

**Traffic Study
CTH CE & Eisenhower Drive Intersection and
Eisenhower Drive & Van Roy Road Intersection
Outagamie County & Town of Buchanan**

Public information meeting

Tuesday, January 19, 2010

3:00 p.m. to 6:00 p.m.

Buchanan Town Hall

N178 County Rd N

Welcome to the public information meeting to discuss the ongoing traffic study along Eisenhower Drive at the intersections of County Rd CE, Van Roy Road, and Theatre Way. The Town of Buchanan and Outagamie County Highway Department have partnered in this traffic study. OMNNI Associates was retained to develop preliminary design options which will increase safety, reduce existing congestion, and accommodate the significant increase in traffic volumes that are anticipated in the area.

Design engineers and local officials will be on hand to discuss the options with you and answer questions. Brief presentations will be given at 3:00, 4:00 and 5:00 p.m. Information in this handout includes some detailed information about the project and the four preliminary options that have been developed.

We appreciate your attendance and would like input from you on the four options presented. Please sign the attendance sheet and fill out the project comment form. Comment forms can either be dropped in the comment box or mailed to OMNNI Associates.

Thank you for attending.

CE/Eisenhower Drive & Eisenhower Drive/Van Roy Road Traffic Study

Existing intersection analysis and project need

Intersection problems are identified by looking at level of service criteria and crash rates. The level of service is ranked in letter grades from A to F, and the grade of an intersection is directly related to the average delay a vehicle experiences at the intersection during peak traffic flows. An average vehicle delay of less than 10 seconds results in an “A” rating at traffic signals, roundabouts and stop signs. A rating of “F” is reached when the average delay of a vehicle is over 50 seconds for stop control or over 80 seconds for traffic signals or a roundabout. The following table includes the breakdown of level of service and associated delay.

| Level of Service (LOS) | Average Control Delay (Sec/Veh) | |
|------------------------|---------------------------------|-------------------|
| | Stop Control | Signal/Roundabout |
| A | up to 10 sec | up to 10 sec |
| B | 10 to 15 sec | 10 to 20 sec |
| C | 15 to 25 sec | 20 to 35 sec |
| D | 25 to 35 sec | 35 to 55 sec |
| E | 35 to 50 sec | 55 to 80 sec |
| F | over 50 sec | over 80 sec |

Crash rates are calculated based on the number of crashes per million vehicles entering the intersection. The statewide average urban intersection crash rate is approximately 1 crash per million vehicles entering the intersection. Intersection crash rates in the 1 to 1.5 range generally indicate potential intersection geometry or capacity problems. Intersection crash rates in the 1.5 to 2.0 range are generally indications that the intersection needs to be improved.

The intersection of County Rd CE and Eisenhower Drive is reaching it's capacity, and crash rates have been significantly increasing over the last 3 years. With the existing traffic signal timing, some traffic movements are experiencing delay resulting in level of service E or F during traffic peak in the PM. In the time period beginning January, 2009 and ending November, 2009, there were 26 total intersection related crashes with 11 reported injuries. The 2009 crash rate for the intersection was 2.02 which is an indication the existing intersection is in need of safety improvements. Traffic volumes are projected to increase by more than 50% by year 2035, and it is therefore anticipated that there will be an increase in both the crash rate and vehicle delay in the future.

The intersection of Eisenhower Drive and Van Roy Road currently has a 3-way stop control that was implemented as a short term solution to accommodate the increased traffic on Van Roy Road due to local development. Southbound traffic is allowed to free flow through the intersection to avoid back-ups occurring into County Rd CE, while all other directions are required to stop. The stop delays at the intersection are increasing, and the level of service for eastbound vehicles on Van Roy Road turning left onto Eisenhower Drive is F during traffic peak in the PM. Over the past three years, the average intersection crash rate was approximately 1.6 which indicates improvements are needed. Additionally, many near misses have been reported due to the three-way stop condition, because there is confusion over which vehicle has the right-of-way to proceed through the intersection.

Traffic volumes utilized for intersection design

It is standard highway design practice to design roadways and intersections for peak hour traffic volumes that are expected 20 years after construction. The current traffic study is based on peak hour traffic volumes projected for year 2035. The volumes were developed through a separate ongoing WisDOT traffic study. The WisDOT study includes extensive modeling of the area along the entire State Highway 441 corridor, and it includes traffic that will be generated when commercial and residential development takes place on property in both the immediate and outlying areas.

