

INITIAL TRAFFIC IMPACT ANALYSIS FOR:

## FOXCONN

VILLAGE OF MOUNT PLEASANT, RACINE COUNTY, WISCONSIN  
(TADI #2123)

DATE SUBMITTED: December 15, 2017

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(WisDOT TIA Certification # SE05-804-030)

*"I certify that this Traffic Impact Analysis has been prepared by me or under my immediate supervision and that I have experience and training in the field of traffic and transportation engineering."*

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**\*\*\* DISCLAIMER \*\*\***

The results, conclusions, and recommendations contained in this Initial Traffic Impact Analysis (TIA) are based on the information provided to TADI from Foxconn and assumptions as agreed upon by WisDOT and TADI as of November 29, 2017.

It is understood that changes and updates to the Foxconn site plan, Foxconn operations, Foxconn employee locations, and roadway network have occurred since November 29<sup>th</sup> which are not reflected in this Initial TIA submittal.

Additional Foxconn details are anticipated in the coming weeks. An updated TIA incorporating the most recent Foxconn updates and updated roadway network will be submitted as a “Final TIA” in the coming months.

**Foxconn**  
**Initial Traffic Impact Analysis**  
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## CHAPTER I – INTRODUCTION & EXECUTIVE SUMMARY

### PART A – PURPOSE OF REPORT AND STUDY OBJECTIVES

Foxconn Technology Group (“Foxconn”) is proposing a manufacturing campus on lands generally situated east of Interstate Highway (IH) 41/94 between State Trunk Highway (STH) 11 and County Trunk Highway (CTH) KR in the Village of Mount Pleasant, Racine County. Suppliers and supporting uses for Foxconn are also anticipated on lands within the same general area. “Project Flying Eagle” as used in this Initial Traffic Impact Analysis (TIA) describes the development of Foxconn and its surrounding lands for suppliers and supporting uses.

TADI performed this Initial TIA to determine the expected weekday morning and weekday evening peak hour operating conditions and recommendations at identified study area intersections with the development of Project Flying Eagle. This report documents the procedures, findings and conclusions of the analysis.

*The results, conclusions, and recommendations contained in this Initial TIA are based on the information provided to TADI from Foxconn and assumptions as agreed upon by WisDOT and TADI as of November 29, 2017. It is understood that changes and updates to the Foxconn site plan, Foxconn operations, Foxconn employee locations, and roadway network have occurred since November 29<sup>th</sup> which are not reflected in this Initial TIA submittal. Additional Foxconn details are anticipated in the coming weeks. An updated TIA incorporating the most recent Foxconn updates and updated roadway network will be submitted as a “Final TIA” in the coming months.*

### PART B – EXECUTIVE SUMMARY

#### B1. Study Area

A study area map showing identified development areas within Project Flying Eagle is shown in [Exhibit 1-1](#). The development areas are described in more detail later in this chapter.

*The following information regarding roadway network modifications are assumed at this time for the purposes of the analysis and should not be construed as modifications that will occur.*

#### B1.1 Year 2020 & Year 2030 Assumed Roadway Network Modifications

A new roadway, herein referenced as “Wisconn Valley Way”, is assumed to be constructed between STH 11 and CTH KR to the east of the existing East Frontage Road alignment. It is assumed in the Year 2020 and Year 2030 analyses that Wisconn Valley Way will function as the east frontage road, that the existing East Frontage Road alignment within the same limits (“Old East Frontage”) will be disconnected from STH 11 and CTH KR, and that access to Old East Frontage can be achieved via its existing intersection with Braun Road and via new connections to Wisconn Valley Way both north and south of Braun Road. The East Frontage Road alignments north of STH 11 and south of CTH KR are assumed to remain and be offset from Wisconn Valley Way in the Year 2020 and Year 2030 analyses. The Wisconn Valley Way intersections were assumed to intersect STH 11, Braun Road, and CTH KR at approximately 570-feet, 1,150-feet, and 1,895-feet east of the existing East Frontage Road alignment, respectively.

Additionally, International Drive is a four-lane divided roadway that currently intersects STH 20 to the north of the study area. It is assumed International Drive will be extended south to intersect STH 11 from the north by the Year 2020 at a location approximately 2,705-feet west of CTH H.

### B1.2 Year 2040 Assumed Roadway Network Modifications

The East Frontage Road alignments north of STH 11 and south of CTH KR are assumed to be relocated east to align with Wisconn Valley Way in the Year 2040 analysis.

The Year 2040 analysis assumes a new IH 41/94 interchange will be constructed to service Braun Road. The West Frontage Road is assumed to be relocated west and its existing alignment reconstructed to accommodate IH 41/94 southbound ramps to/from Braun Road. The Old East Frontage alignment is assumed to be reconstructed to accommodate the IH 41/94 Northbound Ramps to/from Braun Road. The new interchange is assumed to be configured as follows:

- Braun Road Southbound Off-Ramp: Traffic to Braun Road would exit the IH 41/94 southbound mainline with STH 11 exiting traffic. The off-ramp would split with traffic to Braun Road traveling either over or under the IH 41/94 southbound on-ramp from STH 11, onto the former West Frontage Road alignment, and then intersect Braun Road.
- Braun Road Southbound On-Ramp: Traffic from Braun Road would travel south on the former West Frontage Road alignment. The southbound off-ramp to CTH KR would join this alignment prior to its intersection with CTH KR. The southbound on-ramp from CTH KR would then carry both Braun Road and CTH KR traffic to IH 41/94 southbound.
- Braun Road Northbound Off-Ramp: Traffic to Braun Road would exit the IH 41/94 northbound mainline with CTH KR exiting traffic and intersect with CTH KR. Traffic to Braun Road would travel north through the CTH KR intersection on the former Old East Frontage alignment along with CTH KR on-ramp traffic. The northbound on-ramp from CTH KR would intersect this alignment prior to Braun Road.
- Braun Road Northbound On-Ramp: Traffic from Braun Road would travel north on the former Old East Frontage alignment. The on-ramp would travel either over or under the IH 41/94 northbound off-ramp to STH 11, then join up with on-ramp traffic from STH 11 prior to joining the IH 41/94 northbound mainline.

In the Year 2040 it is also assumed that 90<sup>th</sup> Street will be realigned at CTH KR with 72<sup>nd</sup> Avenue.

### B1.3 Study Area Intersections

The study area includes the following intersections. The node number corresponds to the intersection as modeled in the capacity analysis.

- *Node 300*: STH 11 & West Frontage Road;
- *Node 310*: STH 11 & IH 41/94 Southbound Ramps;
- *Node 320*: STH 11 & IH 41/94 Northbound Ramps;
- *Node 323*: STH 11 & East Frontage Road-North (Year 2020 & Year 2030);
- *Node 327*: STH 11 & Wisconn Valley Way (Year 2020 & Year 2030);
- *Node 330*: STH 11 & East Frontage Road/Wisconn Valley Way (Year 2040);
- *Node 345*: STH 11 & International Drive;
- *Node 350*: STH 11 & CTH H;
- *Node 400*: Braun Road & West Frontage Road;
- *Node 410*: Braun Road & IH 41/94 Southbound Ramps (Year 2040);



- *Node 420:* Braun Road & Old East Frontage (Year 2020 & Year 2030);
- *Node 420:* Braun Road & IH 41/94 Northbound Ramps (Year 2040);
- *Node 430:* Braun Road & Wisconn Valley Way;
- *Node 450:* Braun Road & CTH H;
- *Node 470:* Braun Road & 90<sup>th</sup> Street;
- *Node 500:* CTH KR & West Frontage Road;
- *Node 510:* CTH KR & IH 41/94 Southbound Ramps;
- *Node 520:* CTH KR & IH 41/94 Northbound Ramps;
- *Node 523:* CTH KR & East Frontage Road-North (Year 2020 & Year 2030);
- *Node 527:* CTH KR & Wisconn Valley Way (Year 2020 & Year 2030);
- *Node 530:* CTH KR & East Frontage Road/Wisconn Valley Way (Year 2040);
- *Node 550:* CTH KR & CTH H;
- *Node 565:* CTH KR & 72<sup>nd</sup> Avenue (Year 2020 & Year 2030);
- *Node 565:* CTH KR & 72<sup>nd</sup> Avenue/90<sup>th</sup> Street (Year 2040);
- *Node 570:* CTH KR & 90<sup>th</sup> Street (Year 2020 & Year 2030);

Development access is also included in the list of study intersections and is discussed under *B5. Proposed Access*.

## **B2. On-Site Development Description**

A total of five development areas have been identified to aid in providing accurate trip assignments. A map showing the developable areas is shown in [Exhibit 1-1](#).

The following is a narrative for each development area. “Phase one” describes development that is assumed to be completed and occupied around Year 2020. “Interim build” describes development that is assumed to be completed and occupied around Year 2030. “Full build” describes development that is assumed to be completed and occupied around Year 2040.

*Land use and density figures are assumed at this time for the purposes of the analysis and should not be construed as final development plans.*

### B2.1 Foxconn Core Area Development Description

The Foxconn Core Area describes lands generally located north of CTH KR, west of CTH H, south of Braun Road, and east of Wisconn Valley Way. A distinction is made between “Non-professional” and “professional” staff at this time due to potential differences in shifts and schedules.

- Phase One (3,900 employees):
  - Foxconn Non-Professional Staff – 1,900 employees; and
  - Foxconn Professional Staff – 2,000 employees.
- Interim Build (8,000 employees):
  - Foxconn Non-Professional Staff – 5,900 employees; and
  - Foxconn Professional Staff – 2,100 employees.

- Full Build (13,000 employees):
  - Foxconn Non-Professional Staff – 9,700 employees; and
  - Foxconn Professional Staff – 3,300 employees.

A total of seven access points were assumed to the Foxconn Core Area, as described later in this chapter.

#### B2.2 East Area Development Description

The East Area describes lands generally located north of CTH KR, east of CTH H, south of Braun Road, and west of 90<sup>th</sup> Street.

- Phase One: No development.
- Interim Build: No development.
- Full Build: Industrial Park – 628 acres.

A total of six access points were assumed to the East Area, as described later in this chapter.

#### B2.3 North Area Development Description

The North Area describes lands generally located south of STH 11, west of CTH H, north of Braun Road, and east of Wisconn Valley Way.

- Phase One: Industrial Park – 240 acres.
- Interim Build: Industrial Park – 480 acres.
- Full Build: Industrial Park – 960 acres.

A total of seven access points were assumed to the North Area, as described later in this chapter.

#### B2.4 Southwest Area Development Description

The Southwest Area describes lands generally located north of CTH KR, east of IH 41/94, south of Braun Road, and west of Wisconn Valley Way.

- Phase One:
  - Hospital – 125 beds; and
  - Corporate Office – 200,000 square feet (sf).
- Interim Build: Same as phase one.
- Full Build: Same as phase one.

A total of two access points were assumed to the Southwest Area, as described later in this chapter.

#### B2.5 Northwest Area Development Description

The Northwest Area describes lands generally located south of STH 11, east of IH 41/94, north of Braun Road, and west of Wisconn Valley Way.

- Phase One: No development.
- Interim Build:
  - Hotel – 200 rooms; and
  - Shopping Center/Retail – 500,000 square feet (sf).

- Full Build:
  - Hotel – 200 rooms; and
  - Shopping Center/Retail – 1,000,000 square feet (sf).

A total of two access points were assumed to the Northwest Area, as described later in this chapter.

### **B3. Off-Site Development Description**

A TIA for Mount Pleasant TIDs 1, 3 & 4 was submitted in July of 2017 to aid the Village in land use and transportation planning of lands east of IH 41/94 both north and south of STH 20 (north of the Project Flying Eagle study area). Traffic from TIDs 1, 3 & 4 that travels through the Project Flying Eagle study area is included in this Initial TIA.

- Phase One: No development.
- Interim Build: Full build of TIDs as outlined in July of 2017 TIDs 1, 3 & 4 TIA.
- Full Build: Same as interim build.

All access for off-site development was assumed to be located outside of the study area.

### **B4. Site Generated Traffic**

To address any potential future traffic impacts at the study area intersections, it is necessary to identify the hourly volume of traffic generated by anticipated development. The traffic volumes expected to be generated by Project Flying Eagle are based on the size and type of the assumed uses, trip rates and fitted curve equations as published in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, Ninth Edition, 2012*, and various assumptions for shift changes and vehicle occupancy. See Chapter IV for more details.

*Land use and density figures, which affect trip generation estimates, are assumed at this time for the purposes of the analysis. The following information should not be construed as final traffic estimates.*

Phase one of Project Flying Eagle is expected to generate approximately 4,120 new trips (2,955 in/1,165 out) during a typical weekday morning peak hour and 4,020 new trips (1,215 in/2,805 out) during a typical weekday evening peak hour. Phase one is expected to generate approximately 20,490 new trips (10,245 in/10,245 out) during a typical weekday (24-hour period).

Interim build of Project Flying Eagle is expected to generate approximately 6,630 new trips (4,570 in/2,060 out) during a typical weekday morning peak hour and 7,245 new trips (2,570 in/4,675 out) during a typical weekday evening peak hour. Interim build is expected to generate approximately 48,150 new trips (24,075 in/24,075 out) during a typical weekday (24-hour period). These figures do not include the trips generated by TIDs 1, 3 & 4.

Full build of Project Flying Eagle is expected to generate approximately 12,710 new trips (9,130 in/3,580 out) during a typical weekday morning peak hour and 12,820 new trips (4,200 in/8,620 out) during a typical weekday evening peak hour. Full build is expected to generate approximately 87,870 new trips (43,935 in/43,935 out) during a typical weekday (24-hour period). These figures do not include the trips generated by TIDs 1, 3 & 4.

The traffic estimates summarized in this Initial TIA assume two shifts per day for Foxconn and that all employees change shifts within the same hours: 6:30am to 7:30am and 6:00pm to 7:00pm. It is additionally assumed that the peak hours of all other uses (industrial, commercial,

etc.) will coincide with these same peak hours. Traffic estimates for the surrounding areas are based on assumptions for land use and density without available site plans. Additional detailed information regarding Foxconn employee numbers by shift, function, hours of day, parking locations, professional vs. non-professional, etc. is desired to further understand traffic demands and refine transportation infrastructure needs. Additional land use, density, operations, and access information regarding the surround areas is also desired to further understand traffic demands and refine transportation infrastructure needs. This detail has the potential to alter the identified recommendations.

## **B5. Access Assumptions**

The following is a list of assumed intersections for Project Flying Eagle.

*All driveways and the associated centerline-to-centerline distances listed below are assumed at this time for the purposes of the analysis and should not be construed as final driveway numbers or locations.*

- *Node 335:* STH 11 & N-1, servicing the North Area, assumed to be located approximately 6,665-feet west of CTH H.
- *Node 345:* STH 11 & International Drive/N-2, servicing the North Area, assumed to be located approximately 2,705-feet west of CTH H.
- *Node 435:* Braun Road & FC-1/N-4, servicing the Foxconn Core Area and North Area, assumed to be located approximately 5,990-feet west of CTH H. FC-1 was assumed to service employee parking lots and a structure in the northwest corner of the Foxconn Core Area.
- *Node 440:* Braun Road & FC-2/N-5, servicing the Foxconn Core Area and North Area, assumed to be located approximately 3,450-feet west of CTH H. FC-2 was assumed to be a visitor access.
- *Node 445:* Braun Road & FC-3/N-6, servicing the Foxconn Core Area and North Area, assumed to be located approximately 1,725-feet west of CTH H. FC-3 was assumed to service employee parking lots in the northeast corner of the Foxconn Core Area.
- *Node 455:* Braun Road & E-1, servicing the East Area, assumed to be located approximately 1,165-feet east of CTH H. E-1 was assumed to service lands within the East Area, west of the railroad tracks.
- *Node 460:* Braun Road & E-2, servicing the East Area, assumed to be located approximately 1,495-feet west of 90<sup>th</sup> Street. E-2 was assumed to service lands within the East Area, east of the railroad tracks.
- *Node 535:* CTH KR & FC-4, servicing the Foxconn Core Area, assumed to be located approximately 3,595-feet west of CTH H. FC-4 was assumed to service truck deliveries in the southwest corner of the Foxconn Core Area.
- *Node 540:* CTH KR & FC-5, servicing the Foxconn Core Area, assumed to be located approximately 1,315-feet west of CTH H. FC-5 was assumed to service truck deliveries in the southeast corner of the Foxconn Core Area.
- *Node 555:* CTH KR & E-3, servicing the East Area, assumed to be located approximately 1,365-feet east of CTH H. E-3 was assumed to service lands within the East Area, west of the railroad tracks.

