2.4.2. Brown Deer Road Interchange

The existing interchange has a cloverleaf configuration with loop ramps in all four quadrants. The main challenges in the Brown Deer Road interchange area include:

- Speed differential between entering vehicles and I-43 mainline vehicles.
- Short traffic weaving maneuvers between exit and entrance loop ramps.
- Insufficient acceleration and deceleration lengths.
- High traffic volumes and congestion.
- Obsolete ramp design.
- Close proximity of Port Washington Road/Brown Deer Road intersection to the interchange ramp intersection on Brown Deer Road.
- The Good Hope Road bridges were replaced in 2010 and meet current design standards, including bicycle and pedestrian accommodations. It is desirable to maintain the existing bridges to minimize reconstruction costs.

SPOT IMPROVEMENTS

This alternative features two spot improvement designs for the Brown Deer Road interchange. Both create a hybrid diamond/cloverleaf interchange to reduce traffic weaving maneuvers:

- Eliminate the entrance loop ramps in the southeast and northwest interchange quadrants and lengthen entrance and exit ramps to meet current design standards. This improvement allows for more ramp storage and provides longer transition lengths for merging with mainline traffic.
- Eliminate exit loop ramps in the southwest and northeast interchange quadrants and lengthen entrance and exit ramps to meet current design standards. This improvement allows for more ramp storage and provides longer transition lengths for merging with mainline traffic.

Exhibit 2-2 shows illustrates spot improvements for the entire corridor, including the Brown Deer Road interchange.

DIAMOND INTERCHANGE

This alternative reconstructs the existing cloverleaf interchange to a diamond configuration (eliminating the loop ramps). Ramps on the east side of I-43 would be pulled in tighter to the I-43 mainline to increase spacing between the Port Washington Road/Brown Deer Road intersection and the interchange ramp intersection on Brown Deer Road (**Exhibit 2-17**). This alternative increases the weaving distance for traffic turning left from Port Washington Road onto Brown Deer Road to access the I-43 northbound entrance ramp. Bike and pedestrian access on Brown Deer Road would be provided according to ADA and Trans 75 requirements. This alternative retains the Brown Deer Road bridges.

DIVERGING DIAMOND INTERCHANGE

This alternative features a northbound ramp terminal intersection pulled in tighter to the I-43 mainline to increase spacing between the interchange ramp intersection on Brown Deer Road and the Port Washington Road intersection to the east. Eastbound and westbound traffic on Brown Deer Road cross to opposite lanes on the I-43 overpass bridge to facilitate turning movements (**Exhibit 2-17**). Bike and pedestrian access on Brown Deer Road would be provided according to ADA and Trans 75 requirements. This alternative retains the Brown Deer Road bridges.

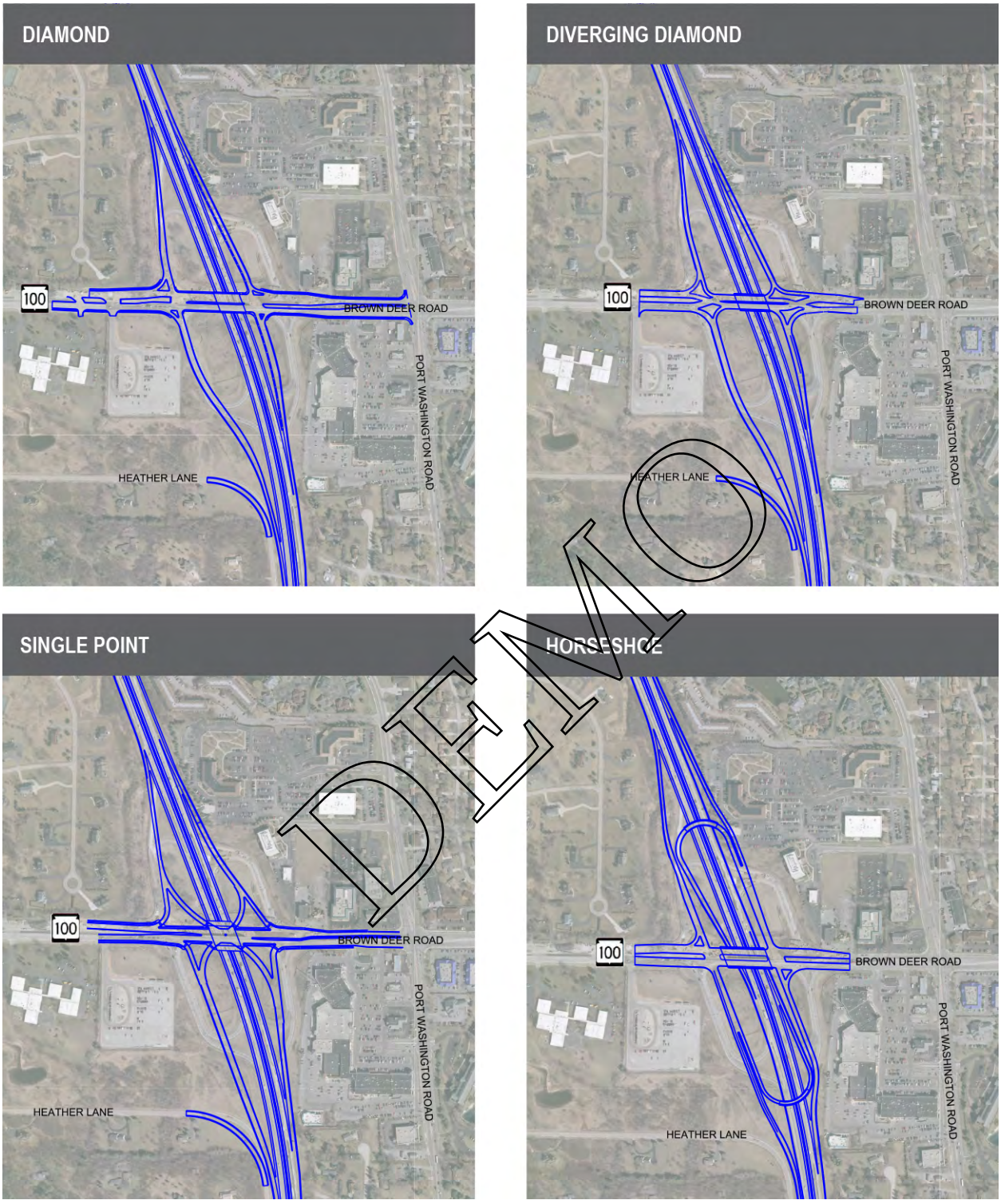
SINGLE-POINT INTERCHANGE

All ramps are brought together at one point on the Brown Deer Road bridges over I-43 (**Exhibit 2-17**). This allows for a longer traffic weave section on Brown Deer Road and greater intersection spacing between Port Washington Road and the interchange ramp intersection on Brown Deer Road. It also creates a single intersection that's designed to handle high traffic volumes. The new I-43 mainline alignment closely matches the existing alignment in an effort to save the existing Brown Deer Road bridges over I-43. Bike and pedestrian access on Brown Deer Road would be provided according to ADA and Trans 75 requirements.

HORSESHOE INTERCHANGE

Northbound and southbound entrance ramps are combined on a U-shaped ramp on each side of Brown Deer Road. Northbound and southbound traffic is split on the ramp, allowing for a longer traffic weaving section and more ramp storage. The I-43 mainline and northbound entrance and exit ramps are shifted west to increase spacing between Port Washington Road and the interchange ramp intersection on Brown Deer Road (**Exhibit 2-17**). This alternative increases ramp storage and the traffic weaving distance for traffic turning left from Port Washington Road onto Brown Deer Road to access the I-43 northbound entrance ramp. Bike and pedestrian access on Brown Deer Road would be provided according to ADA and Trans 75 requirements. This alternative would require replacing the Brown Deer Road bridges.

Exhibit 2-17: Brown Deer Road Interchange Build Alternatives



2.4.3. County Line Road Interchange

The existing interchange is a partial modified diamond interchange providing access to County Line Road via Port Washington Road as a northbound exit from I-43. The only access from County Line Road to I-43 is via a southbound entrance ramp. The main challenges in the County Line Road interchange area include:

- Close proximity of I-43 exit ramp to the northbound Brown Deer interchange entrance ramp.
- Substandard vertical clearance at bridges.
- Substandard horizontal curves on I-43 mainline.

FHWA regulations and policy[6] call for interchanges to provide for all traffic movements. Because the County Line Road interchange only provides movements to and from the south, WisDOT reviewed alternatives that included providing full access and removing all access as part of the range of reasonable alternatives for the interchange location. SEWRPC must update its long-range transportation plan to account for either removing access or a full access interchange to comply with the Clean Air Act's transportation conformity requirements.[7]

SPOT IMPROVEMENTS

The interchange would remain a partial interchange, but the existing Port Washington Road exit ramp would move further north to increase the weaving distance between that ramp and the Brown Deer Road entrance ramp to the south. **Exhibit 2-2** illustrates Spot Improvements for the entire corridor, including the County Line Road interchange. This alternative would not be consistent with FHWA's requirement for all traffic movements at interchanges.

NO ACCESS

This alternative removes the existing northbound exit ramp and southbound entrance ramp at County Line Road. The Port Washington Road and County Line Road overpasses would be reconstructed. County Line Road traffic to and from I-43 would divert to either the Mequon Road or Brown Deer Road interchanges. No additional changes would be required at either of these interchanges to accommodate additional traffic. Additional turn lanes are required at the Port Washington Road/Brown Deer Road intersection, which are described further in **Subsection 3.2.2**.

PARTIAL DIAMOND INTERCHANGE

This alternative moves the Port Washington Road exit ramp further north to terminate at the Port Washington Road crossing of I-43 near Katherine Drive. The southbound entrance ramp is reconstructed at its current location (**Exhibit 2-18**). Bike and pedestrian access on Port Washington Road would be provided according to ADA and Trans 75 requirements. This alternative would not be consistent with FHWA's requirement for all traffic movements at interchanges. The city of Mequon has requested that WisDOT and FHWA consider a partial interchange at County Line Road. WisDOT has evaluated FHWA policies, as well as local considerations from the city of Mequon, and is requesting that FHWA consider an exception to Interstate interchange requirements to allow reconstructing the partial interchange.

[6] *23 CFR § 625.4 specifically lists A* Policy on Design Standards – Interstate System *(AASHTO, January 2005) as an applicable standard. See also* Interstate System Access Informational Guide *(FHWA, August 2010).*

[7] *In Southeast Wisconsin, SEWRPC must demonstrate in its long-range transportation planning process how the region will meet air quality standards under the Clean Air Act. This is referred to as transportation conformity. The I-43 North-South Freeway Corridor Study must conform by being accounted for in SEWRPC's long-range transportation plan and transportation improvement program (TIP) before FHWA completes its National Environmental Policy Act (NEPA) review with its Record of Decision (ROD).*

SPLIT DIAMOND INTERCHANGE

This alternative provides full access to and from I-43 with ramps split between County Line Road and Port Washington Road. Full access is maintained on Port Washington Lane (**Exhibit 2-18**). Bike and pedestrian access on Port Washington Road would be provided according to ADA and Trans 75 requirements.

SPLIT DIAMOND INTERCHANGE (KATHERINE DRIVE GRADE SEPARATION)

This alternative provides full access to and from I-43 with ramps split between County Line Road and Port Washington Road. Direct access from Port Washington Lane to County Line Road is restricted. Katherine Drive is reconstructed as an underpass to continue access to Port Washington Road (**Exhibit 2-18**). Bike and pedestrian access on Port Washington Road would be provided according to ADA and Trans 75 requirements.

SPLIT DIAMOND HYBRID INTERCHANGE

Based on input from the third public information meeting and follow-up neighborhood meetings, WisDOT developed a Split Diamond Hybrid alternative to maintain full access for residents on Port Washington Lane while still maintaining traffic operations. Two subalternatives were developed to address Katherine Drive access to Port Washington Road (**Exhibit 2-18**).

