

# Memo

September 11, 2013

**TO:** Jerry Shadewald, P.E., HNTB

**FR:** Justin Schueler, P.E.  
Pat Hawley, P.E., PTOE

**RE:** WIS 441 Interchange with County KK  
Year 2038 Operational Analysis

This memo summarizes the Year 2038 operational analysis of traditional intersection alternatives at the WIS 441 interchange with County KK. The County KK corridor was initially analyzed assuming the existing traffic control and intersection spacing would remain. This resulted in the need for a six-lane facility and significant intersection expansion as shown in Exhibit 1. WisDOT indicated it was not desirable to undertake a major improvement project that prolonged substandard signalized intersection spacing. The project team was directed by WisDOT to develop and evaluate alternatives with access restrictions at the Kensington Drive and Stoney Brook Road intersections. It was assumed that any access restriction at these intersections would divert traffic to adjacent intersections (Lake Park Road and Eisenhower Drive) via backage roads and mainline U-turns. Note that a backage road would need to be constructed north of County KK connecting Eisenhower Drive and Lake Park Road to provide access to businesses in this area. A summary of the full access and access restricted alternatives is provided below.

Traditional intersection designs, both with and without access restrictions, would result in significant right-of-way impacts along the County KK corridor due to the number of lanes required. Each alternative has varying operational and safety issues that are expected to remain. Lane assignments were created for three of the traditional intersection alternatives, and they are shown in Exhibits 1, 2 and 3. Exhibits depicting the lane assignments for the final two alternatives were not developed due to the significant right-of-way impacts and operational and safety issues

1. Signal Control and Full Access – Exhibit 1

- Maintains full access traffic signal control at Kensington Drive and Stoney Brook Road intersections.
- Tight spacing between signalized intersections remains.

2. Signal Control and Left-in/Right-in/Right-out – Exhibit 2

- Maintains signal control at Kensington Drive and Stoney Brook Road intersections, but eliminates northbound and southbound left-turn and through movements. Left-in/right-in/right-out movement provided at both intersections.
- Significant expansion required at the Lake Park Road and Eisenhower Drive intersections to accommodate reassigned traffic.
- Tight spacing between signalized intersections remains.
- Unconventional signal operation with no left-turns from minor street.

3. Two-Way Stop Control and Right-in/Right-out – *Exhibit 3*

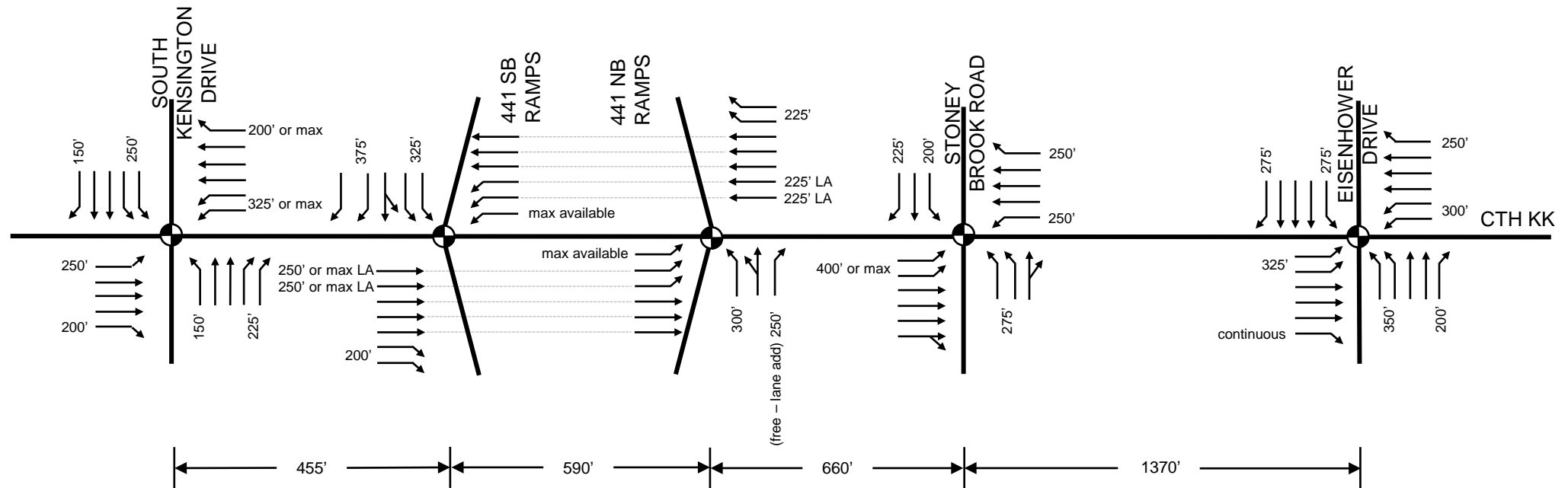
- Restricts Kensington Drive and Stoney Brook Road intersections to right-in/right-out movements only with TWSC.
- Right-out movements at Kensington Drive and Stoney Brook Road expected to operate poorly (LOS F) due to inadequate gaps in traffic along County KK. Providing additional through lanes along County KK can improve the right-out operations but unacceptable delays (LOS E and F) are expected to remain.
- Requires significant expansion at the Lake Park Road and Eisenhower Drive intersections.

