

**INFORMATIONAL  
REQUIREMENTS FOR  
PRACTICABLE ALTERNATIVES  
ANALYSIS FOR PROJECTS  
IMPACTING WETLANDS** (Revised  
October, 2014)

*The Practicable Alternatives Analysis is an important process the applicant is responsible for conducting to thoroughly evaluate and verify the proposed project cannot avoid wetland impacts and that the project alternative selected minimizes wetland impacts to the maximum extent practicable while meeting the basic project purpose. It is very important to provide as much information and detail as possible on the range of alternatives considered along with supporting documentation as your information is used by Department Permit Review Staff to verify project meets the requirements established in law, Section 281.36, Wis. Statutes, and applicable General Permits eligibility standards.*

*WI Department of Natural Resources (DNR) and U.S. Army Corps of Engineers (ACOE) permit review staff will conduct an evaluation to determine the environmental impacts of the project, including impacts to wetland water quality standards outlined in NR 103, Wis. Administrative Code. If the project results in significant adverse impacts to wetlands or natural resources, the project does not meet the requirements established in law and a permit cannot be granted.*

*Note: The ACOE requires applicants to complete PAA for those projects that impact not only wetlands, but also other waters, such as lakes, rivers and streams and may utilize this outline for those projects as well.*

***DIRECTIONS:*** *All questions below must be answered in detail and supported with documentation. This includes information required in a Practicable Alternatives Analysis Supplement, if one is available for the proposed project activity as noted in Section 2 and Section 3 below. Attach your Practicable Alternatives Analysis to your wetland permit application along with the other informational items required for a complete application package.*

***ASSISTANCE:*** *If you have questions about this PAA outline please contact the DNR Water Management Specialist or the U.S. Army Corps of Engineers Project Manager for the county where your project is located for assistance. You may also request a pre-application meeting with DNR and ACOE permit reviewers to help you further understand the PAA process, the minimum project alternatives required and any project specific alternatives that should be considered for your project. Note, agency staff can help provide you with guidance, but the applicant is responsible for preparing and submitting a complete PAA and other application materials.*

## SECTION 1 – PROJECT BACKGROUND

### *1. Describe the basic purpose and need for the project.*

The purpose of the proposed project is to address traffic growth, safety, and emerging and forecasted operational deficiencies on both US 18/151, between the W. Verona Avenue/Epic Lane and the County Trunk Highway (CTH) G/Dairy Ridge Road interchanges, and along CTH PD in the City and Town of Verona. Traffic has increased primarily due to the growth of Epic Systems Corporation (Epic), a large employer in Dane County with a campus located in the City of Verona, and, to a lesser extent, single and multi-family residential growth in the City of Verona. Verona is one of Wisconsin's fastest growing communities (per US Census data, the population grew by over 30% between 2010 and 2020).

To accommodate the growth in regional traffic, Wisconsin Department of Transportation (WisDOT) completed the freeway conversion of US 18/151 in Fitchburg at Williamsburg Way and CTH PD (McKee Road) in 2020, removing two at-grade intersections in the segment surrounding the project area. Dane County completed the CTH PD / CTH M reconstruction project in 2020, including expansion of CTH M to 4-lanes and a new intersection at CTH PD/McKee Road & CTH M with a bypass lane for westbound through traffic. Both projects removed upstream bottlenecks, allowing traffic to reach Epic Campus more quickly, which has increased pressure on existing roadway networks in and around the City of Verona.

The City of Verona has been monitoring traffic since 2002 and has coordinated incremental improvements to the surrounding roadway network as Epic has grown and transportation issues arise. In 2021, in response to the increasing volume of traffic due to WisDOT/County projects and growth at Epic and in Verona, the City of Verona began a traffic impact analysis (TIA) study. The purpose of the study which is ongoing, is to establish existing traffic volumes, determine projected traffic volumes based on planned development in the City of Verona, and design roadway and operational improvements required to mitigate the projected traffic safety concerns and capacity impacts that will result from near and long-term growth. Initial results from this study recommended improvements which have already been designed and built along CTH PD, Northern Lights Road, and US 18/151 that improved existing safety and operational issues.

During the TIA process, the City consulted with Epic on their near-term and long-term plans for expanding their campus (Figure 1).

- Current: Epic currently has five campuses and 13,000 employees (December 2023).
- Near-term: Campuses 6 and 7 are currently in the planning and early construction phases of development. Buildings on these campuses are expected to start opening in Fall 2025. It is anticipated that Campuses 6 and 7 will house 4,000 to 5,000 additional employees by the early 2030s.
- Long-term: Epic's long-term, high-level master planning forecasts estimate 25,000 employees by 2050 with future growth anticipated on both sides of the Sugar River on land owned by Epic.

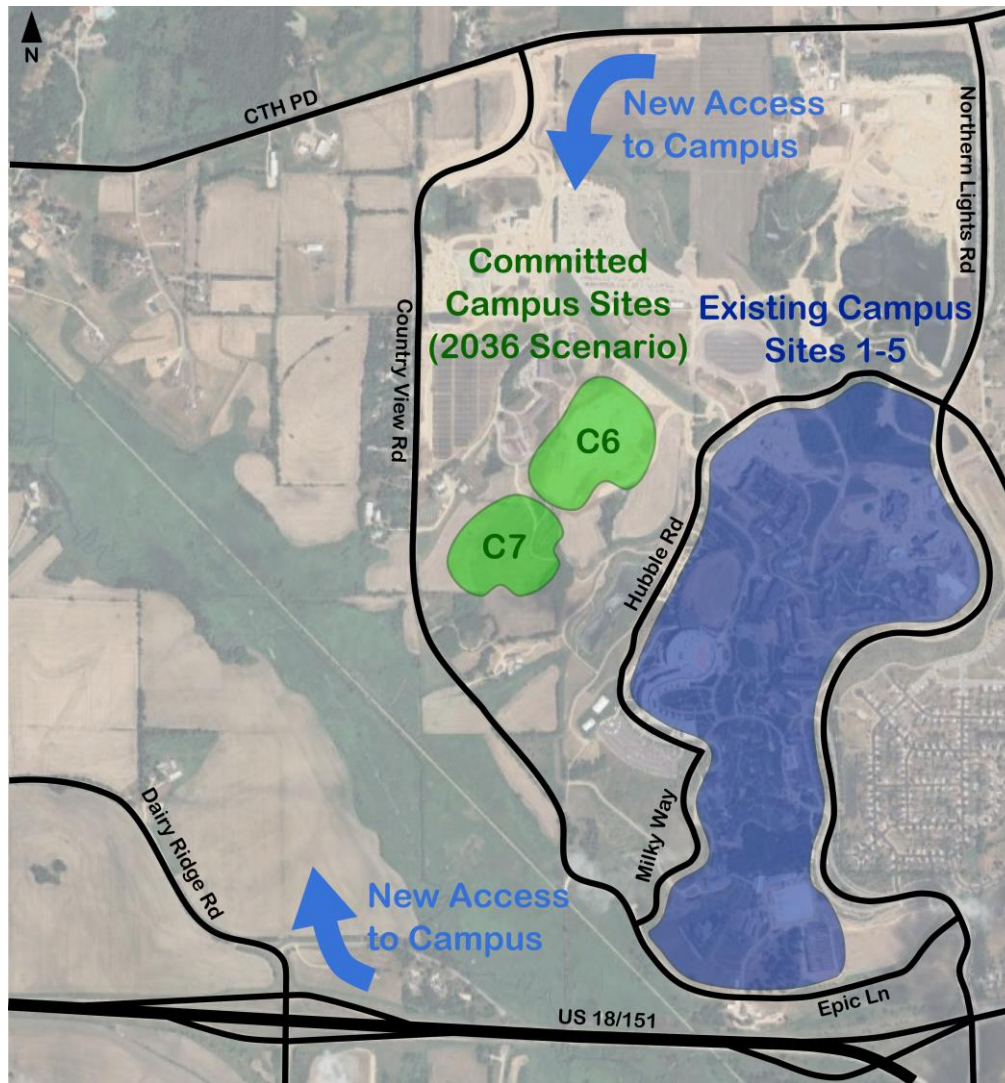


Figure 1- Committed Campus Sites

US 18/151 and CTH PD are the two main roadways used to access the Epic campus; there are no other corridors that can provide access to Epic campus. As shown in Figure 2, there are currently two main access points on the eastern boundary of Epic campus that account for 91% of traffic entering campus (based on 2022 traffic data collected as a part of the TIA): 1) At the southeast: US 18/151 to W Verona Ave/Epic Lane intersection, and 2) At the northeast: CTH PD & Northern Lights Road intersection. Because infrastructure does not exist on the western boundary of Epic campus to accommodate any significant traffic load, nearly all traffic enters Epic campus via Northern Lights Road. The TIA identified that the two existing access points do not have the capacity to handle the forecasted additional traffic resulting from near and long-term planned campus growth and that queuing and backups will cause operational and safety concerns to vehicles on US 18/151 and CTH PD.