SPLIT DIAMOND HYBRID (GRADE SEPARATION)

This alternative provides full access to and from I-43, with the southbound entrance ramp maintained at County Line Road, and the remaining exit and entrance ramps located at Port Washington Road. The Katherine Drive/Port Washington Road intersection would shift about 900 feet south of the existing intersection via a Port Washington Road underpass. Full access is maintained on Port Washington Lane. Compared to the Split Diamond interchange, this interchange improves traffic operations for northbound exit and entrance movements on Port Washington Road. Bike and pedestrian access on Port Washington Road would be provided according to ADA and Trans 75 requirements.

SPLIT DIAMOND HYBRID (WITHOUT GRADE SEPARATION)

This alternative is similar to the Split Diamond Hybrid (Grade Separation) alternative, but it provides an at-grade intersection with Katherine Drive and Port Washington Road (**Exhibit 2-18**). Access to the northbound entrance ramp is from Katherine Drive. WisDOT developed this alternative in response to comments from some local property owners and the city of Mequon, who did not support the potential changes in local street traffic created by a Katherine Drive grade separation with the Split Diamond Hybrid (Grade Separation) alternative.

FULL DIAMOND INTERCHANGE (KATHERINE DRIVE GRADE SEPARATION)

This alternative provides a Full Diamond interchange at Port Washington Road and eliminates the interchange ramps at County Line Road. Direct access from Port Washington Lane to Port Washington Road is restricted. A new Katherine Drive underpass would provide a connection to Port Washington Road (**Exhibit 2-18**). Bike and pedestrian access on Port Washington Road and the reconstructed Katherine Drive would be provided according to ADA and Trans 75 requirements.

Exhibit 2-18: County Line Road Interchange Build Alternatives

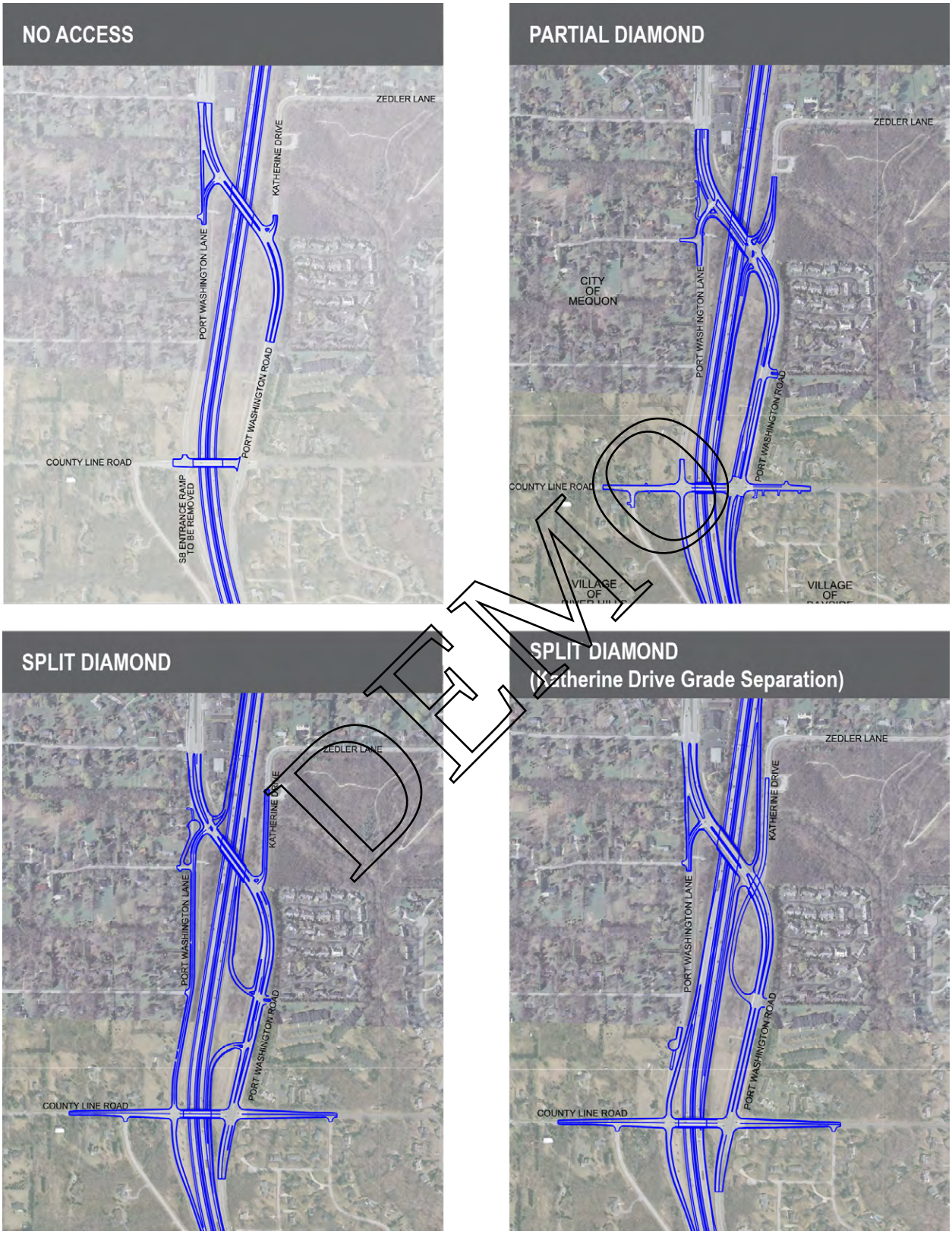
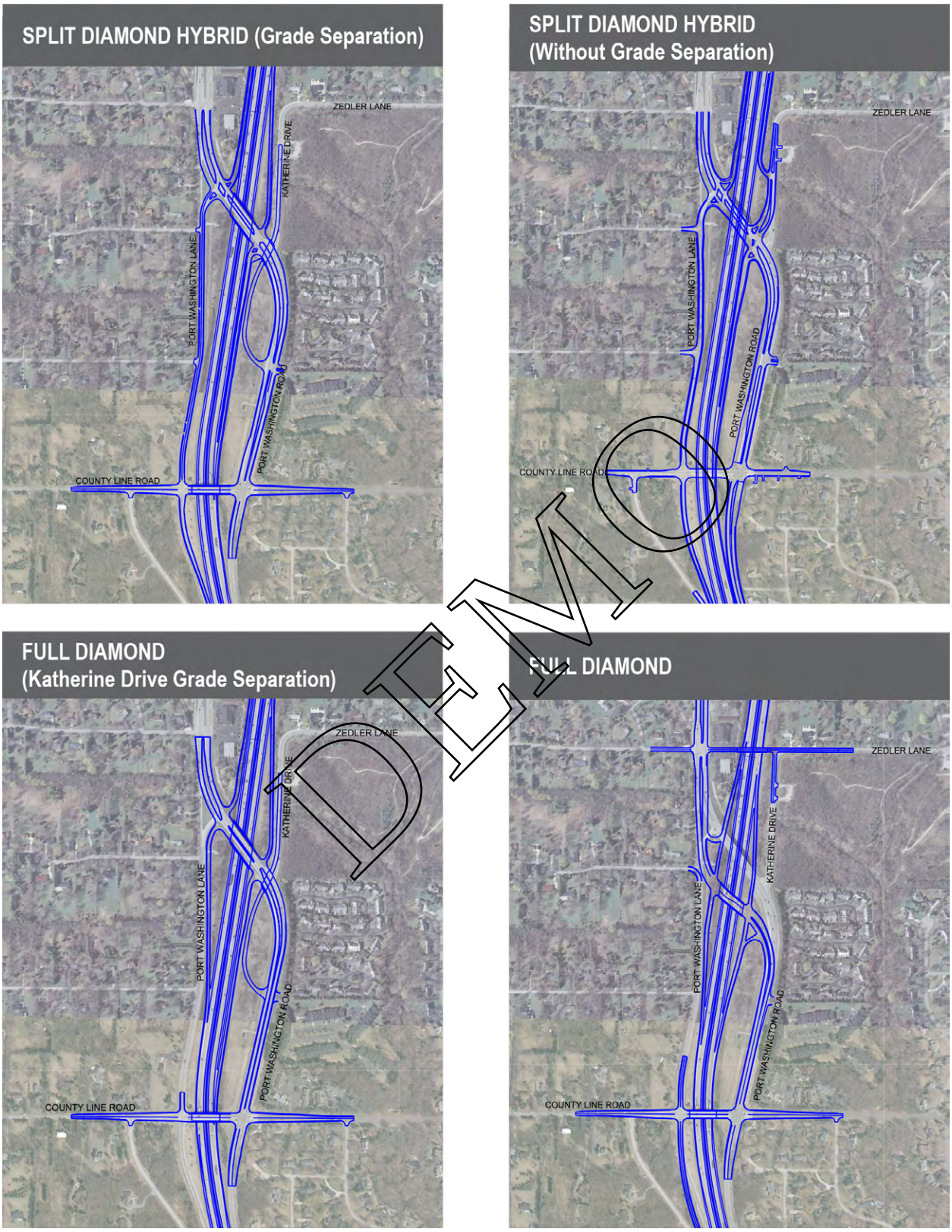


Exhibit 2-18: County Line Road Interchange Build Alternatives (continued)



FULL DIAMOND INTERCHANGE

This alternative provides a Full Diamond interchange at Port Washington Road and eliminates the interchange ramps at County Line Road. Direct access from Port Washington Lane to Port Washington Road is restricted. The existing Katherine Drive connection to Port Washington Road would be terminated at the entrance to Carpenter Park. Katherine Drive access to Port Washington road would be restored via a Zedler Lane overpass over I-43 (**Exhibit 2-18**). The overpass would require between six to nine residential relocations to accommodate the bridge structure. Bike and pedestrian access on Port Washington Road and the new overpass would be provided according to ADA and Trans 75 requirements.

2.4.4. Mequon Road Interchange

The existing interchange has a standard diamond configuration. The main challenges in the Mequon Road interchange area include:

- Traffic congestion and safety concerns related to proximity of the southbound interchange ramp intersection on Mequon Road to Port Washington Road west of I-43.
- High traffic volumes cause congestion during morning and evening peak travel times
- Substandard vertical clearance at bridges.
- Substandard ramp storage capacity.

All of the build alternatives assume that the Highland Road interchange is in place, about 2 miles north of Mequon Road. If the Highland Road interchange is not constructed, modifications are required at the Port Washington Road/Mequon Road intersection. See **Subsection 2.4.5** for additional discussion if the Highland Road interchange is not constructed.

SPOT IMPROVEMENTS

Spot improvements would add parallel entrance and exit ramps to provide more traffic storage on the ramps and minimize the potential for traffic backups on I-43 mainline. **Exhibit 2-2** illustrates Spot Improvements for the entire corridor, including the Mequon Road interchange.

