

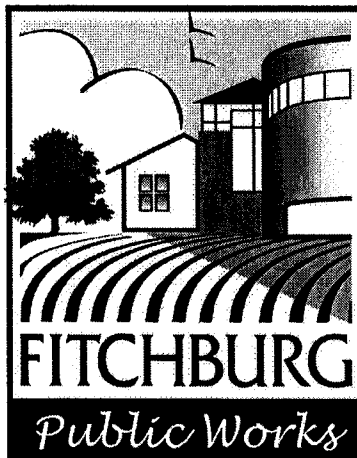
NORTHEAST FITCHBURG TRANSPORTATION STUDY

Supplement 1

Prepared by:
KL Engineering & HNTB Corporation

Submitted to:
City of Fitchburg

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KL Engineering
Transportation • Municipal • Environmental • Survey/GIS

HNTB

Introduction

This addendum to the “Northeast Fitchburg Transportation Study” (June 2002) discusses additional study analyses that have been introduced since the original study report was completed and commented on by area technical staff. The alternatives reviewed include:

- 1) Removal of the McCoy Road Interchange ramps.
- 2) Construction of a USH 14 interchange at Lacy Road.
- 3) Construction of a freeflow connection from Lacy Road to East Cheryl Parkway, east of Syene Road.

1. Traffic Impacts of Removing the McCoy Road Interchange Ramps

The Northeast Fitchburg Transportation Study report documented that the McCoy Road intersections would experience poor traffic operations under full buildout conditions whether or not a USH 14 interchange at East Cheryl Parkway was constructed. Some suggestions were briefly presented in the report to rectify the poor traffic operations along McCoy Road. One of the possible modifications was removing the McCoy Road interchange ramps and moving the USH 14 access for the area to East Cheryl Parkway.

For this supplemental analysis, the regional daily traffic model was modified to account for USH 14 access being moved from McCoy Road to East Cheryl Parkway. Exhibits 1 and 2 graphically show expected daily traffic volumes with and without the McCoy Road interchange scenarios. Exhibit 1 is taken from the original report (previously named Exhibit 7).

After analyzing the revised model results, the following points generally describe the findings:

- As shown in Exhibit 1, with both interchanges in place, the McCoy Road interchange north ramps would be expected to each carry approximately 8,000 vehicles per day (vpd) and the south ramps would be expected to each carry approximately 5,000 vpd. With the removal of these ramps, this traffic would be redistributed within the system:
 - A majority of traffic would be redistributed from McCoy Road, west of the interchange, to East Cheryl Parkway, west of the interchange.
 - The East Cheryl Parkway interchange north ramp traffic volumes would rise to approximately 13,000 vpd, as shown in Exhibit 2. If this alternative is examined in greater detail, it is recommended to study traffic operations further at the USH 14/East Cheryl Parkway intersections with the higher daily traffic volumes expected. (For comparison, the East Cheryl Parkway interchange north ramps would each carry approximately 10,000 vpd with the McCoy Road interchange ramps in place, as shown in Exhibit 1.)
 - Daily traffic along Rimrock Road and CTH MM would be reduced under the “without McCoy Road interchange” scenario. The “without McCoy Road interchange” scenario (Exhibit 2) shows 15,500 vpd along Rimrock Road and 4,700 vpd along CTH MM, as compared to 18,500 vpd along Rimrock Road and 8,400 vpd along CTH MM under the “with McCoy Road interchange

“scenario (Exhibit 1). This difference in traffic would be redistributed onto Fish Hatchery Road, the South Beltline and USH 14 under the “without McCoy Road interchange” scenario.

- Park Street, north of the Beltline, is expected to experience little change in daily traffic with or without the McCoy interchange ramps.

Table 1 below compares expected daily traffic volumes along some key roadway sections under the “with both interchanges” scenario and the “without McCoy Road interchange” scenario.