Access to the western boundary of Epic's campus is required to handle traffic to Campuses 6 and 7 and future campuses west of the Sugar River. As shown in Figure 2, two additional access points are proposed on the western boundary of Epic's campus: 1) At the southwest: US 18/151 & Dairy Ridge/CTH G, and 2) At the northwest: CTH PD & Country View Road intersection (note that a portion of this was constructed in 2023, with the next phase of construction planned for 2024).

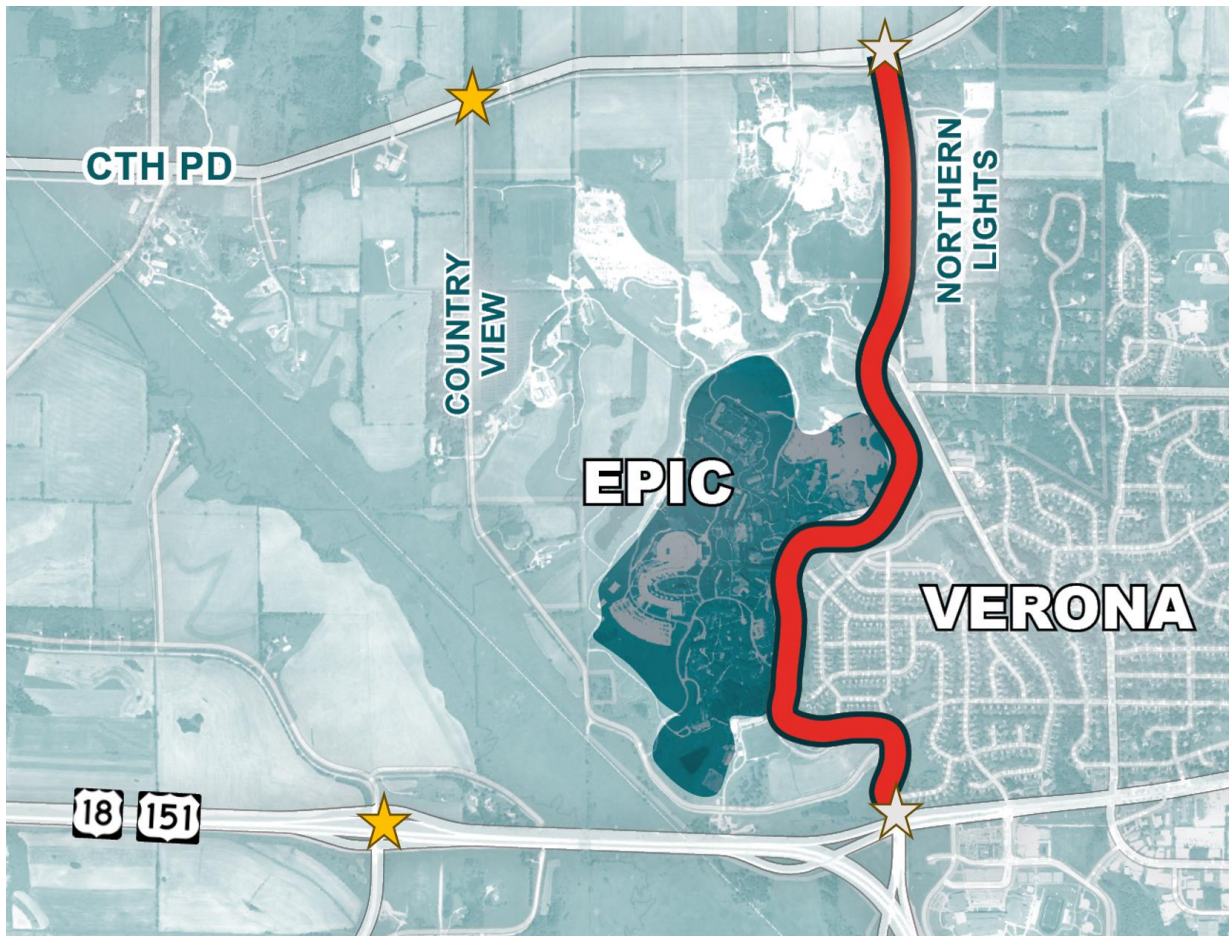


Figure 2-Main Access Points (White – Existing Main Access Points, Gold – Proposed Access Points)

With the forecasted growth at Epic and in the City of Verona, significant traffic congestion and safety concerns will occur if no changes are made to the transportation network. This is further discussed in Section 1, Question 5. Therefore, there is a need for a more robust solution that addresses both near-term and long-term growth in the area. As part of alternatives development, the following criteria were developed to meet the purpose and need of the project:

1. Meets operational and safety requirements to handle near-term and long-term forecasted traffic (e.g. secondary access points)
2. Minimizes net environmental impacts (wetland, floodplain, Military Ridge State Trail (MRST)) while providing improved Sugar River access to the public (bike, pedestrians, kayak, trout fishing, etc.)
3. Consistent with the near-term and long-term growth plans in the region
  - a. Based on Epic's growth history, one important criterion to the City of Verona and Epic is that any new facility be publicly owned and be located to accommodate future growth without having to relocate a facility. Northern Lights Road was moved two times between 2005 and 2017, with additional expansion work occurring every couple of years, which causes disruption to City residents and Epic employees and is costly.

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4. Minimize relocation of existing infrastructure (buildings, underground utilities, geothermal, solar fields, etc.)

WisDOT is currently designing roadway improvements at the CTH G/Dairy Ridge interchange as well as adding auxiliary lanes (both directions) between CTH G and W Verona Avenue interchanges and W Verona Ave and STH 69 interchanges (eastbound). Construction of these projects will occur in 2025.

*2. Is your project an expansion of existing work or is it new construction?*

The project is new construction.

*3. When did you start to develop a plan for this project (month/year)?*

The City of Verona has been monitoring traffic since 2002 and has coordinated incremental improvements to the surrounding roadway network as Epic has grown and transportation issues emerged. This specific project was identified as a need as a part of the traffic impact analysis (TIA) study that began in November 2021 and is ongoing.

*4. Are you the current owner or easement holder of the property? If so, how long have you owned the property? If you are not the property owner, please provide the current owner's name and contact information.*

Epic is the current landowner of the proposed alternative alignments described in this report. Project alternatives were constrained to Epic-owned property in the City/Town of Verona, with the expectation that the City of Verona will eventually own and maintain any public improvements that are constructed. Wisconsin Department of Natural Resources (WDNR) owns the MRST. A parcel map can be seen in Section 2 Question 3.

Epic's contact is Jim Schumacher at 608-271-9000 or jschumac@epic.com.

*5. Explain what the consequences are of not building the project. Include social and economic consequences, as well as other pertinent information.*

If the project was not constructed, it would cause severe traffic operation and safety concerns in and around the west side of the City of Verona, particularly at two main access points to the Epic campus. Those two access points at US 18/151 & W Verona Ave/Epic Lane and CTH PD & Northern Lights Road intersection account for 91% of traffic entering campus based on 2022 traffic data.

The existing two main Epic campus access points and Northern Lights Road do not have the capacity to handle the additional traffic resulting from near-term and long-term planned campus growth.

1. US 18/151 & W Verona Ave/Epic Lane – At the westbound off-ramp at US 18/151 & W Verona Ave/Epic Lane, the TIA identifies queue spilling back onto the westbound US 18/151 mainline at the W Verona Ave/Epic Lane interchange daily during the morning rush hour (AM Peak). Queues on US 18/151 represent a significant safety concern with the mixing of high speed (65mph) traffic with stopped vehicles.
2. CTH PD & Northern Lights Road intersection – At the CTH PD & Northern Lights Road intersection, the TIA identifies westbound left turn lane queue spill back outside of the through lanes and east of the CTH PD & Woods Road intersection.