- *Node 560*: CTH KR & E-4, servicing the East Area, assumed to be located approximately 1,330-feet west of 72<sup>nd</sup> Avenue. E-4 was assumed to service lands within the East Area, east of the railroad tracks.
- *Node 725*: Wisconn Valley Way & NW-1/N-6, servicing the Northwest Area and North Area, assumed to be located approximately 1,640-feet south of STH 11. NW-1 was assumed to connect and serve as the north terminus for Old East Frontage in the Year 2030 analysis.
- *Node 735*: Wisconn Valley Way & NW-2, servicing the Northwest Area, assumed to be located approximately 1,355-feet north of Braun Road.
- *Node 740*: Wisconn Valley Way & SW-2, servicing the Southwest Area, assumed to be located approximately 1,755-feet south of Braun Road.
- *Node 750*: Wisconn Valley Way & SW-1, servicing the Southwest Area, assumed to be located approximately 1,650-feet north of CTH KR. SW-1 was assumed to connect and serve as the south terminus for Old East Frontage in the Year 2020 and Year 2030 analyses.
- *Node 830*: CTH H & N-7, servicing the North Area, assumed to be located approximately 2,630-feet south of STH 11.
- *Node 840*: CTH H & FC-6, servicing the Foxconn Core Area, assumed to be located approximately 1,320-feet south of Braun Road. FC-6 was assumed to service employee parking lots west of CTH H and a parking structure in the northeast corner of the Foxconn Core Area.
- *Node 845*: CTH H & E-5, servicing the East Area, assumed to be located approximately 2,640-feet south of Braun Road. E-5 was assumed to service lands within the East Area, west of the railroad tracks.
- *Node 850*: CTH H & FC-7, servicing the Foxconn Core Area, assumed to be located approximately 1,350-feet north of CTH KR. FC-7 was assumed to service truck deliveries west of CTH H within the Foxconn Core Area.
- *Node 945*: 90<sup>th</sup> Street & E-6, servicing the East Area, assumed to be located approximately 2,630-feet south of Braun Road. E-6 was assumed to service lands within the East Area, east of the railroad tracks.

Pedestrian/multi-modal accommodations with connectivity to the roadway network are encouraged to promote alternative modes of transportation and relieve motorized-vehicle demands on the roadway network. Autonomous vehicles (shuttles and trucking) are being considered by Foxconn at this time.

#### **B6. Year 2020 & Year 2030 Design-Level Recommendations**

The study area intersections were analyzed based on the procedures set forth in the *2010 Highway Capacity Manual* (HCM). Intersection operation is defined by “Level of Service”. Level of Service (LOS) is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, represented by LOS ‘A’, to very poor, represented by LOS ‘F’. For the purpose of this study, and as is standard for use in the WisDOT Southeast Region, LOS D or better was used to define desirable peak hour operating conditions.

Year 2020 & Year 2030 design-level recommendations are intended for design and construction and are shown in [Exhibit 1-2](#). The design-level recommendations are split into two categories:

- “Year 2020 Phase One” – These are recommendations to accommodate Year 2020 phase one total traffic volumes based on the various assumptions outlined in this TIA.
- “Year 2030 Interim Build” – These are recommendations to accommodate Year 2030 interim build total traffic volumes based on the various assumptions outlined in this TIA. These modifications are in addition to the Year 2020 phase one total traffic recommendations.

*The recommendations contained in this Initial TIA are based on the information provided to TADI from Foxconn and assumptions as agreed upon by WisDOT and TADI as of November 29, 2017. It is understood that changes and updates to the Foxconn site plan, Foxconn operations, Foxconn employee locations, and roadway network have occurred since November 29<sup>th</sup> which are not reflected in this Initial TIA submittal. Additional Foxconn details are anticipated in the coming weeks. An updated TIA incorporating the most recent Foxconn updates and updated roadway network will be submitted as a “Final TIA” in the coming months.*

*Recommendations are for jurisdictional consideration and are not legally binding. WisDOT, Racine County, and the Village of Mount Pleasant reserve the right to determine alternative solutions.*

#### General Recommendations

- Traffic volumes along STH 11 and along CTH KR at the ramp intersections and at Wisconn Valley Way are expected to meet traffic signal warrants by the Year 2020. Additionally, traffic volumes along CTH H at Braun Road and at CTH KR, and at the Braun Road intersection with Wisconn Valley Way, are expected to meet traffic signal warrants by the Year 2020. Traffic signal installations listed for Year 2020 at driveways, however, are based on assumptions that are still changing at the time of this Initial TIA preparation (site layout, operations, shift changes, etc.). Therefore, traffic signals should not be installed at these driveway locations until traffic signal warrants are performed and warrants are shown to be met.
- Transportation planning for autonomous vehicles (AV) and future interchange connections is underway and discussions are taking place parallel with the writing of this Initial TIA. Due to the current uncertainty of the AV network needs, and due to the uncertainty of a future interchange to Braun Road, it is at this time recommended to design additional capacity for six travel lanes along STH 11 from IH 41/94 to CTH H, six travel lanes along Braun Road from Wisconn Valley Way to CTH H, six travel lanes along CTH KR from IH 41/94 to CTH H, six travel lanes along Wisconn Valley Way from STH 11 to CTH KR, and four travel lanes along CTH KR from CTH H to 90<sup>th</sup> Street. The added capacity would accommodate future travel and/or AV lanes should they become necessary at a future date. The additional lanes may be striped off until needed in the future. See [Exhibit 1-2](#) for more information.
- In addition to the capacity recommendations mentioned above, CTH H is recommended to be widened to a four-lane divided highway from north of STH 11 to CTH KR. International Drive is being planned as a four-lane divided facility to match the cross-section of International Drive, south of STH 20.
- Security and gating for Foxconn is being considered at this time. If gating of employees in their vehicles is being considered, it is recommended that it occur within the site at locations appropriate to avoid queueing into the roadway

network. Consideration could also be given to allowing employees to park and have a network of pedestrian security checkpoints between the parking areas and the plant (Kohler Company in Kohler, Wisconsin has a similar system).

Node 300: STH 11 & West Frontage Road

- *Year 2020 Phase One:*
  - Provide four lanes on the STH 11 eastbound approach, including one left-turn lane, two through lanes, and one right-turn lane.
  - Provide four lanes on the STH 11 westbound approach, including one left-turn lane, two through lanes, and one right-turn lane.
  - Provide two lanes on the West Frontage Road southbound approach, including one shared left-turn/through lane and one right-turn lane.
  - Provide two lanes on the West Frontage Road northbound approach, including one shared left-turn/through lane and one right-turn lane.
  - Install stop control on the West Frontage Road approaches to STH 11. Note that a median along STH 11 at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approaches.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 310: STH 11 & IH 41/94 Southbound Ramps

- *Year 2020 Phase One:*
  - Provide three lanes on the STH 11 eastbound approach, including two through lanes and one right-turn lane.
  - Provide three lanes on the STH 11 westbound approach, including one left-turn lane and two through lanes.
  - Provide three lanes on the IH 41/94 Southbound Ramps northbound approach, including one left-turn and two right-turn lanes.
  - Install traffic signals, including westbound protected-permitted left-turn indications and northbound protected-overlap right-turn indications.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 320: STH 11 & IH 41/94 Northbound Ramps

- *Year 2020 Phase One:*
  - Provide three lanes on the STH 11 eastbound approach, including two through lanes and one right-turn lane.
  - Provide four lanes on the STH 11 westbound approach, including two left-turn lanes and two through lanes.
  - Provide two lanes on the IH 41/94 Northbound Ramps northbound approach, including one left-turn and one right-turn lane.
  - Install traffic signals, including westbound protected-only left-turn indications and northbound protected-overlap right-turn indications. A

dedicated signal phase for the northbound right-turn movement, which will allow it to operate at the same time as westbound through traffic, is recommended.

- *Year 2030 Interim Build:*
  - Provide an additional STH 11 eastbound through lane, resulting in three eastbound through lanes.
  - Provide an additional STH 11 westbound left-turn lane, resulting in three westbound left-turn lanes.
  - Provide an additional IH 41/94 northbound right-turn lane, resulting in two northbound right-turn lanes.

Node 323: STH 11 & East Frontage Road

- *Year 2020 Phase One:*
  - Eliminate the existing south leg of the intersection with the opening of Wisconn Valley Way and completion of the IH 41/94 interchange project. Ideally the north leg of the intersection would also be eliminated and East Frontage Road realigned with Wisconn Valley Way. The assumption in the analysis is that realigning the north leg is not possible at this time.
  - Provide three lanes on the STH 11 eastbound approach, including one left-turn lane and two through lanes.
  - Provide three lanes on the STH 11 westbound approach, including two through lanes and one right-turn lane.
  - Provide two lanes on the East Frontage Road southbound approach, including one left-turn lane and one right-turn lane.
  - Install stop control on the East Frontage Road approach to STH 11. Note that a median along STH 11 at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approach.
- *Year 2030 Interim Build:*
  - Provide an additional STH 11 eastbound through lane, resulting in three eastbound through lanes.
  - Provide two additional STH 11 westbound through lanes, resulting in four westbound through lanes. Two of the westbound through lanes will drop as left-turn movements at the IH 41/94 Northbound Ramps.
  - Install traffic signals when warranted, including eastbound protected-only left-turn indications and southbound protected-overlap right-turn indications. Prohibit southbound right-turns-on-red.

Node 327: STH 11 & Wisconn Valley Way

- *Year 2020 Phase One:*
  - Provide three lanes on the STH 11 eastbound approach, including two through lanes and one right-turn lane.



- Provide three lanes on the STH 11 westbound approach, including one left-turn lane and two through lanes.
- Provide three lanes on the Wisconsin Valley Way northbound approach, including two left-turn lanes and one right-turn lane. The two left-turn lanes will serve as lane drops of the upstream through lanes.
- Install traffic signals, including westbound protected-permitted left-turn indications and eastbound permitted-overlap right-turn indications.
- *Year 2030 Interim Build:*
  - Provide an additional STH 11 eastbound through lane, resulting in three eastbound through lanes.
  - Provide an additional STH 11 westbound through lane, resulting in three westbound through lanes.

Node 335: STH 11 & N-1

- *Year 2020 Phase One:*
  - Provide three lanes on the STH 11 eastbound approach, including two through lanes and one right-turn lane.
  - Provide three lanes on the STH 11 westbound approach, including one left-turn lane and two through lanes.
  - Provide two lanes on the N-1 northbound approach, including one left-turn lane and one right-turn lane.
  - Install stop control on the N-1 approach to STH 11. Note that a median along STH 11 at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approaches.
- *Year 2030 Interim Build:*
  - Provide an additional N-1 northbound left-turn lane, resulting in two northbound left-turn lanes.
  - Install traffic signals when warranted, including westbound protected-permitted left-turn indications.

Node 345: STH 11 & International Drive/N-2

- *Year 2020 Phase One:*
  - Provide four lanes on the STH 11 eastbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide four lanes on the STH 11 westbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide four lanes on the International Drive southbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide four lanes on the N-2 northbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.

- Install traffic signals when warranted, including westbound protected-permitted left-turn indications. Note that a median along STH 11 at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approaches until such time that traffic signals are warranted.
- *Year 2030 Interim Build:* Include northbound protected-permitted left-turn indications.

Node 350: STH 11 & CTH H

- *Year 2020 Phase One:*
  - Provide four lanes on the STH 11 eastbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide four lanes on the STH 11 westbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide four lanes on the CTH H southbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide four lanes on the CTH H northbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Maintain traffic signal control, including eastbound and westbound protected-permitted left-turn indications and northbound permitted-overlap right-turn indications.
- *Year 2030 Interim Build:*
  - Provide an additional STH 11 westbound left-turn lane, resulting in two westbound left-turn lanes.
  - Provide an additional CTH H southbound left-turn lane, resulting in two southbound left-turn lanes.
  - Provide an additional CTH H northbound left-turn lane, resulting in two northbound left-turn lanes.
  - Include westbound, southbound and northbound protected-only left-turn indications, and eastbound and northbound protected-overlap right-turn indications.

Node 400: Braun Road & West Frontage Road

- *Year 2020 Phase One:*
  - Provide two lanes on the Braun Road eastbound approach, including one left-turn lane and one shared through/right-turn lane.
  - Provide two lanes on the Braun Road westbound approach, including one left-turn lane and one shared through/right-turn lane.
  - Provide one shared left-turn/through/right-turn lane on the West Frontage Road southbound approach.
  - Provide one shared left-turn/through/right-turn lane on the West Frontage Road northbound approach.
  - Install stop control on the West Frontage Road approaches to Braun Road.

- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 420: Braun Road & Old East Frontage

- *Year 2020 Phase One:*
  - Provide two lanes on the Braun Road eastbound approach, including one left-turn lane and one shared through/right-turn lane.
  - Provide three lanes on the Braun Road westbound approach, including one left-turn lane, one through lane, and one right-turn lane.
  - Provide one shared left-turn/through/right-turn lane on the Old East Frontage southbound approach.
  - Provide two lanes on the Old East Frontage northbound approach, including one shared left-turn/through lane and one right-turn lane.
  - Install stop control on the Old East Frontage approaches to Braun Road.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 430: Braun Road & Wisconn Valley Way

- *Year 2020 Phase One:*
  - Provide three lanes on the Braun Road eastbound approach, including one-left-turn lane, one through lane, and one right-turn lane.
  - Provide three lanes on the Braun Road westbound approach, including one-left-turn lane, one through lane, and one right-turn lane. The right-turn lane will serve as a lane drop of an upstream through lane.
  - Provide four lanes on the Wisconn Valley Way southbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide four lanes on the Wisconn Valley Way northbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Install traffic signals, including southbound and westbound protected-permitted left-turn indications, and westbound and northbound permitted-overlap right-turn indications.
- *Year 2030 Interim Build:*
  - Provide an additional Braun Road westbound left-turn lane, resulting in two westbound left-turn lanes.
  - Provide an additional Wisconn Valley Way southbound left-turn lane, resulting in two southbound left-turn lanes.
  - Provide an additional Wisconn Valley Way northbound right-turn lane, resulting in two northbound right-turn lanes.
  - Include westbound and southbound protected-only left-turn indications, and northbound protected-overlap right-turn indications.

Node 435: Braun Road & FC-1/N-3

- *Year 2020 Phase One:*
  - Provide four lanes on the Braun Road eastbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide four lanes on the Braun Road westbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide three lanes on the N-3 southbound approach, including one-left-turn lane, one through lane, and one right-turn lane.
  - Provide three lanes on the FC-1 northbound approach, including one-left-turn lane, one through lane, and one right-turn lane.
  - Install traffic signals when warranted, including westbound protected-permitted left-turn indications. Note that a median along Braun Road at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approaches until such time that traffic signals are warranted.
- *Year 2030 Interim Build:*
  - Provide an additional FC-1 northbound left-turn lane, resulting in two northbound left-turn lanes.
  - Include southbound protected-permitted left-turn indications, and northbound protected-only left-turn indications.

Node 440: Braun Road & FC-2/N-4

- *Year 2020 Phase One:*
  - Provide four lanes on the Braun Road eastbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide four lanes on the Braun Road westbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide two lanes on the N-4 southbound approach, including one shared left-turn/through lane and one right-turn lane.
  - Provide two lanes on the FC-2 northbound approach, including one shared left-turn/through lane and one right-turn lane.
  - Install stop control on the FC-2 and N-4 approaches to Braun Road. Note that a median along Braun Road at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approaches.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 445: Braun Road & FC-3/N-5

- *Year 2020 Phase One:*
  - Provide four lanes on the Braun Road eastbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.

- Provide four lanes on the Braun Road westbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
- Provide two lanes on the N-5 southbound approach, including one shared left-turn/through lane and one right-turn lane.
- Provide two lanes on the FC-3 northbound approach, including one shared left-turn/through lane and one right-turn lane.
- Install stop control on the FC-3 and N-5 approaches to Braun Road. Note that a median along Braun Road at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approaches.
- *Year 2030 Interim Build:*
  - Provide one left-turn lane on the N-5 southbound approach.
  - Provide two left-turn lanes on the FC-3 northbound approach.
  - Install traffic signals when warranted, including westbound and southbound protected-permitted left-turn indications, northbound protected-only left-turn indications, and northbound permitted-overlap right-turn indications.

Node 450: Braun Road & CTH H

- *Year 2020 Phase One:*
  - Provide three lanes on the Braun Road eastbound approach, including one-left-turn lane, one through lane, and one right-turn lane. The right-turn lane will serve as a lane drop of an upstream through lane.
  - Provide three lanes on the Braun Road westbound approach, including one-left-turn lane, one through lane, and one right-turn lane.
  - Provide four lanes on the CTH H southbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide four lanes on the CTH H northbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Install traffic signals, including northbound protected-permitted left-turn indications.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 470: Braun Road & 90<sup>th</sup> Street

- *Year 2020 Phase One:*
  - Provide two lanes on the Braun Road eastbound approach, including one left-turn lane and one shared through/ right-turn lane.
  - Provide two lanes on the Braun Road westbound approach, including one left-turn lane and one shared through/ right-turn lane.
  - Provide two lanes on the 90<sup>th</sup> Street southbound approach, including one shared left-turn/through lane and one right-turn lane.