Table 1
Projected Average Daily Traffic Volumes
With and Without McCoy Road Interchange Ramps

Roadway	Segment	With Both I/C's (vpd)	Without McCoy I/C (vpd)
Park Street	North of the Beltline	39,300	39,800
CTH MM	Between E. Cheryl and McCoy	8,400	4,700
CTH MM	Between Lacy and E. Cheryl	10,200	8,600
McCoy Road	East of Syene Road	15,600	11,900
McCoy Road	Between USH 14 and CTH MM	24,700	12,400
Syene Road	North of Cheryl Parkway	13,400	14,500
Syene Road	South of McCoy Road	23,700	18,200
Rimrock Road	East of CTH MM	18,500	15,500
USH 14/Cheryl SB off ramp	USH 14 SB to Cheryl off ramp	9,900	13,900
USH 14/Cheryl NB on ramp	E. Cheryl to USH 14 NB on ramp	10,200	13,700
USH 14	North of McCoy Road	54,000	55,600
USH 14	North of East Cheryl Parkway	47,600	55,600
East Cheryl Parkway	West of USH 14	27,900	32,200
East Cheryl Parkway	East of USH 14	2,200	5,400

Note: Both alternatives assume East Cheryl Parkway extends to CTH MM and a USH 14 interchange is constructed at East Cheryl Parkway.

In summary, removing the McCoy Road interchange ramps and moving USH 14 access to East Cheryl Parkway appears to be a viable option to investigate further to improve future traffic operations at McCoy Road intersections based on impacts to daily traffic volumes. Additional specific peak hour traffic analysis would be necessary to determine future traffic operations at the McCoy Road intersection with CTH MM and at the East Cheryl Parkway intersections in the vicinity of the USH 14 interchange.

2. Traffic Impacts of USH 14 Interchange at Lacy Road

A USH 14 interchange at Lacy Road was modeled as a roadway alternative to examine its impact on traffic, specifically whether or not it would attract regional trips along Lacy

Road. In this option, the Lacy Road interchange would replace the East Cheryl Parkway interchange, but the McCoy Road interchange would remain as it is today. It should be noted that this option is not considered a viable construction alternative due to environmental constraints in the area.

To assess the traffic impact of a USH 14 interchange at Lacy Road, a “select link” analysis was conducted within the regional traffic model along a section of Lacy Road, west of Fish Hatchery Road with and without the Lacy Road interchange scenarios. A “select link” analysis isolates all trips using an identified segment, allowing for analysis of just the particular trip origins and destinations using that segment of the network. Lacy Road traffic, west of Fish Hatchery Road was selected as the point of analysis because it is far enough removed from USH 14 that it could be considered “regional traffic.” The East Cheryl Parkway interchange was not included in either scenario.

Exhibit 3 shows the results of the “select link” analysis. Exhibit 3 shows where Lacy Road traffic, west of Fish Hatchery Road, is coming from and going to according to the regional model.

The results of the “select link” analysis show that whether or not a USH 14 interchange at Lacy Road is constructed, it will have little impact on traffic along Lacy Road, west of Fish Hatchery Road. The percentage of traffic origins and destinations along Lacy Road, west of Fish Hatchery Road is very similar with or without the USH 14/Lacy Road interchange.

In addition, the results show that a USH 14 interchange at Lacy Road would not attract regional trips (trips from beyond Fish Hatchery Road to the west) along Lacy Road. Exhibit 3 shows that no Lacy Road traffic, west of Fish Hatchery Road, originates from or is destined for the USH 14 interchange at Lacy Road. Instead, Lacy Road traffic, west of Fish Hatchery Road, is more local in nature, because the vast majority originates from and is destined for the locations within Northeast Fitchburg, such as along Fish Hatchery Road, Syene Road, East Cheryl Parkway and Lacy Road itself. However, it should be noted that according to the model, a new USH 14 interchange will attract regional traffic to and from the Beltline. Therefore, it should be clarified that a new USH 14 interchange would attract regional traffic, but it just wouldn't be regional traffic to and from Lacy Road, west of Fish Hatchery Road, even if the new USH 14 interchange is located at Lacy Road.

