Transportation Capacity

1. Introduction

Brice Prairie is an approximately 1,600-acre area located within the Town of Onalaska in La Crosse County, Wisconsin. Specifically, Brice Prairie is generally bounded by the Black River to the north, the Halfway Creek Marsh to the east, and Lake Onalaska to the south and west. Because of these features, Brice Prairie acts as an 'island' – with water features separating it from the rest of the surrounding communities. The Great River Trail runs along the eastern edge of Brice Prairie, attracting approximately 53,000 users per year. Without a localized downtown area or significant retail presence, Brice Prairie also acts as a "bedroom community" with the vast majority of its approximately 2,500 residents traveling outside of Brice Prairie for employment and service purposes.

With the migration of population and employment opportunities to the municipalities of La Crosse, Onalaska and Holmen, it is likely that parcels located in Brice Prairie will become developed to accommodate this growth; however, due to the environmental constraints surrounding this area, vehicular access to and from Brice Prairie has been limited to two east-west roadways. In addition, it is unlikely that these roadways can be expanded from their two-lane cross-section. Therefore, proper growth and traffic management must occur to ensure that traffic flow to and from Brice Prairie will be sufficient for its residents.

The scope of this report is to analyze the traffic impact of planned and/or proposed developments to the Brice Prairie area, specifically the two east-west roadways that provide access to and from Brice Prairie, and to determine if the existing roadway network will accommodate future traffic volumes.

2. Methodology

As previously mentioned, the objectives of this study were to analyze the traffic impact of planned and/or proposed developments to the Brice Prairie area and to determine if the existing roadway network will accommodate future traffic volumes. The following lists and explains the overall methods used in this evaluation.

Site Accessibility Investigation and Data Collection

Existing roadway and traffic conditions in the study area were investigated during field surveys of the surrounding area. Data on existing roadway characteristics, traffic volumes, approved or proposed developments and planned or proposed roadway improvements were obtained. Discussions with Town of Onalaska staff were also conducted to gather information.

Traffic Characteristics and Future Travel Patterns

The volume of traffic that will be generated by the proposed developments was projected based on rates published by the Institute of Transportation Engineers (ITE) in its *Trip Generation Manual, 7th Edition.* The directions by which residents, commuters, and patrons will approach and depart developments within Brice Prairie were based on future employment center locations, reasonable commercial market sheds, natural travel paths, and the accessibility of the site to the local and regional roadway system.

Traffic Assignment and Analysis

Based on the directional distribution analysis, the projected daily traffic volumes were assigned to the external roadway system and combined with existing traffic volumes. The total traffic volumes were then analyzed to identify any deficiencies in the roadway system. Based on these assignments, capacity analyses of several roadways were conducted to determine roadway improvements required to accommodate traffic generated by the proposed developments.

3. Existing Conditions

Factors that affect vehicular access to any area include its location with respect to the area transportation system and the characteristics of the system. Given that the automobile is the primary mode of transportation in the area, and will continue to be in the future, the location of the study area with respect to the area roadways and the existing characteristics of those roadways will govern the accessibility of the Brice Prairie area.

Study Area Location

Brice Prairie is located within the Town of Onalaska in La Crosse County, Wisconsin. It is generally bounded by the Black River to the north, the Halfway Creek Marsh to the east, and Lake Onalaska to the south and west. For purposes of this study, the study area is bounded by La Crosse County Highway 'ZN' (CTH ZN) to the north, Wisconsin State Trunk Highway 35 (STH 35) to the east, and La Crosse County Highway 'Z' (CTH Z) to the south and west. The study area is illustrated in **Figure 1**.

Area Roadways

The major roadways that serve the Brice Prairie study area are illustrated in **Figure 1** and their existing conditions are discussed below with their existing traffic operations and lane configurations are illustrated in **Figure 2**. Included in the study area is the intersection of CTH ZN, La Crosse County Highway 'OT' (CTH OT), and La Crosse County Highway 'XX' (CTH XX). *For purposes of this study, this intersection will be referred to as the 'Midway' intersection, with Front Street as the north approach, CTH OT and CTH XX on the east approach, CTH OT on the south approach, and CTH ZN on the west approach.*

La Crosse County Highway 'ZN' (CTH ZN) is an east-west, two-lane roadway that provides one of two connections for Brice Prairie across the Halfway Creek Marsh. Across the marsh, CTH ZN provides two, 12-foot travel lanes with a gravel shoulder of approximately 2-4 feet in width. At its unsignalized intersections with CTH Z and at the Midway intersection, CTH ZN does not provide any exclusive turning lanes with all movements from CTH ZN under stop-sign control. CTH ZN has a posted speed limit of 25 miles per hour in the vicinity of the Midway intersection but does not have a posted speed limit across the Halfway Creek Marsh.

La Crosse County Highway 'Z' (CTH Z) is generally an east-west, two-lane roadway that provides the other connection for Brice Prairie across the Halfway Creek Marsh. Across the marsh, CTH Z provides two, 12-foot travel lanes with a gravel shoulder of approximately four feet. No exclusive turning lanes are provided on CTH Z at major intersections with all movements from CTH Z under stop-sign control at the STH 35 intersection. In the vicinity of the La Crosse County Highway 'ZB' (CTH ZB) intersection, CTH Z has a posted speed limit of 35 miles per hour; however, no speed limit is posted on CTH Z across the Halfway Creek Marsh.