- Provide one shared left-turn/through/right-turn lane on the 90<sup>th</sup> Street northbound approach.
- Install stop control on the 90<sup>th</sup> Street approaches to Braun Road.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 500: CTH KR & West Frontage Road

- *Year 2020 Phase One:*
  - Provide three lanes on the CTH KR eastbound approach, including one left-turn lane, one through lane, and one right-turn lane.
  - Provide three lanes on the CTH KR westbound approach, including one left-turn lane, one through lane, and one right-turn lane.
  - Provide two lanes on the West Frontage Road southbound approach, including one shared left-turn/through lane and one right-turn lane.
  - Provide two lanes on the West Frontage Road northbound approach, including one shared left-turn/through lane and one right-turn lane.
  - Install stop control on the West Frontage Road approaches to CTH KR.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 510: CTH KR & IH 41/94 Southbound Ramps

- *Year 2020 Phase One:*
  - Provide three lanes on the CTH KR eastbound approach, including two through lanes and one right-turn lane.
  - Provide two lanes on the CTH KR westbound approach, including one left-turn lane and one through lane.
  - Provide two lanes on the IH 41/94 Southbound Ramps southbound approach, including one shared left-turn/through lane and one right-turn lane.
  - Install traffic signals, including westbound protected-permitted left-turn indications.
- *Year 2030 Interim Build:*
  - Provide an additional CTH KR westbound left-turn lane, resulting in two westbound left-turn lanes.
  - Include westbound protected-only left-turn indications.

Node 520: CTH KR & IH 41/94 Northbound Ramps

- *Year 2020 Phase One:*
  - Provide three lanes on the CTH KR eastbound approach, including one left-turn lane and two through lanes.
  - Provide three lanes on the CTH KR westbound approach, including two through lanes and one right-turn lane. The right-turn lane is recommended

to function as a free-flow right-turn movement to the IH 41/94 northbound on-ramp.

- Provide three lanes on the IH 41/94 Northbound Ramps northbound approach, including one shared left-turn/through lane and two right-turn lanes.
- Install traffic signals, including eastbound protected-permitted left-turn indications and northbound protected-overlap right-turn indications. A dedicated signal phase for the northbound right-turn movement, which will allow it to operate at the same time as westbound through traffic, is recommended.
- *Year 2030 Interim Build:* Provide an additional CTH KR westbound through lane, which will serve as a look-ahead left-turn lane, resulting in three westbound through lanes.

#### Node 523: CTH KR & East Frontage Road

- *Year 2020 Phase One:*
  - Eliminate the existing north leg of the intersection with the opening of Wisconn Valley Way and completion of the IH 41/94 interchange project. Ideally the south leg of the intersection would also be eliminated and East Frontage Road realigned with Wisconn Valley Way. The assumption in the analysis is that realigning the south leg is not possible at this time.
  - Provide three lanes on the CTH KR eastbound approach, including two through lanes and one right-turn lane.
  - Provide three lanes on the CTH KR westbound approach, including one left-turn lane and two through lanes.
  - Provide one shared left-turn/right-turn lane on the East Frontage Road northbound approach.
  - Install stop control on the East Frontage Road approach to CTH KR. Note that a median along CTH KR at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approaches.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

#### Node 527: CTH KR & Wisconn Valley Way

- *Year 2020 Phase One:*
  - Provide three lanes on the CTH KR eastbound approach, including one left-turn lane and two through lanes.
  - Provide three lanes on the CTH KR westbound approach, including two through lanes and one right-turn lane.
  - Provide three lanes on the Wisconn Valley Way southbound approach, including one left-turn lane and two right-turn lanes. The two right-turn lanes will serve as lane drops of the upstream through lanes.

- Install traffic signals, including eastbound protected-permitted left-turn indications and southbound protected-overlap right-turn indications.
- *Year 2030 Interim Build:*
  - Provide an additional CTH KR eastbound left-turn lane, resulting in two eastbound left-turn lanes.
  - Include eastbound protected-only left-turn indications.

Node 535: CTH KR & FC-4

- *Year 2020 Phase One:*
  - Provide three lanes on the CTH KR eastbound approach, including one left-turn lane and two through lanes.
  - Provide three lanes on the CTH KR westbound approach, including two through lanes and one right-turn lane.
  - Provide one shared left-turn/right-turn lane on the FC-4 southbound approach.
  - Install stop control on the FC-4 approach to CTH KR. Note that a median along CTH KR at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approach.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 540: CTH KR & FC-5

- *Year 2020 Phase One:*
  - Provide three lanes on the CTH KR eastbound approach, including one left-turn lane and two through lanes.
  - Provide three lanes on the CTH KR westbound approach, including two through lanes and one right-turn lane.
  - Provide one shared left-turn/right-turn lane on the FC-5 southbound approach.
  - Install stop control on the FC-5 approach to CTH KR.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 550: CTH KR & CTH H

- *Year 2020 Phase One:*
  - Provide three lanes on the CTH KR eastbound approach, including one left-turn lane, one through lane, and one right-turn lane. The right-turn lane will serve a lane drop of an upstream through lane.
  - Provide three lanes on the CTH KR westbound approach, including one left-turn lane, one through lane, and one right-turn lane.



- Provide three lanes on the CTH H southbound approach, including one-left-turn lane, one through lane, and one right-turn lane. The right-turn lane will serve a lane drop of an upstream through lane.
- Provide three lanes on the CTH H northbound approach, including one-left-turn lane, one through lane, and one right-turn lane.
- Install traffic signals, including eastbound protected-permitted left-turn indications and southbound permitted-overlap right-turn indications.
- *Year 2030 Interim Build:*
  - Provide an additional CTH KR eastbound left-turn lane, resulting in two eastbound left-turn lanes.
  - Include eastbound protected-only left-turn indications and southbound protected-permitted left-turn indications.

Node 565: CTH KR & 72<sup>nd</sup> Avenue

- *Year 2020 Phase One:*
  - Provide two lanes on the CTH KR eastbound approach, including one through lane and one right-turn lane.
  - Provide two lanes on the CTH KR westbound approach, with the outside lane serving as a bypass lane.
  - Provide one shared left-turn/right-turn lane on the 72<sup>nd</sup> Avenue northbound approach.
  - Install stop control on the 72<sup>nd</sup> Avenue approach to CTH KR.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 570: CTH KR & 90<sup>th</sup> Street

- *Year 2020 Phase One:*
  - Provide two lanes on the CTH KR eastbound approach, with the outside lane serving as a bypass lane.
  - Provide two lanes on the CTH KR westbound approach, including one through lane and one right-turn lane.
  - Provide two lanes on the 90<sup>th</sup> Street southbound approach, including one left-turn lane and one right-turn lane.
  - Install stop control on the 90<sup>th</sup> Street approach to CTH KR.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 725: Wisconn Valley Way & NW-1/N-6

- *Year 2020 Phase One:*
  - Provide three lanes on the Wisconn Valley Way southbound approach, including one left-turn lane and two through lanes.
  - Provide three lanes on the Wisconn Valley Way northbound approach, including two through lanes and one right-turn lane.

- Provide two lanes on the N-6 westbound approach, including one left-turn lane and one right-turn lane.
- Install stop control on the N-6 approach to Wisconn Valley Way. Note that a median along Wisconn Valley Way at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approach.
- *Year 2030 Interim Build:*
  - Provide one right-turn lane on the Wisconn Valley Way southbound approach.
  - Provide one left-turn lane on the Wisconn Valley Way northbound approach.
  - Provide three lanes on the NW-1 eastbound approach, including one left-turn lane, one through lane, and one right-turn lane.
  - Provide one through lane on the N-6 westbound approach.
  - Install traffic signals when warranted, including southbound, northbound, eastbound, and westbound protected-permitted left-turn indications.

Node 750: Wisconn Valley Way & SW-1

- *Year 2020 Phase One:*
  - Provide three lanes on the Wisconn Valley Way southbound approach, including two through lanes and one right-turn lane.
  - Provide three lanes on the Wisconn Valley Way northbound approach, including one left-turn lane and two through lanes.
  - Provide two lanes on the SW-1 eastbound approach, including one left-turn lane and one right-turn lane.
  - Install stop control on the SW-1 approach to Wisconn Valley Way. Note that a median along Wisconn Valley Way at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approach.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 830: CTH H & N-7

- *Year 2020 Phase One:*
  - Provide three lanes on the CTH H southbound approach, including two through lanes and one right-turn lane.
  - Provide three lanes on the CTH H northbound approach, including one left-turn lane and two through lanes.
  - Provide two lanes on the N-7 eastbound approach, including one left-turn lane and one right-turn lane.
  - Install stop control on the N-7 approach to CTH H. Note that a median along CTH H at this intersection was assumed to be sufficiently wide to

accommodate two-stage left-turn maneuvers from the stop controlled approach.

- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 840: CTH H & FC-6

- *Year 2020 Phase One:*
  - Provide three lanes on the CTH H southbound approach, including two through lanes and one right-turn lane.
  - Provide three lanes on the CTH H northbound approach, including one left-turn lane and two through lanes.
  - Provide three lanes on the FC-6 eastbound approach, including two left-turn lanes and one right-turn lane.
  - Install traffic signals when warranted, including northbound protected-permitted left-turn indications and southbound permitted-overlap right-turn indications. Note that a median along CTH H at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approach until such time that traffic signals are warranted.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 850: CTH H & FC-7

- *Year 2020 Phase One:*
  - Provide three lanes on the CTH H southbound approach, including two through lanes and one right-turn lane.
  - Provide three lanes on the CTH H northbound approach, including one left-turn lane and two through lanes.
  - Provide one shared left-turn/right-turn lane on the FC-7 eastbound approach.
  - Install stop control on the FC-7 approach to CTH H. Note that a median along CTH H at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

All movements at the study area intersections are expected to operate at LOS D or better conditions with the identified Year 2020 & Year 2030 design-level recommendations.

### **B7. Year 2040 Planning-Level Recommendations**

Planning-level recommendations for Year 2040 are not intended for design and construction at this time. These recommendations are summarized to provide a snapshot of what modifications may be necessary in the long-term future under the assumptions outlined in this Initial TIA. It is the intent that appropriate right-of-way and building setback expectations may be estimated at this time.

The Year 2040 planning-level recommendations are shown in [Exhibit 1-3](#). Recall that the Year 2040 full build traffic analysis assumes an interchange is constructed at Braun Road, relieving traffic at the STH 11 and CTH KR interchanges. The following recommendations are in addition to the Year 2020 & Year 2030 design-level recommendations.

*The recommendations contained in this Initial TIA are based on the information provided to TADI from Foxconn and assumptions as agreed upon by WisDOT and TADI as of November 29, 2017. It is understood that changes and updates to the Foxconn site plan, Foxconn operations, Foxconn employee locations, and roadway network have occurred since November 29<sup>th</sup> which are not reflected in this Initial TIA submittal. Additional Foxconn details are anticipated in the coming weeks. An updated TIA incorporating the most recent Foxconn updates and updated roadway network will be submitted as a “Final TIA” in the coming months.*

*Recommendations are for jurisdictional consideration and are not legally binding. WisDOT, Racine County, and the Village of Mount Pleasant reserve the right to determine alternative solutions.*

Node 300: STH 11 & West Frontage Road

- No additional modifications are expected to be necessary.

Node 310: STH 11 & IH 41/94 Southbound Ramps

- No additional modifications are expected to be necessary.

Node 320: STH 11 & IH 41/94 Northbound Ramps

- A third westbound left-turn lane is no longer necessary.

Node 330: STH 11 & East Frontage Road/Wisconn Valley Way

- Realign the north leg of East Frontage Road with Wisconn Valley Way.
- Provide a STH 11 eastbound left-turn lane.
- Provide a STH 11 westbound right-turn lane.
- Provide three lanes on the southbound realigned East Frontage Road approach, including one left-turn lane, one through lane, and one right-turn lane.
- Provide a Wisconn Valley Way northbound through lane.
- Include eastbound, westbound, and southbound protected-permitted left-turn indications, northbound protected-only left-turn indications, southbound protected-overlap right-turn indications, and northbound permitted-overlap right-turn indications.

Node 335: STH 11 & N-1

- No additional modifications are expected to be necessary.

Node 345: STH 11 & International Drive/N-2

- No additional modifications are expected to be necessary.

Node 350: STH 11 & CTH H

- Include eastbound and protected-overlap right-turn indications.

Node 400: Braun Road & West Frontage Road

- The West Frontage Road is assumed to be relocated west to accommodate IH 41/94 ramps at Braun Road.
- Provide three lanes on the Braun Road eastbound approach, including one left-turn lane, one through lane, and one right-turn lane.
- Provide three lanes on the Braun Road westbound approach, including one left-turn lane, one through lane, and one right-turn lane.
- Provide two lanes on the West Frontage Road southbound approach, including one shared left-turn/through lane and one right-turn lane.
- Provide two lanes on the West Frontage Road northbound approach, including one shared left-turn/through lane and one right-turn lane.
- Install stop control on the West Frontage Road approaches to Braun Road.

Node 410: Braun Road & IH 41/94 Southbound Ramps

- Provide three lanes on the Braun Road eastbound approach, including two through lanes and one right-turn lane.
- Provide three lanes on the Braun Road westbound approach, including two left-turn lanes and one through lane.
- Provide four lanes on the IH 41/94 Southbound Ramps southbound approach, including two left-turn lanes, one shared left-turn/through lane, and one right-turn lane.
- Install traffic signal control when warranted, including westbound protected-only left-turn indications.

Node 420: Braun Road & IH 41/94 Northbound Ramps

- Provide four lanes on the Braun Road eastbound approach, including one left-turn lane and three through lanes.
- Provide five lanes on the Braun Road westbound approach, three through lanes and two right-turn lanes. The outside right-turn lane is recommended to be a drop of an upstream through lane while the inside right-turn lane is recommended to be created as a choice lane from an upstream through lane.
- Provide four lanes on the IH 41/94 Northbound Ramps northbound approach, including one shared left-turn/through lane and three right-turn lanes.
- Install traffic signal control when warranted, including eastbound protected-only left-turn indications, westbound protected-only right-turn indications, and northbound protected-overlap right-turn indications. A dedicated signal phase for the northbound right-turn movement, which will allow it to operate at the same time as westbound through and right-turn traffic, is recommended.

Node 430: Braun Road & Wisconsin Valley Way

- Provide seven lanes on the Braun Road eastbound approach, including two left-turn lanes, four through lanes, and one right-turn lane.
- Provide seven lanes on the Braun Road westbound approach, including two left-turn lanes, four through lanes, and one right-turn lane.

- Provide six lanes on the Wisconn Valley Way southbound approach, including two left-turn lanes, two through lanes, and two right-turn lanes.
- Provide four lanes on the Wisconn Valley Way northbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
- Include eastbound, westbound and southbound protected-only left-turn indications, northbound protected-permitted left-turn indications, westbound and northbound protected-overlap right-turn indications, and southbound permitted-overlap right-turn indications.

Node 435: Braun Road & FC-1/N-3

- Provide seven lanes on the Braun Road eastbound approach, including two left-turn lanes, four through lanes, and one right-turn lane. The outside through lane is recommended to drop prior to FC-2/N-4.
- Provide seven lanes on the Braun Road westbound approach, including two left-turn lanes, four through lanes, and one right-turn lane.
- Include eastbound, westbound and northbound protected-only left-turn indications, southbound protected-permitted left-turn indications, eastbound and southbound protected-overlap right-turn indications, and northbound permitted-overlap right-turn indications.

Node 440: Braun Road & FC-2/N-4

- Provide five lanes on the Braun Road eastbound approach, including one left-turn lane, three through lanes, and one right-turn lane.
- Provide five lanes on the Braun Road westbound approach, including one left-turn lane, three through lanes, and one right-turn lane.
- Install a traffic signal when warranted, including eastbound and westbound protected-permitted left-turn indications.

Node 445: Braun Road & FC-3/N-5

- Provide an additional through lane on the eastbound Braun Road approach, resulting in three through lanes.
- Provide an additional through lane on the westbound Braun Road approach, resulting in three through lanes.
- Include eastbound, westbound and southbound protected-permitted left-turn indications, northbound protected-only left-turn indications, and eastbound and northbound permitted-overlap right-turn indications.

Node 450: Braun Road & CTH H

- Provide five lanes on the Braun Road eastbound approach, including two-left-turn lanes, two through lanes, and one right-turn lane. The right-turn lane will serve as a lane drop of an upstream through lane.
- Provide five lanes on the Braun Road westbound approach, including one-left-turn lane, three through lanes, and one right-turn lane.
- Provide an additional northbound left-turn lane on the northbound CTH H approach, resulting in two through lanes.

- Include eastbound and northbound protected-only left-turn indications, westbound and southbound protected-permitted left-turn indications, and eastbound and southbound permitted-overlap right-turn indications.

Node 455: Braun Road & E-1

- Provide two lanes on the Braun Road eastbound approach, including one through lane and one right-turn lane.
- Provide two lanes on the Braun Road westbound approach, including one left-turn lane and one through lane.
- Provide two lanes on the E-1 northbound approach, including one left-turn lane and one right-turn lane.
- Install stop control on the E-1 approach to Braun Road. Note that a median along Braun Road at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approach.

Node 460: Braun Road & E-2

- Provide two lanes on the Braun Road eastbound approach, including one through lane and one right-turn lane.
- Provide two lanes on the Braun Road westbound approach, including one left-turn lane and one through lane.
- Provide two lanes on the E-2 northbound approach, including one left-turn lane and one right-turn lane.
- Install stop control on the E-2 approach to Braun Road. Note that a median along Braun Road at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approach.