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To provide some context behind why there will be traffic operation and safety concerns in the future in this area, more detail is provided, below, related to traffic growth/economics, operational deficiencies and safety, and route importance/access points.

### Traffic Growth/Economics

Verona has experienced significant growth on its west side since 2012, particularly as related to employment growth in the region and peak period travel. Epic campus is located within this area and has grown from 4,050 employees in 2012 to over 11,605 employees in early 2023. At the key interchange of US 18/151-W. Verona Ave/Epic Lane, westbound off-ramp traffic since 2012 has increased 79% overall and 7.2% per year; eastbound on-ramp demand has increased 44% overall and 4.0% per year. As traffic volumes have reached the capacity of the existing infrastructure for these movements, congestion during the peak hours is increasing in severity and duration. Recent improvements – including off-ramp expansion in 2013 and the addition of a westbound auxiliary lane in 2022 – have not kept up with growth in traffic volumes, and additional development on the west side of Verona is likely to drive further transportation demand.

As discussed in Section 1, Question 1, Epic is committed to building Campuses 6 and 7. Construction of Campuses 6 and 7 has already begun and is expected to be complete in the early 2030s. These campuses could house 4,000 to 5,000 employees.

Lastly, Epic's long-term master planning has looked at the possibilities for Epic to grow to a size of 25,000 employees by 2050. See Figure 1 in Section 1, Question 1 that includes locations of committed campuses 6 and 7 (Figure 5 illustrates Epic owned property on both sides of the Sugar River).

### Operational Deficiencies & Safety

In 2020, WisDOT completed the freeway conversion of US 18/151 at Williamsburg Way and CTH PD, removing two at-grade intersections in the segment surrounding the project area. The images below show the pre-construction and post-construction of US 18/151 roadway improvements. This project improved the capacity of US 18/151 north of Verona by alleviating bottlenecks (at grade crossings) that ultimately limited traffic volumes in the vicinity of the US 18/151-W Verona Ave/Epic Lane interchange. The removal of these at grade crossings and the growth of the west side of Verona has resulted in increased US 18/151 traffic that is impacting interchange operations on the west side of the city.



**Pre-Construction (Source: Google Earth)**



**Post Construction (Source: Google Earth)**

*Figure 3-US 18/151 (Verona Road) Project*

Following the completion of the US 18/151 freeway project (Figure 3), the primary bottleneck for AM commuters was shifted to the US 18/151 & W Verona Ave/Epic Ln interchange. Growing congestion on the ramps at this interchange led to the addition in 2022 of an interim auxiliary ramp lane to improve safety and address operational concerns caused by the queuing of traffic back onto the westbound US 18/151 mainline at the W Verona Ave/Epic Lane interchange. This project (Figure 4) added a westbound auxiliary lane between the STH 69 interchange and the W Verona Ave/Epic Lane interchange and changed the off-ramp from a 1-lane exit to a 2-lane exit.

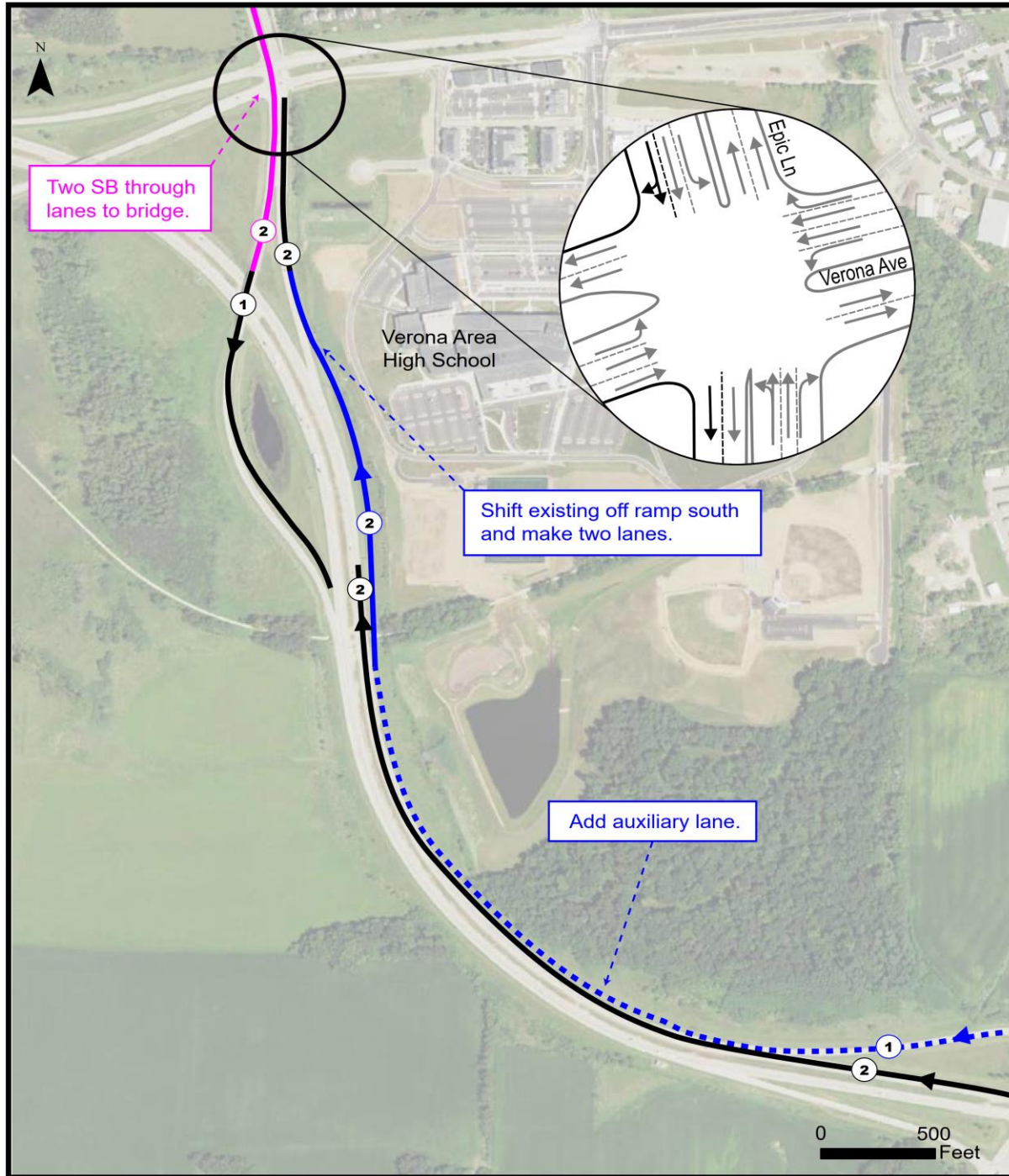


Figure 4-2022 Roadway Improvement Project

The addition of the auxiliary ramp lane reduced the queue length in the AM peak so that queues no longer extended to the westbound US 18/151 mainline. However, due to existing and planned development, traffic continues to grow. Queues on the off-ramp are anticipated to exceed capacity in the future leading to traffic delays, congestion, and potential for safety issues.

The City of Verona has been proactive in addressing congestion at the US 18/151 & W Verona Ave/Epic Lane interchange, adjusting traffic signal timings to maximize the green time for the westbound off-ramp



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in the AM peak and eastbound on-ramp in the PM peak. These changes have resulted in very minor operational improvements. The traffic operations deficiency at the US 18/151-W Verona Ave/Epic Lane interchange is now primarily associated with the signalized intersection, which bottlenecks traffic and impacts two primary movements to and from US 18/151:

- Westbound off-ramp in the AM peak
- Eastbound on-ramp in the PM peak

The traffic modeling completed as part of the auxiliary ramp lane project indicated a queue length of 1,350 feet on the westbound off-ramp during the AM peak post auxiliary lane construction in 2022, a reduction from 2,300 feet pre-auxiliary lane construction. The near-term growth in traffic that is anticipated to utilize this interchange is expected to result in queues up to or beyond 2,900 feet. This queue length would exceed the two-lane off-ramp length, resulting in queuing of traffic back onto the US 18/151 mainline. This is a major safety concern with stopped traffic on a 65 mph freeway.