La Crosse County Highway 'OT' (CTH OT) is a two-lane roadway that serves as a primary travel path for Brice Prairie residents commuting to and from the area. This is due to the fact that CTH OT has a signalized intersection with STH 35 and an interchange with U.S. Highway 53 (USH 53). At the Midway intersection, CTH OT does not provide any exclusive turning lanes; however, while the south approach of this intersection is under stop-sign control, the east approach is not under stop-sign control. CTH OT has a posted speed limit of 25 miles per hour in the vicinity of the Midway intersection.

La Crosse County Highway 'ZM' (CTH ZM) is a north-south, two-lane collector roadway connecting CTH OT to the north with CTH Z to the south. At its unsignalized intersections with the aforementioned roadways, CTH ZM does not provide any exclusive turning lanes with all movements from CTH ZM under stop-sign control. CTH ZM has a posted speed limit of 30 miles per hour.

Wisconsin State Trunk Highway 35 (STH 35) is a north-south, two-lane roadway that provides a primary connection from Brice Prairie to the surrounding communities. STH 35 has a signalized intersection with CTH OT and an unsignalized intersection with CTH Z with exclusive turning lanes provided at the CTH OT intersection. STH 35 has a posted speed limit of 55 miles per hour in the vicinity of Brice Prairie.

Non-vehicular Thoroughfares

Two important non-vehicular travel paths currently run through Brice Prairie: the Burlington Northern railroad tracks and the Great River Trail. The Burlington Northern railroad line connects municipalities along the Mississippi River and generates a usage of approximately fifty trains per day. In Brice Prairie, two at-grade railroad crossings are provided, one on CTH ZN and the other on CTH Z. The Great River Trail is a 250-mile pedestrian/bicycle trail that runs along the Mississippi River with approximately 52,000 users annually utilizing the trail. The trail has two at-grade crossings in Brice Prairie: on CTH ZN at the Midway intersection and on CTH Z at the CTH ZM intersection.

Functional Classification of the Area Roadways

The functional classification of a roadway is a tool used by governmental agencies to identify and rank the local and regional importance of roadways within a given area. Criteria such as daily traffic volumes, residential populations, and land uses are utilized to classify the impact a particular roadway has on its surrounding area. **Table 1** summarizes and lists the functional classification of roadways in the Brice Prairie study area, which are also illustrated in **Figure 3**.

Existing Traffic Volumes

To ascertain existing traffic volumes in the Brice Prairie area, average daily traffic (ADT) volumes were obtained from WisDOT's traffic data maps. The ADT volumes, conducted in Year 2002, are illustrated in **Figure 4** and represent two-way traffic volumes for the observed roadways. To bring these traffic volumes to present-day conditions, a one-half percent growth factor was applied for three years (1.5% growth total) to the identified roadways, which are also shown in **Figure 4**. It should be noted that the WisDOT traffic data maps do not conduct counts on CTH Z as it crosses the Halfway Creek Marsh. Therefore, based on known counts in the vicinity of this area, an estimate of daily traffic volumes on CTH Z at the Halfway Creek Marsh crossing was projected.

Table 1
FUNCTIONAL CLASSIFICATION OF BRICE PRAIRIE ROADWAYS

Classification	Definition	Roadway
Urban Minor Arterial	Provide intracommunity continuity and service to trips of moderate length, with more emphasis on land access than principal arterials. The minor arterial system interconnects with the urban arterial system and provides system connections to the rural collectors.	STH 35 CTH OT (STH 35—CTH ZN) CTH ZN (CTH Z – CTH OT)
Urban Collector	Collectors provide both land access service and traffic circulation within residential neighborhoods, commercial areas, and industrial areas. The collector system penetrates residential neighborhoods, distributing trips from the arterials through the area to the local streets. The collectors also collect traffic from the local streets in residential neighborhoods and channel it onto the arterial system.	CTH Z CTH OT / CTH XX CTH ZB CTH ZN (CTH Z – CTH ZB)

Planned / Proposed Roadway Improvements

It is our understanding that no significant roadway and/or intersection improvements are scheduled in the Brice Prairie area at the time of this study. Therefore, existing and future traffic conditions will be based on current physical characteristics of the area roadways.

4. Future Traffic Characteristics

In order to properly evaluate future traffic conditions in the surrounding area, it was necessary to determine the traffic characteristics of proposed developments to the area, including the traffic that will be generated and the directional distribution of these trips to and from the area.

Traffic Generation

The traffic generation characteristics of any development are based on the magnitude and character of its land use. As stated earlier, several developments are planned and/or proposed to occupy lands in the Brice Prairie area. **Table 2** lists a summary of proposed developments to be located in the study area. It should be noted that other developments and regional growth may be planned outside of the study area; however, this growth was not included in this analysis for they were not identified by the Town of Onalaska nor were currently being planned. The estimate of daily trips generated by the identified sites was based on rates published in the Institute of Transportation Engineers (ITE) *Trip Generation Manual, 7th Edition.* It should be noted that trips generated by a proposed Fish & Wildlife Service building was based on projections obtained from the Town of Onalaska. In addition, it should be noted that due to type and variety of land uses proposed for the area, it is likely that interactive trips will occur. Interactive trips are internal trips from different land uses that occur without the use of the external roadways. Interactive trips are not new trips to the roadway network for they occur onsite. To account for this condition, a ten percent reduction to the office and distribution land uses was applied. **Table 3** summarizes the daily volumes generated by the proposed developments.