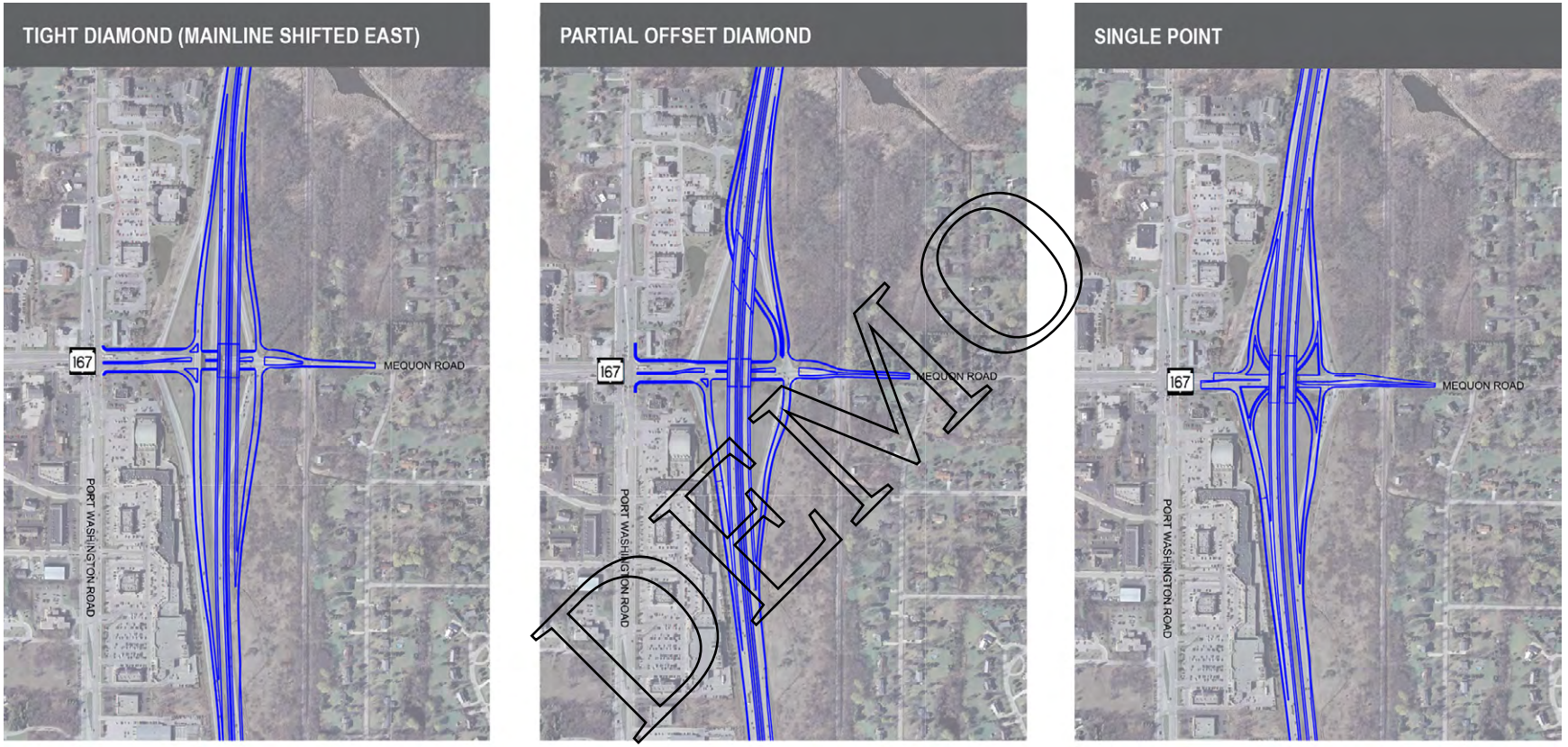
TIGHT DIAMOND INTERCHANGE (MAINLINE SHIFTED EAST)

This alternative would reconstruct the existing interchange with tight urban-style ramps and the I-43 mainline is shifted east (**Exhibit 2-19**). This configuration increases the distance between Port Washington Road and the southbound interchange ramp intersection on Mequon Road. Bike and pedestrian access on Mequon Road would be provided according to ADA and Trans 75 requirements. Due to the close proximity of the Port Washington Road/Mequon Road intersection to the southbound entrance/exit ramps, additional intersection modifications are needed to improve traffic operations. In this alternative, the westbound approach to the Port Washington Road/Mequon Road intersection is modified to provide an additional westbound through lane and an additional left turn lane provides additional traffic impact discussion.

PARTIAL OFFSET DIAMOND INTERCHANGE

This alternative would reconstruct the existing interchange as a diamond interchange with the southbound exit ramp shifted east, crossing beneath I-43 and terminating on the east side of I-43 adjacent to the I-43 northbound ramp intersection with Mequon Road (**Exhibit 2-19**). This configuration increases the distance between Port Washington Road and the southbound interchange ramp

Exhibit 2-19: Mequon Road Interchange Build Alternatives



intersection on Mequon Road. This alternative requires the same modifications to the Port Washington Road/Mequon Road intersection for the Tight Diamond interchange described above. Bike and pedestrian access on Mequon Road would be provided according to ADA and Trans 75 requirements.

SINGLE-POINT INTERCHANGE

All ramps would be brought together at one point under the I-43 mainline (**Exhibit 2-19**), increasing the ramp intersection distance from Port Washington Road and creating a single intersection that is designed to handle high traffic volumes. This alternative would require the same modifications to the Port Washington Road/Mequon Road intersection as the Tight Diamond interchange described above. Bike and pedestrian access on Mequon Road would be provided according to ADA and Trans 75 requirements.

2.4.5. Highland Road Interchange

There is currently no interchange at Highland Road. Highland Road is a two-lane local arterial that crosses over I-43. The Highland Road/North Lake Shore Drive intersection is located east of I-43 and the UP Railroad closely parallels northbound I-43. As discussed in **Section 1**, SEWRPC recommends a new interchange to provide access to I-43 for existing and planned development in this area.

NO ACCESS

This alternative would not provide new access at Highland Road. If the Highland Road interchange is not built, additional modifications would be required at the Port Washington Road/Mequon Road intersection to accommodate future traffic volumes. Required improvements at the Port Washington Road/Mequon Road intersection would require adding a third southbound-to-eastbound left-turn lane.

No modifications are required at the Mequon Road interchange or the County C interchange, or the Port Washington Road/County C intersection.

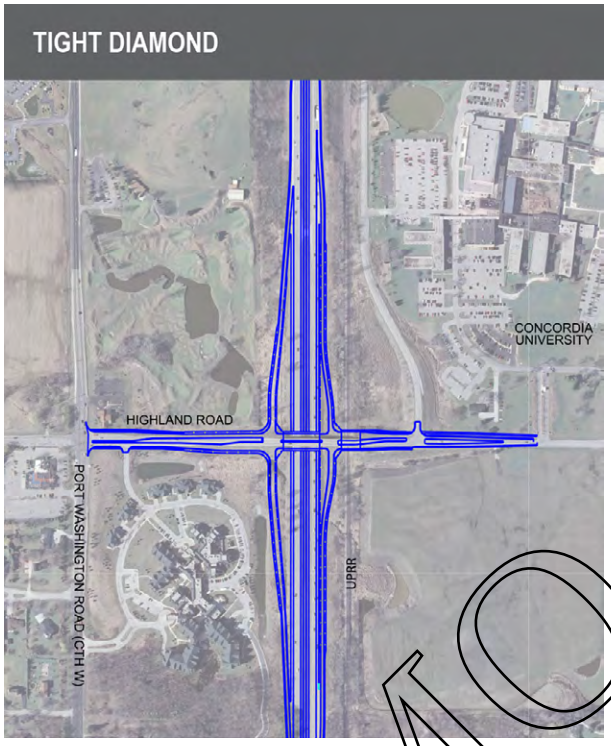
TIGHT DIAMOND INTERCHANGE

This alternative constructs a new tight diamond interchange to avoid impacts to the UP Railroad and adjacent development (**Exhibit 2-20**). Highland Road would be reconstructed as an urban two lane roadway between the Port Washington Road/Highland Road intersection on the west side of I-43 to the Concordia University entrance on the east side of I-43. The Highland Road bridge over the UP Railroad would also be replaced. Bike and pedestrian access on Highland Road would be provided according to ADA and Trans 75 requirements. Because the Highland Road interchange would be a new interchange that benefits the surrounding community, WisDOT would require an agreement with the city of Mequon to provide funding for a portion of the interchange construction cost. If the city chooses to not provide a local share of funding, the interchange would not be built.

2.4.6. County C Interchange

The existing interchange has a standard diamond configuration. The main challenge at this interchange is insufficient interchange ramp lengths create unsafe exit and entrance speeds.

Exhibit 2-20: Highland Road Interchange Build Alternative



SPOT IMPROVEMENTS

Spot improvements lengthen the interchange ramps to meet current design standards. This would allow exiting traffic enough ramp length to slow down to safer speeds, and allow entering traffic more ramp length to increase speed to safely merge with mainline traffic. This alternative can accommodate a four-lane freeway, but not a six-lane freeway. **Exhibit 2-2** illustrates Spot Improvements for the entire corridor, including the County C interchange.

DIAMOND INTERCHANGE

This alternative reconstructs the existing interchange to meet current design standards. This mainly involves lengthening the entrance and exit ramps and providing the required County C bridge clearance over I-43. The ramps on the west side of I-43 would be shifted slightly closer to I-43 to minimize impacts to adjacent development (**Exhibit 2-21**). Bike and pedestrian access on County C would be provided according to ADA and Trans 75 requirements. As noted in **Subsection 2.4.5**, if the Highland Road interchange is not constructed, an additional left-turn lane would be required at the northbound exit ramp.

2.5. COMBINED LOWER LEVEL IMPROVEMENTS AND TSM/TDM ELEMENTS

This alternative would combine TSM and TDM elements with “lower level” highway improvements in the I-43 North-South Freeway study corridor. Lower level highway improvements are those

Exhibit 2-21: County C Interchange Build Alternative

alternatives that do not include capacity expansion. The TSM and TDM elements applicable to the I-43 North-South Freeway study corridor are discussed in **Subsection 2.2.2**. Possible spot improvements for the I-43 mainline are discussed in **Subsection 2.3,** and spot improvements for the interchanges are discussed in **Subsection 2.4**. The alternative describing reconstructing I-43 to modern design standards without capacity expansion is described in **Subsection 2.3.1** and **Subsection 2.3.2**. See **Subsection 2.6.4** for more information.

2.6. ALTERNATIVES SCREENING

The alternatives described in Subsections 2.2 through 2.5 were evaluated based on their ability to meet the study's purpose and need as described in **Section 1** of this DEIS. The following key purpose and need factors were considered in evaluating and screening the initial range of alternatives:

- Address pavement, freeway design and geometric deficiencies
- Address safety concerns
- Accommodate existing and future traffic volumes at an acceptable level of service (LOS) and improve traffic operations
- Achieve compatibility with regional land use and transportation planning objectives.
- Maintain vital link in state and regional transportation network.

Other screening factors to determine which alternatives should be eliminated and which should be carried forward for detailed analysis included:

- Relative cost in terms of the overall construction cost for each design option and the overall impact footprint (right of way acquisition)

- General magnitude of overall environmental impacts
- Input from agencies, local officials, the public, and other stakeholders through the outreach activities discussed in **Section 5**.

2.6.1. No-Build Alternative

While this alternative would, over time, address deteriorated pavement and structure conditions, and have both fewer environmental impacts and lower construction cost than the build alternatives, it would not address substandard design elements, safety concerns or forecasted traffic volumes. Because it would not meet study purpose and need, the No-Build Alternative is not considered a reasonable course of action for addressing long-term mobility needs in the I-43 corridor. This alternative serves as a baseline for comparing impacts of the build alternatives.

2.6.2. Build Alternative: Spot Improvements

The spot improvements on the I-43 roadway mainline and at the interchanges (**Subsection 2.3** and **Subsection 2.4**) would rehabilitate pavement and address some safety issues that can be fixed with little to no right of way acquisition. However, this low level of improvement would not address existing design deficiencies, safety concerns (except at spot locations) or future traffic demand and was therefore dropped from further consideration.

2.6.3. Build Alternatives: Modernization

As discussed in **Subsection 2.3**, the range of modernization alternatives for the I-43 mainline includes reconstructing the existing four-lane facility to modern design standards, and widening I-43 to six lanes throughout the corridor as recommended in the 2035 regional transportation plan. Also, consistent with the regional transportation plan, the modernization alternatives implement the TSM and TDM measures described in **Subsection 2.2**. However, the Modernization – 4 Lanes alternative would not accommodate future traffic demand and was therefore dropped from further consideration. **Table 2-1** summarizes the I-43 mainline alternatives that are screened from further analysis and those carried forward for detailed evaluation.