The congestion on the westbound off-ramp in the near future will result in vehicles traveling westbound well below the posted speed in the outside US 18/151 travel lane and queuing is expected to extend onto the west bound US 18/151 mainline. This will result in exiting traffic beginning to slow down as early as the WIS 69 (Paoli Street) interchange 1.25 miles east of the congestion occurring at the interchange. While traffic will be slow in advance of the off-ramp in the right lane, through vehicles will try to maintain freeway speeds in the left lane, causing significant speed differentials between lanes and resulting in the potential for safety issues.

CTH PD was also improved in 2022 by extending the two westbound left turn lanes at the CTH PD & Northern Lights Road intersection.

The City of Verona has experienced much higher volumes along CTH PD during the second half of 2023 due to the US 18/151 lane closures as a part of WisDOT's US 18/151 (Town Hall Road to Fitchrona Road) repaving project. During that project, CTH PD consistently queued past the CTH PD & Woods Road intersection and along the entire length of Northern Lights Road between Hubble Road and CTH PD. These higher construction related traffic volumes, are still less than the expected number of trips coming from the near-term forecasted future growth of 4,000-5,000 employees.

#### Route Importance/Access Points

US 18/151 is a key regional route serving local and long-distance travel in south-central Wisconsin. It is an important link for a thriving regional economy in an area planning for considerable growth and development. Planned development on the west side of the City of Verona will not be adequately served by the existing roadway network and access points, which have reached capacity under existing traffic volumes. Southwest Dane County is among the state's fastest developing areas, and US 18/151 is the key access route linking the region to the rest of Wisconsin.

CTH PD is a 4-lane divided principal arterial roadway that is a vital county road that provides access to the Epic Campus from the north.

The US 18/151 and CTH PD are the two main roadways used to access the Epic campus. Traffic coming from the east on these two roadways have similar traffic volumes entering and exiting the site.

These two key corridors provide direct access to the Epic campus and play a key role in providing access to the committed and future campuses. There are no other corridors that can provide access to Epic Campus. Therefore, these two corridors need to be able to provide additional access points; otherwise,

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queuing and backups will cause delay and jeopardize the safety of all vehicles on US 18/151 and CTH PD.

### Summary

The existing roadway network and access to Epic and the west side of the City of Verona is currently strained and will soon be over capacity and will not be able to serve the additional forecasted traffic associated with the growth at Epic.

#### *6. Explain why the project must be located in or across wetlands.*

The TIA has determined that western access points along CTH PD and US 18/151 are critical to meet the purpose and need of the project as described in Section 1, Question 5.

A new major thoroughfare (Referred to as the West Road) will be needed to connect CTH PD to US 18/151 and providing access to the west side of the Epic campus. The West Road will be similar in function to Northern Lights Road, connecting CTH PD to US 18/151, and serving as a major public thoroughfare on the edge of Epic's campus. Any alternative route for the new west thoroughfare given the geography of the area will include a new crossing of the Sugar River and would be located in or across wetlands.

## **SECTION 2 – DEVELOPING PROJECT ALTERNATIVES**

*Your analysis must address the following questions. Certain project types have specific standard “avoid and minimize” alternatives that you are required to consider. There are activity-based Practicable Alternatives Analysis (PAA) Supplements available for (1) Private Roads/Driveways; (2) Commercial/Residential/Industrial Structures; (3) Utilities; (4) Recreational Trails; and (5) Solid Waste Disposal Facilities. You are also required to consider avoid and minimize project alternatives that may be unique to your project and/or site. For each alternative analyzed, please show the location of the alternatives on an aerial photograph and clearly label each alternative.*

*1. How could you redesign or reduce your project to avoid wetlands and still meet your basic project purpose?*

A wide range of alternatives were developed during this process. Here is the list of alternatives and associated exhibits that will be discussed in the following sections/questions:

- Alternative 0 – No Build
- Alternative 1 – West Verona Ave Interchange (Exhibit 1)
- Alternative 2 – (Exhibit 2-1 and 2-2)
- Alternative 3.1 – (Exhibits 3.1-1, 3.1-2, 3.1-3)
- Alternative 3.2 – (Exhibits 3.2-1, 3.2-2, 3.2-3, 3.2-4, 3.2-5)
- Alternative 3.3 – (Exhibits 3.3-1, 3.3-2)
- Alternative 4 – (Exhibit 4)
- Alternative 5 – (Exhibit 5)

As part of the alternative’s development, the project analyzed alternatives that did not impact existing wetlands; however, these alternatives do not meet the purpose and need of the project as described in Section 1.

Alternative 0 is a “no build” alternative, which does not fulfill the purpose and need of the project. In a no-build scenario, the number of Epic employees will continue to grow, and traffic volumes and safety issues will continue to worsen. The existing access points (US 18/151 and CTH PD) and Northern Lights Road cannot handle the additional traffic to Campuses 6 and 7 and potential future campuses. Please see discussion in Section 1, Question 5 for more details.

Alternative 1 is a concept to expand the West Verona Avenue interchange, which would avoid wetland impacts. Due to current and projected campus growth, the interchange would not have the capacity from a traffic perspective, even with the significant improvements shown in Alternative 1. Epic also anticipates the potential to grow their campus on the west side of the Sugar River as shown in Figure 5 (It shows Epic property ownership on both sides of the Sugar River).

The project considered whether existing Country View Road could provide a west side roadway access from CTH PD to Campuses 6 and 7 instead of a new alignment to the west but determined that it could not. Country View Road south of CTH PD has substandard roadway design (Steep, rolling hills) that restricts drivers’ stopping sight distance. With the high volume of traffic from Epic’s new campuses, this design is a safety concern. It would be expected to cause crashes due to the limited visibility of traffic over the hill. Based on the required typical roadway section/profiles needed to meet today’s safety standards, expanding Country View Road to four lanes along the existing alignment would impact existing homes on the west side of Country View Road in the Town of Verona, existing Epic-owned solar fields,

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and existing Epic-owned geothermal bore fields. Additionally, expanding Country View Road to four lanes does not add capacity at the US 18/151 to W Verona Ave/Epic Lane intersection. Without any capacity improvements or a secondary access point all traffic in the area entering via US 18/151 would have to go through the US 18/151 & W Verona Ave intersection causing it to fail from a traffic capacity standpoint.

Alternatives 2 through 5 all cross the Sugar River and would have a range of wetland impacts.

*2. How could you redesign or reduce your project to minimize wetland impacts and still meet your basic project purpose?*

### Background

As noted earlier, providing a secondary access point to the western side of the Epic site from US 18/151 is needed to meet the purpose and need. Using the existing interchange at Dairy Ridge Road / CTH G was determined to be logical and efficient connection to CTH PD. Several alternatives were considered and their impact on the Sugar River and associated wetlands was evaluated. The goal with each alternative is to minimize environmental impacts.

This new thoroughfare (West Road) is viewed as the boundary of Epic campus similar to how the existing Northern Lights Road creates a border on the east side of the Epic Campus. This new roadway will create a separation between external public roads and Epic's private campus. The existing public roads of Country View, CTH PD, Northern Lights Road, and Epic Lane surround the existing campus. These public roadways connect to Epic's private roads which include Milky Way and Hubble.

Another strong reason for placing the new west road on the outside edge of the campus is pedestrian safety. There is significant pedestrian traffic on campus with over 11,000 employees on site each day. Forcing this amount of pedestrian traffic to cross a high-volume public roadway would not create a safe environment for the different modes of traffic located on the private Epic Campus.

It is especially important to Epic for their functionality as a business and culture that a major public thoroughfare does not bisect their property. This new road would be able to accommodate both near and long-term growth in the area.

The goal of placing the road on the edge of Epic's property maximizes their property and avoids the scenario that occurred for existing Northern Lights Road. Northern Lights Road was reconstructed and relocated several times to accommodate growth, safety for pedestrians, and ensure the campus was not divided by public thoroughfares.

### Alternative Discussion

Alternative 2 is an option that directs traffic straight north of CTH G to new Campuses 6 and 7. This does not meet the purpose and need as it is inconsistent with future plans, this alternative would directly impact potential future campuses. This alternative does have the least amount of non-ruderal wetland impacts. It is inconsistent with Epic campus plans; it doesn't accommodate future traffic goals and doesn't create the separation between public roads and lower speed private roads.