Table 2
BRICE PRAIRIE PROPOSED DEVELOPMENTS

Location	Land Use and Size
CTH ZB, west of Lake Park Drive (Rivendell)	40 single-family homes
West side of CTH Z at southern CTH Z / CTH ZN intersection	150 single-family homes; 100,000 square feet of office space; 100,000 square feet of distribution space; new Onalaska Town Hall; new Fish & Wildlife Service building
Throughout Brice Prairie	Additional single-lots not developed (assumed to be 50 single-family homes)

Table 3
DAILY SITE-GENERATED TRAFFIC VOLUMES

Land Use	Size	Daily Trips (vehicles per day)
Residential Land Uses	240 dwelling units	2,295
Office Land Uses	100,000 square feet	1,100
Distribution Land Uses	100,000 square feet	700
Town Hall	Unknown	5 (Negligible)
Fish & Wildlife Service	Unknown	120
Total Trips		4,220
10% Interactive Trips Applied to Office and Distribution		180
Total New Trips to Study Area		**4,040**

Traffic Assignment

Traffic that will be generated by the proposed developments in the Brice Prairie area were combined and assigned to the major roadways in the area. This provided the basis for capacity analyses and roadway improvement recommendations. The directional distribution of these future site-generated trips on the external roadways is a function of several variables, including the location and operational characteristics of the roadway system and the ease with which drivers can travel over various sections of the external roadway network without encountering congestion. To provide a comparative analysis of the traffic projections, two sets of trip distribution assignments were conducted. The first distribution assignment was based on the aforementioned factors applied to the future trips (which will be referred to as the 'SAA distribution'), while the second assignment was based on existing travel volumes observed on CTH Z and CTH ZN, as obtained from the WisDOT traffic data maps (which will be referred to as the 'existing distribution'). The new estimated daily traffic volumes that will be produced from the above-mentioned developments were assigned to the various roadways serving the study area, which are illustrated in **Figure 5**. These traffic volumes were then added to the Year 2005 background traffic volumes to obtain total traffic volumes, which are

shown in **Figure 6** for both trip distribution assignments. It should be reiterated that no regional growth, other than what was identified in **Table 2**, was assumed on the analyzed roadways.

5. Analysis

In order to evaluate the impact of the proposed developments, the identified roadway facilities were analyzed based on the estimated volumes of existing background traffic and site-generated traffic on the roadway network. From this analysis, recommendations were developed for site access facilities and roadway improvements.

To analyze future traffic operations on the adjacent roadway network, methodologies cited in the Transportation Research Board (TRB) *Highway Capacity Manual* (HCM), and its software component HCS2000, were utilized. The HCM methodologies take into consideration physical and operational characteristics of roadways to generate a roadway segment level of service. The HCM also analyzes both rural and urban cross-sections based on the differing criteria of these types of roadways.

There are six levels of service, ranging from 'A' through 'F', which relate to driving conditions from best to worst, respectively. Levels of service for roadways are defined in terms of delay, which is a measure of vehicular speed in a particular segment and lost travel time due to following slower moving vehicles. For design purposes, an intersection with a Level of Service (LOS) 'D' or better is generally acceptable. For a more detailed explanation of the level of service conditions, please refer to the appendix of this report.

Upon reviewing the physical characteristics of the majority of roadways in the study area, most segments resemble rural cross-sections and, therefore, should be analyzed as such. However, based on **Table 1**, the functional classification of these roadways is identified as urban. Thus, to provide a more thorough and comparative analysis of future conditions, the roadways will be analyzed under the rural roadway and urban roadway scenario, providing two sets of data.

Because of the lack of specific traffic data obtained for this report, several assumptions were made for analysis purposes, which are described below:

- Due to the lack of employment centers on Brice Prairie, it was assumed that the roadways analyzed serve as commuter routes for residents from Brice Prairie. Therefore, a 70/30 directional distribution split was assumed.

- The peak-hour factor utilized for all analysis was assumed to be 0.88.

- The peak hour traffic volume for roadways was assumed to be twelve percent of the roadway's ADT.

- Roadway segments were assumed to carry fourteen percent truck traffic and four percent recreational vehicle traffic. These assumptions are standard values for HCM roadway analysis.

- Except for CTH Z, south of CTH ZM, roadway segments were assumed to be located in level terrain (grades less than 3-4 percent) and had a free-flow speed limit of 55 miles per hour.

Rural Roadway Analysis

Motorists utilizing rural roadways expect to travel at higher speeds. This is due to the lack of development along these routes (which, in turn, reduce the number of access points) as well as the lower traffic volumes that rural roadways typically experience. On two-lane rural roadways, passing of slower-moving vehicles is permitted where adequate sight distance for motorists is provided.

As previously stated, physical and operational characteristics of roadways are utilized to determine the roadway level of service, such as cross-sectional widths, traffic volumes, and access control. Data for each roadway was inputted into HCS2000, which then generated a roadway level of service for each segment. **Table 4** illustrates the results of this analysis for the identified roadway sections based on the previously-mentioned SAA and WisDOT traffic distributions. For further detail of this analysis, please refer to the worksheets for each roadway located in the Appendix. In addition, analysis was conducted for each roadway segment to determine the maximum amount of traffic that each roadway could handle efficiently (LOS 'D'). This was done to determine the surplus, if any, of daily traffic that each roadway could carry without significant deficiencies. The results of this analysis are shown in **Table 5**.