As discussed in **Subsection 2.4**, the range of alternatives for the I-43 interchanges includes reconstructing the existing interchanges using existing configurations, and reconstructing interchanges with various possible new configurations. The alternatives also include the possibility of eliminating the interchange at County Line Road or reconstructing it as a full access interchange, and constructing an interchange at Highland Road where none exists today. Interchange alternatives were screened for various reasons summarized in **Table 2-2** at the end of this section, and those alternatives carried forward for detailed evaluation are described in **Subsection 2.8**.

2.6.4. Combined Lower Level Highway Improvements with TSM/TDM Measures

As discussed in **Subsection 2.1.1** numerous regionwide TSM and TDM measures are recommended in the 2035 regional transportation plan. The arterial street and highway improvements recommended in the 2035 regional transportation plan already assume maximum implementation of such TSM and TDM measures over time.

Project-level TSM and TDM measures applicable to the I-43 North-South Freeway Corridor Study are discussed in **Subsection 2.2.2**. While TSM and TDM measures contribute to overall operational efficiency and modal travel choices within and through the freeway corridor, such measures would not address key purpose and need factors, either as stand-alone alternatives or when combined with various lower level highway improvements.

The spot improvements on the I-43 roadway mainline and at the interchanges would rehabilitate the pavement and address some safety issues that can be fixed with minimal to no right of way acquisition. However, this low level of improvement would not address future traffic demand even when combined with full implementation of TSM and TDM measures. Further, spot improvements would not address design deficiencies.

The Modernization – 4 Lanes alternative and reconstructing the existing interchanges to meet modern design standards would address the poor pavement condition and most of the design deficiencies in the study corridor, but would not address future traffic demand even when combined with full implementation of TSM and TDM measures. As discussed in **Section 1**, traffic in the study corridor is expected to increase about 32 percent by 2040, more than 60 percent of the corridor would operate at LOS D or worse during the morning travel peak, and 20 percent of the corridor would operate at LOS F. The Modernization – 4 Lanes alternative would also not address congestion-related crashes, even when combined with full implementation of TSM and TDM measures. For example, as discussed in **Section 1,** the section of I-43 from Good Hope Road to Brown Deer Road has a high number of rear-end crashes (one-third of the total crashes in this 2-mile segment) which is indicative of the high traffic volumes and congestion in this area.

In summary, the Combined Lower Level Highway Improvements with TSM/TDM Measures Alternative has been eliminated from further consideration as a viable long-term improvement option in the I-43 corridor. This alternative would not meet key purpose and need factors (future traffic demand and safety concerns).

2.7. OTHER ALTERNATIVES CONSIDERED

Two other alternatives were considered and dismissed as described below:

2.7.1. Level of Service C Alternative

As noted in **Section 1**, freeway design guidance states that LOS C is the desirable freeway service level in urban areas, although LOS D can also be acceptable in densely developed urban areas. Based on this guidance, WisDOT and FHWA developed an alternative that would provide LOS C on the urban portion (Milwaukee County) of the I-43 North-South Freeway study corridor. This alternative would have roughly the same configuration as the Reconstruct to Modern Design Standards with Capacity Expansion alternative, but with additional capacity. I-43 would be widened to eight lanes from Silver Spring Drive to Brown Deer Road. Interchange ramps would require the same lanes as the six-lane alternative. The right of way and relocation impacts of this alternative would be much greater than the other build alternatives that remain under consideration. About 18 residences and 19 businesses would be relocated. Based on the high impact to surrounding neighborhoods and commercial areas, this alternative was eliminated from further consideration as it is not deemed a feasible alternative.

2.7.2. I-43 Mainline South Segment: Tunnel Alternative

The city of Glendale presented to WisDOT a tunnel alternative would depress I-43 to minimize property and visual impacts. The tunnel alternative would depress I-43 from Brentwood Lane to just south of Green Tree Road. The freeway would be covered such that portions of Jean Nicolet Drive and Port Washington Road could be relocated on top of the tunnel section. WisDOT analyzed the alternative and presented its findings at a Glendale neighborhood meeting, explaining why the alternative is not feasible. The Tunnel Alternative would not drain properly because the freeway would be depressed to near the Milwaukee River 100-year flood elevation. The actual footprint of the freeway would be larger compared with the other alternatives because of the space needed for the tunnel structure and ventilation infrastructure required for the tunnel to safely operate. The Tunnel Alternative would be difficult to construct, would create problems maintaining traffic during construction, and would also have inherent emergency access and safety issues when compared to the other build alternatives for the South Segment. For these reasons, but primarily due to drainage problems, the Tunnel Alternative was removed from further consideration as it is not deemed a feasible alternative.

2.8. ALTERNATIVES SCREENING SUMMARY

Table 2-1 summarizes screening results for the build alternatives on the I-43 mainline, including TSM and TDM measures as a standalone alternative or when combined with lower level highway improvements. **Table 2-2** summarizes the screening results for the build alternatives at the interchanges in the I-43 North-South Freeway study corridor. The TSM and TDM measures are included in the Modernization – 6 Lanes and interchange alternatives, as recommended in SEWRPC's 2035 regional transportation plan.

The screening tables reflect a qualitative comparison among the I-43 mainline and interchange alternatives in terms of their abilities to meet key study purpose and need factors, relative cost and magnitude of environmental impacts. The alternatives also represent adjustments based on comments from public and agency meetings.

Based on the initial screening, alternatives retained for more detailed evaluation in **Section 3** of this DEIS are described in the subsections below. WisDOT's preferred alternatives for purposes of this DEIS are also indicated and listed as follows:

- **I-43 Mainline South Segment (Silver Spring Drive to Green Tree Road:** Modernization – 6 Lanes (Shifted East)
- **I-43 Mainline North Segment (Green Tree Road to WIS 60):** Modernization – 6 Lanes; additional lanes added to inside median
- **Good Hope Road Interchange:** Tight Diamond
- **Brown Deer Road Interchange:** Diverging Diamond
- **County Line Road Interchange:** Split Diamond Hybrid (see further discussion in **Subsection 2.8.2**)
- **Mequon Road Interchange:** Tight Diamond (see further discussion in **Subsection 2.8.2**)
- **Highland Road Interchange:** Tight Diamond
- **County C Interchange:** Diamond

2.8.1. I-43 Mainline: Modernization – 6 Lanes

This alternative involves widening I-43 to six lanes. The reasonable alternative retained for detailed study in the South Segment I-43 mainline is Modernization – 6 Lanes Shifted East, which also reconstructs Jean Nicolet Road and Port Washington Road between Bender Road and Green Tree Road. As part of the Port Washington Road reconstruction, it would be widened to four lanes between Bender Road and Daphne Road. Between Silver Spring and Bender Road, WisDOT would implement minor improvements, such pavement resurfacing and removing the lane-drop, as this section can accommodate a six-lane freeway with little reconfiguration of the freeway.

Table 2-1 summarizes key reasons other alternatives eliminated from further analysis; but primarily because the other alternatives, while meeting purpose and need, did not minimize impacts compared to the Modernization – 6 Lanes (Mainline Shifted East) alternative. In the North Segment I-43 mainline, from Green Tree Road to WIS 60, the reasonable alternative retained for detailed study would widen I-43 to the inside (on a generally centered alignment) to minimize overall impacts to adjacent development and environmental resources. Some specific interchange locations may require slight shifts in alignment to minimize impacts or maximize traffic operations.

For purposes of this DEIS, the Modernization – 6 Lanes alternative is WisDOT's preferred alternative for the I-43 mainline in the South and North segments.

2.8.2. I-43 Interchanges

Specific interchange configurations that have been retained for detailed study are:

- **Good Hope Road – Tight Diamond:** This alternative met the study purpose and need while avoiding the greater relocation impacts of the Tight Diamond (Mainline Shifted West) alternative. The Tight Diamond alternative also retains the recently reconstructed Good Hope Road bridges over I-43. For these reasons, the Tight Diamond alternative is carried forward in this DEIS as the reasonable and preferred alternative for detailed study.
- **Brown Deer Road – Diamond and Diverging Diamond:** Both of these alternatives meet the study purpose and need and retain the recently reconstructed Brown Deer Road bridges over I-43. Direct impacts of the two alternatives are similar. The Diverging Diamond interchange alternative removes left turn conflicts, which facilitates traffic operations and capacity. The Diverging Diamond is a nontraditional interchange design that would require public education on how drivers utilize this new interchange configuration. For these reasons, the Diamond and Diverging Diamond interchange alternatives are carried forward as the reasonable alternatives for detailed study in this DEIS. WisDOT's preferred alternative is the Diverging Diamond primarily because it is expected to provide adequate capacity for a longer period beyond the design year of 2040 as compared with the Diamond interchange.
- **County Line Road – No Access, Partial and Split Diamond Hybrid:** Both of the Split Diamond Hybrid subalternatives meet the study purpose and need, meet FHWA requirements for full access, and also retain local access. The No Access alternative also meets the study purpose and need and would remove an interchange that is inconsistent with FHWA standards.

  While the Partial Diamond interchange does not meet FHWA requirements to provide for all traffic movements, WisDOT is retaining the alternative for evaluation. There are local concerns that a full interchange would have negative impacts, such as increased traffic in this primarily residential area. At the city of Mequon's request, WisDOT has asked FHWA for an

exception to FHWA Interstate requirements. A decision from FHWA is pending.

FHWA does offer some flexibility to justify not meeting interchange standards if there are no reasonable alternatives to meeting standards. Extensive environmental impacts and/or extreme costs are often factors that are taken into consideration when looking at prudent alternatives. The Split Diamond Hybrid alternative has very minimal environmental impacts, which are virtually the same impacts as the Partial Diamond alternative, and moderately higher construction costs than a partial interchange.

While FHWA gives appropriate consideration to local concerns, it is imperative that primary consideration is placed on the function of the overall Interstate facility and the importance in serving broader regional and Interstate traffic needs. Interstate drivers expect that interchanges provide for all movements and that if they exit at an interchange that they will be able to return to the Interstate in the same direction from the same interchange.

WisDOT screened out the other alternatives considered at County Line Road primarily because they created greater relocation or travel indirection impacts compared to the retained alternatives. The Full Diamond has substantially more relocations compared to other full access alternatives. The Full Diamond (Katherine Drive Grade Separation), Split Diamond and Split Diamond (Katherine Drive Grade Separation) alternatives modified local access and created greater indirection, which is not desirable for local residents on Port Washington Lane.

The Split Diamond Hybrid subalternatives meet the study purpose and need, but some local residents and the city of Mequon have raised concerns about the potential impact of travel indirection with a Katherine Drive grade separation. WisDOT's preferred alternative is the Split Diamond Hybrid because it meets current Interstate standards and maintains local access. If FHWA approves the waiver for a Partial Diamond interchange, WisDOT may consider it as a preferred alternative.

If either the No Access alternative or the Split Diamond Hybrid alternative is selected as a preferred alternative after the public hearing on this DEIS, SEWRPC will update its long-range transportation plan before FHWA issues a Record of Decision (ROD) for the study.

- **Mequon Road – Tight Diamond (Mainline Shifted East):** This alternative meets the study purpose and need, and it minimizes reconstruction costs compared with the Partial Offset Diamond alternative, which would have improved traffic operations but would also have an added cost to construct two new structures on the I-43 mainline over the relocated southbound exit ramp. The Tight Diamond (Mainline Shifted East) alternative manages future traffic volumes and operations. For this reason, the Tight Diamond (Mainline Shifted East) alternative is carried forward in this DEIS as the reasonable and preferred alternative for detailed study.
- **Highland Road – No Access and Tight Diamond:** The Tight Diamond alternative meets the study purpose and need, and is consistent with SEWRPC's 2035 long-range transportation plans. It is WisDOT's preferred alternative. The No Access alternative could meet the purpose and need for physical, traffic and safety improvements, but is not consistent with SEWRPC's long-range plans. The No Access alternative has greater impact to the local road system and access to businesses at the Port Washington Road/Mequon Road intersection. To accommodate increased future traffic volumes under the No Access alternative, the intersection reconstruction requires right of way along Port Washington Road and removes or modifies access to local businesses. If WisDOT and the city of Mequon do not achieve an agreement on construction funding participation, then WisDOT will recommend the No Access Alternative as the preferred alternative. SEWRPC would need to update its long-

range transportation plan if the No Access alternative is the preferred alternative. The Tight Diamond and No Access alternatives are carried forward in this DEIS as reasonable alternatives for detailed study, with the Tight Diamond being the preferred alternative.