Alternative 3.1 meets the purpose and need of the project by accommodating both current and future traffic and is consistent with future plans. Alternatives 3.2 and 3.3 are slight variations and were developed to help further minimize/reduce wetland impacts. This is discussed further in Section 3 Question 2.

Alternatives 4 and 5 were other alternatives considered but do not meet the purpose and need of the project. Alternative 4 is a concept that does not require a new crossing location across the MRST or the Sugar River. The concept uses the existing roadway network (e.g., Dairy Ridge, White Crossing Road,

CTH PD). However, the extra distance required to travel is ~4.0 miles from Dairy Ridge to access Campuses 6 and 7. Roadway infrastructure would need to be improved and the existing White Crossing Road bridge over the Sugar River would need to be raised resulting in wetland impacts. Alternative 5 would split the existing campuses from future campuses thus creating concerns with mixing higher speed public roads with private roads and heavy pedestrian movements. Most importantly these alternatives would require traffic in-direction to access Campuses 6 and 7. The indirection would not attract enough users resulting in traffic continuing to use existing connections to campus therefore not addressing the traffic operations and safety issues created by expected traffic growth.

*3. What other sites were considered for this project? Please include properties you currently own, have recently owned, adjacent parcels and properties available for sale in the area. Provide the geographic area(s) you searched for an alternative site and the specific location of other properties considered. For each of these properties considered, indicate why they were not selected whether or not they meet the basic purpose and need identified in Section 1. Available properties that meet the purpose and need should be considered further, particularly if they result in lower wetland impact compared to the selected alternative." If no other sites were considered, please explain why.*

The purpose and need of this project are based on addressing existing and planned traffic growth of the area. Significant investment has already been made at the existing site (First property purchased in 2002) with fully built-out Campuses 1 through 5 accommodating approximately 13,000 employees. Due to company culture and efficiency reasons, the Epic masterplan assumes all future growth to occur adjacent to or near the existing campuses. As shown in Figure 5, Epic owns considerable land in the area to accommodate this growth. Because of these reasons, no other sites were considered.

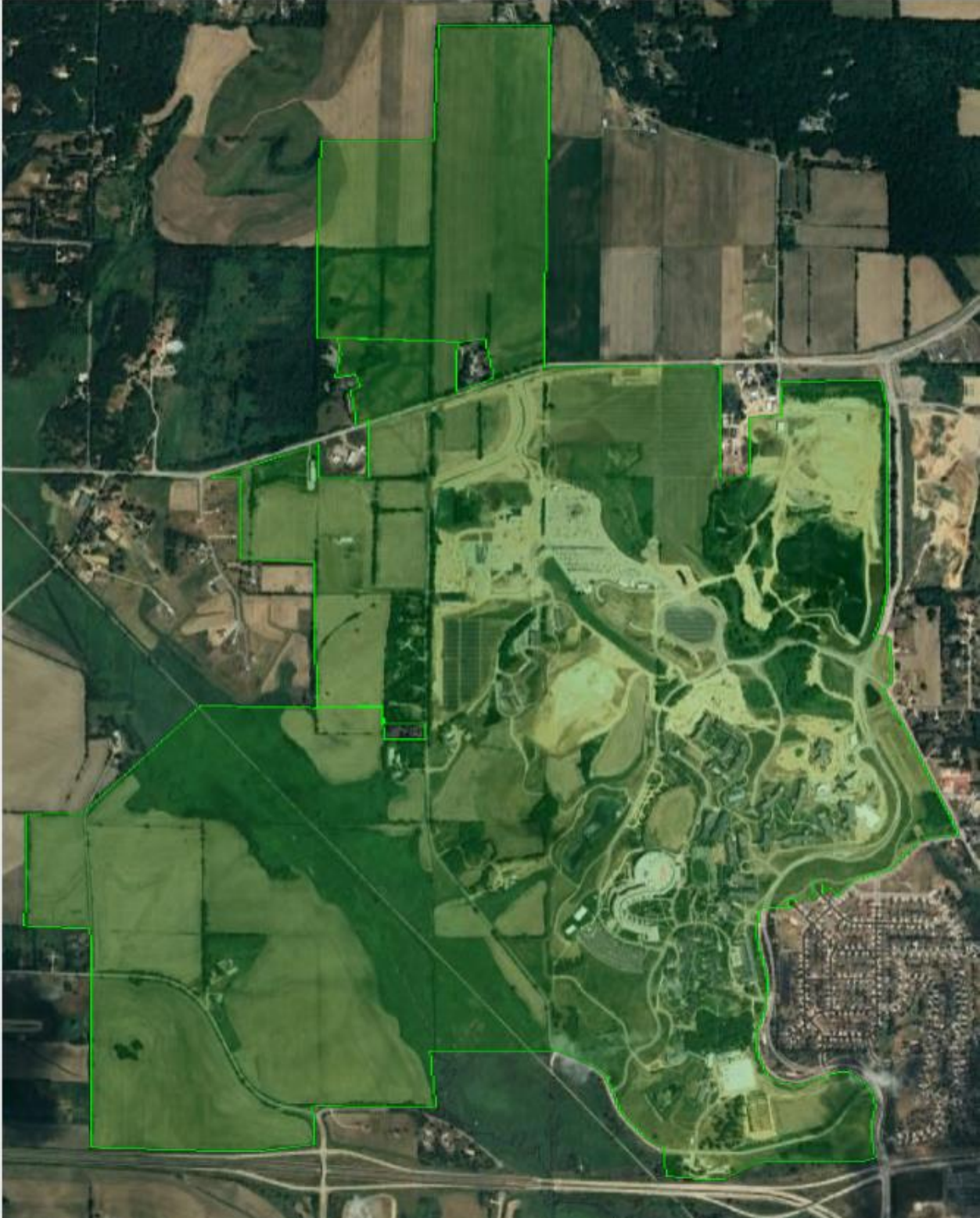


Figure 5 – Epic Owned Land

**SECTION 3 – EVALUATING PROJECT ALTERNATIVES**

For each alternative considered, the following information should be used to evaluate whether the alternative meets or does not meet the basic project purpose. In addition, quantitative and reliable supporting information should also be provided and includes information such as data, reports, studies, economic or cost comparison analysis and other pertinent information. If there is PAA Supplement available for your project type as noted in Section 2, Step 3 of the PAA Supplement outlines common supporting documentation applicants use to evaluate feasibility of an alternative and supply with their PAA submittal. Providing summary tables of the alternatives considered can provide a useful comparison of the alternatives and ease the review process. Each project alternative should be clearly labeled on an aerial photograph showing proposed location.

1. Will the alternative affect wetlands? If so please provide the acreage and type of wetland impacted.

Alternative 0, 1, 4, and 5 are not further evaluated in this section based on determination of not meeting the purpose and need as described in Section 1, Question 1.

Alternatives 2, 3.1, 3.2 and 3.3 were carried forward for further evaluation. Each alternative’s wetland impacts are shown in table below.

See the attached alternatives exhibits for details as well as the below *Table 1- Roadway Crossing Impacts*. Please note there are four criteria that are required to meet the purpose and need of the project as described in Section 1, Question 1.

Table 1 - Roadway Crossing Impacts

Alter. #	Wetland Impacts (Acres)						Purpose and Need Criteria				
	Temporary			Permanent			Criteria 1 (Access)	Criteria 2 (Environmental Impacts)	Criteria 3 (Growth)	Criteria 4 (Relocation)	Meet Purpose and Need
	Non-Ruderal	Ruderal	Total	Non-Ruderal	Ruderal	Total					
0	No Wetland Impacts						No	Yes	No	Yes	No
1	No Wetland Impacts						No	Yes	No	Yes	No
2	0.02	2.16	2.18	0.07	10.64	10.71	Yes	No	No	Yes	No
3.1	1.19	0.81	2.00	4.02	6.30	10.32	Yes	Yes	Yes	Yes	Yes
3.2	0.24	2.06	2.30	1.59	8.19	9.78	Yes	Yes	Yes	Yes	Yes
3.3	0.46	2.13	2.59	1.80	8.13	9.93	Yes	Yes	Yes	Yes	Yes
4	Does not meet purpose and need. Alternative 2 provides a more direct route.										
5	Does not meet purpose and need. Alternative 2 provides a more direct route.										

2. Provide resizing or reconfiguration options for each alternative to reduce or eliminate wetland impacts.

Alternative 2 was carried forward for further evaluation because it is the shortest distance across the wetlands and has the least amount of total non-ruderal wetland impacts.