Node 470: Braun Road & 90<sup>th</sup> Street

- Install traffic signals when warranted.

Node 500: CTH KR & West Frontage Road

- No additional modifications are expected to be necessary.

Node 510: CTH KR & IH 41/94 Southbound Ramps

- Provide four lanes on the IH 41/94 Southbound Ramps southbound approach, including one shared left-turn/through lane, two through lanes, and one right-turn lane.

Node 520: CTH KR & IH 41/94 Northbound Ramps

- Provide five lanes on the IH 41/94 Northbound Ramps northbound approach, including one shared left-turn/through lane, two through lanes, and two right-turn lanes.
- The CTH KR westbound right-turn movement is no longer recommended to be a free-flow right-turn movement.
- The dedicated signal phase for the northbound right-turn movement is no longer necessary.

Node 530: CTH KR & East Frontage Road

- Realign the south leg of East Frontage Road with Wisconsin Valley Way.

- Provide a STH 11 eastbound right-turn lane. Note that two STH 11 eastbound left-turn lanes are no longer necessary and one of the left-turn lanes from the Year 2030 condition is recommended to be striped off.
- Provide a STH 11 westbound left-turn lane.
- Maintain three lanes on the southbound realigned East Frontage Road approach, converting the inside right-turn lane to a through lane and maintaining the outside right-turn lane as an upstream lane drop.
- Provide two lanes on the northbound realigned East Frontage Road approach, including one left-turn lane and one shared through/right-turn lane.
- Include eastbound protected-permitted left-turn indications, and southbound permitted-overlap right-turn indications.

Node 535: CTH KR & FC-4

- No additional modifications are expected to be necessary.

Node 540: CTH KR & FC-5

- No additional modifications are expected to be necessary.

Node 550: CTH KR & CTH H

- Provide an additional eastbound CTH KR through lane, resulting in two eastbound through lanes. The eastbound right-turn lane is no longer recommended to serve as an upstream lane drop.
- Provide an additional westbound CTH KR through lane, resulting in two westbound through lanes.
- Provide an additional southbound CTH H through lane, resulting in two southbound through lanes. The southbound right-turn lane is no longer recommended to serve as an upstream lane drop.
- Provide an additional northbound CTH H through lane, resulting in two northbound through lanes.

Node 555: CTH KR & E-3

- Provide two lanes on the CTH KR eastbound approach, including one left-turn lane and one through lane.
- Provide two lanes on the CTH KR westbound approach, including one through lane and one right-turn lane.
- Provide two lanes on the E-3 southbound approach, including one left-turn lane and one right-turn lane.
- Install stop control on the E-3 approach to CTH KR. Note that a median along CTH KR at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approach.

Node 560: CTH KR & E-4

- Provide two lanes on the CTH KR eastbound approach, including one left-turn lane and one through lane.
- Provide two lanes on the CTH KR westbound approach, including one through lane and one right-turn lane.



- Provide two lanes on the E-4 southbound approach, including one left-turn lane and one right-turn lane.
- Install stop control on the E-4 approach to CTH KR. Note that a median along CTH KR at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approach.

Node 565: CTH KR & 72<sup>nd</sup> Avenue/90<sup>th</sup> Street

- Realign 90<sup>th</sup> Street to intersect CTH KR across from 72<sup>nd</sup> Avenue.
- Provide three lanes on the CTH KR eastbound approach, including one left-turn lane, one through lane, and one right-turn lane.
- Provide three lanes on the CTH KR westbound approach, including one left-turn lane, one through lane, and one right-turn lane.
- Provide two lanes on the 72<sup>nd</sup> Avenue northbound approach, including one shared left-turn/through lane and one right-turn lane.
- Provide two lanes on the 90<sup>th</sup> Street southbound approach, including one shared left-turn/through lane and one right-turn lane.
- Install stop control on 72<sup>nd</sup> Avenue and 90<sup>th</sup> Street approaches to CTH KR. Note that a median along CTH KR at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approaches.

Node 725: Wisconn Valley Way & NW-1/N-6

- No additional modifications are expected to be necessary.

Node 735: Wisconn Valley Way & NW-2

- Provide three lanes on the Wisconn Valley Way southbound approach, including two through lanes and one right-turn lane.
- Provide three lanes on the Wisconn Valley Way northbound approach, including one left-turn lane and two through lanes.
- Provide two lanes on the NW-2 eastbound approach, including one left-turn lane and one right-turn lane.
- Install traffic signals when warranted, including northbound protected-permitted left-turn indications and eastbound protected-overlap right-turn indications.

Node 740: Wisconn Valley Way & SW-2

- Provide three lanes on the Wisconn Valley Way southbound approach, including two through lanes and one right-turn lane.
- Provide three lanes on the Wisconn Valley Way northbound approach, including one left-turn lane and two through lanes.
- Provide two lanes on the SW-2 eastbound approach, including one left-turn lane and one right-turn lane.
- Install stop control on the SW-2 approach to Wisconn Valley Way. Note that a median along Wisconn Valley Way at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approach.

Node 750: Wisconn Valley Way & SW-1

- No additional modifications are expected to be necessary.

Node 830: CTH H & N-7

- No additional modifications are expected to be necessary.

Node 840: CTH H & FC-6

- Provide an additional CTH H Southbound right-turn lane, resulting in two southbound right-turn lanes.
- Provide an additional CTH H northbound left-turn lane, resulting in two northbound left-turn lanes.
- Include northbound protected-only left-turn indications.

Node 845: CTH H & E-5

- Provide three lanes on the Wisconn Valley Way southbound approach, including one left-turn lane and two through lanes.
- Provide three lanes on the Wisconn Valley Way northbound approach, including two through lanes and one right-turn lane.
- Provide two lanes on the E-5 westbound approach, including one left-turn lane and one right-turn lane.
- Install traffic signals when warranted, including southbound protected-permitted left-turn indications.

Node 850: CTH H & FC-7

- No additional modifications are expected to be necessary.

Node 945: 90<sup>th</sup> Street & E-6

- Provide a shared through/right-turn lane on the 90<sup>th</sup> Street southbound approach.
- Provide a shared left-turn/through lane on the 90<sup>th</sup> Street northbound approach.
- Provide a shared left-turn/right-turn lane on the E-6 eastbound approach.
- Install stop control on the E-6 approach to 90<sup>th</sup> Street.

Select left-turn or right-turn movements are expected to operate at capacity with a low to middle LOS E with the Year 2040 planning-level recommendations. Since this is a planning-level exercise based on a number of assumptions, and because none of the movements are through traffic movements, no additional modifications were considered at this time.

## **B8. Conclusion**

The traffic estimates summarized in this Initial TIA assume two shifts per day for Foxconn and that all employees change shifts within the same hours: 6:30am to 7:30am and 6:00pm to 7:00pm. It is additionally assumed that the peak hours of all other uses (industrial, commercial, etc.) will coincide with these same peak hours. Traffic estimates for the surrounding areas are based on assumptions for land use and density without available site plans. Additional detailed information regarding Foxconn employee numbers by shift, function, hours of day, parking locations, professional vs. non-professional, etc. is desired to further understand traffic demands and refine transportation infrastructure needs. Additional land use, density, operations, and access information regarding the surround areas is also desired to further understand traffic

demands and refine transportation infrastructure needs. This detail has the potential to alter the identified recommendations.

At this time, in the absence of additional information, TADI recommends moving forward with the identified Year 2020 and Year 2030 design-level recommendations. The recommendations are appropriate to accommodate the traffic estimated for Year 2020 and Year 2030 years. Slight modifications in these recommendations may be made with the completion of a future Final TIA.

The Year 2040 planning-level recommendations are not intended for design and construction at this time, but instead provide a snapshot of what modifications may be necessary in the long-term future under the assumptions outlined in this Initial TIA. It is the intent that appropriate right-of-way and building setback expectations may be estimated based on these planning-level recommendations.

*The results, conclusions, and recommendations contained in this Initial TIA are based on the information provided to TADI from Foxconn and assumptions as agreed upon by WisDOT and TADI as of November 29, 2017. It is understood that changes and updates to the Foxconn site plan, Foxconn operations, Foxconn employee locations, and roadway network have occurred since November 29<sup>th</sup> which are not reflected in this Initial TIA submittal. Additional Foxconn details are anticipated in the coming weeks. An updated TIA incorporating the most recent Foxconn updates and updated roadway network will be submitted as a “Final TIA” in the coming months.*

## CHAPTER II – PROPOSED DEVELOPMENT

### PART A – DEVELOPMENT

#### A1. Development Description and Site Location

Foxconn Technology Group (“Foxconn”) is proposing a manufacturing campus on lands generally situated east of Interstate Highway (IH) 41/94 between State Trunk Highway (STH) 11 and County Trunk Highway (CTH) KR in the Village of Mount Pleasant, Racine County. Suppliers and supporting uses for Foxconn are also anticipated on lands within the same general area. “Project Flying Eagle” as used in this Initial Traffic Impact Analysis (TIA) describes the development of Foxconn and its surrounding lands for suppliers and supporting uses.

A total of five development areas within Project Flying Eagle have been identified to aid in providing accurate trip assignments. A map showing the developable areas is shown in [Exhibit 2-1](#).

#### A2. Land Use and Intensity

The following is a narrative for each of the five development areas within Project Flying Eagle. “Phase one” describes development that is assumed to be completed and occupied around Year 2020. “Interim build” describes development that is assumed to be completed and occupied around Year 2030. “Full build” describes development that is assumed to be completed and occupied around Year 2040. *Land use and density figures are assumed at this time for the purposes of the analysis and should not be construed as final development plans.*

##### A2.1 Foxconn Core Area Development Description

The Foxconn Core Area describes lands generally located north of CTH KR, west of CTH H, south of Braun Road, and east of Wisconn Valley Way. A distinction is made between “Non-professional” and “professional” staff at this time due to potential differences in shifts and schedules.

- Phase One (3,900 employees):
  - Foxconn Non-Professional Staff – 1,900 employees; and
  - Foxconn Professional Staff – 2,000 employees.
- Interim Build (8,000 employees):
  - Foxconn Non-Professional Staff – 5,900 employees; and
  - Foxconn Professional Staff – 2,100 employees.
- Full Build (13,000 employees):
  - Foxconn Non-Professional Staff – 9,700 employees; and
  - Foxconn Professional Staff – 3,300 employees.

A total of seven access points were assumed to the Foxconn Core Area, as described later in this chapter.

##### A2.2 East Area Development Description

The East Area describes lands generally located north of CTH KR, east of CTH H, south of Braun Road, and west of 90<sup>th</sup> Street.

- Phase One: No development.
- Interim Build: No development.

- Full Build: Industrial Park – 628 acres.

A total of six access points were assumed to the East Area, as described later in this chapter.

#### A2.3 North Area Development Description

The North Area describes lands generally located south of STH 11, west of CTH H, north of Braun Road, and east of Wisconn Valley Way.

- Phase One: Industrial Park – 240 acres.
- Interim Build: Industrial Park – 480 acres.
- Full Build: Industrial Park – 960 acres.

A total of seven access points were assumed to the North Area, as described later in this chapter.

#### A2.4 Southwest Area Development Description

The Southwest Area describes lands generally located north of CTH KR, east of IH 41/94, south of Braun Road, and west of Wisconn Valley Way.

- Phase One:
  - Hospital – 125 beds; and
  - Corporate Office – 200,000 square feet (sf).
- Interim Build: Same as phase one.
- Full Build: Same as phase one.

A total of two access points were assumed to the Southwest Area, as described later in this chapter.

#### A2.5 Northwest Area Development Description

The Northwest Area describes lands generally located south of STH 11, east of IH 41/94, north of Braun Road, and west of Wisconn Valley Way.

- Phase One: No development.
- Interim Build:
  - Hotel – 200 rooms; and
  - Shopping Center/Retail – 500,000 square feet (sf).
- Full Build:
  - Hotel – 200 rooms; and
  - Shopping Center/Retail – 1,000,000 square feet (sf).

A total of two access points were assumed to the Southwest Area, as described later in this chapter.

#### A2.6 Off-Site Development Description

A TIA for Mount Pleasant TIDs 1, 3 & 4 was submitted in July of 2017 to aid the Village in land use and transportation planning of lands east of IH 41/94 both north and south of STH 20 (north of the Project Flying Eagle study area). Traffic from TIDs 1, 3 & 4 that travels through the Project Flying Eagle study area is included in this Initial TIA.

- Phase One: No development.
- Interim Build: Full build of TIDs as outlined in July of 2017 TIDs 1, 3 & 4 TIA.
- Full Build: Same as interim build.

All access for off-site development was assumed to be located outside of the study area.

## **PART B – STUDY AREA**

### **B1. Influence Area**

The primary influence area for this traffic study includes Racine County and surrounding counties within southeastern Wisconsin. Due to its location along IH 41/94, STH 11, and CTH KR, commuters from distance communities may also be expected to influence traffic to/from Project Flying Eagle.

### **B2. Roadway Network & Study Area Intersections**

*The following information regarding roadway network modifications are assumed at this time for the purposes of the analysis and should not be construed as modifications that will occur.*

#### B2.1 Year 2020 & Year 2030 Assumed Roadway Network Modifications

A new roadway, herein referenced as “Wisconn Valley Way”, is assumed to be constructed between STH 11 and CTH KR to the east of the existing East Frontage Road alignment. It is assumed in the Year 2020 and Year 2030 analyses that Wisconn Valley Way will function as the east frontage road, that the existing East Frontage Road alignment within the same limits (“Old East Frontage”) will be disconnected from STH 11 and CTH KR, and that access to Old East Frontage can be achieved via its existing intersection with Braun Road and via new connections to Wisconn Valley Way both north and south of Braun Road. The East Frontage Road alignments north of STH 11 and south of CTH KR are assumed to remain and be offset from Wisconn Valley Way in the Year 2020 and Year 2030 analyses. The Wisconn Valley Way intersections were assumed to intersect STH 11, Braun Road, and CTH KR at approximately 570-feet, 1,150-feet, and 1,895-feet east of the existing East Frontage Road alignment, respectively.

Additionally, International Drive is a four-lane divided roadway that currently intersects STH 20 to the north of the study area. It is assumed International Drive will be extended south to intersect STH 11 from the north by the Year 2020 at a location approximately 2,705-feet west of CTH H.

#### B2.2 Year 2040 Assumed Roadway Network Modifications

The East Frontage Road alignments north of STH 11 and south of CTH KR are assumed to be relocated east to align with Wisconn Valley Way in the Year 2040 analysis.

The Year 2040 analysis assumes a new IH 41/94 interchange will be constructed to service Braun Road. The West Frontage Road is assumed to be relocated west and its existing alignment reconstructed to accommodate IH 41/94 southbound ramps to/from Braun Road. The Old East Frontage alignment is assumed to be reconstructed to accommodate the IH 41/94 Northbound Ramps to/from Braun Road. The new interchange is assumed to be configured as follows:

- Braun Road Southbound Off-Ramp: Traffic to Braun Road would exit the IH 41/94 southbound mainline with STH 11 exiting traffic. The off-ramp would split with traffic to Braun Road traveling either over or under the IH 41/94 southbound on-ramp from STH 11, onto the former West Frontage Road alignment, and then intersect Braun Road.

- **Braun Road Southbound On-Ramp:** Traffic from Braun Road would travel south on the former West Frontage Road alignment. The southbound off-ramp to CTH KR would join this alignment prior to its intersection with CTH KR. The southbound on-ramp from CTH KR would then carry both Braun Road and CTH KR traffic to IH 41/94 southbound.
- **Braun Road Northbound Off-Ramp:** Traffic to Braun Road would exit the IH 41/94 northbound mainline with CTH KR exiting traffic and intersect with CTH KR. Traffic to Braun Road would travel north through the CTH KR intersection on the former Old East Frontage alignment along with CTH KR on-ramp traffic. The northbound on-ramp from CTH KR would intersect this alignment prior to Braun Road.
- **Braun Road Northbound On-Ramp:** Traffic from Braun Road would travel north on the former Old East Frontage alignment. The on-ramp would travel either over or under the IH 41/94 northbound off-ramp to STH 11, then join up with on-ramp traffic from STH 11 prior to joining the IH 41/94 northbound mainline.

In the Year 2040 it is also assumed that 90<sup>th</sup> Street will be realigned at CTH KR with 72<sup>nd</sup> Avenue.

### B2.3 Study Area Intersections

The study area includes the following intersections. The node number corresponds to the intersection as modeled in the capacity analysis.

