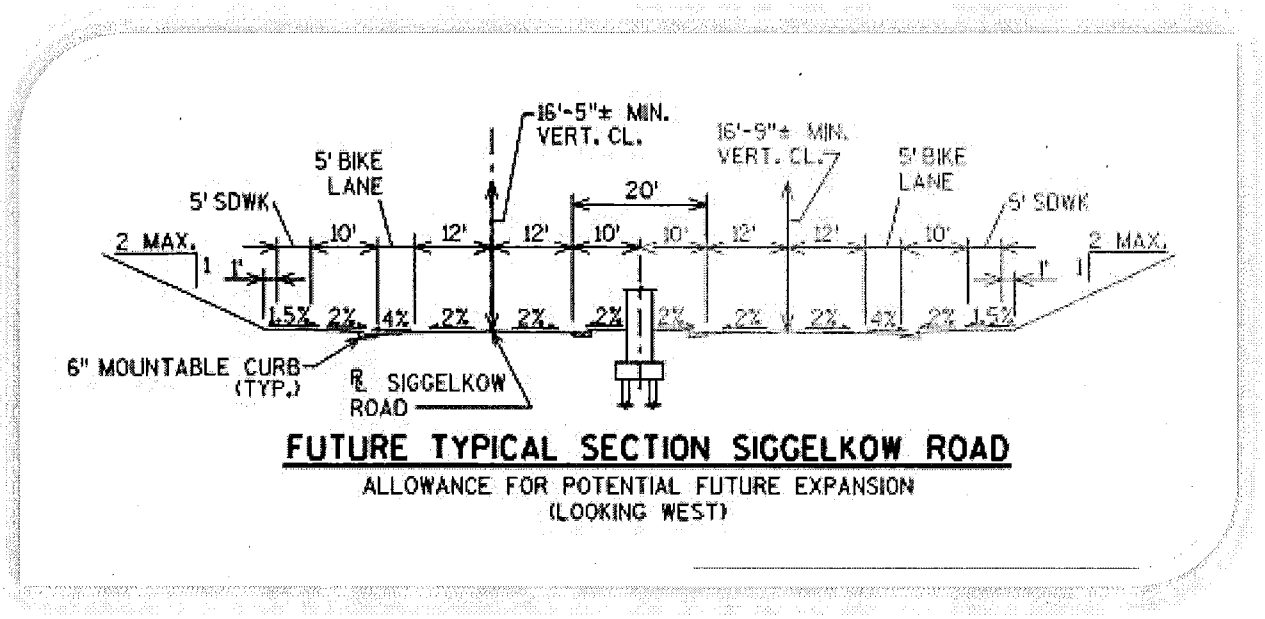

Figure 16. Future Siggelkow Road Typical Section.

MULTI-MODAL CONSIDERATIONS

Limited multi-modal facilities, and no public transit service currently exists at the HCGM site. With the increase in projected traffic, traffic demand management (TDM) strategies may be a measure to help reduce the number of passenger vehicles accessing the site, which would help minimize congestion on nearby roadways. As part of a future comprehensive traffic impact analysis for the Four Lakes District redevelopment, TDM strategies should be considered. These could include consideration of Madison Metro Transit route(s), private shuttles from nearby park & rides, paths for bikes and pedestrians, and other TDM strategies.

Providing accommodations for pedestrians, bicyclists, and transit routes will be more obtainable with the longer-range roadway concepts that are defined in the Yahara Hills Neighborhood Plan. Creating local road connections in the area can encourage alternative modes of transportation by providing lower speed and safer multi-modal facilities. With the construction of a local roadway network, transit routes and stops can be implemented, and multi-use paths/sidewalks can be constructed.

NEXT STEPS

The HCGM design team has recently submitted a site plan and land use application for City of Madison Plan Commission review and approval of the GDP at the upcoming June 10th meeting. WisDOT and the City of Madison are in the preliminary stages of designing roadway improvements in the proximity of this development, which include traffic flow and access modifications to/from the HCGM site. These anticipated projects may assist in providing safe and efficient movements throughout the nearby roadway network in the short term, and possibly over the long term depending on USH 12/18 freeway conversion plans.

Further traffic operations and access evaluation will be needed after GDP conditional approval. Completing a WisDOT Traffic Impact Analysis (TIA) study is expected to be a requirement for the development, and would allow for a comprehensive evaluation of future traffic operations, and access to and from the development site. The WisDOT TIA would include the following:

- Analysis of existing conditions
- Traffic forecasting
- Development trip generation, distribution, and assignment
- Traffic flow alternatives (short and long term)
- Access evaluation
- Traffic improvement analysis
- Design considerations
- TDM strategies and multi-modal connections
- Further coordination and negotiations with WisDOT, City of Madison, and Dane County
- Conclusions and recommendations for short term improvements with long term compatibility

As the redevelopment moves forward, continued coordination with multiple agencies, determination of possible funding sources, establishing a schedule for implementation of roadway projects will be required.