- **County C – Diamond:** The Diamond alternative meets the study purpose and need and is carried forward in this DEIS as the reasonable and preferred alternative for detailed study.

2.9. SELECTION OF PREFERRED ALTERNATIVE

The DEIS identifies a preferred alternative that may best address the current and long-term needs in the I-43 North-South Freeway study corridor.

WisDOT and FHWA will select a preferred alternative in the FEIS after reviewing input received at the public hearing and during the public comment period for this DEIS. The preferred alternative will be based on engineering and environmental factors and input from citizens, state and federal resource agencies, cooperating and participating agencies, Native American tribes, and local officials. Selection of a preferred alternative will also be performed in accordance with the Clean Water Act's § 404(b)(1),[8] administered by the U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (USACE). The guidelines mandate that dredged or fill material should not be discharged into aquatic ecosystems (including wetlands), unless no other practicable alternatives are demonstrated; that such discharge will not have unacceptable adverse impacts; and that all practicable measures are undertaken to minimize adverse effects. The USACE does not concur with the preferred Highland Road Tight Diamond interchange alternative because the No Access alternative is the least environmentally damaging alternative to wetlands. The No Access alternative creates substantially greater traffic operations and business access impacts at the Port Washington Road/Mequon Road intersection, which requires added infrastructure to accommodate traffic volumes. The alternative does not meet the purpose and need of being consistent with SEWRPC's regional long-range transportation plans. But, if Mequon determines not to participate in the local cost-share for interchange construction, WisDOT would move forward with the No Access alternative as the preferred alternative.

[8] Guidelines for Specification of Disposal Sites for Dredged of Fill Material *(40 CFR § 230)*

Table 2-1: Alternatives Screening Summary – I-43 Mainline

Alternatives	Key Purpose and Need Factors				Other Factors		Retain Alternative for Detailed Study?
	Addresses Design Deficiencies?	Improves Safety?	Addresses Future Traffic Demand?	Consistent with Regional Plan?	Relative Total Cost (Construction, Right of Way Acquisition)	Magnitude of Environmental Impacts	
SOUTH SEGMENT: SILVER SPRING DRIVE to GREEN TREE ROAD							
Spot Improvements	NO Deteriorated pavement not replaced. Substandard curves, bridge clearances, stopping site distance, decision site distance and shoulders not improved	YES (limited) Ramp improvements create safer entrance/exit operations. Does not address congestion-related safety issues. Safety issues related to mainline design deficiencies not improved	NO About 60% of the corridor operates unacceptably during peak hours in year 2040; About 20% of entire corridor operating at LOS F	NO SEWRPC recommends added lanes, and interchange improvements	LOW No right of way impacts	LOW No impacts	NO Does not address design deficiencies or future traffic demand; limited improvement of safety issues; not consistent with regional transportation plans
Modernization – 4 Lanes (Centered)	YES Pavement replaced; substandard curves, bridge clearances and shoulders replaced	YES (limited) Safety issues related to design deficiencies addressed; but congestion related safety issues not addressed	NO See comment above	NO SEWRPC recommends added lanes,	LOW Limited widening and right of way impacts	LOW Minimal impact	NO Does not address future traffic demand; not consistent with regional transportation plans
Modernization – 6 Lanes (Centered)	YES See comments above	YES Safety issues related to design deficiencies and congestion addressed	YES Entire corridor operates acceptably	YES Consistent with SEWRPC long-range plan recommending 6-lanes	MODERATE Right of way on Jean Nicolet Road and Port Washington Road	MODERATE/HIGH 11 residential and 1 business relocations; wetland impact, right of way impact to potential historic properties and Nicolet High School athletic field and east playfields similar to shift east and shift west alternatives	NO Right of way and relocation impacts to both sides of highway with no added benefit
Modernization – 6 Lanes (Shifted East)	YES See comments above	YES See comments above	YES See comments above	YES See comments above	MODERATE Right of way on Port Washington Road	MODERATE/HIGH 11 residential and 1 business relocations; 0.07 acre wetland impact; 0.22-acre impact to Nicolet High School east playfields, 0.16 acre impact to historic water treatment plant; 0.08 acre impact to Craig Counsell Park; avoids Clovernook Historic District.	YES *(Preferred Alternative)* Maintains Jean Nicolet Road; minimizes right of way and relocation impacts on west side; profile depressed to minimize visual impacts; avoids impact to Clovernook Historic District compared to centered and shift-west alternatives; city of Glendale supports this alternative
Modernization – 6 Lanes (Shifted West)	YES See comments above	YES See comments above	YES See comments above	YES See comments above	MODERATE Right of way on Jean Nicolet Road	MODERATE/HIGH 9 residential and 1 business relocations; 0.05 acre wetland impact; 0.22 acre-impact to Nicolet High School athletic field and parking area; 0.16 acre impact to historic water treatment plant; 0.08 acre impact to Craig Counsell Park; impact to Clovernook Historic District (4 relocations).	NO Maintains continuous Jean Nicolet Road; minimizes right of way and relocation impacts on east side; profile depressed to minimize visual impacts; impacts Clovernook Historic District
Modernization – 6 Lanes (Elevated over UP Railroad)	YES See comments above	YES See comments above	YES See comments above	YES See comments above	HIGH Substantial structures required and retaining walls	MODERATE/HIGH 2 residential relocations; impacts to potential historic properties; right of way impacts to Nicolet High School east playfield; changed travel patterns; visual impacts	NO Limits right of way and relocation impacts; substantial visual impacts; not supported by local residents; no added benefit for cost of alternative

Alternatives	Key Purpose and Need Factors				Other Factors		Retain Alternative for Detailed Study?
	Addresses Design Deficiencies?	Improves Safety?	Addresses Future Traffic Demand?	Consistent with Regional Plan?	Relative Total Cost (Construction, Right of Way Acquisition)	Magnitude of Environmental Impacts	
Modernization – 6 Lanes (Raised)	YES See comments above	YES See comments above	YES See comments above	YES See comments above	HIGH Retaining walls along I-43; additional bridges at new underpass locations	MODERATE/HIGH 11 residential and 1 business relocations; impacts to wetlands, potential historic properties; right of way impact to Nicolet High School east playfields similar to shift east alternative; visual impacts; changed travel patterns	NO See access options below
Raised – Jean Nicolet Access Option 1	*See Raised Alternative Evaluation Factors above*					MODERATE/HIGH See Raised Alternative Magnitude of Environmental Impacts above	NO Discontinuous Jean Nicolet Road did not substantially reduce impacts compared to the shift-east or shift-west alternatives; substantial disruption to neighborhood access; not supported by local residents
Raised – Jean Nicolet Access Option 2	*See Raised Alternative Evaluation Factors above*					MODERATE/HIGH See Raised Alternative Magnitude of Environmental Impacts above	NO Discontinuous Jean Nicolet Road did not substantially reduce impacts compared to the shift-east or shift-west alternatives; substantial disruption to neighborhood access; not supported by local residents
Modernization – 6 Lanes (Depressed)	YES See comments above; but drainage issues introduced	YES See comments above; but drainage problems may create safety issues	YES See comments above	YES See comments above	HIGH Retaining walls along I-43	MODERATE/HIGH 11 residential and 1 business relocations; impacts to wetlands, potential historic properties and Nicolet High School east playfields similar to shift east alternative; changed travel patterns; drainage issues	NO Developed in response to public comment; lowering I-43 creates drainage difficulties, as well as increasing construction complexity; minimal profile difference in area of concern with shift-east or shift-west alternatives
NORTH SEGMENT: GREEN TREE ROAD to WIS 60							
Modernization – 4 Lanes	YES Pavement replaced; substandard curves, bridge clearances and shoulders replaced	YES (limited) Safety issues related to design deficiencies addressed; but congestion related safety issues not addressed	NO More than 60% of the corridor operates unacceptably during peak hour or worse in year 2040; 20% operates at LOS F	NO SEWRPC recommends added lanes	LOW Limited widening and right of way impacts	LOW No relocations; minimal wetland impacts	NO Does not address future traffic demand; not consistent with regional transportation plans
Modernization – 6 Lanes	YES See comments above	YES Safety issues related to design deficiencies and congestion addressed	YES Entire corridor operates acceptably	YES Consistent with SEWRPC long-range plan recommending 6-lanes	MODERATE Right of way impacts	See Magnitude of Environmental Impacts below	See widening options below
Milwaukee County Option – Inside widening	*See Capacity Expansion Alternative Evaluation Factors above*					MODERATE 1.2 acres wetland impacts	YES *(Preferred Alternative)* Addresses design deficiencies, improves safety concerns, future traffic demand and is consistent with regional plans
Ozaukee County Option1 – Inside widening	*See Capacity Expansion Alternative Evaluation Factors above*					MODERATE 11.4 acres wetlands impacts, includes 2.5 acres ADID wetland impacts in Ozaukee County	YES *(Preferred Alternative)* Addresses design deficiencies, improves safety concerns, future traffic demand and is consistent with regional plans; responds to agency comments to minimize wetland impacts

Alternatives	Key Purpose and Need Factors				Other Factors		Retain Alternative for Detailed Study?
	Addresses Design Deficiencies?	Improves Safety?	Addresses Future Traffic Demand?	Consistent with Regional Plan?	Relative Total Cost (Construction, Right of Way Acquisition)	Magnitude of Environmental Impacts	
Ozaukee County Option 2 – Outside widening	*See Capacity Expansion Alternative Evaluation Factors above*				MODERATE/HIGH Right of way impacts	MODERATE/HIGH 15.6 acres impacts to wetlands, includes 4.7 acres ADID wetlands impacts. Greater farmland impacts compared to inside widening; stream relocation	NO Higher magnitude of impacts to wetlands, streams and farmland compared to widening to inside
CORRIDORWIDE LOWER LEVEL IMPROVEMENTS							
TSM and TDM Measures Only	NO Deteriorated pavement not replaced. Substandard curves, bridge clearances, stopping site distance, decision site distance and shoulders not improved	NO Safety issues related to design deficiencies addressed and congestion not addressed	NO About 60% of the corridor operates unacceptably during peak hours in year 2040; About 20% of entire corridor operating at LOS F	NO SEWRPC recommends TSM and TDM measures along with added lanes, and interchange improvements	LOW Little to no right of way impacts	LOW No impacts	NO As stand-alone alternative, does not address design deficiencies, safety issues or future traffic demand; not consistent with regional transportation plans
TSM/TDM Plus Spot Improvements	NO Deteriorated pavement not replaced. Substandard curves, bridge clearances, stopping site distance, decision site distance and shoulders not improved	YES (limited locations) Ramp improvements create safer entrance/exit operations. Does not address congestion-related safety issues. Safety issues related to mainline design deficiencies and congestion not improved	NO See comment above	NO SEWRPC recommends TSM and TDM measures along with added lanes, and interchange improvements	LOW Limited to no right of way impacts	LOW No impacts	NO Does not address design deficiencies or future traffic demand; limited improvement of safety issues; not consistent with regional transportation plans
TSM/TDM Plus Reconstruction without Capacity Expansion	YES Pavement replaced; substandard curves, bridge clearances and shoulders replaced	YES (limited) Safety issues related to design deficiencies addressed; but congestion related safety issues not addressed	NO See comment above	NO SEWRPC recommends TSM and TDM measures along with added lanes, and interchange improvements	LOW Limited right of way impacts	LOW/MODERATE Minimal impact	NO Does not address future traffic demand; not consistent with regional transportation plans