Alternative 3.1 was the initial preferred location of a north crossing of the Sugar River. However, after the wetland delineation was completed, it was determined that this crossing of the Sugar River was directly through a section of non-ruderal wetlands.

As a result, Alternatives 3.2 and 3.3 were developed that provided alternate crossing locations in the same general area that minimized impacts to non-ruderal wetlands. Alternative 3.2 provides a less skewed crossing of the Sugar River and MRST compared to Alternative 3.3. Alternative 3.3 is located in an area of disturbed wetlands—an old roadbed on the east side of the MRST and a channelized portion of the Sugar River on the west side of the MRST, splitting the two areas of non-ruderal wetlands. Alternative 3.1 was not carried forward due to Alternatives 3.2 and 3.3 having less non-ruderal wetland impacts.

*3. What are the primary costs for developing the alternative?*

- *Primary costs may be converted to a cost/acre, cost/ton, cost/linear-foot or other appropriate figure for comparison purposes. However, please describe whether there is any aspect of an alternative that greatly inflates or reduces the primary costs for that alternative. Sunk costs should not be included in the analysis and include costs associated with the purchase of the property, consultant fees and other preexisting outlays not directly related to the selection of alternatives.*

Overall costs, including construction and maintenance, were developed for Alternatives 2, 3.2, and 3.3. The eventual owner of this roadway and structure will be the City of Verona. An alternative cost comparison was completed for a pre-cast arch crossing option for each remaining alternative. The City of Verona prefers options that lower the long-term maintenance costs of the structure.

*Table 2 - Alternative Cost Comparison*

Alternative #	Roadway Construction Cost	Structure Construction Cost	Maintenance Cost (75-year)	Overall Cost*	Meets Purpose / Need?
2	\$66,298,000	\$20,202,000	\$6,135,000	\$92,635,000	No
3.2	\$88,035,000	\$22,965,000	\$6,135,000	\$117,135,000	Yes
3.3	\$94,216,000	\$25,784,000	\$6,135,000	\$126,135,000	Yes

\*Costs do not include stream realignment or utility cost

The overall cost of Alternative 3.2 is less than Alternative 3.3 and both meet the purpose and need.

An additional cost analysis for Alternative 3.2 was completed to compare the cost between the pre-cast arch versus a bridge option as seen in Table 3. Please see the attached structure plan sheets to view precast arch layout.

*Table 3 – Precast Arch versus Bridge Cost for Alternative 3.2*

Type	Roadway Construction Cost	Structure Construction Cost	Maintenance Cost (75-year)	Overall Cost*
Precast Arch	\$88,035,000	\$22,965,000	\$6,135,000	\$117,135,000
Bridge	\$88,035,000	\$14,770,000	\$31,200,000	\$134,005,000

\*Costs do not include stream realignment or utility cost

The upfront cost for the bridge is cheaper than the precast arch alternative. However, the long-term maintenance cost of the bridge alternative is much more significant than the precast arch resulting in the precast arch being the more economical alternative overall.



*4. What are the logistical reasons that make an alternative not practicable?*

*Logistical constraints include, but are not limited to:*

- *Inability to meet other regulatory standards*
- *Construction Limitations*
- *Access or transportation concerns*
- *Site availability*
- *Existing infrastructure*

Alternative 2 does not meet the purpose and need as previously described. This alternative has access or transportation concerns related to separating future campus developments from the existing campus. It doesn't accommodate future traffic goals and doesn't create the separation between public roads and lower speed private roads. Separation between public roads and private roads is very important. This split would cause inefficiencies for staff moving between campuses and unsafe conditions for staff walking or biking between campuses across the busy public street. There is significant pedestrian traffic on campus with over 11,000 employees on site each day. This amount of pedestrian traffic mixing with a public roadway would not create a safe pedestrian or vehicular environment. It does provide a more direct connection to campus 6 and 7 without significantly re-routing. A four-lane publicly owned arterial splitting the campus would not align with the Epic campus master planning. This alternative would not allow Epic to maximize their property for future growth and would create a public roadway within a private campus.

Alternative 3.2 or 3.3 do not have any logistical concerns but Alternative 3.2 does have less wetland disturbance than Alternative 3.3.

*5. What are the technical constraints to an alternative?*

- *Technical constraints include inadequate depth to bedrock, inappropriate site geology, inadequate distance to groundwater, proximity to a contaminated area, unfavorable soils, creating adequate conveyance for both local drainage as well as the flood profile, or engineering concerns.*

Stormwater Management/Floodplain Constraints

The Sugar River has a mapped FEMA floodplain. It is required that development will not obstruct flow, not adversely impact insurable structures, and provide adequate freeboard from the 100-year flood profile (0.00 ft rise per WDNR regulation). Generally, Alternative 2 and 3.2 are feasible within these technical constraints.

All alternatives would be considered new development within the City of Verona or Dane County and require stormwater management control per City/County ordinances. The project will require peak discharge rate control, total suspended solids (TSS) removal control, and thermal control. Any stormwater discharges into the adjacent wetlands will be required to meet the Wisconsin protective area standards (NR151.245 / NR 151.125). These outlets would be required to meet 80% TSS removal before discharging. Alternatives 3.2 and 3.3 are feasible within these technical constraints using common best management practices (BMPs) such as wet detention ponds, grass swales and filter strips, and stormwater conveyance inlets with sumped inverts as needed.

Alternative 2 connects to Country View Road at an unfavorable location which is a technical constraint for stormwater conveyance and management. There are steep hills on the west side of the roadway and floodplain immediately to the east side. There are two existing culvert crossings that convey water from the

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north, a set of two 29"x45" elliptical reinforced concrete pipe (RCP) culverts and a set of two 19"x30" elliptical RCP culverts. The roadway connection would require over 8 feet of fill to convey water past these crossings so it can be treated per the required stormwater management control requirements.

In Alternative 2, there are limited options for common stormwater BMPs. A wet detention basin would be proposed on the west side of the floodplain with the pond built on fill above existing ground as there is limited slope to daylight an outlet pipe. The eastern side of the alternative would need to use underground detention and water quality systems such as 60-inch or greater RCP pipes buried under the roadway and/or concrete vaults to the north of Country View. These BMPs would be fragmented and less effective than a singular treatment location due to existing utilities and duct banks in this location.

Given these technical constraints, the stormwater management options for Alternative 2 have significantly higher construction costs and maintenance costs compared to the common methods available in Alternative 3.2 and 3.3.

#### Other Constraints/Notes

Epic contractors have extensive construction experience in the area and don't foresee any construction obstacles that can't be overcome.

Alternatives 2, 3.2, and 3.3 are in the same general location and similar geotechnical constraints are expected. Soil borings are still needed to further determine geotechnical constraints.

Roadway design and geometrics need to meet and follow Wisconsin Department of Transportation design requirements for a public street with a posted speed of 35 MPH. Horizontal curves, vertical curves, side slopes, widths, and clear zone all have specific minimum requirements. Vertical clearance over MRST must maintain a 12-foot of vertical clearance and must be a grade separated crossing.

#### *6. Are there impacts to other important natural resources?*

- *Archeological or historical sites*
- *Habitat for endangered or threatened species*
- *Environmental Corridors or Natural Areas*
- *Waterways*

#### Archaeological/Historical

A desktop survey was completed, and two potential archeological or historical sites were discovered. There are no known archeological or historical impacts with any of the alternatives. UW-Milwaukee will perform required field investigations for archeological and historical impacts in the Spring of 2024. The figure below depicts the alignment of Alternatives 2, 3.2 (including southern utility corridor and stream realignment), and 3.3 and potential archeological or historical sites that were found on the desktop survey. Note that stream remeandering alignment can be adjusted if needed as design progresses.