4. Two-Way Stop Control and Right-in/Right-out (with free flow lane adds) – *No Exhibit*

- Restricts Kensington Drive and Stoney Brook Road intersections to right-in/right-out movements only with free-flow right-out (lane add) movements to address poor right-out operations.
- This alternative would introduce weaving and continuity concerns, and require increased intersection geometry at Lake Park Road and Eisenhower Drive. Therefore, it was not evaluated further.
- Requires additional geometry along County KK and at adjacent intersections.

5. Two-Way Stop Control and Right-in only – *No Exhibit*

- Restricts Kensington Drive and Stoney Brook Road intersections to right-in only movements to address poor right-out operations.
- This alternative would require increased intersection geometry at Lake Park Road and Eisenhower Drive due to additional diverted traffic and was not evaluated further.



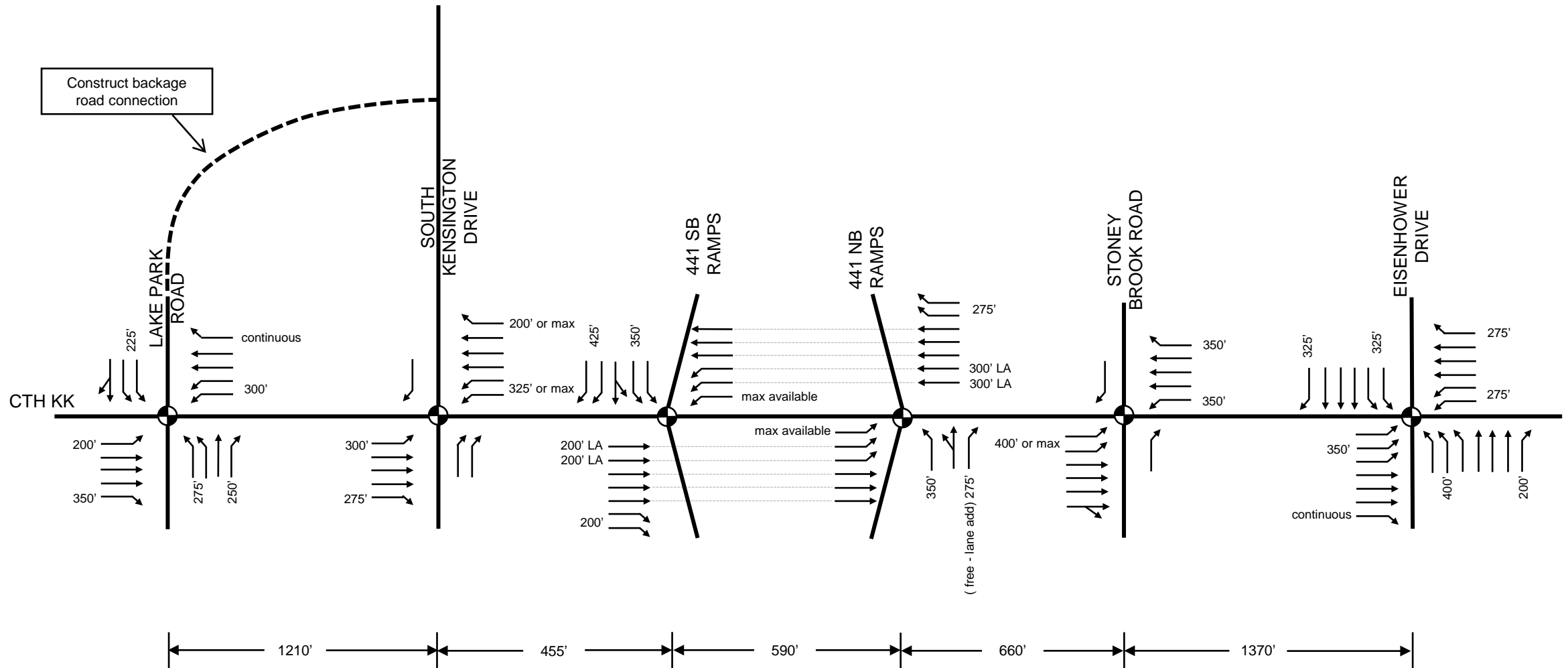
### Legend

XX' = Recommended Turn Bay Length  
 XX' LA = Look-Ahead Lane Storage Length  
 → = Lane Assignment