Table 2-2: Alternatives Screening Summary – Interchanges

Alternatives	Key Purpose and Need Factors				Other Factors		Retain Alternative for Detailed Study?
	Addresses Design Deficiencies?	Improves Safety?	Addresses Future Traffic Demand?	Consistent with Regional Plan?	Relative Total Cost (construction, right of way acquisition)	Magnitude of Environmental Impacts	
GOOD HOPE ROAD INTERCHANGE							
Spot Improvements	NO Deteriorated pavement not replaced; Substandard design and shoulders not improved	YES (spot locations) Ramp improvements create safer entrance/exit operations	NO Does not address operational problems between ramp terminal and Port Washington/ Good Hope intersection	NO SEWRPC recommends interchange reconstruction to improve ramp geometry and traffic operations	LOW No right of way (R/W) impacts	LOW 1 residential relocation; no wetland impacts	NO Does not address design deficiencies or future traffic demand; limited improvement of safety issues; not consistent with regional transportation plans
Tight Diamond	YES Addresses design deficiencies	YES Addresses safety issues related to design deficiencies and traffic operations	YES Interchange operates acceptably	YES Addresses geometry deficiencies and traffic operations problems	LOW/MODERATE Relatively low construction cost; retains Good Hope Road bridges; right of way impacts	MODERATE 1 residential relocation; 0.10 acre wetland impacts	YES (Preferred Alternative) Maximizes distance between northbound ramp terminal intersection with Good Hope Road and the Good Hope Road/ Port Washington Road intersection; retains existing Good Hope Road bridges
Tight Diamond (Mainline Shifted West)	YES See comment above	YES See comment above	YES See comment above	YES See comment above	LOW/MODERATE Relatively low construction cost; replaces Good Hope Road bridges; right of way impacts	MODERATE 2 residential relocations; 0.12 acre wetland impacts	NO Further increases distance between northbound ramp terminal intersection with Good Hope Road and the Good Hope Road/ Port Washington Road intersection; additional relocation impacts with minimal added benefit compared to the Tight Diamond alternative
Tight Diamond with Northbound Ramp Split (Hook Ramp)	YES See comment above	YES See comment above	YES See comment above	YES See comment above	LOW Relatively low cost to construct; retains Good Hope Road bridges; right of way acquisition	MODERATE 1 residential relocation and 1 commercial relocation; wetland impacts similar to Tight Diamond	NO Local concerns about commercial relocation and neighborhood impacts of hook ramp
Split Diamond	YES See comment above	YES See comment above	NA (Alternative eliminated; analysis not done)	YES See comment above	MODERATE/HIGH Multiple structures; high right of way acquisition; retains Good Hope Road bridges	MODERATE/HIGH 3 residential relocations; wetland impacts similar to tight diamond (Mainline Shifted West); increases traffic volume on Green Tree Road	NO High cost; high right of way acquisition and relocation impacts; potential traffic increase in residential area; not locally supported
Diverging Diamond	YES See comment above	YES See comment above	NO Does not provide sufficient distance between ramps and Port Washington/ Good Hope intersection	NO Does not address traffic operations problems	LOW Relatively low cost to construct; retains Good Hope Road bridges; lower right of way acquisition	MODERATE 1 residential relocation; wetland impacts similar to tight diamond	NO Does not address future traffic demand; short weaving distance between ramp terminals and Port Washington Road; creates lane continuity issues at Port Washington Road
Single-Point	YES See comment above	YES See comment above	YES with modification (tight right turn)	YES Addresses geometry deficiencies and traffic operations problems	LOW/MODERATE Relatively low cost to construct; widens existing Good Hope Road bridge; right of way acquisition	MODERATE 1 residential relocation; wetland impacts similar to tight diamond	NO Substantial widening of Good Hope Road bridges needed to accommodate ramps; No added benefit compared to tight diamond alternatives
Single-Point with Northbound Ramp Split (Hook Ramp)	YES See comment above	YES See comment above	YES Slightly better traffic operations compared to Single Point alternative	YES See comment above	LOW/MODERATE Similar to Single-Point, but slightly higher right of way impact	MODERATE 1 residential and 1 commercial relocation; wetland impacts similar to tight diamond	NO Similar to Single Point, but traffic operations improved with separate northbound hook. Local concerns about commercial relocation and neighborhood impacts of hook ramp

Alternatives	Key Purpose and Need Factors				Other Factors		Retain Alternative for Detailed Study?
	Addresses Design Deficiencies?	Improves Safety?	Addresses Future Traffic Demand?	Consistent with Regional Plan?	Relative Total Cost (construction, right of way acquisition)	Magnitude of Environmental Impacts	
Horseshoe	YES Addresses design deficiencies; but more complex bridge structures	YES Addresses safety issues related to design deficiencies and traffic operations	NA (Alternative eliminated; analysis not done)	YES See comment above	MODERATE/HIGH Multiple structures that present high maintenance cost compared to other alternatives; right of way impacts; replaces Good Hope Road bridges	MODERATE 2 residential relocations; wetland impacts similar to tight diamond	NO Alternative has highest cost, right of way acquisition and relocations compared to other lower impact alternatives that address design deficiencies, safety issues and future traffic demand
BROWN DEER ROAD/WIS 100 INTERCHANGE							
Spot Improvements	NO Deteriorated pavement not replaced. Substandard design and shoulders not improved	YES (spot locations) Ramp improvements create safer entrance/exit operations	NO Does not address operational problems between ramp terminal and Port Washington/ Good Hope intersection	NO SEWRPC recommends interchange reconstruction to improve ramp geometry and traffic operations	LOW Minimal structures and right of way impacts	LOW Wetland impacts not calculated, but lower than build alternatives	NO Does not address design deficiencies or future traffic demand; limited improvement of safety issues; not consistent with regional transportation plans
Diamond	YES Addresses design deficiencies	YES Addresses safety issues related to design deficiencies and traffic operations	YES Interchange operates acceptably	YES Addresses geometry deficiencies and traffic operations problems	LOW/MODERATE Minimal structures and right of way impacts; retains but widens Brown Deer Road bridges	LOW/MODERATE 0.75 acre wetland impacts; no relocations, impacts earth berm in residential area	YES Increases distance between ramp terminal and Brown Deer Road/Port Washington Road intersection; cost, traffic operations and right of way acquisition comparable to other alternatives
Diverging Diamond	YES See comment above	YES See comment above	YES See comment above	YES See comment above	LOW/MODERATE Low right of way impacts; retains Brown Deer Road bridges	LOW/MODERATE 0.72 acre wetland impacts; no relocations; impacts earth berm in residential area	YES (Preferred Alternative) Increases distance between ramp terminal and Brown Deer Road/Port Washington Road intersection; cost, traffic operations and right of way acquisition comparable to other alternatives
Single-Point	YES See comment above	NO Skewed angles not desirable	YES See comment above	YES See comment above	LOW Minimal structures and right of way acquisition; retains Brown Deer Road bridges	LOW No relocations; impacts earth berm in residential area; wetland impacts not calculated, but greater than Diamond interchange	NO Skewed angle between I-43 and Brown Deer Road creates traffic safety concerns with this interchange configuration
Horseshoe	YES Addresses design deficiencies; but more complex bridge structures	YES Addresses safety issues related to design deficiencies and traffic operations	NA (Alternative eliminated; analysis not done)	YES See comment above	MODERATE/HIGH Multiple structures that present high maintenance cost compared to other alternatives; right of way impacts; replaces Brown Deer Road bridges	MODERATE 1 commercial relocation; impacts earth berm in residential area; wetland impacts not calculated, but greater than Diamond interchange	NO Alternative has highest cost, right of way acquisition and relocations compared to other lower impact alternatives that address design deficiencies, safety issues and future traffic demand
COUNTY LINE ROAD INTERCHANGE							
Spot Improvements	NO Deteriorated pavement not replaced. Substandard design and shoulders not improved	YES (spot locations) Ramp improvements create safer entrance/exit operations	NO Does not address future traffic demand; does not resolve ramp spacing deficiency with Brown Deer Road interchange	NO SEWRPC recommends interchange reconstruction to improve ramp geometry and traffic operations	LOW Two ramps constructed; limited right of way required	LOW No relocations; no wetland impacts	NO Does not address design deficiencies or future traffic demand; limited improvement of safety issues; not consistent with regional transportation plans; does not provide for all traffic movements per federal policy

Note: All capacity expansion alternatives include TSM/TDM measures.

Alternatives	Key Purpose and Need Factors				Other Factors		Retain Alternative for Detailed Study?
	Addresses Design Deficiencies?	Improves Safety?	Addresses Future Traffic Demand?	Consistent with Regional Plan?	Relative Total Cost (construction, right of way acquisition)	Magnitude of Environmental Impacts	
No Access (Access Removed)	YES Eliminates interchange and existing deficiencies	YES Eliminates close ramp spacing with northbound Brown Deer interchange entrance ramp	NA	NO SEWRPC would need to update the long-range plan to account for no access	LOW Two ramps removed; new structures	LOW/MODERATE No relocations; 1 acre wetland impacts; travel pattern changes for surrounding community; traffic diverted to other interchanges;	YES Alternative would eliminate all access but does not adversely affect design deficiencies, safety issues or future traffic demand; consistent with federal policy to avoid partial traffic movements at interchanges; greater indirection for emergency services and local traffic
Partial Diamond	NO Does not meet FHWA requirements to provide all traffic movements	YES Addresses close ramp spacing with Brown Deer Road interchange	YES Interchange operates acceptably	YES Consistent with regional plans; does not meet FHWA requirements to provide all traffic movements	LOW	LOW/MODERATE No relocations; 1 acre wetland impacts	YES Does not provide for all traffic movements per federal policy; environmental impacts are similar to other alternatives that meet federal policy. At the city of Mequon's request, this alternative is retained for detailed study.
Split Diamond (Katherine Drive Grade Separation)	YES Addresses design deficiencies	YES Addresses close ramp spacing with Brown Deer Road interchange	YES Interchange operates acceptably	NO SEWRPC would need to update long-range plan to include a full access interchange	MODERATE Constructs new full interchange; limited right of way required	LOW/MODERATE No relocations; 1 acre wetland impacts; travel pattern and local access changes	NO Provides for all traffic movements consistent with federal policy; minimizes impacts to surrounding homes and businesses; greater indirection for local traffic; grade separation not locally supported
Split Diamond	YES Addresses design deficiencies	YES Addresses close ramp spacing with Brown Deer Road interchange	YES Interchange operates acceptably	NO SEWRPC would need to update long-range plan to include a full access interchange	MODERATE Constructs new full interchange; limited right of way required	LOW/MODERATE No relocations; 1 acre wetland impacts; travel pattern and local access changes	NO Provides for all traffic movements consistent with federal policy; minimizes impacts to surrounding homes and businesses; increased indirection for local traffic; not locally supported
Split Diamond Hybrid (Grade Separation)	YES Addresses design deficiencies	YES Addresses close ramp spacing with Brown Deer Road interchange	YES Interchange operates acceptably	NO SEWRPC would need to update long-range plan to include a full access interchange	MODERATE Constructs new full interchange; limited right of way required	LOW/MODERATE No relocations; 1 acre wetland impacts; travel pattern changes; maintains local access	YES *(Preferred Alternative, subalternative to be determined after public hearing)* Provides for all traffic movements consistent with federal policy; minimizes impacts to surrounding homes and businesses; neighborhood concerns about travel indirection with grade separation
Split Diamond Hybrid (Without Grade Separation)	YES Addresses design deficiencies	YES Addresses close ramp spacing with Brown Deer Road interchange	YES Interchange operates acceptably	NO SEWRPC would need to update long-range plan to include a full access interchange	MODERATE Constructs new full interchange; limited right of way required	LOW/MODERATE No relocations; 1 acre wetland impacts; travel pattern changes; maintains local access	YES *(Preferred Alternative, subalternative to be determined after public hearing)* Provides for all traffic movements consistent with federal policy; minimizes impacts to surrounding homes and businesses; maintains access for local traffic compared to grade-separated Split Diamond; based on local comment, eliminates Katherine Drive underpass.