Table 4
ROADWAY DELAY AND LEVEL OF SERVICE SUMMARY

Roadway	Level of Service (SAA Distribution)	Level of Service (Existing Distribution)
CTH Z (north of CTH ZN)	D	D
CTH Z (south of CTH ZN)	B	B
CTH ZN (CTH Z – Midway)	D	D
CTH OT / XX (at Midway)	---[1]	---[1]
CTH OT (Midway – STH 35)	D	D
CTH ZM (CTH Z – CTH OT)	---[1]	---[1]
CTH Z (CTH ZM – STH 35)	C	C
CTH Z (CTH ZB – CTH ZM)	D	D
1 Because segment has low posted speed limit, it cannot be analyzed under rural conditions		

The results of the roadway level of service analysis show that all sections of impacted roadways will accommodate existing and future traffic volumes. This indicates that the existing physical characteristics of the analyzed roadways will allow for sufficient travel to and from Brice Prairie and that no roadway widening or improvements are needed.

Table 5
MAXIMUM AVERAGE DAILY TRAFFIC VOLUME SUMMARY – RURAL ROADWAYS

Roadway	Future ADT (SAA Distribution)	Future ADT (Existing Distribution)	Maximum ADT at LOS D
CTH Z (north of CTH ZN)	3,790	3,790	7,300
CTH Z (south of CTH ZN)	1,780	1,660	11,000
CTH ZN (CTH Z–Midway)	6,480	5,670	7,700
CTH OT / XX (at Midway)	2,330	2,250	---[1]
CTH OT (Midway–STH 35)	6,280	5,550	8,000
CTH ZM (CTH Z–CTH OT)	820	980	---[1]
CTH Z (CTH ZM–STH 35)	3,040	3,690	10,625
CTH Z (CTH ZB–CTH ZM)	3,850	4,660	4,800

1 Because segment has low posted speed limit, it cannot be analyzed under rural conditions

From Table 5, it can be seen that most roadways segments will be able to accommodate more traffic and operate adequately with the exception of CTH Z from CTH ZB to CTH ZM. For this section of roadway, the future ADT utilizing the existing traffic distribution is just below the maximum ADT that will operate at level of service D. One reason for this is due to the significant number of residential homes and businesses having access to CTH Z, which decrease passing capabilities and lowers travel speeds. It should be noted, though, that if this section of CTH Z was not considered in its analysis, the maximum ADT that CTH Z could accommodate across the Halfway Creek Marsh would be significantly higher.

Urban Roadway Analysis

Motorists utilizing urban roadways expect to travel at lower speeds than their rural counterparts due to more access points (roadways and access to private development) and more opportunities to be stopped at intersections, whether by stop-signs or traffic signals. Analysis of urban roadways is primarily determined by the travel speed of vehicles on a particular segment of roadway.

Like the rural roadway analysis, several physical and operational characteristics are considered in determining the capacity of urban roadways, such as speed limit, functional classification and cross-section. However, criteria for urban roadway analysis also utilize the frequency, spacing, and timing of traffic signals and do not consider other functions such as access spacing, heavy vehicle traffic, and terrain. *Therefore, urban roadway analysis of the study area may not be the best method of determining the capacity of Brice Prairie roadways.* However, the roadways in the study area are functionally classified as urban roadways so an attempt to estimate the capacity of these roadways will be conducted for discussion purposes only.

To determine the maximum ADT that urban roadways can operate at level of service D, Exhibit 10-7 of the HCM was utilized. This exhibit derives maximum traffic flows for different classifications of urban roadway. While assumptions used for results in the exhibit do not correspond to conditions experienced in Brice Prairie, this exhibit was used as a general 'rule of thumb' analysis for urban

roadways. Table 6 shows the future ADT for Brice Prairie roadways compared to threshold values for urban roadways, obtained from the HCM.

Table 6
MAXIMUM AVERAGE DAILY TRAFFIC VOLUME SUMMARY – URBAN ROADWAYS

Roadway	Future ADT (SAA Distribution)	Future ADT (Existing Distribution)	Maximum ADT at LOS D[1]
CTH Z (north of CTH ZN)	3,790	3,790	8,500
CTH Z (south of CTH ZN)	1,780	1,660	8,500
CTH ZN (CTH Z–Midway)	6,480	5,670	8,500
CTH OT / XX (at Midway)	2,330	2,250	6,500
CTH OT (Midway–STH 35)	6,280	5,550	6,500 – 8,500
CTH ZM (CTH Z–CTH OT)	820	980	6,500
CTH Z (CTH ZM–STH 35)	3,040	3,690	8,500
CTH Z (CTH ZB–CTH ZM)	3,850	4,660	6,500 – 8,500

1 Maximum ADT should be used for discussion purposes only
Maximum ADT derived from Exhibit 10-7 in *Highway Capacity Manual*

The results of the analysis show that all segments of impacted roadways will operate adequately when analyzed as urban roadways. However, as stated before, several factors that were considered for the urban roadway analysis is not applicable to Brice Prairie; *thus, the results illustrated in the above table should be used for general comparison only and action should not be taken on these results only*.

To analyze the adequacy of the impacted roadways in the future, this study obtained and analyzed ADT volumes within the study area. While the analysis indicates that the adjacent roadway network will accommodate growth identified in this study, consideration should be given to look at major intersections in the Brice Prairie area (i.e. Midway intersection, STH 35 with CTH OT and CTH Z, and CTH ZN with CTH Z) to determine if the existing intersection geometrics will accommodate this growth. Thus, to further reinforce the adequacy of roadways in the Brice Prairie area, intersection counts should be conducted and analyzed to determine if intersection improvements such as roadway widening, exclusive turning lanes, or traffic control upgrades will be required in the future.