- *Node 300:* STH 11 & West Frontage Road;
- *Node 310:* STH 11 & IH 41/94 Southbound Ramps;
- *Node 320:* STH 11 & IH 41/94 Northbound Ramps;
- *Node 323:* STH 11 & East Frontage Road-North (Year 2020 & Year 2030);
- *Node 327:* STH 11 & Wisconn Valley Way (Year 2020 & Year 2030);
- *Node 330:* STH 11 & East Frontage Road/Wisconn Valley Way (Year 2040);
- *Node 345:* STH 11 & International Drive;
- *Node 350:* STH 11 & CTH H;
- *Node 400:* Braun Road & West Frontage Road;
- *Node 410:* Braun Road & IH 41/94 Southbound Ramps (Year 2040);
- *Node 420:* Braun Road & Old East Frontage (Year 2020 & Year 2030);
- *Node 420:* Braun Road & IH 41/94 Northbound Ramps (Year 2040);
- *Node 430:* Braun Road & Wisconn Valley Way;
- *Node 450:* Braun Road & CTH H;
- *Node 470:* Braun Road & 90<sup>th</sup> Street;
- *Node 500:* CTH KR & West Frontage Road;
- *Node 510:* CTH KR & IH 41/94 Southbound Ramps;
- *Node 520:* CTH KR & IH 41/94 Northbound Ramps;
- *Node 523:* CTH KR & East Frontage Road-North (Year 2020 & Year 2030);

- *Node 527:* CTH KR & Wisconn Valley Way (Year 2020 & Year 2030);
- *Node 530:* CTH KR & East Frontage Road/Wisconn Valley Way (Year 2040);
- *Node 550:* CTH KR & CTH H;
- *Node 565:* CTH KR & 72<sup>nd</sup> Avenue (Year 2020 & Year 2030);
- *Node 565:* CTH KR & 72<sup>nd</sup> Avenue/90<sup>th</sup> Street (Year 2040);
- *Node 570:* CTH KR & 90<sup>th</sup> Street (Year 2020 & Year 2030);

### **B3. Access Assumptions**

The following is a list of assumed intersections for Project Flying Eagle. *All driveways and the associated centerline-to-centerline distances listed below are assumed at this time for the purposes of the analysis and should not be construed as final driveway numbers or locations.*

- *Node 335:* STH 11 & N-1, servicing the North Area, assumed to be located approximately 6,665-feet west of CTH H.
- *Node 345:* STH 11 & International Drive/N-2, servicing the North Area, assumed to be located approximately 2,705-feet west of CTH H.
- *Node 435:* Braun Road & FC-1/N-4, servicing the Foxconn Core Area and North Area, assumed to be located approximately 5,990-feet west of CTH H. FC-1 was assumed to service employee parking lots and a structure in the northwest corner of the Foxconn Core Area.
- *Node 440:* Braun Road & FC-2/N-5, servicing the Foxconn Core Area and North Area, assumed to be located approximately 3,450-feet west of CTH H. FC-2 was assumed to be a visitor access.
- *Node 445:* Braun Road & FC-3/N-6, servicing the Foxconn Core Area and North Area, assumed to be located approximately 1,725-feet west of CTH H. FC-3 was assumed to service employee parking lots in the northeast corner of the Foxconn Core Area.
- *Node 455:* Braun Road & E-1, servicing the East Area, assumed to be located approximately 1,165-feet east of CTH H. E-1 was assumed to service lands within the East Area, west of the railroad tracks.
- *Node 460:* Braun Road & E-2, servicing the East Area, assumed to be located approximately 1,495-feet west of 90<sup>th</sup> Street. E-2 was assumed to service lands within the East Area, east of the railroad tracks.
- *Node 535:* CTH KR & FC-4, servicing the Foxconn Core Area, assumed to be located approximately 3,595-feet west of CTH H. FC-4 was assumed to service truck deliveries in the southwest corner of the Foxconn Core Area.
- *Node 540:* CTH KR & FC-5, servicing the Foxconn Core Area, assumed to be located approximately 1,315-feet west of CTH H. FC-5 was assumed to service truck deliveries in the southeast corner of the Foxconn Core Area.
- *Node 555:* CTH KR & E-3, servicing the East Area, assumed to be located approximately 1,365-feet east of CTH H. E-3 was assumed to service lands within the East Area, west of the railroad tracks.



- *Node 560:* CTH KR & E-4, servicing the East Area, assumed to be located approximately 1,330-feet west of 72<sup>nd</sup> Avenue. E-4 was assumed to service lands within the East Area, east of the railroad tracks.
- *Node 725:* Wisconn Valley Way & NW-1/N-6, servicing the Northwest Area and North Area, assumed to be located approximately 1,640-feet south of STH 11. NW-1 was assumed to connect and serve as the north terminus for Old East Frontage in the Year 2030 analysis.
- *Node 735:* Wisconn Valley Way & NW-2, servicing the Northwest Area, assumed to be located approximately 1,355-feet north of Braun Road.
- *Node 740:* Wisconn Valley Way & SW-2, servicing the Southwest Area, assumed to be located approximately 1,755-feet south of Braun Road.
- *Node 750:* Wisconn Valley Way & SW-1, servicing the Southwest Area, assumed to be located approximately 1,650-feet north of CTH KR. SW-1 was assumed to connect and serve as the south terminus for Old East Frontage in the Year 2020 and Year 2030 analyses.
- *Node 830:* CTH H & N-7, servicing the North Area, assumed to be located approximately 2,630-feet south of STH 11.
- *Node 840:* CTH H & FC-6, servicing the Foxconn Core Area, assumed to be located approximately 1,320-feet south of Braun Road. FC-6 was assumed to service employee parking lots west of CTH H and a parking structure in the northeast corner of the Foxconn Core Area.
- *Node 845:* CTH H & E-5, servicing the East Area, assumed to be located approximately 2,640-feet south of Braun Road. E-5 was assumed to service lands within the East Area, west of the railroad tracks.
- *Node 850:* CTH H & FC-7, servicing the Foxconn Core Area, assumed to be located approximately 1,350-feet north of CTH KR. FC-7 was assumed to service truck deliveries west of CTH H within the Foxconn Core Area.
- *Node 945:* 90<sup>th</sup> Street & E-6, servicing the East Area, assumed to be located approximately 2,630-feet south of Braun Road. E-6 was assumed to service lands within the East Area, east of the railroad tracks.

Pedestrian/multi-modal accommodations with connectivity to the roadway network are encouraged to promote alternative modes of transportation and relieve motorized-vehicle demands on the roadway network. Autonomous vehicles (shuttles and trucking) are being considered by Foxconn at this time.

## CHAPTER III – EXISTING TRAFFIC

### PART A – PHYSICAL CHARACTERISTICS

Diagrams showing assumed posted speed limits and approximate intersection spacing upon completion of Project Flying Eagle are included in [Exhibits 3-1A and 3-1B](#).

### PART B – TRAFFIC VOLUMES

#### B1. Existing Traffic Volumes

Weekday morning and weekday evening turning movement traffic counts were collected by TADI and WisDOT from 6:00am to 7:00pm at existing study area intersections. The following table outlines the dates of the traffic counts.

<b>Intersection</b>	<b>Wkday AM</b>	<b>Wkday PM</b>
Node 300: STH 11 & East Frontage Road	Wed 4-27-16	Thur 4-28-16
Node 310: STH 11 & IH 41/94 Southbound Ramps	Wed 4-27-16	Thur 4-28-16
Node 320: STH 11 & IH 41/94 Northbound Ramps	Wed 4-27-16	Thur 4-28-16
Node 330: STH 11 & East Frontage Road	Wed 4-27-16	Thur 4-28-16
Node 350: STH 11 & CTH H	Tues 7-25-17	Mon 7-24-17
Node 400: Braun Road & West Frontage Road	Wed 8-2-17	Mon 7-31-17
Node 420: Braun Road & East Frontage Road	Wed 8-2-17	Mon 7-31-17
Node 450: Braun Road & CTH H	Tues 7-25-17	Mon 7-24-17
Node 470: Braun Road & 90 <sup>th</sup> Street	Thur 9-7-17	Tues 9-5-17
Node 500: CTH KR & West Frontage Road	Tues 8-1-17	Wed 7-26-17
Node 510: CTH KR & IH 41/94 Southbound Ramps	Tues 8-1-17	Wed 7-26-17
Node 520: CTH KR & IH 41/94 Northbound Ramps	Tues 8-1-17	Wed 7-26-17
Node 530: CTH KR & East Frontage Road	Tues 8-1-17	Wed 7-26-17
Node 550: CTH KR & CTH H	Tues 7-25-17	Mon 7-24-17
Node 565: CTH KR & 72 <sup>nd</sup> Avenue	Thur 9-7-17	Tues 9-5-17
Node 570: CTH KR & 90 <sup>th</sup> Street	Thur 9-7-17	Tues 9-5-17

Foxconn indicated early in the project that the plan was to have two shifts operating each day with shift changes occurring around 7:00am and 7:00pm. The weekday morning and weekday evening peak hours were selected as being 6:30 to 7:30am and 6:00 to 7:00pm due to this shift information and available data.

The traffic counts used to determine peak hour factors and truck percentages have been included in [Appendix A](#). The Year 2016/2017 existing traffic counts were balanced and are shown in [Exhibit 3-2](#). The following tolerances were allowed when balancing:

- STH 11, West Frontage Road to East Frontage Road: Perfect balance.
- STH 11, East Frontage Road to CTH H: +/- 25 vehicles per hour (vph).
- Braun Road, West Frontage Road to East Frontage Road: Perfect balance.
- Braun Road, East Frontage Road to CTH H: +/- 10 vph.
- Braun Road, CTH H to 90<sup>th</sup> Street: +/- 10 vph.
- CTH KR, West Frontage Road to East Frontage Road: Perfect balance.
- CTH KR, East Frontage Road to CTH H: +/- 10 vph.
- CTH KR, CTH H to 72<sup>nd</sup> Avenue: +/- 10 vph.
- CTH KR, 72<sup>nd</sup> Avenue to 90<sup>th</sup> Street: Perfect balance.
- East Frontage Road, STH 11 to Braun Road: No balancing.

- East Frontage Road, Braun Road to CTH KR: +/- 10 vph.
- CTH H, STH 11 to Braun Road: +/- 25 vph.
- CTH H, Braun Road to CTH KR: +/- 10 vph.

## **B2. Forecast Traffic Volumes**

The growth rate for existing traffic was given to TADI by the WisDOT Southeast Region forecast team. A 0.5-percent straight-line annual growth rate was utilized in forecasting existing traffic to the Year 2020, Year 2030 and Year 2040 scenarios.

The Year 2020 forecast traffic volumes are shown in [Exhibit 3-3](#) at the end of this chapter. The Year 2030 and Year 2040 forecast traffic volumes are shown in [Exhibit 4-1](#) and [Exhibit 4-2](#) at the end of Chapter IV.

## CHAPTER IV – FORECASTED TRAFFIC

### PART A – BACKGROUND TRAFFIC FORECASTING

The growth rate for existing traffic was given to TADI by the WisDOT Southeast Region forecast team. A 0.5-percent straight-line annual growth rate was utilized in forecasting existing traffic to the Year 2020, Year 2030 and Year 2040 scenarios.

The Year 2020 forecast traffic volumes are shown in [Exhibit 3-3](#) at the end of Chapter III. The Year 2030 and Year 2040 forecast traffic volumes are shown in [Exhibit 4-1](#) and [Exhibit 4-2](#) at the end of this chapter.

### PART B – SITE TRAFFIC FORECASTING

To address any potential future traffic impacts at the study area intersections, it is necessary to identify the hourly volume of traffic generated by anticipated development. The traffic volumes expected to be generated by Project Flying Eagle are based on the size and type of the assumed uses, trip rates and fitted curve equations as published in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, Ninth Edition, 2012*, and various assumptions for shift changes and vehicle occupancy. See Chapter IV for more details.

*Land use and density figures, which affect trip generation estimates, are assumed at this time for the purposes of the analysis. The following information should not be construed as final traffic estimates.*

#### B1. Trip Generation

A copy of the Project Flying Eagle trip generation tables, which detail trip estimates for each development area, are included in [Appendix A](#). The following is a summary of how the trip generation for each area was developed.

##### B1.1 Foxconn Core Area Trip Generation

The Foxconn Core Area describes lands generally located north of CTH KR, west of CTH H, south of Braun Road, and east of Wisconn Valley Way. A distinction is made between “Non-professional” and “professional” staff at this time due to potential differences in shifts and schedules.

- Phase One (3,900 employees):
  - Foxconn Non-Professional Staff – 1,900 employees; and
  - Foxconn Professional Staff – 2,000 employees.
- Interim Build (8,000 employees):
  - Foxconn Non-Professional Staff – 5,900 employees; and
  - Foxconn Professional Staff – 2,100 employees.
- Full Build (13,000 employees):
  - Foxconn Non-Professional Staff – 9,700 employees; and
  - Foxconn Professional Staff – 3,300 employees.

The following assumptions were incorporated into the trip generation estimates for Foxconn:

- Four shifts for non-professional staff with one quarter of the staff working at a given time.

- Two shifts for professional staff with 70% working the day shift and 30% working the night shift.
- Shifts were assumed to land within the 6:30 to 7:30am and 6:00 to 7:00pm peak hours.
- Shifts overlap to allow workers from one shift to hand controls over to the next shift.
- An assumed equivalent vehicle occupancy of 1.2 persons per vehicle under phase one and interim build, 1.3 persons per vehicle under full build.
- A weekday daily trip estimate using the ITE 140 (manufacturing) fitted curve equation.

Additional detailed information regarding Foxconn employee numbers by shift, function, hours of day, parking locations, professional vs. non-professional, etc. is desired to further understand traffic demands and refine transportation infrastructure needs.

### BI.2 East Area Trip Generation

The East Area describes lands generally located north of CTH KR, east of CTH H, south of Braun Road, and west of 90<sup>th</sup> Street.

- Phase One: No development.
- Interim Build: No development.
- Full Build: Industrial Park – 628 acres.

The following additional assumptions were incorporated into the trip generation estimates for the East Area:

- The weekday peak hour trips were estimated using the ITE 130 (industrial park) fitted curve equations.
- The weekday daily trip estimate was developed by determining the ratio of the ITE 130 daily rate to the ITE 130 weekday morning and weekday evening rate. The ratio was then applied to the calculated ITE 130 weekday morning and weekday evening trips.
- The peak hours of the East Area will coincide with the same peak hours as the Foxconn Core Area.

Additional land use, density, operations, and access information regarding the East Area is desired to further understand traffic demands and refine transportation infrastructure needs.

### BI.3 North Area Trip Generation

The North Area describes lands generally located south of STH 11, west of CTH H, north of Braun Road, and east of Wisconsin Valley Way.

- Phase One: Industrial Park – 240 acres.
- Interim Build: Industrial Park – 480 acres.
- Full Build: Industrial Park – 960 acres.

The following additional assumptions were incorporated into the trip generation estimates for the North Area:

- The weekday peak hour trips were estimated using the ITE 130 (industrial park) fitted curve equations.
- The weekday daily trip estimate was developed by determining the ratio of the ITE 130 daily rate to the ITE 130 weekday morning and weekday evening rate. The ratio was then applied to the calculated ITE 130 weekday morning and weekday evening trips.
- The peak hours of the North Area will coincide with the same peak hours as the Foxconn Core Area.

Additional land use, density, operations, and access information regarding the North Area is desired to further understand traffic demands and refine transportation infrastructure needs.

#### B1.4 Southwest Area Trip Generation

The Southwest Area describes lands generally located north of CTH KR, east of IH 41/94, south of Braun Road, and west of Wisconn Valley Way.

- Phase One:
  - Hospital – 125 beds; and
  - Corporate Office – 200,000 square feet (sf).
- Interim Build: Same as phase one.
- Full Build: Same as phase one.

The following additional assumptions were incorporated into the trip generation estimates for the Southwest Area:

- The weekday peak hour trips were estimated for the corporate office using ITE 714 (corporate office) fitted curve equations.
- The weekday daily trip estimates for the hospital and the corporate office were estimated using ITE 610 (hospital) and ITE 714.
- The peak hours of the Southwest Area will coincide with the same peak hours as the Foxconn Core Area.

Additional land use, density, operations, and access information regarding the Southwest Area is desired to further understand traffic demands and refine transportation infrastructure needs.

#### B1.5 Northwest Area Trip Generation

The Northwest Area describes lands generally located south of STH 11, east of IH 41/94, north of Braun Road, and west of Wisconn Valley Way.

- Phase One: No development.
- Interim Build:
  - Hotel – 200 rooms; and
  - Shopping Center/Retail – 500,000 square feet (sf).
- Full Build:
  - Hotel – 200 rooms; and
  - Shopping Center/Retail – 1,000,000 square feet (sf).

The following additional assumptions were incorporated into the trip generation estimates for the Northwest Area:

- The weekday daily and peak hour trips were estimated for shopping center/retail using ITE 820 (shopping center) fitted curve equations.
- The peak hours of the Northwest Area will coincide with the same peak hours as the Foxconn Core Area.

Additional land use, density, operations, and access information regarding the Northwest Area is desired to further understand traffic demands and refine transportation infrastructure needs.