An additional “select link” analysis was conducted on the segment of Lacy Road between USH 14 and CTH MM to test the amount of through traffic on Lacy Road that can be considered “regional traffic.” The results of the analysis show that only 1% of the traffic on Lacy Road between USH 14 and CTH MM originates from or is destined to Lacy Road west of Fish Hatchery Road with or without a USH 14 interchange at Lacy Road. Therefore, if “regional traffic” is once again defined as Lacy Road traffic west of Fish Hatchery Road, only 1% of Lacy Road traffic between USH 14 and CTH MM is considered “regional traffic.”

3. Traffic Impacts of a Freeflow Connection from Lacy Road to East Cheryl Parkway

A freeflow roadway connection from Lacy Road to East Cheryl Parkway, east of Syene Road, to the proposed USH 14 interchange at East Cheryl Parkway was introduced as an alternative to examine traffic impacts to Lacy Road and East Cheryl Parkway. Exhibit 4 shows the preliminary design of this connection.

This freeflow connection would allow Lacy Road traffic to access the East Cheryl Parkway interchange without stopping. Therefore, this design alternative requires East Cheryl Parkway traffic to stop at a three-legged intersection with the Lacy Road freeflow connection, east of Syene Road. While specific peak hour analysis would need to be conducted to determine the type of traffic control at this intersection, preliminary peak hour analysis at the intersection shows a signal may be required because of the heavy flow of East Cheryl Parkway traffic in the vicinity.

The Lacy Road freeflow connection was added into the regional traffic model to analyze the impact on daily traffic volumes. Exhibit 5 shows the daily traffic volumes with and without the freeflow connection assuming USH 14 interchanges at East Cheryl Parkway and McCoy Road.

In comparison, daily traffic volumes are very similar with and without the freeflow connection. As expected, daily traffic volumes are lower along Syene Road between East Cheryl Parkway and Lacy Road with the freeflow connection. This section of Syene Road is expected to carry 4,900 vpd with the freeflow connection and 8,700 vpd without the freeflow connection.

It should also be noted that with the freeflow connection, fewer vehicles per day are expected to access the East Cheryl Parkway interchange. With the freeflow connection, a total of 22,800 vpd are expected to utilize the USH 14/East Cheryl Parkway ramps, compared with a total of 25,800 vpd without the freeflow connection. The decrease in traffic utilizing the East Cheryl Parkway can be explained by the fact that East Cheryl Parkway traffic would experience increased travel times with the freeflow connection in place, because East Cheryl Parkway traffic would be required to stop at the new intersection with the freeflow connection. Therefore, some East Cheryl Parkway traffic would redistribute onto Syene Road, McCoy Road and Fish Hatchery Road instead of utilizing the USH 14 interchange at East Cheryl Parkway.

Conclusion

The results of this supplemental analysis providing further study of roadway configurations in Northeast Fitchburg lead to two conclusions:

1. A USH 14 interchange located at East Cheryl Parkway is preferable to a Lacy Road interchange location.
2. Relocating USH 14 access from McCoy Road to East Cheryl Parkway remains a viable option for improving traffic operations at McCoy Road intersections under area development buildout conditions.

Analyzing the traffic impacts of placing a USH 14 interchange at Lacy Road yielded only a slight change in regional traffic patterns in comparison to incorporating a similar

interchange at East Cheryl Parkway, according to the results of the regional model. A USH 14 interchange at Lacy Road would not attract higher levels of regional traffic from Lacy Road. (Regional traffic is defined as traffic accessing the USH 14 interchange using Lacy Road from west of Fish Hatchery Road.) The analysis results also show that a freeflow connection from Lacy Road to a USH 14/East Cheryl Parkway interchange would not attract higher levels of regional traffic from Lacy Road to the interchange. It should be clarified that, according to the model, a new USH 14 interchange at East Cheryl Parkway would attract regional traffic from the Beltline highway, however it would not attract regional trips from Lacy Road, even if the USH 14 interchange is at Lacy Road.