Railroad Considerations

The previous analysis scenarios showed that all impacted roadways in the Brice Prairie study area currently, and would continue to, operate satisfactorily with the addition of future traffic volumes. However, analysis of future traffic conditions did not take into consideration the existing railroad crossings at CTH ZN and CTH Z for railroad interaction is not a criteria utilized for HCM analysis. However, due to the frequency of trains that travel through the Brice Prairie area (50 trains per day), the maximum ADT that roadways intersecting the railroad tracks would accommodate will likely be reduced, due to motorists having to stop at the crossings to wait for trains to pass through. To account for this situation, a reduction in the maximum ADT along CTH ZN and CTH Z was applied to consider trains stopping traffic.

Because the characteristics of each train that travels through the study area can differ significantly (i.e. length of train, speed of train, congestion of trains at Onalaska station), two sets of reductions were formed. One set assumed that the average train stopped traffic for three minutes at each crossing while the second set assumed a five-minute stop of vehicles. Assuming that two trains travel per hour through Brice Prairie (50 trains over a 24-hour period), this would equate to a lost time of six minutes and ten minutes per hour, respectively. This percentage of time lost during each hour was then applied to the maximum ADT of each roadway (as determined in **Table 5**) to project an adjusted maximum daily traffic capacity to consider train use. **Table 7** illustrates the projected future traffic volumes, as determined from existing traffic and future development, as well as the adjusted maximum ADT that can be sufficiently accommodated by the roadways.

Table 7
MAXIMUM AVERAGE DAILY TRAFFIC VOLUME SUMMARY – TRAIN ADJUSTMENT

Roadway	Future ADT (SAA Distribution)	Future ADT (Existing Distribution)	Adjusted ADT (3-min crossing)	Adjusted ADT (5-min crossing)
CTH ZN	6,480	5,670	6,930	6,420
CTH Z	3,850	4,660	4,320	4,000
ADT – Average Daily Traffic (measured in vehicles per day)				

From **Table 7**, it is shown that while the adjusted ADT will still accommodate daily traffic along CTH ZN, congestion along CTH Z may occur with increases in traffic. However, analysis of CTH Z incorporated the numerous residential homes west of the railroad crossing forcing motorists to slow down, reducing the roadway capacity. If this section of roadway was not considered, the adjusted roadway capacity would be raised significantly. Therefore, this analysis reinforces more specific roadway and/or intersection studies to ascertain whether the existing roadway geometrics will accommodate future growth as well as conduct more thorough observations of the railroad crossings and the delay that is generated by its use.

6. Improvements

As the previous analyses have shown, most of the identified roadways in this study will be able to satisfactorily accommodate traffic volumes from future developments identified in this study. While no significant roadway improvements are recommended on a corridor-wide scale, improvements done at specific locations can help maintain and/or improve traffic flow to and from Brice Prairie. As such, this section of the report identifies several local improvements that would help promote traffic flow as well as alleviate any future concerns.

Midway intersection

As stated in Section 3 of this report, traffic control at the Midway intersection is comprised of three of the four approaches having stop-signs for motorists (the CTH OT/ XX approach does not have a stop-sign). While existing signage at this location notifies motorists that the CTH OT/XX approach does not stop, the uniqueness of this traffic control condition may be ignored by non-residents of the area, which could lead to unsafe intersection maneuvers. In addition, a building located in the east quadrant of the intersection provides poor sight distance for vehicles on the CTH OT (southeast) approach looking northeast (CTH OT/XX). This condition forces motorists to 'inch out' into the

intersection to gain better sight distance, reducing traffic flow and creating a potentially unsafe driving condition.

Recommendation – To improve traffic flow at the Midway intersection, all approaches should be under stop-sign control, forcing motorists at all approaches to stop before proceeding through the intersection.

Recommendation – To promote traffic flow through the Midway intersection, consideration should be given to provide an eastbound-to-southbound flared right-turn lane on CTH ZN, allowing right-turning vehicles to exit the through traffic stream.

The Great River Trail, a significantly used bicycle/pedestrian trail, crosses CTH ZN approximately 125 feet away from the Midway intersection. Due to the lack of pedestrian signage that exists on CTH ZN or at the Midway intersection, motorists may not be aware of this trail crossing, which may lead to unwanted interaction with bicyclists and pedestrians.

Recommendation – To improve the safety of the Great River Trail crossing of CTH ZN, proper signage should be placed on CTH ZN in the vicinity and at the location of the trail crossing to alert motorists of potential pedestrians crossing the roadway.

Recommendation – Physical improvements to CTH ZN should be considered to force motorists to slow down approaching the Great River Trail crossing such as roadway narrowing, physical delineation of the crossing, or median installation.

CTH Z / CTH ZM intersection

The Great River Trail crosses CTH Z approximately 125 feet west of CTH ZM. Like the Midway intersection, no proper signage is posted in its vicinity to alert motorists of potential bicyclists and pedestrians crossing CTH Z.

Recommendation – To improve the safety of the Great River Trail crossing of CTH Z near CTH ZM, proper signage should be installed in the vicinity of the trail crossing as well as physical improvements to the crossing to make motorists slow down and alert them of potential trail users.

Roadway access control

In order to maintain mobility through the Brice Prairie corridors with minimal interruptions, access control of these roadways should be enhanced and enforced. With this, the following access recommendations should be established along the aforementioned roadways, especially CTH ZN, CTH Z and CTH OT.

Recommendation – To reduce or limit access along the external roadways, combined access between adjoining parcels should be implemented whenever possible and should be strongly promoted by the Town of Onalaska.