### B1.6 Total Trip Generation Volumes

Based on the assumptions outlined:

- Phase one of Project Flying Eagle is expected to generate approximately 4,120 new trips (2,955 in/1,165 out) during a typical weekday morning peak hour and 4,020 new trips (1,215 in/2,805 out) during a typical weekday evening peak hour. Phase one is expected to generate approximately 20,490 new trips (10,245 in/10,245 out) during a typical weekday (24-hour period).
- Interim build of Project Flying Eagle is expected to generate approximately 6,630 new trips (4,570 in/2,060 out) during a typical weekday morning peak hour and 7,245 new trips (2,570 in/4,675 out) during a typical weekday evening peak hour. Interim build is expected to generate approximately 48,150 new trips (24,075 in/24,075 out) during a typical weekday (24-hour period). These figures do not include the trips generated by TIDs 1, 3 & 4.
- Full build of Project Flying Eagle is expected to generate approximately 12,710 new trips (9,130 in/3,580 out) during a typical weekday morning peak hour and 12,820 new trips (4,200 in/8,620 out) during a typical weekday evening peak hour. Full build is expected to generate approximately 87,870 new trips (43,935 in/43,935 out) during a typical weekday (24-hour period). These figures do not include the trips generated by TIDs 1, 3 & 4.

### **B2. Mode Split**

Transit riders, pedestrians and bicyclists may use their respective modes to access the identified development. However, detail is not yet available to understand the extent in which these modes of transportation will be used. It was assumed within the vehicle occupancy rates for Foxconn that some use of these modes of transportation will be used, and that employees will carpool.

### **B3. Determination of Linked and Pass-By Trip Traffic**

Linked trips are expected to occur between the various Project Flying Eagle sites. The following assumptions were used in determining linked trips, as directed by WisDOT:

- Linked trips will occur primarily to/from the commercial areas within the Northeast Area.
- A maximum of 10-percent of the total trips within each of the Foxconn Core Area, East Area, and North Area can be expected.
- A maximum of 5-percent of the total trip generation for the Southwest Area can be expected.
- When the linked trips from the Foxconn Core Area, East Area, North Area and Southwest Area are taken in combination, the resulting total linked trips must not account for greater than 43% of the Northwest Area total trips.

Linked trips are added to the new trips to estimate total driveway trip activity.

### **B4. Trip Distribution**

The trip distributions for the development areas are expected to differ based on their location, their type, and specific end users (where known). The distributions were estimated by WisDOT and TADI based on existing travel patterns in the area, ease of access, and the location of local and regional housing in relation to the development sites. A study of existing travel patterns for the Amazon Distribution Center was also performed by WisDOT to estimate traffic to/from IH 41/94.

The trip generation tables included in the [appendix](#) include trip distributions for each identified development area.

## **B5. Trip Assignment**

New trips for each identified development area were assigned to the study area intersections based on the trip distributions previously discussed. Linked trips were assigned between each respective development area. The TIDs 1,3 & 4 volumes were assigned as part of the July of 2017 TIDs TIA and carried into this Initial TIA.

*Site plans for the East Area, North Area, Southwest Area and Northwest Area do not exist. Therefore, all driveways their locations are assumed at this time for the purposes of the analysis and should not be construed as final driveway numbers or locations. Additional detail is needed to refine the trip assignments for Project Flying Eagle.*

The following lists outline each identified development area and the exhibit number for the corresponding trip assignment.

### B5.1 Phase One Trip Assignments

- Foxconn Non-Professional Phase One New Trips – [Exhibit 4-5A](#)
- Foxconn Professional Phase One New Trips – [Exhibit 4-5B](#)
- North Area Phase One New Trips – [Exhibit 4-5D](#)
- Southwest Area Phase One New Trips – [Exhibit 4-5E](#)

The total phase one driveway trips, shown in [Exhibit 4-5M](#), were determined by summing the above-listed exhibits.

### B5.2 Interim Build Trip Assignments

- Foxconn Non-Professional Interim Build New Trips – [Exhibit 4-6A](#)
- Foxconn Professional Interim Build New Trips – [Exhibit 4-6B](#)
- North Area Interim Build New Trips – [Exhibit 4-6D](#)
- Southwest Area Interim Build New Trips – [Exhibit 4-6E](#)
- Northwest Area Interim Build New Trips – [Exhibit 4-6F](#)
- TIDs 1, 3 & 4 Interim Build New Trips – [Exhibit 4-6G](#)
- Foxconn Non-Professional Interim Build Linked Trips – [Exhibit 4-6H](#)
- Foxconn Professional Interim Build Linked Trips – [Exhibit 4-6I](#)
- North Area Interim Build Linked Trips – [Exhibit 4-6K](#)
- Southwest Area Interim Build Linked Trips – [Exhibit 4-6L](#)

The total interim build driveway trips, shown in [Exhibit 4-6M](#), were determined by summing the above-listed exhibits.

### B5.3 Full Build Trip Assignments

- Foxconn Non-Professional Full Build New Trips – [Exhibit 4-7A](#)
- Foxconn Professional Full Build New Trips – [Exhibit 4-7B](#)
- East Area Full Build New Trips – [Exhibit 4-7C](#)
- North Area Full Build New Trips – [Exhibit 4-7D](#)
- Southwest Area Full Build New Trips – [Exhibit 4-7E](#)
- Northwest Area Full Build New Trips – [Exhibit 4-7F](#)
- TIDs 1, 3 & 4 Full Build New Trips – [Exhibit 4-7G](#)
- Foxconn Non-Professional Full Build Linked Trips – [Exhibit 4-7H](#)
- Foxconn Professional Full Build Linked Trips – [Exhibit 4-7I](#)
- East Area Full Build Linked Trips – [Exhibit 4-7J](#)



- North Area Full Build Linked Trips – [Exhibit 4-7K](#)
- Southwest Area Full Build Linked Trips – [Exhibit 4-7L](#)

The total full build driveway trips, shown in [Exhibit 4-7M](#), were determined by summing the above-listed exhibits.

### **PART C – TOTAL TRAFFIC VOLUMES**

The Year 2020 phase one total traffic volumes, shown in [Exhibit 4-11](#), were determined by adding the total phase one driveway trips ([Exhibit 4-5M](#)) to the Year 2020 forecast traffic volumes ([Exhibit 3-3](#)).

The Year 2030 interim build total traffic volumes, shown in [Exhibit 4-12](#), were determined by adding the total interim build driveway trips ([Exhibit 4-6M](#)) to the Year 2030 forecast traffic volumes ([Exhibit 4-1](#)).

The Year 2040 full build total traffic volumes, shown in [Exhibit 4-13](#), were determined by adding the total full build driveway trips ([Exhibit 4-7M](#)) to the Year 2040 forecast traffic volumes ([Exhibit 4-2](#)).

## CHAPTER V – CAPACITY ANALYSIS

### PART A – CAPACITY LEVEL OF SERVICE DEFINITIONS

The study area intersections were analyzed in this Initial TIA based on the procedures set forth in the *2010 Highway Capacity Manual* (HCM). Intersection operation is defined by “Level of Service”. Level of Service (LOS) is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, represented by LOS ‘A’, to very poor, represented by LOS ‘F’. For the purpose of this study, and as is standard for use in the WisDOT Southeast Region, LOS D or better was used to define desirable peak hour operating conditions. Descriptions of the various levels of service are as follows:

*LOS A* is the highest level of service that can be achieved. Under this condition, intersection approaches appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation. At signalized and unsignalized intersections, average delays are less than 10 seconds.

*LOS B* represents stable operation. At signalized intersections, average vehicle delays are 10 to 20 seconds. At unsignalized intersections, average delays are 10 to 15 seconds.

*LOS C* still represents stable operation, but periodic backups of a few vehicles may develop behind turning vehicles. Most drivers begin to feel restricted, but not objectionably so. At signalized intersections, average vehicle delays are 20 to 35 seconds. At unsignalized intersections, average delays are 15 to 25 seconds.

*LOS D* represents increasing traffic restrictions as the intersection approaches instability. Delays to approaching vehicles may be substantial during short peaks within the peak period, but periodic clearance of long lines occurs, thus preventing excessive backups. At signalized intersections, average vehicle delays are 35 to 55 seconds. At unsignalized intersections, average delays are 25 to 35 seconds.

*LOS E* represents the capacity of the intersection. At signalized intersections, average vehicle delays are 55 to 80 seconds. At unsignalized intersections, average delays are 35 to 50 seconds.

*LOS F* represents jammed conditions where the intersection is over capacity and acceptable gaps for unsignalized intersections in the mainline traffic flow are minimal. At signalized intersections, average vehicle delays exceed 80 seconds. At unsignalized intersections, average delays exceed 50 seconds.

### PART B – CAPACITY LEVEL OF SERVICE ANALYSIS

The study area intersections were analyzed with the following assumptions:

- A peak hour factor of 0.94.
- A peak hour percent heavy vehicle rate of 5-percent.
- Design speeds: 45 mph on STH 11; 40 mph on Braun Road, CTH KR, Wisconn Valley Way, CTH H, International Drive, and 90<sup>th</sup> Street; 60 mph rural speed on West Frontage Road, East Frontage Road north of STH 11 and south of CTH KR, and 72<sup>nd</sup> Avenue; 35 mph at the IH 41/94 ramp intersections; 25 mph on all driveways.
- The intersection spacing as outlined in Chapter II.

The study area was analyzed with the goal of ensuring a safe and efficient transportation system while minimizing the modifications necessary to achieve that goal. Anticipated lane utilization and origin-destination were considered, with particular emphasis given to the IH 41/94 interchanges, to ensure the modifications will function as desired.

The analysis outputs are included in [Appendices B through D](#). The following outlines the locations of the expected peak hour operating conditions at the study area intersections with the recommendations outlined in Chapter VI.

- [Exhibit 5-1](#) – Year 2020 Phase One Total Traffic – Operations & Queues
- [Exhibit 5-2](#) – Year 2030 Interim Build Total Traffic – Operations & Queues
- [Exhibit 5-3](#) – Year 2040 Full Build Total Traffic – Operations & Queues

All movements at the study area intersections are expected to operate at LOS D or better conditions with the identified Year 2020 & Year 2030 design-level recommendations.

Select left-turn or right-turn movements are expected to operate at capacity with a low to middle LOS E with the Year 2040 planning-level recommendations. Since this is a planning-level exercise based on a number of assumptions, and because none of the movements are through traffic movements, no additional modifications were considered at this time.

### **PART C – QUEUEING ANALYSIS**

To estimate storage length requirements for turn bays at the study area intersections with modifications, a queuing analysis has been conducted. The 50<sup>th</sup> percentile and 95<sup>th</sup> percentile probable queue lengths were used in conjunction with WisDOT Facilities Development Manual (FDM) 11-25-5 to determine the recommended turn bay storage at the intersections. The expected maximum queues are shown with the traffic operations in [Exhibits 5-1 through 5-3](#). Storage length calculations are included in [Appendix E](#).

### **PART D – SPEED CONSIDERATIONS/SIGHT DISTANCE**

The party responsible for designing the intersections will be responsible for cross-checking, verifying and designing for all applicable sight distances. Intersection sight distance must be double checked during the permit application stage of development.

## CHAPTER VI – RECOMMENDATIONS AND CONCLUSION

### PART A – RECOMMENDATIONS

The study area intersections were analyzed based on the procedures set forth in the 2010 *Highway Capacity Manual* (HCM). Intersection operation is defined by “Level of Service”. Level of Service (LOS) is a quantitative measure that refers to the overall quality of flow at an intersection ranging from very good, represented by LOS ‘A’, to very poor, represented by LOS ‘F’. For the purpose of this study, and as is standard for use in the WisDOT Southeast Region, LOS D or better was used to define desirable peak hour operating conditions.

#### A1. Year 2020 & Year 2030 Design-Level Recommendations

*The recommendations contained in this Initial TIA are based on the information provided to TADI from Foxconn and assumptions as agreed upon by WisDOT and TADI as of November 29, 2017. It is understood that changes and updates to the Foxconn site plan, Foxconn operations, Foxconn employee locations, and roadway network have occurred since November 29<sup>th</sup> which are not reflected in this Initial TIA submittal. Additional Foxconn details are anticipated in the coming weeks. An updated TIA incorporating the most recent Foxconn updates and updated roadway network will be submitted as a “Final TIA” in the coming months.*

*Recommendations are for jurisdictional consideration and are not legally binding. WisDOT, Racine County, and the Village of Mount Pleasant reserve the right to determine alternative solutions.*

##### General Recommendations

- Traffic volumes along STH 11 and along CTH KR at the ramp intersections and at Wisconn Valley Way are expected to meet traffic signal warrants by the Year 2020. Additionally, traffic volumes along CTH H at Braun Road and at CTH KR, and at the Braun Road intersection with Wisconn Valley Way, are expected to meet traffic signal warrants by the Year 2020. Traffic signal installations listed for Year 2020 at driveways, however, are based on assumptions that are still changing at the time of this Initial TIA preparation (site layout, operations, shift changes, etc.). Therefore, traffic signals should not be installed at these driveway locations until traffic signal warrants are performed and warrants are shown to be met.
- Transportation planning for autonomous vehicles (AV) and future interchange connections is underway and discussions are taking place parallel with the writing of this Initial TIA. Due to the current uncertainty of the AV network needs, and due to the uncertainty of a future interchange to Braun Road, it is at this time recommended to design additional capacity for six travel lanes along STH 11 from IH 41/94 to CTH H, six travel lanes along Braun Road from Wisconn Valley Way to CTH H, six travel lanes along CTH KR from IH 41/94 to CTH H, six travel lanes along Wisconn Valley Way from STH 11 to CTH KR, and four travel lanes along CTH KR from CTH H to 90<sup>th</sup> Street. The added capacity would accommodate future travel and/or AV lanes should they become necessary at a future date. The additional lanes may be striped off until needed in the future. See [Exhibit 1-2](#) for more information.
- In addition to the capacity recommendations mentioned above, CTH H is recommended to be widened to a four-lane divided highway from north of STH

11 to CTH KR. International Drive is being planned as a four-lane divided facility to match the cross-section of International Drive, south of STH 20.

- Security and gating for Foxconn is being considered at this time. If gating of employees in their vehicles is being considered, it is recommended that it occur within the site at locations appropriate to avoid queueing into the roadway network. Consideration could also be given to allowing employees to park and have a network of pedestrian security checkpoints between the parking areas and the plant (Kohler Company in Kohler, Wisconsin has a similar system).

Node 300: STH 11 & West Frontage Road

- *Year 2020 Phase One:*
  - Provide four lanes on the STH 11 eastbound approach, including one left-turn lane, two through lanes, and one right-turn lane.
  - Provide four lanes on the STH 11 westbound approach, including one left-turn lane, two through lanes, and one right-turn lane.
  - Provide two lanes on the West Frontage Road southbound approach, including one shared left-turn/through lane and one right-turn lane.
  - Provide two lanes on the West Frontage Road northbound approach, including one shared left-turn/through lane and one right-turn lane.
  - Install stop control on the West Frontage Road approaches to STH 11. Note that a median along STH 11 at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approaches.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 310: STH 11 & IH 41/94 Southbound Ramps

- *Year 2020 Phase One:*
  - Provide three lanes on the STH 11 eastbound approach, including two through lanes and one right-turn lane.
  - Provide three lanes on the STH 11 westbound approach, including one left-turn lane and two through lanes.
  - Provide three lanes on the IH 41/94 Southbound Ramps northbound approach, including one left-turn and two right-turn lanes.
  - Install traffic signals, including westbound protected-permitted left-turn indications and northbound protected-overlap right-turn indications.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 320: STH 11 & IH 41/94 Northbound Ramps

- *Year 2020 Phase One:*
  - Provide three lanes on the STH 11 eastbound approach, including two through lanes and one right-turn lane.

- Provide four lanes on the STH 11 westbound approach, including two left-turn lanes and two through lanes.
- Provide two lanes on the IH 41/94 Northbound Ramps northbound approach, including one left-turn and one right-turn lane.
- Install traffic signals, including westbound protected-only left-turn indications and northbound protected-overlap right-turn indications. A dedicated signal phase for the northbound right-turn movement, which will allow it to operate at the same time as westbound through traffic, is recommended.
- *Year 2030 Interim Build:*
  - Provide an additional STH 11 eastbound through lane, resulting in three eastbound through lanes.
  - Provide an additional STH 11 westbound left-turn lane, resulting in three westbound left-turn lanes.
  - Provide an additional IH 41/94 northbound right-turn lane, resulting in two northbound right-turn lanes.

Node 323: STH 11 & East Frontage Road

- *Year 2020 Phase One:*
  - Eliminate the existing south leg of the intersection with the opening of Wisconsin Valley Way and completion of the IH 41/94 interchange project. Ideally the north leg of the intersection would also be eliminated and East Frontage Road realigned with Wisconsin Valley Way. The assumption in the analysis is that realigning the north leg is not possible at this time.
  - Provide three lanes on the STH 11 eastbound approach, including one left-turn lane and two through lanes.
  - Provide three lanes on the STH 11 westbound approach, including two through lanes and one right-turn lane.
  - Provide two lanes on the East Frontage Road southbound approach, including one left-turn lane and one right-turn lane.
  - Install stop control on the East Frontage Road approach to STH 11. Note that a median along STH 11 at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approach.
- *Year 2030 Interim Build:*
  - Provide an additional STH 11 eastbound through lane, resulting in three eastbound through lanes.
  - Provide two additional STH 11 westbound through lanes, resulting in four westbound through lanes. Two of the westbound through lanes will drop as left-turn movements at the IH 41/94 Northbound Ramps.
  - Install traffic signals when warranted, including eastbound protected-only left-turn indications and southbound protected-overlap right-turn indications. Prohibit southbound right-turns-on-red.