One advantage of locating a USH 14 interchange at East Cheryl Parkway rather than at Lacy Road is that higher levels of development and traffic are projected along East Cheryl Parkway rather than along Lacy Road between Fish Hatchery Road and CTH MM. Therefore, an interchange at East Cheryl Parkway would provide a more efficient connection to USH 14 for the majority of traffic utilizing the interchange. Furthermore, an interchange at East Cheryl Parkway would result in significantly less impact to environmentally sensitive land than an interchange at Lacy Road would.

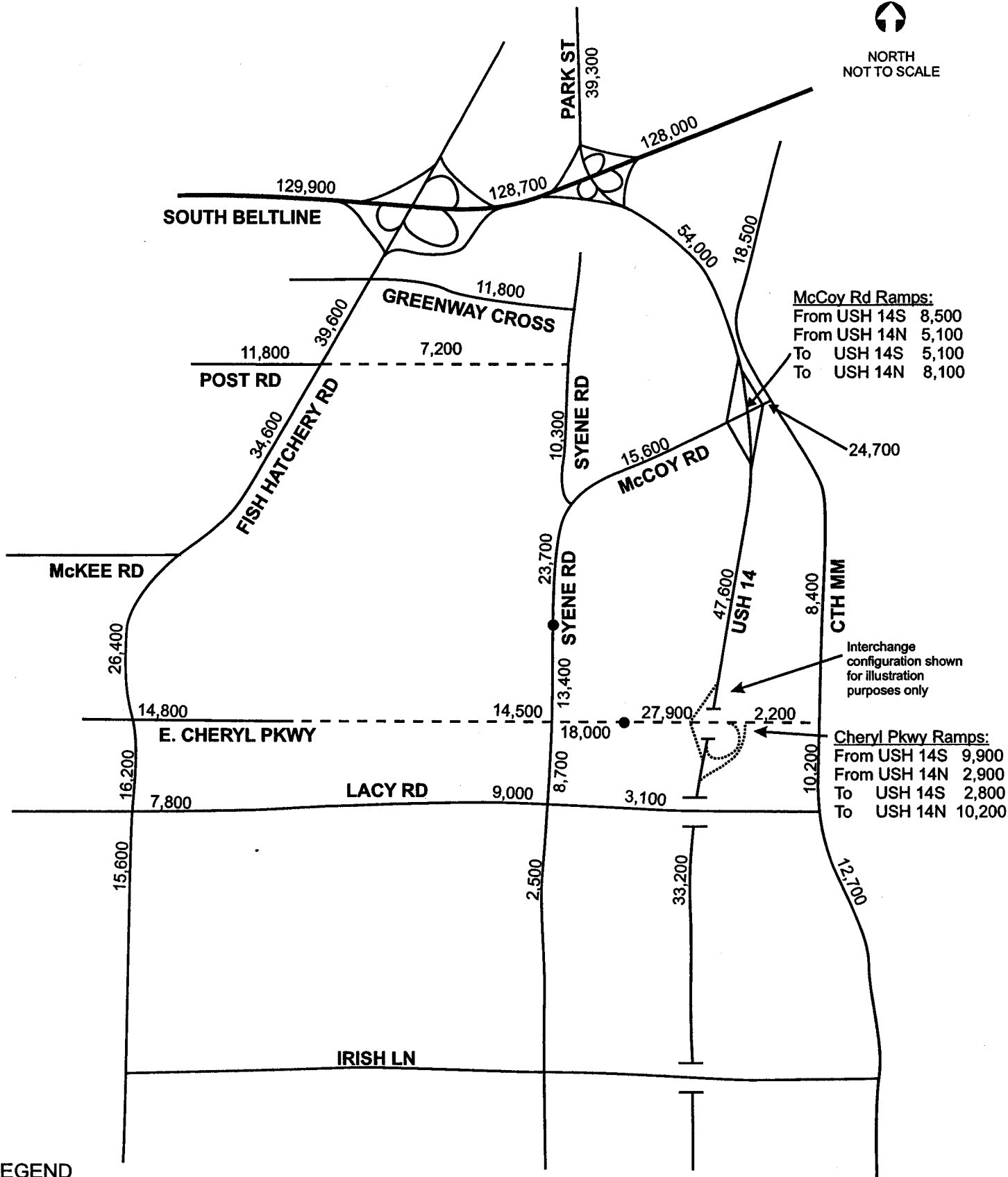
The supplemental analysis also shows that relocating USH 14 access from the McCoy Road interchange to an East Cheryl Parkway interchange would significantly reduce daily traffic volumes along McCoy Road as well as along CTH MM, Rimrock Road and sections of Syene Road. Therefore, traffic operations would improve at the McCoy Road intersections as well as at other local road intersections in Northeast Fitchburg. However, more detailed peak hour traffic analysis at the McCoy Road intersections would be necessary to confirm how much traffic operations would improve without the McCoy Road ramps.