Development of traffic study alternatives

The traffic study included analysis of both signalized intersections and roundabouts. Both options were analyzed so a comparison could be made on both the impacts of each option and the future level of service of projected for each option. While it was not possible to avoid impacts to existing properties, an effort was made to minimize impacts to properties where possible. Each option on display illustrates the anticipated impacts to adjacent parking lots and driveways. Please note: The aerial mapping shown on the drawings may not illustrate recent development.

Discussion of Traffic Study Options:

Option 1- Traffic signals at CE/Eisenhower intersection & Eisenhower/Theater Way Intersection

Option 1 includes a signalized intersection at CE/Eisenhower. The design includes 3 through lanes in each direction on CE, 2 through lanes in each direction on Eisenhower, right turn lanes on all four legs of the intersection, dual left turn lanes in both directions on CE and on northbound Eisenhower, and a single left turn lane on southbound Eisenhower. A median would be required through the intersection of Eisenhower/Van Roy to restrict traffic movements to right-in/right-out only. The median is required because during peak traffic hours northbound Eisenhower traffic will back up through the Van Roy intersection. In 2035, the intersection is projected to operate at a level of service D (39.1 second average delay) in the a.m. and a level of service E (55.5 second average delay) in the p.m.

Option one also includes a signalized intersection at Eisenhower/Theater Way and development of new access roads between Van Roy and Theater Way. All vehicles currently turning left or going through on Van Roy would be required to use the new signalized intersection at Theater Way. In 2035, the intersection is projected to operate at a level of service B (12.8 second average delay) in the a.m. and a level of service C (30.5 second average delay) in the p.m.

Option 1, as well as all other options developed in the study, includes construction of a right-in/right-out access point along eastbound CE between Eisenhower and Railroad. The new connection would provide an alternate access route between CE and Van Roy for traffic eastbound on CE.

The estimated construction cost of Option 1 is \$3.2 million, not including the cost of real-estate acquisition.

Pros/Cons of Option 1 include:

- Pro: The design accommodates future peak hour traffic projections without failing and reaching a level of service F.
- Pro: CE/Eisenhower intersection safety will be improved due to left turns being fully protected (i.e., left turns can only be made when signal displays a green turn arrow).
- Pro: The new access roads between Van Roy and Theatre Way and the new road between CE and Van Roy provide feasible alternate access to businesses.
- Con: Access at the intersection of Van Roy is limited to right-in/right-out only, resulting in loss of direct access to some businesses
- Con: Construction of new access roads has a significant impact to existing parking lots.

Option 2- Traffic signals at CE/Eisenhower intersection & roundabout at Eisenhower/Theater Way Intersection

Option 2 includes a signalized intersection at CE/Eisenhower. All features of the intersection are identical to those described above under Option 1, including the construction of a median through the intersection of Eisenhower/Van Roy to restrict traffic movements to right-in/right-out only. The intersection level of service of the intersection would also be identical to Option 1.

Option 2 also includes a multi-lane roundabout design at the intersection of Eisenhower/Van Roy in place of the signal design that was included in Option 1. The roundabout would have two approach lanes on northbound and southbound Eisenhower, two approach lanes on eastbound Theater Way, and one approach lane on westbound Theater Way. In 2035, the roundabout is projected to operate at a level of service A in both the a.m. and the p.m.

Pros/Cons of Option 2 at the intersection of Eisenhower/Theater Way include:

- Pro: The roundabout level of service is better, resulting in less vehicle delay.
- Pro: Roundabouts have been proven to reduce both the number of intersection accidents and the severity of intersection accidents when compared to a signalized intersection.
- Pro: U-turns are allowed at roundabouts, and a southbound vehicle would be allowed to make a u-turn to go north towards CE.
- Con: The roundabout design has much greater impacts on existing parking lots when compared to the signalized intersection design.

The estimated construction cost of Option 2 is \$3.5 million, not including the cost of real-estate acquisition.