Node 327: STH 11 & Wisconn Valley Way

- *Year 2020 Phase One:*
  - Provide three lanes on the STH 11 eastbound approach, including two through lanes and one right-turn lane.
  - Provide three lanes on the STH 11 westbound approach, including one left-turn lane and two through lanes.
  - Provide three lanes on the Wisconn Valley Way northbound approach, including two left-turn lanes and one right-turn lane. The two left-turn lanes will serve as lane drops of the upstream through lanes.
  - Install traffic signals, including westbound protected-permitted left-turn indications and eastbound permitted-overlap right-turn indications.
- *Year 2030 Interim Build:*
  - Provide an additional STH 11 eastbound through lane, resulting in three eastbound through lanes.
  - Provide an additional STH 11 westbound through lane, resulting in three westbound through lanes.

Node 335: STH 11 & N-1

- *Year 2020 Phase One:*
  - Provide three lanes on the STH 11 eastbound approach, including two through lanes and one right-turn lane.
  - Provide three lanes on the STH 11 westbound approach, including one left-turn lane and two through lanes.
  - Provide two lanes on the N-1 northbound approach, including one left-turn lane and one right-turn lane.
  - Install stop control on the N-1 approach to STH 11. Note that a median along STH 11 at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approaches.
- *Year 2030 Interim Build:*
  - Provide an additional N-1 northbound left-turn lane, resulting in two northbound left-turn lanes.
  - Install traffic signals when warranted, including westbound protected-permitted left-turn indications.

Node 345: STH 11 & International Drive/N-2

- *Year 2020 Phase One:*
  - Provide four lanes on the STH 11 eastbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide four lanes on the STH 11 westbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.

- Provide four lanes on the International Drive southbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide four lanes on the N-2 northbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Install traffic signals when warranted, including westbound protected-permitted left-turn indications. Note that a median along STH 11 at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approaches until such time that traffic signals are warranted.
- *Year 2030 Interim Build:* Include northbound protected-permitted left-turn indications.

Node 350: STH 11 & CTH H

- *Year 2020 Phase One:*
  - Provide four lanes on the STH 11 eastbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide four lanes on the STH 11 westbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide four lanes on the CTH H southbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide four lanes on the CTH H northbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Maintain traffic signal control, including eastbound and westbound protected-permitted left-turn indications and northbound permitted-overlap right-turn indications.
- *Year 2030 Interim Build:*
  - Provide an additional STH 11 westbound left-turn lane, resulting in two westbound left-turn lanes.
  - Provide an additional CTH H southbound left-turn lane, resulting in two southbound left-turn lanes.
  - Provide an additional CTH H northbound left-turn lane, resulting in two northbound left-turn lanes.
  - Include westbound, southbound and northbound protected-only left-turn indications, and eastbound and northbound protected-overlap right-turn indications.

Node 400: Braun Road & West Frontage Road

- *Year 2020 Phase One:*
  - Provide two lanes on the Braun Road eastbound approach, including one left-turn lane and one shared through/right-turn lane.
  - Provide two lanes on the Braun Road westbound approach, including one left-turn lane and one shared through/right-turn lane.



- Provide one shared left-turn/through/right-turn lane on the West Frontage Road southbound approach.
- Provide one shared left-turn/through/right-turn lane on the West Frontage Road northbound approach.
- Install stop control on the West Frontage Road approaches to Braun Road.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 420: Braun Road & Old East Frontage

- *Year 2020 Phase One:*
  - Provide two lanes on the Braun Road eastbound approach, including one left-turn lane and one shared through/right-turn lane.
  - Provide three lanes on the Braun Road westbound approach, including one left-turn lane, one through lane, and one right-turn lane.
  - Provide one shared left-turn/through/right-turn lane on the Old East Frontage southbound approach.
  - Provide two lanes on the Old East Frontage northbound approach, including one shared left-turn/through lane and one right-turn lane.
  - Install stop control on the Old East Frontage approaches to Braun Road.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 430: Braun Road & Wisconn Valley Way

- *Year 2020 Phase One:*
  - Provide three lanes on the Braun Road eastbound approach, including one-left-turn lane, one through lane, and one right-turn lane.
  - Provide three lanes on the Braun Road westbound approach, including one-left-turn lane, one through lane, and one right-turn lane. The right-turn lane will serve as a lane drop of an upstream through lane.
  - Provide four lanes on the Wisconn Valley Way southbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide four lanes on the Wisconn Valley Way northbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Install traffic signals, including southbound and westbound protected-permitted left-turn indications, and westbound and northbound permitted-overlap right-turn indications.
- *Year 2030 Interim Build:*
  - Provide an additional Braun Road westbound left-turn lane, resulting in two westbound left-turn lanes.
  - Provide an additional Wisconn Valley Way southbound left-turn lane, resulting in two southbound left-turn lanes.

- Provide an additional Wisconn Valley Way northbound right-turn lane, resulting in two northbound right-turn lanes.
- Include westbound and southbound protected-only left-turn indications, and northbound protected-overlap right-turn indications.

Node 435: Braun Road & FC-1/N-3

- *Year 2020 Phase One:*
  - Provide four lanes on the Braun Road eastbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide four lanes on the Braun Road westbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide three lanes on the N-3 southbound approach, including one-left-turn lane, one through lane, and one right-turn lane.
  - Provide three lanes on the FC-1 northbound approach, including one-left-turn lane, one through lane, and one right-turn lane.
  - Install traffic signals when warranted, including westbound protected-permitted left-turn indications. Note that a median along Braun Road at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approaches until such time that traffic signals are warranted.
- *Year 2030 Interim Build:*
  - Provide an additional FC-1 northbound left-turn lane, resulting in two northbound left-turn lanes.
  - Include southbound protected-permitted left-turn indications, and northbound protected-only left-turn indications.

Node 440: Braun Road & FC-2/N-4

- *Year 2020 Phase One:*
  - Provide four lanes on the Braun Road eastbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide four lanes on the Braun Road westbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide two lanes on the N-4 southbound approach, including one shared left-turn/through lane and one right-turn lane.
  - Provide two lanes on the FC-2 northbound approach, including one shared left-turn/through lane and one right-turn lane.
  - Install stop control on the FC-2 and N-4 approaches to Braun Road. Note that a median along Braun Road at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approaches.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 445: Braun Road & FC-3/N-5

- *Year 2020 Phase One:*
  - Provide four lanes on the Braun Road eastbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide four lanes on the Braun Road westbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide two lanes on the N-5 southbound approach, including one shared left-turn/through lane and one right-turn lane.
  - Provide two lanes on the FC-3 northbound approach, including one shared left-turn/through lane and one right-turn lane.
  - Install stop control on the FC-3 and N-5 approaches to Braun Road. Note that a median along Braun Road at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approaches.
- *Year 2030 Interim Build:*
  - Provide one left-turn lane on the N-5 southbound approach.
  - Provide two left-turn lanes on the FC-3 northbound approach.
  - Install traffic signals when warranted, including westbound and southbound protected-permitted left-turn indications, northbound protected-only left-turn indications, and northbound permitted-overlap right-turn indications.

Node 450: Braun Road & CTH H

- *Year 2020 Phase One:*
  - Provide three lanes on the Braun Road eastbound approach, including one-left-turn lane, one through lane, and one right-turn lane. The right-turn lane will serve as a lane drop of an upstream through lane.
  - Provide three lanes on the Braun Road westbound approach, including one-left-turn lane, one through lane, and one right-turn lane.
  - Provide four lanes on the CTH H southbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Provide four lanes on the CTH H northbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
  - Install traffic signals, including northbound protected-permitted left-turn indications.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 470: Braun Road & 90<sup>th</sup> Street

- *Year 2020 Phase One:*
  - Provide two lanes on the Braun Road eastbound approach, including one left-turn lane and one shared through/ right-turn lane.

- Provide two lanes on the Braun Road westbound approach, including one left-turn lane and one shared through/ right-turn lane.
- Provide two lanes on the 90<sup>th</sup> Street southbound approach, including one shared left-turn/through lane and one right-turn lane.
- Provide one shared left-turn/through/right-turn lane on the 90<sup>th</sup> Street northbound approach.
- Install stop control on the 90<sup>th</sup> Street approaches to Braun Road.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 500: CTH KR & West Frontage Road

- *Year 2020 Phase One:*
  - Provide three lanes on the CTH KR eastbound approach, including one left-turn lane, one through lane, and one right-turn lane.
  - Provide three lanes on the CTH KR westbound approach, including one left-turn lane, one through lane, and one right-turn lane.
  - Provide two lanes on the West Frontage Road southbound approach, including one shared left-turn/through lane and one right-turn lane.
  - Provide two lanes on the West Frontage Road northbound approach, including one shared left-turn/through lane and one right-turn lane.
  - Install stop control on the West Frontage Road approaches to CTH KR.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 510: CTH KR & IH 41/94 Southbound Ramps

- *Year 2020 Phase One:*
  - Provide three lanes on the CTH KR eastbound approach, including two through lanes and one right-turn lane.
  - Provide two lanes on the CTH KR westbound approach, including one left-turn lane and one through lane.
  - Provide two lanes on the IH 41/94 Southbound Ramps southbound approach, including one shared left-turn/through lane and one right-turn lane.
  - Install traffic signals, including westbound protected-permitted left-turn indications.
- *Year 2030 Interim Build:*
  - Provide an additional CTH KR westbound left-turn lane, resulting in two westbound left-turn lanes.
  - Include westbound protected-only left-turn indications.

Node 520: CTH KR & IH 41/94 Northbound Ramps

- *Year 2020 Phase One:*
  - Provide three lanes on the CTH KR eastbound approach, including one left-turn lane and two through lanes.
  - Provide three lanes on the CTH KR westbound approach, including two through lanes and one right-turn lane. The right-turn lane is recommended to function as a free-flow right-turn movement to the IH 41/94 northbound on-ramp.
  - Provide three lanes on the IH 41/94 Northbound Ramps northbound approach, including one shared left-turn/through lane and two right-turn lanes.
  - Install traffic signals, including eastbound protected-permitted left-turn indications and northbound protected-overlap right-turn indications. A dedicated signal phase for the northbound right-turn movement, which will allow it to operate at the same time as westbound through traffic, is recommended.
- *Year 2030 Interim Build:* Provide an additional CTH KR westbound through lane, which will serve as a look-ahead left-turn lane, resulting in three westbound through lanes.

Node 523: CTH KR & East Frontage Road

- *Year 2020 Phase One:*
  - Eliminate the existing north leg of the intersection with the opening of Wisconn Valley Way and completion of the IH 41/94 interchange project. Ideally the south leg of the intersection would also be eliminated and East Frontage Road realigned with Wisconn Valley Way. The assumption in the analysis is that realigning the south leg is not possible at this time.
  - Provide three lanes on the CTH KR eastbound approach, including two through lanes and one right-turn lane.
  - Provide three lanes on the CTH KR westbound approach, including one left-turn lane and two through lanes.
  - Provide one shared left-turn/right-turn lane on the East Frontage Road northbound approach.
  - Install stop control on the East Frontage Road approach to CTH KR. Note that a median along CTH KR at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approaches.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 527: CTH KR & Wisconn Valley Way

- *Year 2020 Phase One:*
  - Provide three lanes on the CTH KR eastbound approach, including one left-turn lane and two through lanes.

- Provide three lanes on the CTH KR westbound approach, including two through lanes and one right-turn lane.
- Provide three lanes on the Wisconsin Valley Way southbound approach, including one left-turn lane and two right-turn lanes. The two right-turn lanes will serve as lane drops of the upstream through lanes.
- Install traffic signals, including eastbound protected-permitted left-turn indications and southbound protected-overlap right-turn indications.
- *Year 2030 Interim Build:*
  - Provide an additional CTH KR eastbound left-turn lane, resulting in two eastbound left-turn lanes.
  - Include eastbound protected-only left-turn indications.

Node 535: CTH KR & FC-4

- *Year 2020 Phase One:*
  - Provide three lanes on the CTH KR eastbound approach, including one left-turn lane and two through lanes.
  - Provide three lanes on the CTH KR westbound approach, including two through lanes and one right-turn lane.
  - Provide one shared left-turn/right-turn lane on the FC-4 southbound approach.
  - Install stop control on the FC-4 approach to CTH KR. Note that a median along CTH KR at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approach.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 540: CTH KR & FC-5

- *Year 2020 Phase One:*
  - Provide three lanes on the CTH KR eastbound approach, including one left-turn lane and two through lanes.
  - Provide three lanes on the CTH KR westbound approach, including two through lanes and one right-turn lane.
  - Provide one shared left-turn/right-turn lane on the FC-5 southbound approach.
  - Install stop control on the FC-5 approach to CTH KR.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 550: CTH KR & CTH H

- *Year 2020 Phase One:*
  - Provide three lanes on the CTH KR eastbound approach, including one left-turn lane, one through lane, and one right-turn lane. The right-turn lane will serve a lane drop of an upstream through lane.
  - Provide three lanes on the CTH KR westbound approach, including one left-turn lane, one through lane, and one right-turn lane.
  - Provide three lanes on the CTH H southbound approach, including one left-turn lane, one through lane, and one right-turn lane. The right-turn lane will serve a lane drop of an upstream through lane.
  - Provide three lanes on the CTH H northbound approach, including one left-turn lane, one through lane, and one right-turn lane.
  - Install traffic signals, including eastbound protected-permitted left-turn indications and southbound permitted-overlap right-turn indications.
- *Year 2030 Interim Build:*
  - Provide an additional CTH KR eastbound left-turn lane, resulting in two eastbound left-turn lanes.
  - Include eastbound protected-only left-turn indications and southbound protected-permitted left-turn indications.

Node 565: CTH KR & 72<sup>nd</sup> Avenue

- *Year 2020 Phase One:*
  - Provide two lanes on the CTH KR eastbound approach, including one through lane and one right-turn lane.
  - Provide two lanes on the CTH KR westbound approach, with the outside lane serving as a bypass lane.
  - Provide one shared left-turn/right-turn lane on the 72<sup>nd</sup> Avenue northbound approach.
  - Install stop control on the 72<sup>nd</sup> Avenue approach to CTH KR.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 570: CTH KR & 90<sup>th</sup> Street

- *Year 2020 Phase One:*
  - Provide two lanes on the CTH KR eastbound approach, with the outside lane serving as a bypass lane.
  - Provide two lanes on the CTH KR westbound approach, including one through lane and one right-turn lane.
  - Provide two lanes on the 90<sup>th</sup> Street southbound approach, including one left-turn lane and one right-turn lane.
  - Install stop control on the 90<sup>th</sup> Street approach to CTH KR.

- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 725: Wisconn Valley Way & NW-1/N-6

- *Year 2020 Phase One:*
  - Provide three lanes on the Wisconn Valley Way southbound approach, including one left-turn lane and two through lanes.
  - Provide three lanes on the Wisconn Valley Way northbound approach, including two through lanes and one right-turn lane.
  - Provide two lanes on the N-6 westbound approach, including one left-turn lane and one right-turn lane.
  - Install stop control on the N-6 approach to Wisconn Valley Way. Note that a median along Wisconn Valley Way at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approach.
- *Year 2030 Interim Build:*
  - Provide one right-turn lane on the Wisconn Valley Way southbound approach.
  - Provide one left-turn lane on the Wisconn Valley Way northbound approach.
  - Provide three lanes on the NW-1 eastbound approach, including one left-turn lane, one through lane, and one right-turn lane.
  - Provide one through lane on the N-6 westbound approach.
  - Install traffic signals when warranted, including southbound, northbound, eastbound, and westbound protected-permitted left-turn indications.

Node 750: Wisconn Valley Way & SW-1

- *Year 2020 Phase One:*
  - Provide three lanes on the Wisconn Valley Way southbound approach, including two through lanes and one right-turn lane.
  - Provide three lanes on the Wisconn Valley Way northbound approach, including one left-turn lane and two through lanes.
  - Provide two lanes on the SW-1 eastbound approach, including one left-turn lane and one right-turn lane.
  - Install stop control on the SW-1 approach to Wisconn Valley Way. Note that a median along Wisconn Valley Way at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approach.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.



Node 830: CTH H & N-7

- *Year 2020 Phase One:*
  - Provide three lanes on the CTH H southbound approach, including two through lanes and one right-turn lane.
  - Provide three lanes on the CTH H northbound approach, including one left-turn lane and two through lanes.
  - Provide two lanes on the N-7 eastbound approach, including one left-turn lane and one right-turn lane.
  - Install stop control on the N-7 approach to CTH H. Note that a median along CTH H at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approach.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 840: CTH H & FC-6

- *Year 2020 Phase One:*
  - Provide three lanes on the CTH H southbound approach, including two through lanes and one right-turn lane.
  - Provide three lanes on the CTH H northbound approach, including one left-turn lane and two through lanes.
  - Provide three lanes on the FC-6 eastbound approach, including two left-turn lanes and one right-turn lane.
  - Install traffic signals when warranted, including northbound protected-permitted left-turn indications and southbound permitted-overlap right-turn indications. Note that a median along CTH H at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approach until such time that traffic signals are warranted.
- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

Node 850: CTH H & FC-7

- *Year 2020 Phase One:*
  - Provide three lanes on the CTH H southbound approach, including two through lanes and one right-turn lane.
  - Provide three lanes on the CTH H northbound approach, including one left-turn lane and two through lanes.
  - Provide one shared left-turn/right-turn lane on the FC-7 eastbound approach.
  - Install stop control on the FC-7 approach to CTH H. Note that a median along CTH H at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers.