It should be noted again that the Northeast Fitchburg Transportation Study report documented that the McCoy Road intersections will experience LOS F traffic operations under full buildout conditions whether or not a USH 14 interchange at East Cheryl Parkway was constructed. Therefore, it is apparent that modifications to the current configuration of the USH 14 interchange at McCoy Road will inevitably be needed in order to improve traffic operations from LOS F at the McCoy Road intersections under full buildout conditions.

The trade-off of relocating USH 14 access from the McCoy Road interchange to an East Cheryl Parkway interchange is improved traffic operations at the McCoy Road intersections, but with potentially lower traffic operations at East Cheryl Parkway intersections. Daily traffic volumes along East Cheryl Parkway in the vicinity of the potential USH 14 interchange would increase if the McCoy Road ramps were removed. A follow-up study on detailed environmental impacts, traffic operations and interchange design should be conducted if WisDOT, the Madison Area MPO and the City of Fitchburg agree to the conceptual design recommendations included in this study.



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NOT TO SCALE



LEGEND

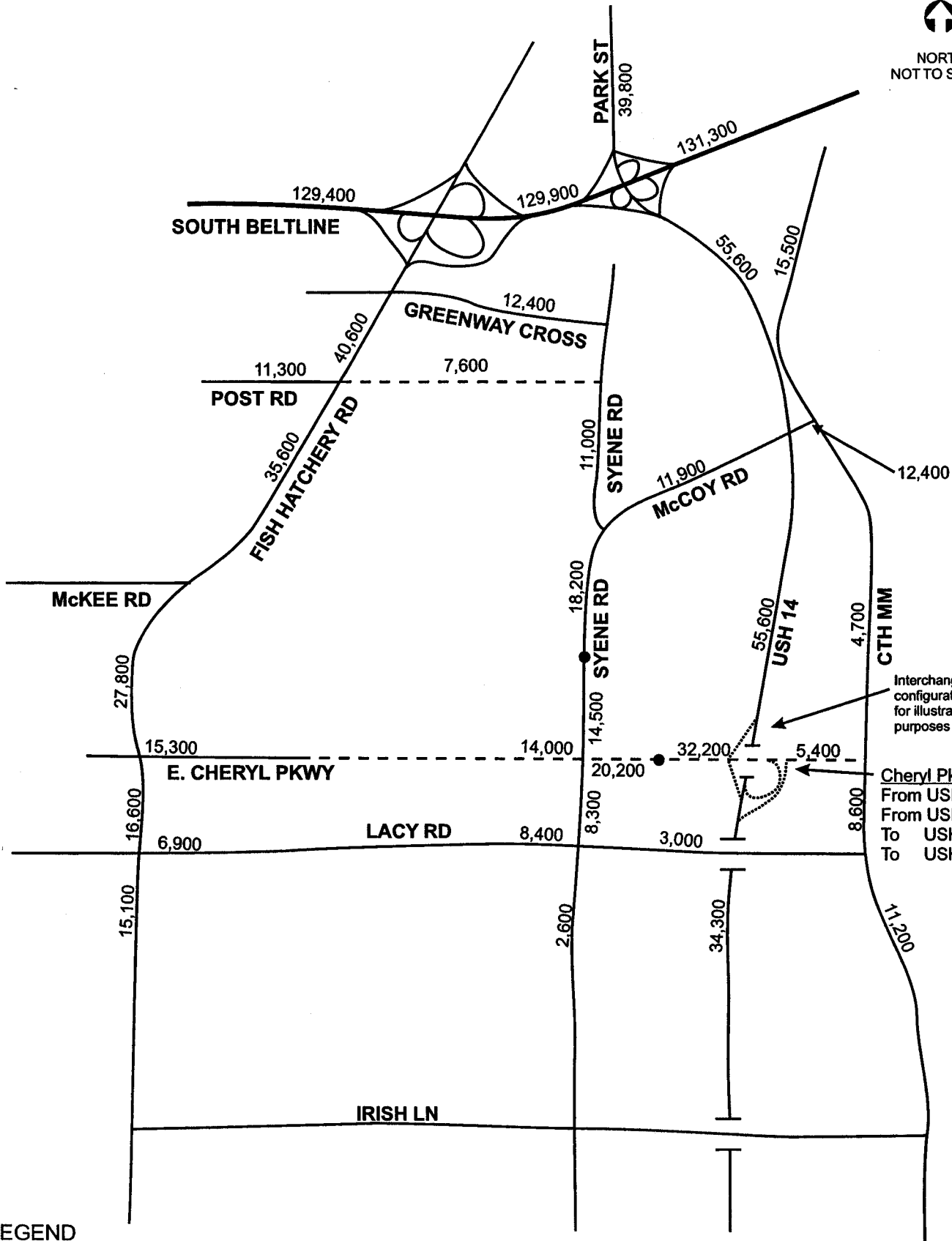
9,600 WITH INTERCHANGE (CONNECTION TO CTH MM) ADT VOLUMES