Recommendation – New full access driveways should be aligned opposite an existing full access driveway to eliminate the creation of offset intersections.

Recommendation – As parcels are redeveloped along CTH ZN, CTH Z and CTH OT, consideration should be given to consolidate and/or limit the existing access drives serving these parcels, reducing the number of access points to these roadways.

Recommendation – Adequate spacing of access points along CTH ZN, CTH Z and CTH OT should be promoted to reduce the amount of conflict points over a short section of roadway, improving traffic flow and safety.

Realignment of CTH Z

Currently, CTH Z serves as a vital east-west corridor to Brice Prairie due to its crossing of the Halfway Creek Marsh. However, from CTH ZB to the railroad tracks, residential and commercial access drives front CTH Z, creating numerous conflict points for through motorists. This condition will reduce traffic flow along this roadway due to motorists negotiating several horizontal curves as well as potentially interacting with vehicles entering and exiting private access drives. With the inability to create more crossings to and from Brice Prairie, CTH Z will continue to serve a significant number of motorists. Therefore, to reduce the traffic load along the residential homes and businesses while maintaining the use of the CTH Z crossing in the future, consideration should be given to realign CTH Z from the CTH ZB intersection eastward that will travel around the majority of homes and businesses that reside along the existing alignment of CTH Z. This extension, coupled with the de-emphasis of the existing CTH Z alignment, will allow drivers east-west travel without numerous access points as well as reduce traffic volumes along existing CTH Z in the vicinity of residential homes and businesses.

Recommendation – Consider constructing a new roadway between the CTH Z/CTH ZB intersection and the area near the CTH Z railroad to relieve existing CTH Z and reduce impacts on homes and businesses.

7. Conclusion

This report examined the traffic impacts of development planned or proposed to be located within Brice Prairie. The study analyzed the existing and future traffic conditions on the adjacent roadway network. Roadway capacity analyses were performed for roadway sections in the area expected to be impacted by these developments. Roadway modifications and improvements were developed to mitigate projected traffic conditions in this area.

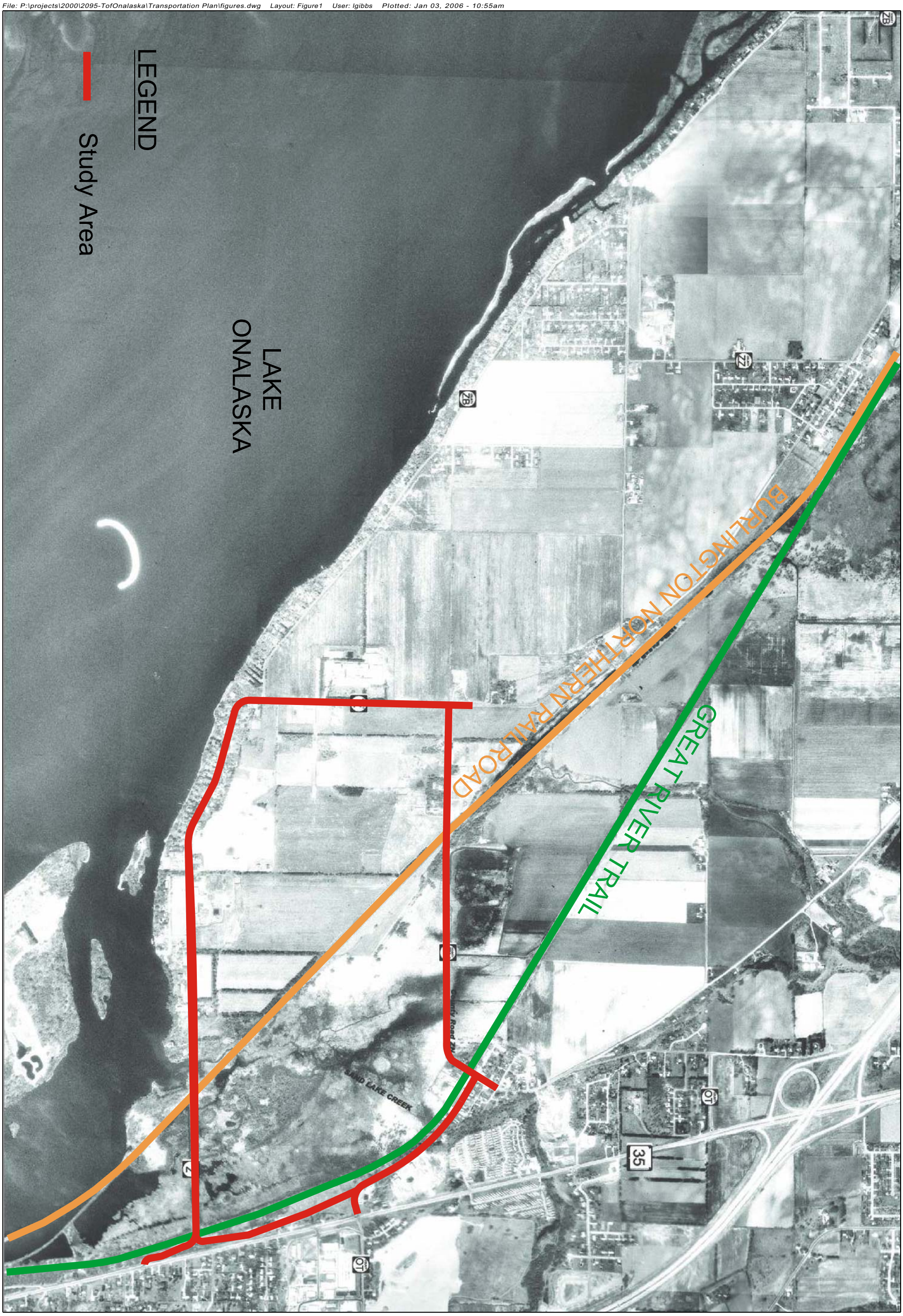
Based on the data collected and the analyses performed, the following conclusions were reached regarding the impact the proposed developments would have on the adjacent roadway system:

- Many of the identified sections of the existing roadway network currently, and will be able to, accommodate the projected amount of site traffic generated by both existing and future users of Brice Prairie; however, more thorough analysis of key intersections and railroad interaction in the area should be conducted to further reinforce the sufficiency of the area roadways and detect any potential deficiencies not analyzed in this report.