- *Year 2030 Interim Build:* No additional modifications are expected to be necessary.

All movements at the study area intersections are expected to operate at LOS D or better conditions with the identified Year 2020 & Year 2030 design-level recommendations.

## **A2. Year 2040 Planning-Level Recommendations**

Planning-level recommendations for Year 2040 are not intended for design and construction at this time. These recommendations are summarized to provide a snapshot of what modifications may be necessary in the long-term future under the assumptions outlined in this Initial TIA. It is the intent that appropriate right-of-way and building setback expectations may be estimated at this time.

The Year 2040 planning-level recommendations are shown in [Exhibit 1-3](#). Recall that the Year 2040 full build traffic analysis assumes an interchange is constructed at Braun Road, relieving traffic at the STH 11 and CTH KR interchanges. The following recommendations are in addition to the Year 2020 & Year 2030 design-level recommendations.

*The recommendations contained in this Initial TIA are based on the information provided to TADI from Foxconn and assumptions as agreed upon by WisDOT and TADI as of November 29, 2017. It is understood that changes and updates to the Foxconn site plan, Foxconn operations, Foxconn employee locations, and roadway network have occurred since November 29<sup>th</sup> which are not reflected in this Initial TIA submittal. Additional Foxconn details are anticipated in the coming weeks. An updated TIA incorporating the most recent Foxconn updates and updated roadway network will be submitted as a “Final TIA” in the coming months.*

*Recommendations are for jurisdictional consideration and are not legally binding. WisDOT, Racine County, and the Village of Mount Pleasant reserve the right to determine alternative solutions.*

### Node 300: STH 11 & West Frontage Road

- No additional modifications are expected to be necessary.

### Node 310: STH 11 & IH 41/94 Southbound Ramps

- No additional modifications are expected to be necessary.

### Node 320: STH 11 & IH 41/94 Northbound Ramps

- A third westbound left-turn lane is no longer necessary.

### Node 330: STH 11 & East Frontage Road/Wisconn Valley Way

- Realign the north leg of East Frontage Road with Wisconn Valley Way.
- Provide a STH 11 eastbound left-turn lane.
- Provide a STH 11 westbound right-turn lane.
- Provide three lanes on the southbound realigned East Frontage Road approach, including one left-turn lane, one through lane, and one right-turn lane.
- Provide a Wisconn Valley Way northbound through lane.
- Include eastbound, westbound, and southbound protected-permitted left-turn indications, northbound protected-only left-turn indications, southbound protected-overlap right-turn indications, and northbound permitted-overlap right-turn indications.

Node 335: STH 11 & N-1

- No additional modifications are expected to be necessary.

Node 345: STH 11 & International Drive/N-2

- No additional modifications are expected to be necessary.

Node 350: STH 11 & CTH H

- Include eastbound and protected-overlap right-turn indications.

Node 400: Braun Road & West Frontage Road

- The West Frontage Road is assumed to be relocated west to accommodate IH 41/94 ramps at Braun Road.
- Provide three lanes on the Braun Road eastbound approach, including one left-turn lane, one through lane, and one right-turn lane.
- Provide three lanes on the Braun Road westbound approach, including one left-turn lane, one through lane, and one right-turn lane.
- Provide two lanes on the West Frontage Road southbound approach, including one shared left-turn/through lane and one right-turn lane.
- Provide two lanes on the West Frontage Road northbound approach, including one shared left-turn/through lane and one right-turn lane.
- Install stop control on the West Frontage Road approaches to Braun Road.

Node 410: Braun Road & IH 41/94 Southbound Ramps

- Provide three lanes on the Braun Road eastbound approach, including two through lanes and one right-turn lane.
- Provide three lanes on the Braun Road westbound approach, including two left-turn lanes and one through lane.
- Provide four lanes on the IH 41/94 Southbound Ramps southbound approach, including two left-turn lanes, one shared left-turn/through lane, and one right-turn lane.
- Install traffic signal control when warranted, including westbound protected-only left-turn indications.

Node 420: Braun Road & IH 41/94 Northbound Ramps

- Provide four lanes on the Braun Road eastbound approach, including one left-turn lane and three through lanes.
- Provide five lanes on the Braun Road westbound approach, three through lanes and two right-turn lanes. The outside right-turn lane is recommended to be a drop of an upstream through lane while the inside right-turn lane is recommended to be created as a choice lane from an upstream through lane.
- Provide four lanes on the IH 41/94 Northbound Ramps northbound approach, including one shared left-turn/through lane and three right-turn lanes.
- Install traffic signal control when warranted, including eastbound protected-only left-turn indications, westbound protected-only right-turn indications, and northbound protected-overlap right-turn indications. A dedicated signal phase for

the northbound right-turn movement, which will allow it to operate at the same time as westbound through and right-turn traffic, is recommended.

Node 430: Braun Road & Wisconn Valley Way

- Provide seven lanes on the Braun Road eastbound approach, including two left-turn lanes, four through lanes, and one right-turn lane.
- Provide seven lanes on the Braun Road westbound approach, including two left-turn lanes, four through lanes, and one right-turn lane.
- Provide six lanes on the Wisconn Valley Way southbound approach, including two left-turn lanes, two through lanes, and two right-turn lanes.
- Provide four lanes on the Wisconn Valley Way northbound approach, including one-left-turn lane, two through lanes, and one right-turn lane.
- Include eastbound, westbound and southbound protected-only left-turn indications, northbound protected-permitted left-turn indications, westbound and northbound protected-overlap right-turn indications, and southbound permitted-overlap right-turn indications.

Node 435: Braun Road & FC-1/N-3

- Provide seven lanes on the Braun Road eastbound approach, including two left-turn lanes, four through lanes, and one right-turn lane. The outside through lane is recommended to drop prior to FC-2/N-4.
- Provide seven lanes on the Braun Road westbound approach, including two left-turn lanes, four through lanes, and one right-turn lane.
- Include eastbound, westbound and northbound protected-only left-turn indications, southbound protected-permitted left-turn indications, eastbound and southbound protected-overlap right-turn indications, and northbound permitted-overlap right-turn indications.

Node 440: Braun Road & FC-2/N-4

- Provide five lanes on the Braun Road eastbound approach, including one left-turn lane, three through lanes, and one right-turn lane.
- Provide five lanes on the Braun Road westbound approach, including one left-turn lane, three through lanes, and one right-turn lane.
- Install a traffic signal when warranted, including eastbound and westbound protected-permitted left-turn indications.

Node 445: Braun Road & FC-3/N-5

- Provide an additional through lane on the eastbound Braun Road approach, resulting in three through lanes.
- Provide an additional through lane on the westbound Braun Road approach, resulting in three through lanes.
- Include eastbound, westbound and southbound protected-permitted left-turn indications, northbound protected-only left-turn indications, and eastbound and northbound permitted-overlap right-turn indications.

Node 450: Braun Road & CTH H

- Provide five lanes on the Braun Road eastbound approach, including two-left-turn lanes, two through lanes, and one right-turn lane. The right-turn lane will serve as a lane drop of an upstream through lane.
- Provide five lanes on the Braun Road westbound approach, including one-left-turn lane, three through lanes, and one right-turn lane.
- Provide an additional northbound left-turn lane on the northbound CTH H approach, resulting in two through lanes.
- Include eastbound and northbound protected-only left-turn indications, westbound and southbound protected-permitted left-turn indications, and eastbound and southbound permitted-overlap right-turn indications.

Node 455: Braun Road & E-1

- Provide two lanes on the Braun Road eastbound approach, including one through lane and one right-turn lane.
- Provide two lanes on the Braun Road westbound approach, including one left-turn lane and one through lane.
- Provide two lanes on the E-1 northbound approach, including one left-turn lane and one right-turn lane.
- Install stop control on the E-1 approach to Braun Road. Note that a median along Braun Road at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approach.

Node 460: Braun Road & E-2

- Provide two lanes on the Braun Road eastbound approach, including one through lane and one right-turn lane.
- Provide two lanes on the Braun Road westbound approach, including one left-turn lane and one through lane.
- Provide two lanes on the E-2 northbound approach, including one left-turn lane and one right-turn lane.
- Install stop control on the E-2 approach to Braun Road. Note that a median along Braun Road at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approach.

Node 470: Braun Road & 90<sup>th</sup> Street

- Install traffic signals when warranted.

Node 500: CTH KR & West Frontage Road

- No additional modifications are expected to be necessary.

Node 510: CTH KR & IH 41/94 Southbound Ramps

- Provide four lanes on the IH 41/94 Southbound Ramps southbound approach, including one shared left-turn/through lane, two through lanes, and one right-turn lane.

Node 520: CTH KR & IH 41/94 Northbound Ramps

- Provide five lanes on the IH 41/94 Northbound Ramps northbound approach, including one shared left-turn/through lane, two through lanes, and two right-turn lanes.
- The CTH KR westbound right-turn movement is no longer recommended to be a free-flow right-turn movement.
- The dedicated signal phase for the northbound right-turn movement is no longer necessary.

Node 530: CTH KR & East Frontage Road

- Realign the south leg of East Frontage Road with Wisconsin Valley Way.
- Provide a STH 11 eastbound right-turn lane. Note that two STH 11 eastbound left-turn lanes are no longer necessary and one of the left-turn lanes from the Year 2030 condition is recommended to be striped off.
- Provide a STH 11 westbound left-turn lane.
- Maintain three lanes on the southbound realigned East Frontage Road approach, converting the inside right-turn lane to a through lane and maintaining the outside right-turn lane as an upstream lane drop.
- Provide two lanes on the northbound realigned East Frontage Road approach, including one left-turn lane and one shared through/right-turn lane.
- Include eastbound protected-permitted left-turn indications, and southbound permitted-overlap right-turn indications.

Node 535: CTH KR & FC-4

- No additional modifications are expected to be necessary.

Node 540: CTH KR & FC-5

- No additional modifications are expected to be necessary.

Node 550: CTH KR & CTH H

- Provide an additional eastbound CTH KR through lane, resulting in two eastbound through lanes. The eastbound right-turn lane is no longer recommended to serve as an upstream lane drop.
- Provide an additional westbound CTH KR through lane, resulting in two westbound through lanes.
- Provide an additional southbound CTH H through lane, resulting in two southbound through lanes. The southbound right-turn lane is no longer recommended to serve as an upstream lane drop.
- Provide an additional northbound CTH H through lane, resulting in two northbound through lanes.

Node 555: CTH KR & E-3

- Provide two lanes on the CTH KR eastbound approach, including one left-turn lane and one through lane.
- Provide two lanes on the CTH KR westbound approach, including one through lane and one right-turn lane.

- Provide two lanes on the E-3 southbound approach, including one left-turn lane and one right-turn lane.
- Install stop control on the E-3 approach to CTH KR. Note that a median along CTH KR at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approach.

Node 560: CTH KR & E-4

- Provide two lanes on the CTH KR eastbound approach, including one left-turn lane and one through lane.
- Provide two lanes on the CTH KR westbound approach, including one through lane and one right-turn lane.
- Provide two lanes on the E-4 southbound approach, including one left-turn lane and one right-turn lane.
- Install stop control on the E-4 approach to CTH KR. Note that a median along CTH KR at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approach.

Node 565: CTH KR & 72<sup>nd</sup> Avenue/90<sup>th</sup> Street

- Realign 90<sup>th</sup> Street to intersect CTH KR across from 72<sup>nd</sup> Avenue.
- Provide three lanes on the CTH KR eastbound approach, including one left-turn lane, one through lane, and one right-turn lane.
- Provide three lanes on the CTH KR westbound approach, including one left-turn lane, one through lane, and one right-turn lane.
- Provide two lanes on the 72<sup>nd</sup> Avenue northbound approach, including one shared left-turn/through lane and one right-turn lane.
- Provide two lanes on the 90<sup>th</sup> Street southbound approach, including one shared left-turn/through lane and one right-turn lane.
- Install stop control on 72<sup>nd</sup> Avenue and 90<sup>th</sup> Street approaches to CTH KR. Note that a median along CTH KR at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approaches.

Node 725: Wisconn Valley Way & NW-1/N-6

- No additional modifications are expected to be necessary.

Node 735: Wisconn Valley Way & NW-2

- Provide three lanes on the Wisconn Valley Way southbound approach, including two through lanes and one right-turn lane.
- Provide three lanes on the Wisconn Valley Way northbound approach, including one left-turn lane and two through lanes.
- Provide two lanes on the NW-2 eastbound approach, including one left-turn lane and one right-turn lane.
- Install traffic signals when warranted, including northbound protected-permitted left-turn indications and eastbound protected-overlap right-turn indications.

Node 740: Wisconn Valley Way & SW-2

- Provide three lanes on the Wisconn Valley Way southbound approach, including two through lanes and one right-turn lane.
- Provide three lanes on the Wisconn Valley Way northbound approach, including one left-turn lane and two through lanes.
- Provide two lanes on the SW-2 eastbound approach, including one left-turn lane and one right-turn lane.
- Install stop control on the SW-2 approach to Wisconn Valley Way. Note that a median along Wisconn Valley Way at this intersection was assumed to be sufficiently wide to accommodate two-stage left-turn maneuvers from the stop controlled approach.

Node 750: Wisconn Valley Way & SW-1

- No additional modifications are expected to be necessary.

Node 830: CTH H & N-7

- No additional modifications are expected to be necessary.

Node 840: CTH H & FC-6

- Provide an additional CTH H Southbound right-turn lane, resulting in two southbound right-turn lanes.
- Provide an additional CTH H northbound left-turn lane, resulting in two northbound left-turn lanes.
- Include northbound protected-only left-turn indications.

Node 845: CTH H & E-5

- Provide three lanes on the Wisconn Valley Way southbound approach, including one left-turn lane and two through lanes.
- Provide three lanes on the Wisconn Valley Way northbound approach, including two through lanes and one right-turn lane.
- Provide two lanes on the E-5 westbound approach, including one left-turn lane and one right-turn lane.
- Install traffic signals when warranted, including southbound protected-permitted left-turn indications.

Node 850: CTH H & FC-7

- No additional modifications are expected to be necessary.

Node 945: 90<sup>th</sup> Street & E-6

- Provide a shared through/right-turn lane on the 90<sup>th</sup> Street southbound approach.
- Provide a shared left-turn/through lane on the 90<sup>th</sup> Street northbound approach.
- Provide a shared left-turn/right-turn lane on the E-6 eastbound approach.
- Install stop control on the E-6 approach to 90<sup>th</sup> Street.

Select left-turn or right-turn movements are expected to operate at capacity with a low to middle LOS E with the Year 2040 planning-level recommendations. Since this is a planning-level



exercise based on a number of assumptions, and because none of the movements are through traffic movements, no additional modifications were considered at this time.

## **PART B – CONCLUSION**

The traffic estimates summarized in this Initial TIA assume two shifts per day for Foxconn and that all employees change shifts within the same hours: 6:30am to 7:30am and 6:00pm to 7:00pm. It is additionally assumed that the peak hours of all other uses (industrial, commercial, etc.) will coincide with these same peak hours. Traffic estimates for the surrounding areas are based on assumptions for land use and density without available site plans. Additional detailed information regarding Foxconn employee numbers by shift, function, hours of day, parking locations, professional vs. non-professional, etc. is desired to further understand traffic demands and refine transportation infrastructure needs. Additional land use, density, operations, and access information regarding the surround areas is also desired to further understand traffic demands and refine transportation infrastructure needs. This detail has the potential to alter the identified recommendations.

At this time, in the absence of additional information, TADI recommends moving forward with the identified Year 2020 and Year 2030 design-level recommendations. The recommendations are appropriate to accommodate the traffic estimated for Year 2020 and Year 2030 years. Slight modifications in these recommendations may be made with the completion of a future Final TIA.

The Year 2040 planning-level recommendations are not intended for design and construction at this time, but instead provide a snapshot of what modifications may be necessary in the long-term future under the assumptions outlined in this Initial TIA. It is the intent that appropriate right-of-way and building setback expectations may be estimated based on these planning-level recommendations.

*The results, conclusions, and recommendations contained in this Initial TIA are based on the information provided to TADI from Foxconn and assumptions as agreed upon by WisDOT and TADI as of November 29, 2017. It is understood that changes and updates to the Foxconn site plan, Foxconn operations, Foxconn employee locations, and roadway network have occurred since November 29<sup>th</sup> which are not reflected in this Initial TIA submittal. Additional Foxconn details are anticipated in the coming weeks. An updated TIA incorporating the most recent Foxconn updates and updated roadway network will be submitted as a “Final TIA” in the coming months.*