 = Traffic Signal  
 = Stop Sign

**WIS 441 Interchange with County KK**  
**Year 2038 – Traditional Improvements**  
**Existing Traffic Control and Intersection Spacing**  
**Full Access**

**Exhibit**  
**1**

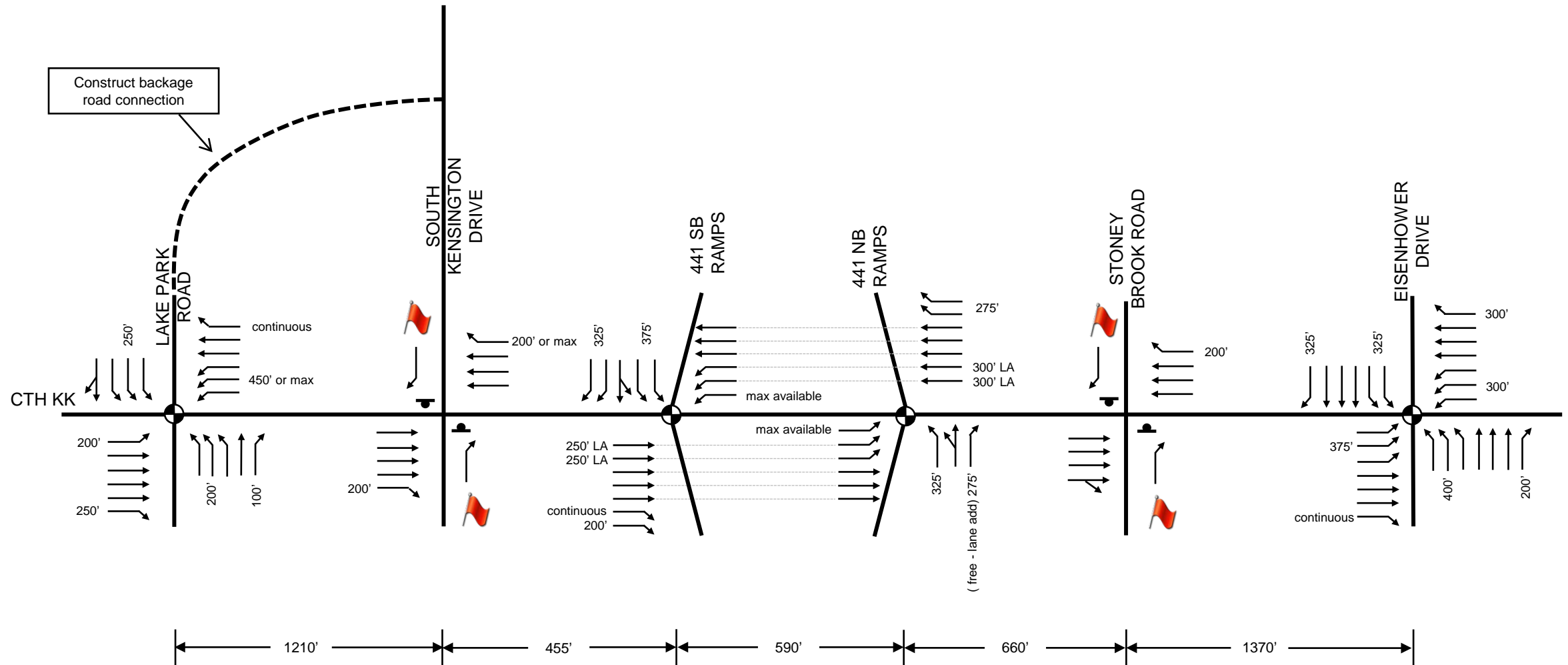


## Legend

XX' = Recommended Turn Bay Length	⬤ = Traffic Signal
XX' LA = Look-Ahead Lane Storage Length	⬤ = Stop Sign
→ = Lane Assignment	

**WIS 441 Interchange with County KK  
YEAR 2038 – Traditional Improvements  
with Access Restrictions  
Left-In/Right-In/Right-Out  
South Kensington Drive and Stoney Brook Road**

**Exhibit  
2**



## Legend

XX' = Recommended Turn Bay Length	⬤ = Traffic Signal
XX' LA = Look-Ahead Lane Storage Length	⬤ = Stop Sign
→ = Lane Assignment	🚩 = Operational Issues Remain on Approach

**WIS 441 Interchange with County KK  
YEAR 2038 – Traditional Improvements  
with Access Restrictions  
Right In/Right Out  
South Kensington Drive and Stoney Brook Road**

**Exhibit  
3**