Option 3- Roundabouts at CE/Eisenhower intersection & Eisenhower/Van Roy Intersection

Option 3 includes roundabouts at CE/Eisenhower and at Eisenhower/Van Roy. The design at CE/Eisenhower includes 3 approach lanes on all four legs of the intersection that would be required to enter into the circulatory roadway. In addition, the design includes a dual right turn bypass lane on eastbound CE, a single right turn bypass lane on westbound CE, and a dual left turn lane accommodation on northbound Eisenhower. In 2035, all movements at the intersection are projected to operate at a level of service of B or better in both the a.m. and p.m. peak traffic hours.

The roundabout at Eisenhower/Van Roy would have two approach lanes on northbound and southbound Eisenhower, two approach lanes on eastbound Van Roy, one approach lane on

westbound Van Roy, and a southbound right turn bypass. In 2035, all movements at the roundabout are projected to operate at a level of service A in both the a.m. and the p.m.

Option 3 is the only option that maintains full access at the Van Roy intersection. Roundabouts are designed to maintain continuous flow of traffic, and as a result, vehicles will not back up as far in comparison to the backups created by a red light at a signalized intersection. The existing spacing between CE and Van Roy is just enough to eliminate vehicles from backing up into the adjacent roundabout.

Pros/Cons of Option 3 include:

- Pro: Option 3 maintains unrestricted access at Van Roy Road.
- Pro: The level of service at both intersections is significantly better than signals, resulting in less vehicle delay.
- Pro: Roundabouts have been proven to reduce both the number of intersection accidents and the severity of intersection accidents when compared to a signalized intersection.
- Con: While, dual lane roundabouts are becoming more common and have proven to reduce congestion and increase safety, roundabouts with 3 lane entries are unfamiliar to the area. (Note: Several 3 lane entry roundabouts will be constructed in the next two years as part of the US 41 upgrade in Winnebago County, and in the following years on the US 41 upgrade planned for Brown County).
- Con: Closely spaced consecutive roundabouts will require drivers to be in the correct lane when entering the first roundabout to end up in the desired lane at the second roundabout. Additional overhead signing would be required to indicate correct lane use.
- Con: The roundabout design at Eisenhower/Van Roy has significant impacts to properties adjacent to the intersection.

The estimated construction cost of Option 3 is \$2.6 million, not including the cost of real-estate acquisition.

Option 4- Roundabout at CE/Eisenhower intersection & Eisenhower/Theater Way Intersection

Option 4 includes a roundabout at the intersection of CE/Eisenhower, with all features of the roundabout being identical to those described above under Option 3. Option 4 also includes a roundabout at Theater Way, with all features of the roundabout being identical to those described above in option 2.

As part of Option 4, a slotted median opening could be provided for southbound vehicles to turn left at Van Roy Road. However, the remainder of the Van Roy intersection would be restricted to right-in/right-out movements only.

Pros/Cons of Option 4 include:

- Pro: Option 4 maintains southbound left turns at Van Roy Road.
- Pro: The level of service at both intersections is significantly better than signals, resulting in less vehicle delay.
- Pro: Roundabouts have been proven to reduce both the number of intersection accidents and the severity of intersection accidents when compared to a signalized intersection.
- Pro: The spacing of the roundabouts allows the roundabouts to operate complete independent of each other, with no potential for back-ups into adjacent roundabouts

- Con: While, dual lane roundabouts are becoming more common and have proven to reduce congestion and increase safety, roundabouts with 3 lane entries are unfamiliar in the area. (Note: Several 3 lane entry roundabouts will be constructed in the next two years as part of the US 41 upgrade in Winnebago County, and in the following years on the US 41 upgrade planned for Brown County).
- Con: The roundabout design at Eisenhower/Theater Way has much greater impacts on existing parking lots when compared to the signalized intersection design.

The estimated construction cost of Option 4 is \$3.15 million, not including the cost of real-estate acquisition.

Do Nothing Option

If no improvements are made to the subject intersections, both vehicle delay and crash rates are anticipated to increase as traffic volumes increase.

Anticipated project timeline:

Due to the capacity issues, high crash rates, and difficulty of business access, Outagamie County and the Town of Buchanan are committed to implementing intersection improvements on CE and along Eisenhower. There is no current timeline for making improvements. The timeline will ultimately be dependent on reaching a consensus on design and the availability of funding for both real-estate acquisition and construction.

Project contacts

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