STUDY CONCLUSIONS

This initial traffic and access study concludes that multiple access alternatives, including at-grade alternatives along USH 12/18, may be viable to provide safe and efficient traffic flow to and from the site, and warrant further evaluation. Below is a summary of this initial assessment findings.

Traffic Volumes and Trip Generation

- The existing land uses on the site of the proposed Four Lakes District redevelopment currently generate 8,400 vehicles per day on average.
- The Four Lakes District redevelopment as proposed has been projected to generate a total of 18,000 vehicles per day on average. This includes existing and proposed land uses.

Existing Site Access Conditions

- Current site access conditions to the existing land uses on the redevelopment site requires all traffic to utilize the Millpond Road intersection to access USH 12/18.
- The Millpond Road intersection with USH 12/18 currently experiences significant traffic congestion during peak hours, and is ranked 2nd for crash severity in the City of Madison.
- Site access improvements will be needed in order to provide safe and efficient traffic flow to the proposed Four Lakes District redevelopment.

Compatibility with Long Range Plans

- The Wisconsin Department of Transportation's USH 12/18 Freeway Conversion Study has designated future improvements that would provide grade-separated access to areas north and south of USH 12/18, including the redevelopment site. There is currently no designated timeframe for freeway conversion.

- The City of Madison's Yahara Hills Neighborhood Plan includes multiple long-term transportation concepts intended to promote access and circulation to areas north and south of USH 12/18, including the redevelopment site. The neighborhood plan provides a framework for future planning and does not designate a timeframe for implementation of any transportation improvements.
- The roadway improvements identified with the USH 12/18 Freeway Conversion Study and the Yahara Hills Neighborhood Plan will require extensive modifications to the area transportation network including new alignments and property acquisition. Improvements of this nature will require agency sponsorship to complete, and will require a long term implementation timeframe.
- All short-term improvements to provide access to the Four Lakes District redevelopment site should be compatible with these long range plans.

Planned USH 12/18 Intersection Improvements

- WisDOT is currently pursuing two at-grade intersection improvements along USH 12/18, adjacent to the redevelopment area. These at-grade improvements are planned for the intersections of Millpond Road and CTH AB, and have been identified for funding as a stand-alone safety upgrade.
- In the short term, these at-grade improvements will allow for improved access to the Four Lakes District redevelopment site.
- In the long term, it is anticipated that both of the improved at-grade connections as proposed will be removed.

Meier Road Overpass Concept

- The City of Madison has developed a concept in the Yahara Hills Neighborhood Plan that includes an overpass of USH 12/18 connecting Meier Road with Storck Road, through the redevelopment site.
- In the short term, the Meier Road connection would include a "jug handle" type at-grade connection to USH 12/18. Traffic demand projected to be created by the proposed Four Lakes District redevelopment and other existing land uses is expected to experience significant traffic congestion with this as a stand-alone improvement.
- In the long term, the Meier Road connection is expected to have the at-grade USH 12/18 connection removed and require all traffic to utilize Femrite Drive to Stoughton Road (USH 51) or CTH AB in order to reach the Beltline and IH 39/90. These connections would provide indirect and inefficient access to the site as a stand-alone improvement, and would require all redevelopment traffic to travel long distances and utilize heavily congested intersections along Stoughton Road (USH 51).

Additional Short-Term Intersection Concepts

- Several additional at-grade intersection improvement concepts have been identified with this study as having potential to provide safe and efficient access to the Four Lakes District redevelopment site, prior to full implementation of the City of Madison and WisDOT's long range plans for USH 12/18.
- Additional short term at-grade improvements include connectivity via a south frontage road between the redevelopment site and new or upgraded at-grade intersections between Millpond

Road and CTH AB. The short-term improvements under consideration include roundabouts, traffic signals, RCUT's, and variations of each in combinations.

- It is expected that a minimum of two improved at-grade connections to USH 12/18 will be required in order to provide safe and efficient movements to the redevelopment site.
- Short term strategies could also include transit and TDM strategies to accommodate a portion of the traffic demand created by the redevelopment site.

Next Steps

- Future planning efforts for the Four Lakes District redevelopment will require a comprehensive traffic and access study (TIA) be completed for WisDOT approval of the anticipated traffic impacts to USH 12/18.
- Continued coordination with the City of Madison, WisDOT, and Dane County will be needed in order to identify a more detailed understanding of the current and future traffic flow and access requirements of the site.
- Planning and coordination efforts should include an evaluation of at-grade improvements in the short term, and ensure compatibility with long range plans.

The conclusions of this study include a request to conditionally approve the General Development Plan that is currently under consideration by the City of Madison Plan Commission with the allowance for consideration of at-grade access solutions. Further evaluation of traffic flow and access improvements to the development site can be completed with support by the City of Madison, contingent on a comprehensive traffic study being completed in accordance with WisDOT standards.