Note: All build alternatives include TSM/TDM measures.

Alternatives	Key Purpose and Need Factors				Other Factors		Retain Alternative for Detailed Study?
	Addresses Design Deficiencies?	Improves Safety?	Addresses Future Traffic Demand?	Consistent with Regional Plan?	Relative Total Cost (construction, right of way acquisition)	Magnitude of Environmental Impacts	
Full Diamond (Katherine Drive Grade Separation)	YES Addresses design deficiencies	YES Addresses close ramp spacing with Brown Deer Road interchange	YES Interchange operates acceptably	NO SEWRPC would need to update long-range plan to include a full access interchange	MODERATE Constructs new full interchange; right of way required	LOW/MODERATE No relocations; 1 acre wetland impacts; travel pattern and local access changes	NO Provides for all traffic movements consistent with federal policy; minimizes impacts to surrounding homes and businesses; greater indirection for local traffic
Full Diamond	YES Addresses design deficiencies	YES Addresses close ramp spacing with Brown Deer Road interchange	YES Interchange operates acceptably	NO SEWRPC would need to update long-range plan to include a full access interchange	MODERATE/HIGH Constructs new full interchange; new overpass bridge; right of way impacts	MODERATE/HIGH 6 to 9 residential relocations for new overpass; 1.2 acre wetland impacts; changed travel pattern and access changes	NO Provides standard full diamond interchange that provides for all traffic movements consistent with federal policy; substantial relocation impacts and relative costs with no added benefit
MEQUON ROAD/WIS 167 INTERCHANGE							
Spot Improvements	NO Deteriorated pavement not replaced. Substandard design and shoulders not improved	YES (spot locations) Ramp improvements create safer entrance/exit operations	NO Does not address operational problems between ramp terminal and Port Washington/ Mequon Road intersection	NO SEWRPC recommends interchange reconstruction to improve ramp geometry and traffic operations	LOW No structure or right of way impacts	LOW No wetland impact; no relocations	NO Does not address design deficiencies or future traffic demand; limited improvement of safety issues; not consistent with regional transportation plans
Tight Diamond (Mainline Shifted East)	YES Addresses design deficiencies	YES Addresses safety issues related to design deficiencies and traffic operations	YES Interchange operates acceptably	YES Addresses geometry deficiencies and traffic operations problems	LOW/MODERATE Minimal structures and right of way required	LOW/MODERATE 1 business and 1 business tenant relocation; 0.9 acre wetland impacts	YES *(Preferred Alternative)* Improves traffic operations by increasing distance between Port Washing Road/ Mequon Road intersection and SB ramps; requires improvements to Port Washington Road/Mequon Road intersection
Partial Offset Diamond	YES Addresses design deficiencies	YES Addresses safety issues related to design deficiencies and traffic operations	YES Interchange operates acceptably	YES Addresses geometry deficiencies and traffic operations problems	MODERATE More structures required; right of way required	LOW/MODERATE 1 business and 1 residential tenant relocation; 0.8 acre wetland impacts	NO Improves traffic operations by further increasing distance between Port Washing Road/Mequon Road intersection and SB exit ramp; additional cost of new structures with no added benefit to traffic operations
Single-Point	YES Addresses design deficiencies	YES Addresses safety issues related to design deficiencies and traffic operations	NO Insufficient distance between SB ramps and Port Washington Road/ Mequon Road intersection	YES Meets interchange reconstruction recommendation, but does not resolve traffic operation problems	MODERATE Larger overpass structures required	LOW No relocations; wetland impact not calculated, but similar to Tight Diamond and Partial Offset Diamond	NO Does not address traffic operations problems; highest cost alternative; eastbound to southbound turning movements are not improved

Note: All build alternatives include TSM/TDM measures.

Alternatives	Key Purpose and Need Factors				Other Factors		Retain Alternative for Detailed Study?
	Addresses Design Deficiencies?	Improves Safety?	Addresses Future Traffic Demand?	Consistent with Regional Plan?	Relative Total Cost (construction, right of way acquisition)	Magnitude of Environmental Impacts	
HIGHLAND ROAD (no existing interchange at this location)							
No Access	NA	NA	YES Increased travel demand on local roads	NO SEWRPC would need to update the long-range plan to account for no access	LOW No interchange constructed	LOW/MODERATE No relocations; 2.1 acres wetland impacts associated with I-43 mainline reconstruction; increased congestion and impacts at Port Washington Road/Mequon Road intersection	YES No interchange would be constructed without a local cost-share agreement
Tight Diamond	YES Would meet current design standards	YES Building to current design standards maintains safety	YES Interchange operates acceptably; accommodates travel demand	YES	MODERATE Retaining walls required; right of way impacts	LOW/MODERATE No relocations; 5.4 acres wetland impacts	YES *(Preferred Alternative)* Alternative conforms to regional plans by creating a full interchange at this location; helps manage future traffic demand at Port Washington Road intersections with Mequon Road and County C; local support indicated at public meetings
COUNTY C INTERCHANGE							
Spot Improvements	NO Deteriorated pavement not replaced. Substandard design and shoulders not improved	YES (spot locations) Ramp improvements create safer entrance/exit operations	NO Does not address operational problems at ramp terminals	NO SEWRPC recommends interchange reconstruction to improve ramp geometry and traffic operations	LOW Structure replacement likely due to age	LOW No relocations; wetland impacts not calculated, but lower than Diamond interchange	NO Does not address design deficiencies or future traffic demand; limited improvement of safety issues; not consistent with regional transportation plans
Diamond	YES Addresses design deficiencies	YES Addresses safety issues related to design deficiencies and traffic operations	YES Interchange operates acceptably	YES Addresses geometry deficiencies and traffic operations problems	LOW Structure replacement and right of way impacts	MODERATE No relocations; 5.9 acres wetland impacts; includes 0.01 acre ADID wetland impact	YES *(Preferred Alternative)* Maintains existing interchange configuration but improves traffic operations at ramp terminals

Note: All build alternatives include TSM/TDM measures.

3. EXISTING CONDITIONS, ENVIRONMENTAL IMPACTS AND MEASURES TO MITIGATE ADVERSE EFFECTS

Section 3 discusses the anticipated effects on environmental characteristics, both natural and man-made, of the I-43 North-South Freeway study corridor. The section is organized by resource, and it includes background information on the resource and anticipated impacts of both the No-Build Alternative and build alternatives. Conceptual mitigation measures that minimize effects are also discussed for cases in which study alternatives cannot avoid adverse effects to resources. A description of the No-Build Alternative is found in **Subsection 2.2.1**. The build alternatives, which include the identified preferred alternatives, carried forward for detailed study in Section 3 are described in **Subsection 2.8** and summarized below. The preferred alternative is underlined for the mainline segments and interchanges.

- **I-43 Mainline South Segment (Silver Spring Drive to Green Tree Road):** Modernization – 6 Lanes (Mainline Shifted East); includes reconstructing the Jean Nicolet Road and widening Port Washington Road from two to four lanes
- **I-43 Mainline North Segment (Green Tree Road to WIS 60):** Modernization – 6 Lanes; additional lanes added inside median
- **Good Hope Road interchange:** Tight Diamond
- **Brown Deer Road interchange:** Diverging Diamond and Tight Diamond
- **County Line Road interchange:** No Access, Partial Diamond and Split Diamond Hybrid (Grade Separation and Without Grade Separation subalternatives)
- **Mequon Road interchange:** Tight Diamond
- **Highland Road:** No Access and Tight Diamond
- **County C interchange:** Diamond

The discussion of existing conditions, impacts and mitigation measures is arranged by the following topics:

- Land use
- Transportation
- Residential development
- Commercial and industrial development
- Institutional/public services
- Socioeconomics (including environmental justice)
- Utilities
- Agricultural resources
- Visual character
- Water resources
- Environmental corridors and natural areas
- Floodplains and hydraulics
- Wetlands
- Threatened and endangered species
- Other natural resources
- Noise
- Air quality
- Hazardous materials
- Historic sites
- Archaeological resources
- Recreational resources
- Construction
- Indirect and cumulative effects

The exhibits in **Appendix A** illustrate the build alternatives and environmental resources in the study corridor. **Subsection 3.22** considers the indirect effects of the study as well as cumulative effects resulting from the proposed build alternatives when added to other past, present and reasonably foreseeable future actions.

3.1. LAND USE

3.1.1. Geographic Setting

The I-43 North-South Freeway study corridor is located in Milwaukee and Ozaukee counties in Wisconsin. Communities adjacent to the corridor are listed in **Table 3-1**. See also **Exhibit 3-1** and **Exhibit 3-2**.

Table 3-1: Study Corridor Communities

Milwaukee County	Ozaukee County
City of Glendale	City of Mequon
Village of Whitefish Bay	Town of Grafton
Village of River Hills	Village of Grafton
Village of Fox Point	
Village of Bayside	

Geographically, the study corridor lies just west of Lake Michigan and directly east of a subcontinental divide between the Mississippi River and Great Lakes drainage basins. The glaciated topography in the study corridor has elevations ranging from about 640 feet above sea level near Silver Spring Drive to about 740 feet above sea level near the village of Grafton. The topography is level to gently rolling.

3.1.2. Existing Land Use

Existing land use in the study corridor ranges from urban/suburban residential and commercial development to undeveloped and agricultural land. The following subsections describe the different types of land uses in the study corridor. **Exhibit 3-1** and **Exhibit 3-2** present existing land use maps for the study corridor. The following subsections provide information about the land uses in the study corridor. See **Subsection 3.22** for a discussion about regional land use trends.