- Several improvements, such as access control and intersection upgrades, should be considered to provide more efficient traffic flow as well as improve safety of Brice Prairie residents and Great River Trail users.

Attachments:

- Figure 1: Study Area
- Figure 2: Existing Traffic Operations
- Figure 3: Existing Functional Classification
- Figure 4: Year 2002 and 2005 Daily Traffic Volumes
- Figure 5: Estimated Site Generated Traffic Volumes
- Figure 6: Projected Total Traffic Volumes



STUDY AREA

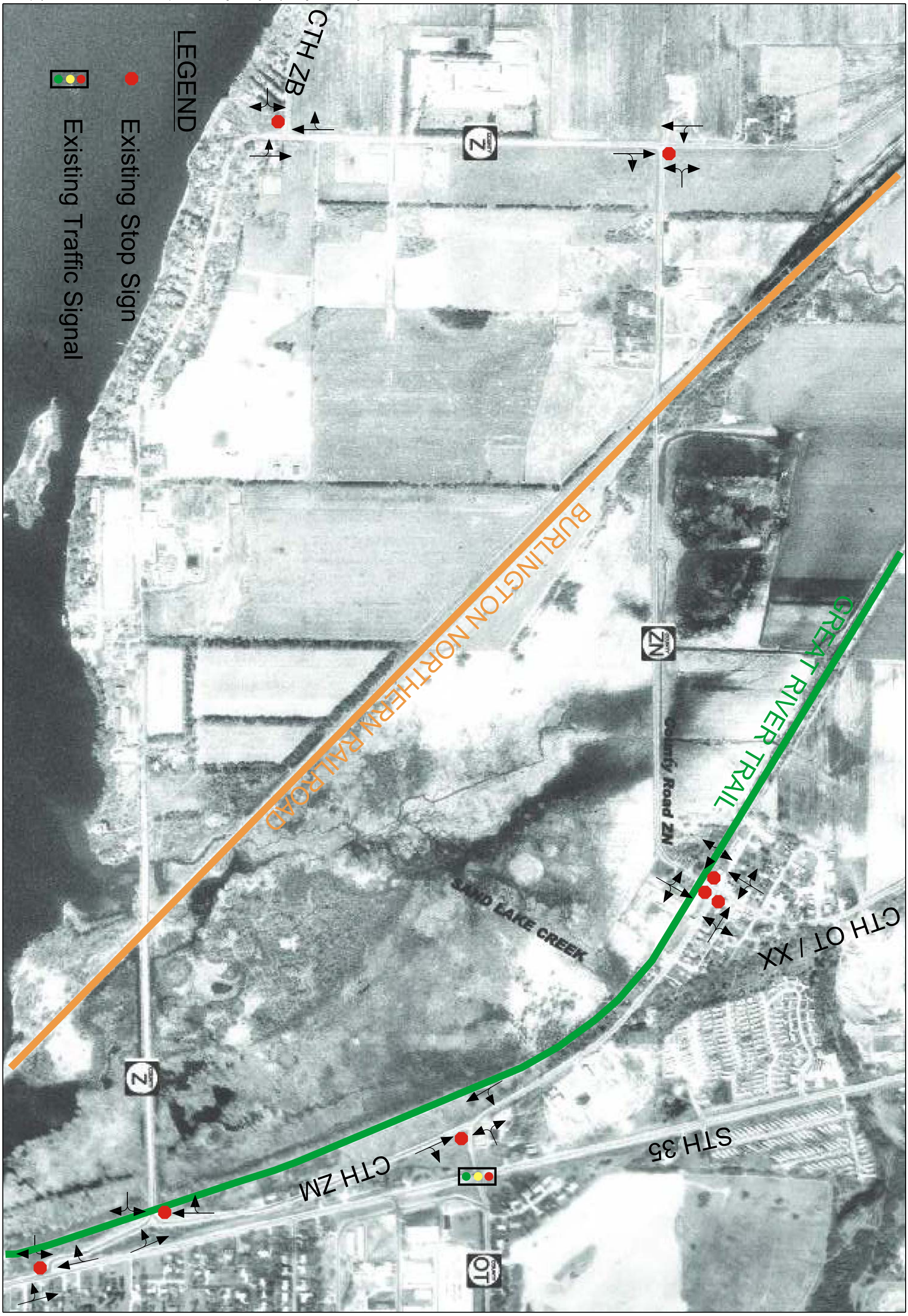
BRICE PRAIRIE
TOWN OF ONLASKA, WISCONSIN

FIGURE 1

PROJECT: 2095
DATE: DEC 2005

SCHREIBER / ANDERSON
ASSOCIATES, INC.