EXHIBIT 1
WITH INTERCHANGE
E. CHERYL PKWY EXTENSION TO CTH MM
PROJECTED BUILDOUT AVERAGE DAILY TRAFFIC
NORTHEAST FITCHBURG TRANSPORTATION STUDY
FITCHBURG, WI





NORTH
NOT TO SCALE



LEGEND

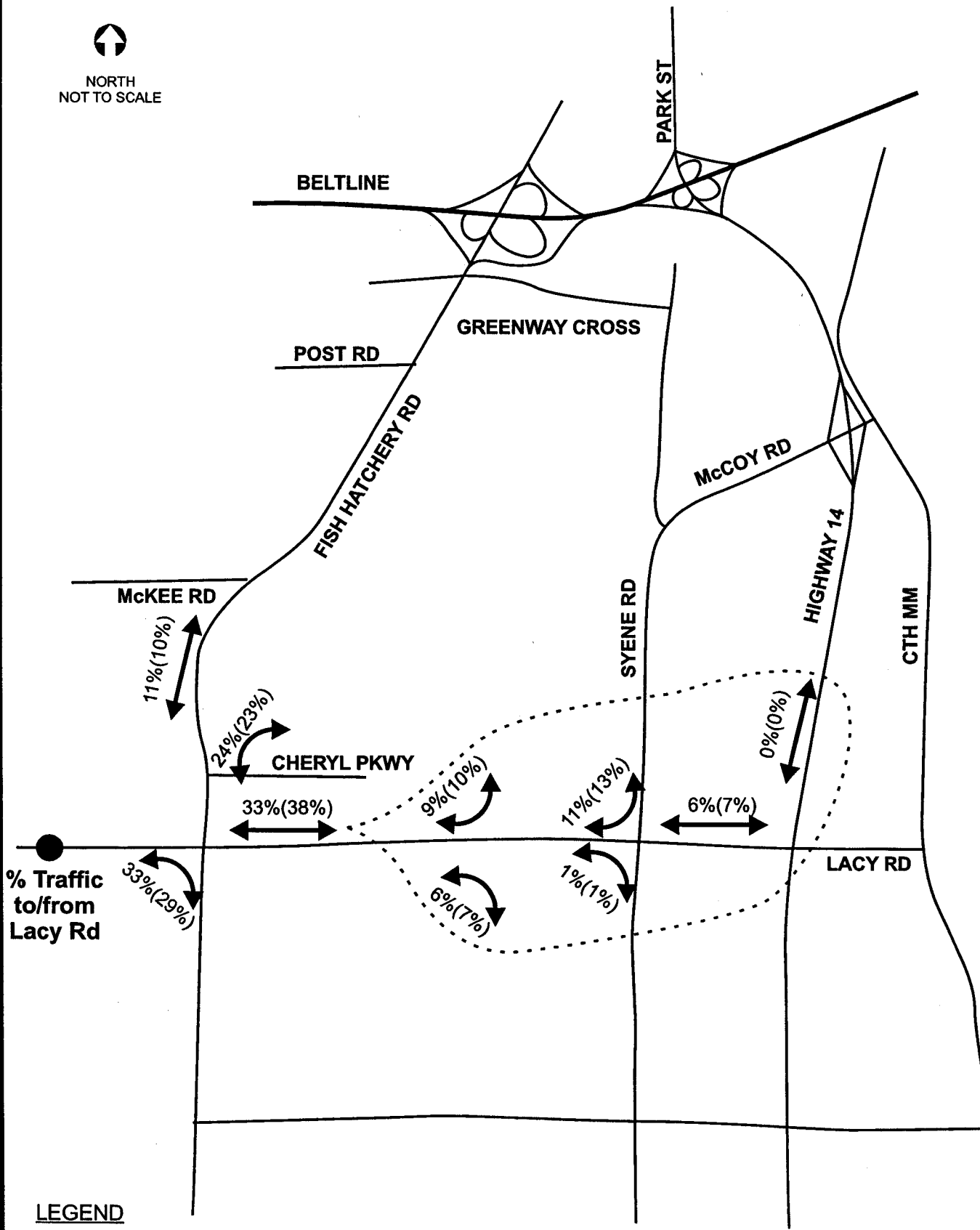
9,600 WITHOUT McCOY RD INTERCHANGE ADT VOLUMES

EXHIBIT 2
WITHOUT MCCOY ROAD INTERCHANGE
E. CHERYL PKWY EXTENSION TO CTH MM
PROJECTED BUILDOUT AVERAGE DAILY TRAFFIC
NORTHEAST FITCHBURG TRANSPORTATION STUDY
FITCHBURG, WI





NORTH
NOT TO SCALE



LEGEND

TRAFFIC TO/FROM LACY ROAD, WEST OF FISH HATCHERY ROAD:

- XX% WITHOUT LACY ROAD INTERCHANGE
- (XX%) WITH LACY ROAD INTERCHANGE



Pmwork/35035djh/dane county gis/fitchburg.cdr

EXHIBIT 3
LACY ROAD SELECT LINK ANALYSIS
NORTHEAST FITCHBURG TRANSPORTATION STUDY
FITCHBURG, WI

EXHIBIT 4
FREEFLOW CONNECTION
BETWEEN LACY RD AND E. CHERYL PKWY
PRELIMINARY DESIGN
NORTHEAST FITCHBURG TRANSPORTATION STUDY
FITCHBURG, WI