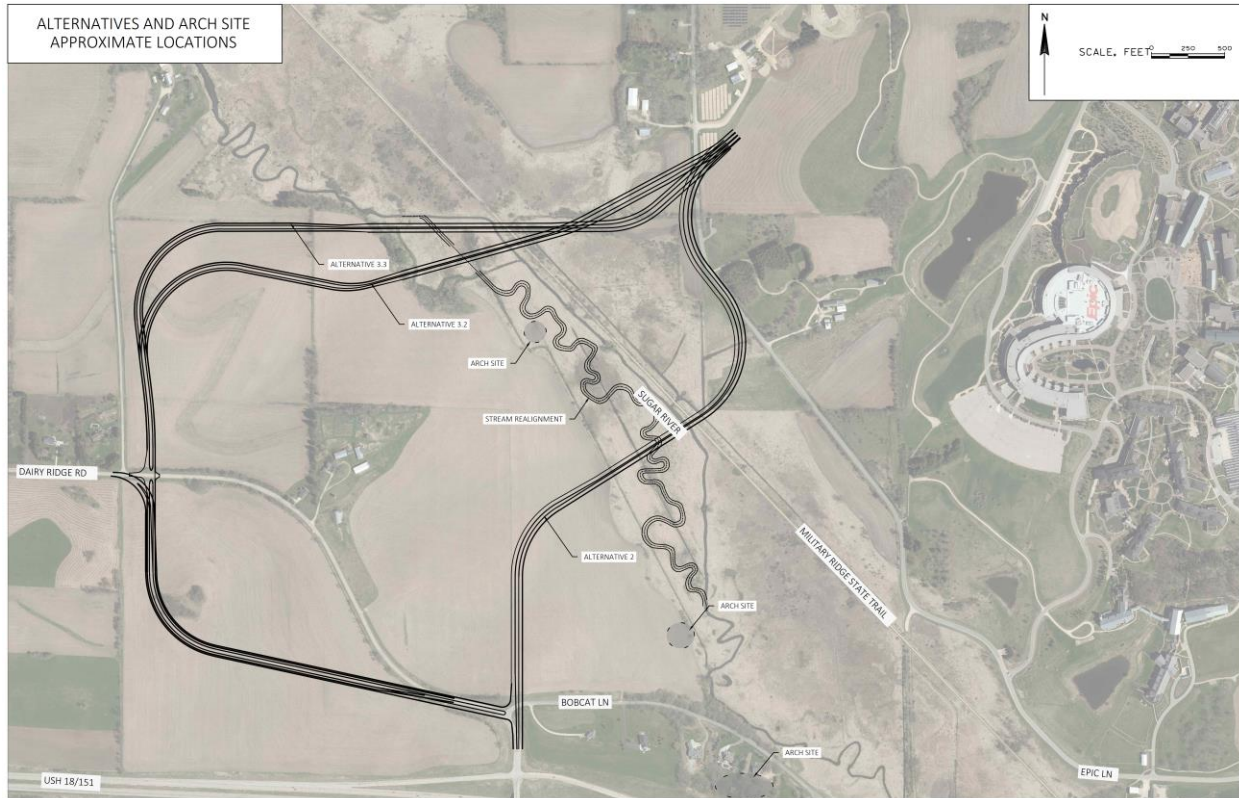


Figure 6 - Alternatives and Arch Site Approximate Locations

### Habitats or Endangered Species

An initial Endangered Resources Review (ERR) was conducted for the project site by AECOM in August of 2023. An updated ERR was conducted with the updated project area in February of 2024. This review identified that “further actions are required.” Heartland Ecological Group, Inc. conducted a rare species and habitat survey in August and September of 2023. There were no observations of any of the plants identified in the assessment within the Study Area during the field assessment. There may be suitable habitat for the white lady’s slipper and eastern prairie fringed orchid within the moderate to high quality wetland communities in the Study Area. Mitigation of impacts to the Rusty Patched Bumble Bee are currently being evaluated. It is anticipated that some habitat will be impacted and mitigated. Additional surveys and further investigations are required for the rare plant species in 2024.

### State-Listed Species

- Prairie parsley – early May-late August [in uplands]
- White lady’s slipper – late May-early June [in wetlands]

### Federally Threatened Species

- Eastern prairie fringed orchid - July [in wetlands]
- Prairie bush-clover – August [in uplands]

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## Floodplain/Hydraulics

### *General*

Dane County requires that development will not obstruct flow. The proposed design will not cause a flood profile rise for the 1% Annual Chance Event (100-year flood) between the existing and proposed flood profiles on property outside of Epic ownership. However, there will be some local impacts to the flood profile on Epic property. Ultimately, a flood study will need approval from Wisconsin Department of Natural Resources (WDNR) and a Conditional Letter of Map Revision (CLOMR) will require approval from FEMA.

Freeboard requirements were also considered to supply protection from flood risk by providing capacity for the design storm plus additional capacity. WisDOT, Dane County, and the Town of Verona call for 2 feet of freeboard (height between the low chord of the structure and the 100-year water surface elevation). While this is not a WisDOT structure, this criterion was considered in the design.

### *Alternative Discussion*

Alternative 2 – This alignment is placed perpendicular to flow and is located roughly 4,500 feet upstream of the US 18/151 crossing. This location will require 13 precast structures and a flowthrough wetland to efficiently convey the 100-year floodplain without causing a rise in water surface elevation on or off of Epic Property.

Alternative 3.2 – This alignment was set perpendicular to the floodplain and is located 7,300 feet upstream of the US 18/151 crossing. This location will require 12 precast structures and a flowthrough wetland to efficiently convey the 100-year floodplain without causing a rise in water surface elevation off of Epic property. Additionally, this alternative includes stream restoration features. This alternative does, however, cause a maximum rise of 0.25 foot on Epic property just upstream of the structure (See Floodplain Exhibit). This rise does not adversely impact any insurable structures and will be accounted for in a CLOMR analysis.

Alternative 3.3 – This alternative was placed more horizontal (east-west) to try and split the non-ruderal wetlands. This alignment causes a rise in 100-year water surface elevation both on and off of Epic property. Although several options were considered to mitigate this rise, the extreme skew of this structure and the need to minimize the impact to wetlands made this alternative unfeasible. Additionally, it is known that adjacent property owners to Epic would not approve of a rise on their property. Due to this increase in surface elevation off of the Epic site, Alternative 3.3 was not considered further.

## Waterways

Alternative 2 would not require any stream realignment due to the alignment of the stream in conjunction with the roadway alignment. Alternatives 3.2 and 3.3 would require minimal adjacent stream realignment as part of the crossing of the MRST and Sugar River. However, since Alternative 3.3 has floodplain concerns regarding rise off the project site it was not fully evaluated for a possible stream realignment.

### *7. Are there other factors you would like us to consider during our alternative analysis evaluation?*

All discussion in this question is related to the preferred alternative 3.2.

## Sugar River

As part of Alternative 3.2 (preferred alternative) a portion of the Sugar River is being restored (Exhibit 3.2-3). Restoration of the Sugar River on Epic's property has been a long-term goal of Epic. Given the road

and bridge construction being proposed by this project it seems the appropriate time to follow through with those plans. Epic is developing stream realignment and restoration plans to be included in this project. The Sugar River was channelized likely around the turn of the 20th century as the watershed's landcover was being converted from native habitats to agriculture. The combination of land cover conversion and channelization of the river has all but eliminated ecological functions related to hydrologic, hydraulic, geomorphic, physio-chemical and biological processes. In addition, the Sugar River is a classified cold-water trout stream with special significance regionally.

The plan set (See attached stream realignment plans) presents a realignment of the Sugar River channel from the north side of the proposed crossing, through the proposed crossing and then through the valley floodplain to the southern limit of the Epic property, where it will rejoin the non-channelized segment on Wisconsin DNR land. At least 3,800 linear feet of channelized river will be converted to 5,400 linear feet of meandering channel based on a survey of stable reference reach of the Sugar River located south of US 18/151. The stream alignments for Alternative 3.2 can be seen in the Alternative Exhibit 3.2-3 (Stream Restoration).

The project goals for Alternative 3.2's stream restoration:

1. Exceed current regulatory requirements of the roadway crossing project.
2. Provide ecological functional lift of the Sugar River related to hydraulics, geomorphology, physiochemistry and biology.
3. Effect positive impacts on social values of the valley related to ecosystem restoration: natural, healthy open spaces for foot and bike traffic along the MRST, enhanced kayaking/canoeing, wildlife viewing and fishing.
4. Increase the quality of the floodplain wetlands in the Sugar River Valley.