File: P:\projects\2000\2095-TofOnalaska\Transportation Plan\figures.dwg Layout: Figure2 User: lgibbs Plotted: Jan 03, 2006 - 11:23am



EXISTING TRAFFIC OPERATIONS

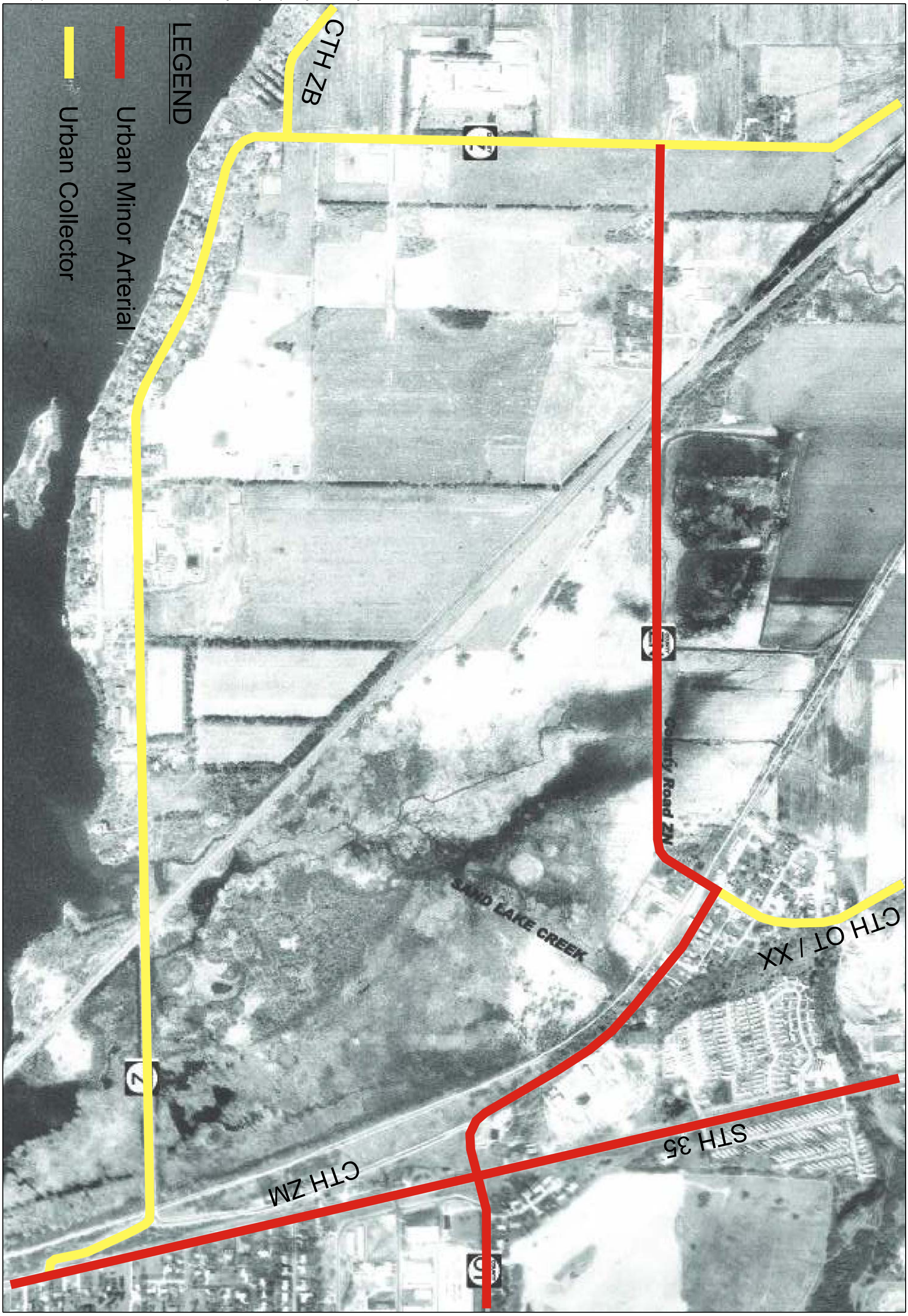
BRICE PRAIRIE
TOWN OF ONLASKA, WISCONSIN

0 175 350 700

FIGURE 2

PROJECT: 2095
DATE: DEC 2005

SCHREIBER / ANDERSON ASSOCIATES, INC.



EXISTING FUNCTIONAL CLASSIFICATION

0 175 350 700

BRICE PRAIRIE
TOWN OF ONLASKA, WISCONSIN

FIGURE 3

PROJECT: 2095
DATE: DEC 2005

SCHREIBER / ANDERSON ASSOCIATES, INC.

YEAR 2002 AND 2005 DAILY TRAFFIC VOLUMES

0 175 350 700

BRICE PRAIRIE
TOWN OF ONLASKA, WISCONSIN

FIGURE 4

PROJECT: 2095
DATE: DEC 2005

SCHREIBER / ANDERSON ASSOCIATES, INC.

ESTIMATED SITE-GENERATED TRAFFIC VOLUMES

0 175 350 700

BRICE PRAIRIE
TOWN OF ONLASKA, WISCONSIN

FIGURE 5

PROJECT: 2095
DATE: DEC 2005

SCHREIBER / ANDERSON
ASSOCIATES, INC.

PROJECTED TOTAL TRAFFIC VOLUMES

BRICE PRAIRIE
TOWN OF ONLASKA, WISCONSIN

FIGURE 6

PROJECT: 2095
DATE: DEC 2005

SCHREIBER / ANDERSON
ASSOCIATES, INC.