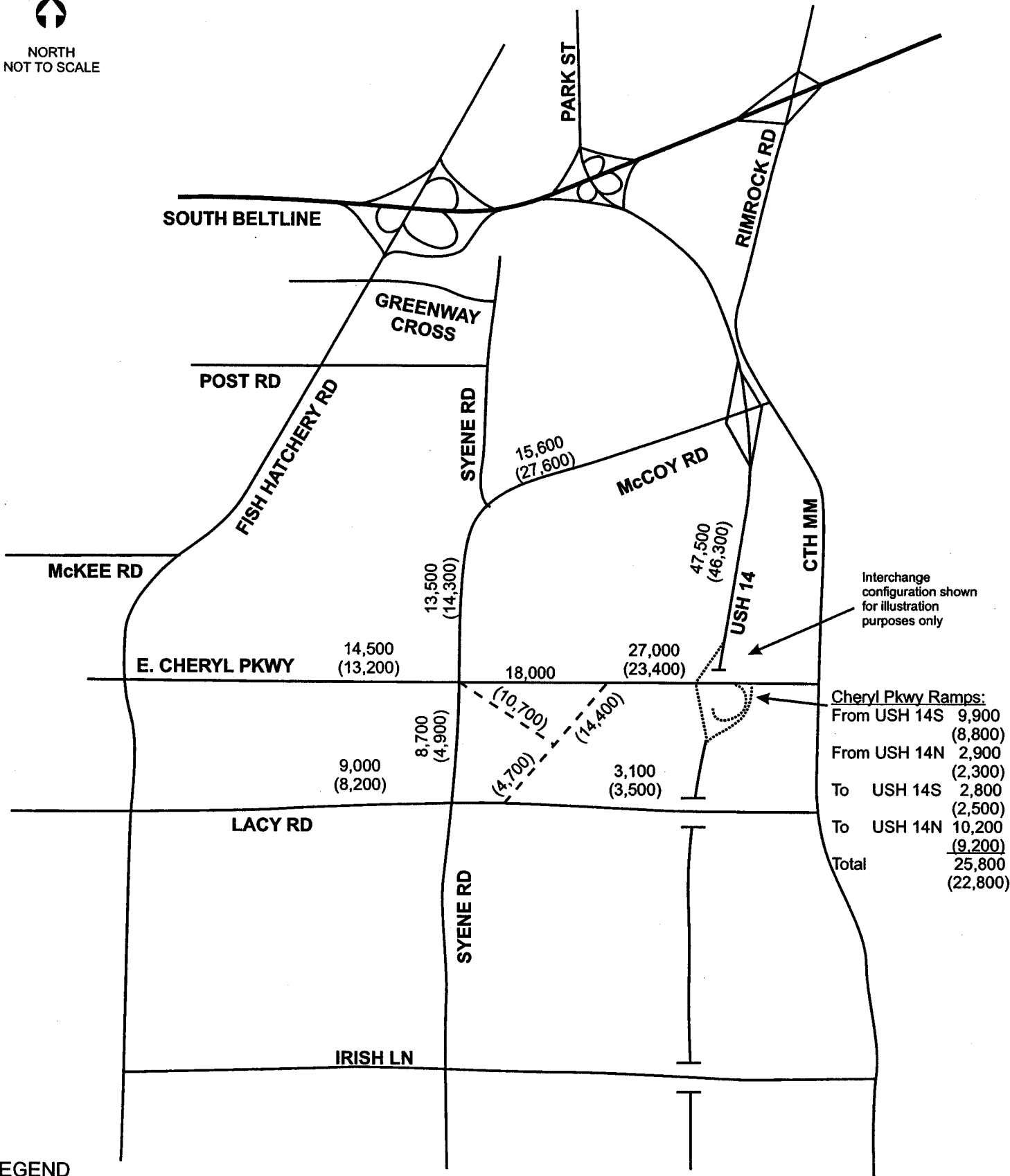
Scale
1" = 500'

Design Speed =
40 mph (Lacy Rd)





NORTH
NOT TO SCALE



Interchange configuration shown for illustration purposes only

Cheryl Pkwy Ramps:

From USH 14S	9,900
	(8,800)
From USH 14N	2,900
	(2,300)
To USH 14S	2,800
	(2,500)
To USH 14N	10,200
	(9,200)
Total	25,800
	(22,800)

LEGEND

- XX ADT FORECASTS WITHOUT FREEFLOW CONNECTION
- (XX) ADT FORECASTS WITH FREEFLOW CONNECTION

EXHIBIT 5
FREEFLOW CONNECTION BETWEEN LACY RD AND E. CHERYL PKWY
PROJECTED BUILDOUT AVERAGE DAILY TRAFFIC
NORTHEAST FITCHBURG TRANSPORTATION STUDY
FITCHBURG, WI