Summary of the Sugar River restoration values:

- 5,400 linear feet of restored river (centerline distance; 4.39-ac)
- 10,800 linear feet of streambank restoration including fish and macroinvertebrate habitat features (in-channel wood and cover) such as toe-wood sod mats, lunkers, cedar tree revetments.
- 1.58-acres of restored floodplain wetland types where abandoned ditch scars currently exist as open water.
- 1.73 acres of restored floodplain wetlands where channelized portion of Sugar River currently exists
- 14.44 acres of temporary wetland impacts in order to complete the restoration

#### Multi-Use Path to MRST

A walking path will be proposed to connect to the MRST on the south (downstream) side of the roadway. This sloping path will be protected from upstream flooding impacts and offer a longer lifespan and less maintenance if constructed on the south side. Most of the path would fall within the grading limits and impacts already proposed by the construction of the roadway. Only an additional 0.21 acres of impacts are required to construct a path connection to the MRST compared to if no path were constructed. This breaks down to an additional 0.03 acres of ruderal and 0.18 acres of non-ruderal. Epic will be requesting this connection approval. These values are included as part of Alternative 3.2 wetland impacts in Table 1 (Roadway Crossing Impacts).

#### Path to Sugar River

A path will be proposed for the construction of a gravel parking lot and a natural walking path as part of the project. The lot and path would connect to the proposed roadway and provide public access to the Sugar River. Epic will be requesting this connection approval. This access would be provided on the west side of the river / wetlands as depicted in the exhibits of Alternative 3.2.

### Utilities

As part of this project, utilities crossing underneath the MRST and Sugar River are planned as part of this project, rather than as future disturbances separate from the proposed road and stream restoration projects. The project is planned to have two utility crossing locations. The northern crossing includes a private utility corridor under the roadway/bridge and a public utility corridor just south adjacent to the roadway/bridge. The southern crossing is the public utility corridor is 1,600' south of the proposed crossing.

The northern crossing adjacent to the bridge crossing is already within the temporary/permanent envelope that is being impacted from the roadway/bridge crossing construction. No additional wetland impacts are occurring for these utilities. If this work was done later in a separate project, there would be additional impacts to the wetlands and floodplain in the area. The northern crossing is required to loop the public watermain. Looping the watermain allows for greater capacity, isolation of main breaks to minimize loss of service to customers, better fire flows for fire protection, and a better residual chlorine content due to inline mixing and fewer dead ends. There were no other utility alternatives to this location as any other location would incur additional wetland impacts.

#### *Northern Crossing*

1. Private
  - i. The location of the private utility corridor is still in progress. This corridor will be included as design continues and be placed within the wetland impact envelope and extended outside of the wetlands/floodplain. Therefore, no further wetland impacts will be attributed for this crossing.
2. Public
  - i. The public utilities can be seen in the exhibit 3.2-5 for Alternative 3.2. This location installation would be a 30" steel pipe casing. The length of the casing will be approximately 950 feet across the wetland. It would be able to accommodate future watermain.

The southern public utility crossing is needed to provide sanitary and watermain on the west side of the Sugar River. North of USH 18/151 the Sugar River flows to the southeast; therefore, a pump station will likely be placed north of US 18/151 and west of the Sugar River in the southeast corner to accommodate the sanitary force main. This location will also include watermain so the watermain can be looped as previously discussed above.

Alternatives for different locations were evaluated for this public utility crossing. If the crossing was moved north of the preferred roadway crossing it would either impact a higher amount of non-ruderal wetland areas, or it would be located on property that is not owned by the applicant. If the utilities were located further south, the result would be either a higher amount of non-ruderal wetland areas or be in the Sugar River Wildlife Area. Lastly, a further south location would be in an area where the Sugar River was not being re-aligned and therefore would be more difficult to construct than the proposed location. The reasons for the preferred southern utility crossing include:

1. Shortest crossing through the wetland area under the Sugar River and MRST
2. Overlap the stream restoration to reduce additional temporary wetland impacts
3. Place utility corridor through low quality wetlands.

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### *Southern Crossing*

#### 1. Public

- i. The public utilities can be seen in the exhibit 3.2-4 for Alternative 3.2. This location installation would be 30" steel casing pipe for the watermain and a 24" steel casing pipe for the sanitary sewer. The length of the each of the casings will be approximately 1,500 feet across the wetland. It would accommodate future sanitary sewer and watermain. This crossing adds an additional 1.55 acres of temporary wetland impacts. Note the hatched area in the exhibit is the area that is already included as part of the stream restoration aspect of the project.

### *Utility Crossing Installation Method*

The public utilities could be installed by two different methods: directional bore or temporary open trench with steel casing pipes. Geotechnical investigation will be done to determine the soil conditions to aid in determination which of these methods is preferred. For the purpose of the PAA, the worst-case scenario of wetland impacts is currently shown and quantified.

The northern crossing for both private and public utilities is within the roadway/bridge temporary/permanent impacts so installing casing pipe or concrete duct would not add any adverse impacts. The southern crossing will have additional wetland impacts to install the casing pipe for the public utilities.

The project goal with installation of all utility crossings (concrete duct banks and steel casing pipes) is to reduce the amount of overall wetland impact between this proposed project and future utility installations.

### Summary of WDNR permits applicable to this project:

#### *Permits to be submitted in February 2024*

1. Wisconsin Department of Natural Resources Wetland Disturbance or Fill Individual Permit
  - a. Project affects more than 10,000 square feet (0.23 acre) of wetland as part of a single and complete project.
2. Wisconsin Department of Natural Resources Stream Realignment and Enclosures Individual Permit
  - a. Project will alter the course of a stream, including stream relocation.
3. Wisconsin Department of Natural Resources Bridge and Temporary In-Stream Crossing Individual Permit
  - a. Project will construct a crossing over a navigable waterway.

#### *Permits submitted later in the project include:*

1. Utility easements
  - a. Temporary
  - b. Permanent
2. Notice of Intent
  - a. Project site is larger than 1 acre in size.

#### **SECTION 4 - PREFERRED PROJECT ALTERNATIVE**

*1. Indicate how your preferred project alternative meets your project purpose and how it avoids and/or minimizes wetland impacts to the maximum extent practicable.*

The preferred Alternative 3.2 meets the purpose and need of the project. It minimizes non-ruderal wetland impacts to the extent practicable, provides the secondary access point via US 18/151 and CTH PD required to meet the near and long-term growth in the area, creates a safe transportation network for all modes of traffic, while also preserving Epic's ability to expand to safely grow without a public thoroughfare splitting campus.

Alternative 3.2 crossing of the Sugar River and MRST was chosen after an iterative process to reduce the quantity and quality of wetland impacts. Alternative 3.2 provides the opportunity for further enhancements to the Sugar River stream alignment to improve the character and quality of the Sugar River. Improved public access will be provided to both the Sugar River and the MRST.

Utility crossings are included in the project to help minimize future impacts to the wetlands/floodplain.

The City of Verona will be the owner of the new road and structure. The City considered the cost of the improvements and future maintenance when selecting the precast arch option as the preferred type of structure. While being functional to convey large flooding events, the arch bridge will provide a visually appealing profile to adjacent landowners and users of the Sugar River and MRST.

The City of Verona Public Works agreed with the preferred Alternative 3.2 selection at the City of Verona Public Works meeting that was held on February 26, 2024. Meeting minutes from this meeting can be found here: <https://ci.verona.wi.us/AgendaCenter/>

*2. Indicate how you plan to minimize harm to the impacted wetlands and adjacent wetlands that will not be directly impacted by the project. Examples include, but are not limited to erosion control, proper marking of the limits of proposed wetland impact, visible flagging for protection of wetlands that will not be impacted by project, adequate stormwater management, best management practices, etc.*

Temporary and permanent erosion control measures will be implemented on this project in accordance with WDNR Technical Standards. Soil stockpiles will be stored outside of the wetland/floodplain area and will have silt fence or erosion logs placed along all downstream sides of stockpiles. Stockpiles in place for longer than 14 days will be either be temporarily seeded or a polymer soil stabilizer will be applied to the stockpiled soil.

The stormwater best management practices (BMPs) will be installed outside of the wetlands. Stormwater conveyance features such as grassed swales, filter strips, and storm sewer will be used to limit the amount of wetland disturbance to route water to treatment. The BMPs and any discharge into the wetland area will be designed to provide water quality (TSS) control before discharging into the protective area of the wetland. Thermal control will be provided via grassed swales, infiltration basins, or rock cribs before entering the wetlands.

Visible flagging or markings will be provided to indicate the areas of temporary or permanent disturbance as defined by the project to ensure construction is kept within these limits.