Exhibit 3-1: Existing Land Use – South Segment

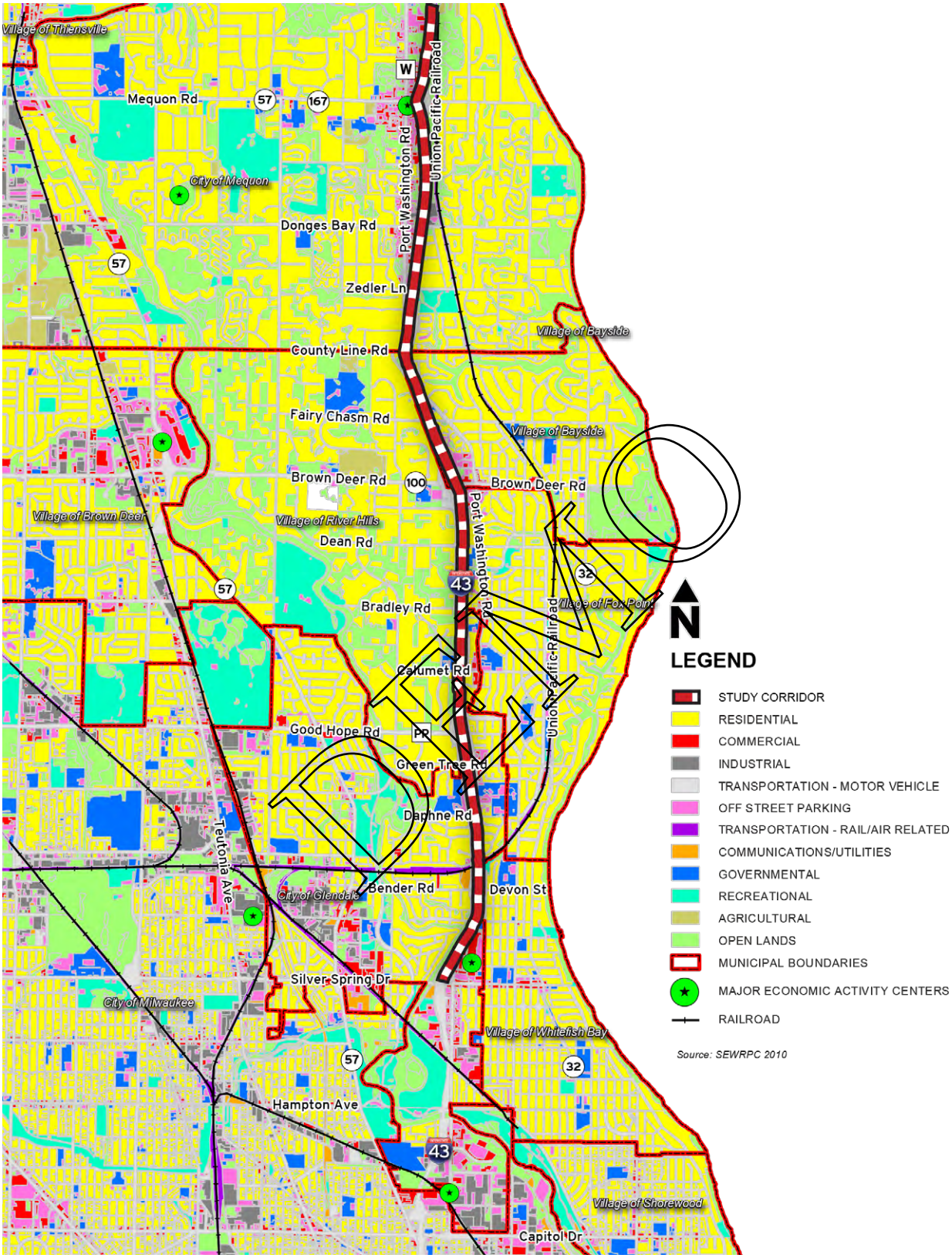
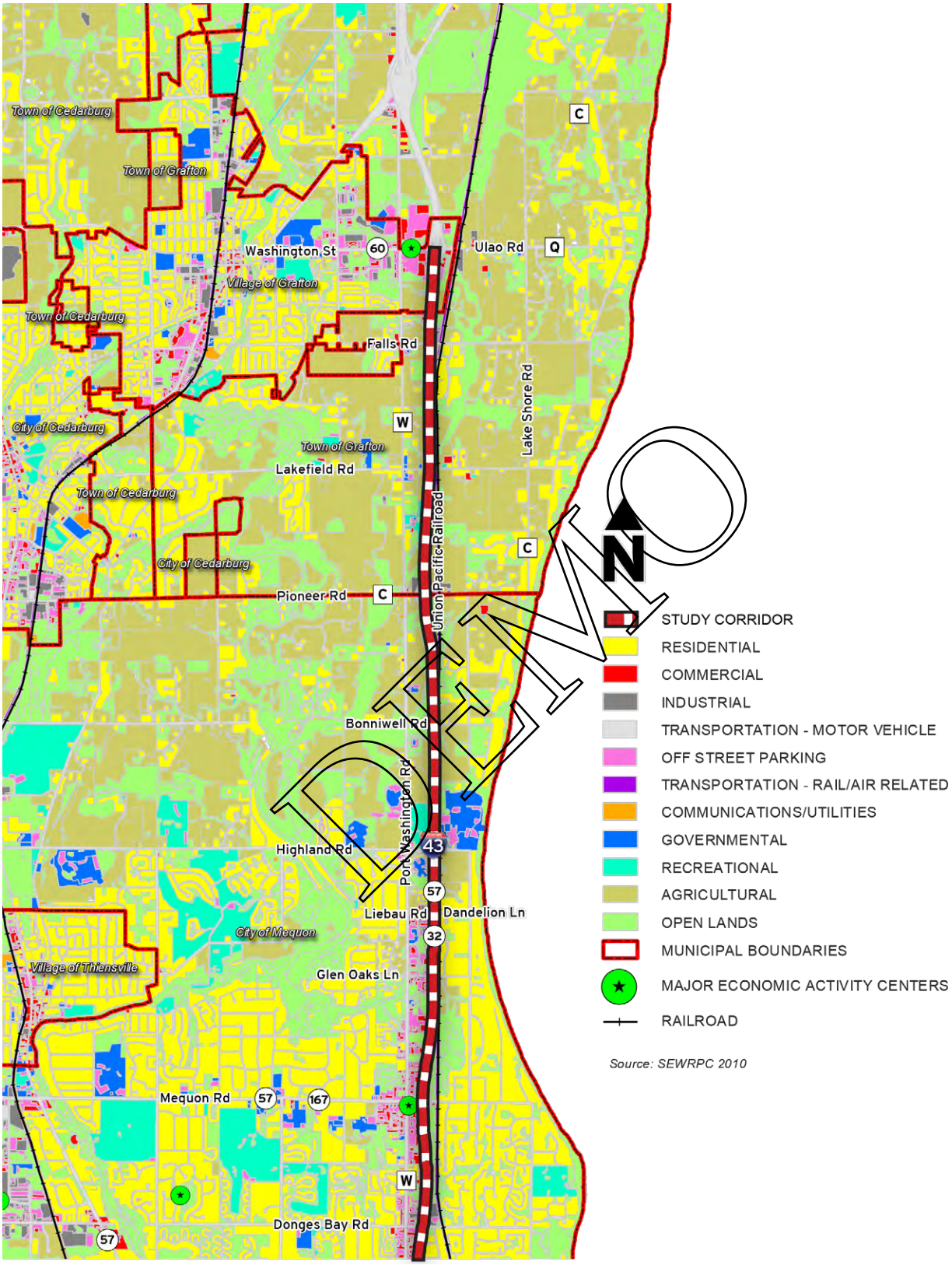


Exhibit 3-2: Existing Land Use – North Segment



MILWAUKEE COUNTY

Existing land uses are accessible to I-43 via interchanges at Silver Spring Drive, Good Hope Road, Brown Deer Road and County Line Road. Between these interchanges, the eastbound and westbound movement across I-43 is limited to the Devon Street/Bender Road underpass, the Green Tree Road overpass, and one pedestrian access tunnel under I-43 located to the south of Green Tree Road. The Union Pacific (UP) Railroad crosses over I-43 near the south end of the study corridor.

All of the communities along the the Milwaukee County portion of the study corridor are well-established with very few areas of undeveloped land (**Exhibit 3-1**). Residential land use abuts much of the west side of I-43 and large portions of the east side. Commercial development is primarily clustered near freeway interchanges and along Port Washington Road, which runs parallel along the east side of I-43 in Milwaukee County. There is a regional shopping mall – Bayshore Town Center – at the Silver Spring Drive/Port Washington Road intersection. A commercial node is also present east of I-43 at the Port Washington Road/Brown Deer Road intersection that contains regional and local-scale establishments. Other smaller commercial nodes are present at several arterial street crossings with Port Washington Road to the east of I-43, including Green Tree Road, Calumet Road and Bradley Road. No industrial areas are located adjacent to the freeway.

Parks and open space near the I-43 study corridor in Milwaukee County include Craig Counsell Park and the recreational fields at Nicolet High School and Maple Dale Middle School. In addition to Nicolet High School, other large institutional land uses are the North Shore Water Treatment Plant, which occupies a large parcel at the south end of the study corridor just west of I-43 and north of Bender Road, and Cardinal Stritch University, which is just east of Port Washington Road to the east of I-43, between Daphne Road and Green Tree Road.

OZAUKEE COUNTY

Exiting land uses are accessible to I-43 via interchanges at County Line Road, Mequon Road, County C and WIS 60. Access across I-43 is available via Port Washington Road, Donges Bay Road, Highland Road, Lakefield Road and Falls Road. Also, unique to this area is the UP Railroad corridor, which parallels the east side of I-43 between Donges Bay Road and WIS 60.

North of the Milwaukee/Ozaukee county line, land use is primarily suburban in nature, continuing north to roughly Highland Road (**Exhibit 3-2**). Suburban residential uses are primarily low-density and single-family, and generally located at a distance from I-43. North of Highland Road, suburban-type development gives way to largely agricultural, rural residential and open space lands up to WIS 60 in the village of Grafton. Lands surrounding the WIS 60 interchange in the village of Grafton are undergoing continued suburban-type commercial development.

Commercial properties are located along the Port Washington Road corridor to the north and south of Mequon Road in the city of Mequon. The back sides of the properties abut the west side of I-43. Commercial uses are also located around the WIS 60 interchange in the village of Grafton. No industrial areas are located adjacent to the corridor.

Ozaukee County has a number of wetlands and streams associated with Ulao Creek and numerous tributaries of the Milwaukee River, many of which comprise environmental corridors and natural areas. Local and regional plans designate the natural areas as primary and secondary environmental corridors worthy of preservation. For example, a primary environmental corridor crosses I-43 south of the County C interchange, along with some secondary environmental corridors north of the same interchange (see **Subsection 3.14.1** for detailed descriptions of environmental corridors).

Another natural area near I-43 is the Milwaukee Metropolitan Sewerage District's (MMSD) Greenseams property, located northeast of the Mequon Road interchange. This 84-acre open area is designated by Ozaukee County as an "isolated natural resource area," denoting its local importance.

Public parks nearby include the Katherine Kearny Carpenter public park, which is east of I-43 and south of Zedler Lane. Concordia University, in the northeast quadrant of the Highland Road crossing of I-43, is a large institutional use along I-43. Two large hospitals are also in the study area: Columbia St. Mary's on Port Washington Road north of Highland Road, and Aurora Medical Center near the northwest quadrant of the WIS 60 interchange.

3.1.3. Future Land Use

Land use planning is carried out at the regional and local levels. This subsection summarizes additional regional and local planning efforts relevant to study corridor.

All of the communities through which I-43 travels have adopted comprehensive plans in conformity with Wisconsin's Comprehensive Planning Law.[1] These plans contain each community's vision for future land use.

MILWAUKEE COUNTY

Table 3-2 lists existing community plans within the Milwaukee County section of the study corridor. Milwaukee County does not have an adopted countywide comprehensive plan because each community has its own plan. Other county-level plans serve to guide local governments to preserve existing resources and maintain efficient land use patterns. The park and open space plan reinforces preserving critical open space and natural areas in a heavily urbanized setting by identifying existing parks, environmental corridors and open space features. The park and open space plan recommends certain acquisition and development activities; however, no major acquisition or development activities are proposed along the I-43 North-South Freeway study corridor.

All of the communities along the corridor in Milwaukee County are built out. Their plans consequently concentrate on the continued maintenance and improvement of the built environment, as well as infill and redevelopment opportunities that may present themselves as market demand allows.

Table 3-2: Milwaukee County Community Land Use and Planning Documents

Community	Plan Document	Plan Adoption Year
City of Glendale	*City of Glendale Smart Growth Update* as relates to the comprehensive plan, city of Glendale and amendments thereto; series of subarea plans	2011
Village of Bayside	*Village of Bayside: Comprehensive Plan*	2009
Village of Fox Point	*Village of Fox Point Comprehensive Plan*	2010
Village of River Hills	*Village of River Hills Comprehensive Plan* (Draft No. 2)	2009
Milwaukee County	*A Park and Open Space Plan for Milwaukee County*	1991

Sources: Community websites, Wisconsin Department of Administration and Southeastern Wisconsin Regional Planning Commission

[1] *s.66.101, Wisconsin State Statutes*

OZAUKEE COUNTY

Table 3-3 shows the existing community plans within the Ozaukee County section of the study corridor. **Exhibit 3-3** shows proposed land uses in Ozaukee County along the I-43 study corridor.

Table 3-3: Ozaukee County Community Land Use Planning Documents

Community	Plan Document	Plan Adoption Year
Ozaukee County	*A Multi-Jurisdictional Comprehensive Plan for Ozaukee County: 2035*	2008, amended 2009, 2013
Ozaukee County	*A Park and Open Space Plan for Ozaukee County* (3rd Edition)	2011
Ozaukee County	*Land and Water Resource Management Plan 2011-2015*	2011
Ozaukee County	*A Farmland Preservation Plan for Ozaukee County: 2035* (Draft)	Pending
City of Mequon	*A 2035 Comprehensive Plan for the City of Mequon*	2012
Village of Grafton	*Village of Grafton Comprehensive Plan for 2035*	2009
Town of Grafton	*Town of Grafton Comprehensive Plan: 2035*	2008, 2013

Source: Community websites

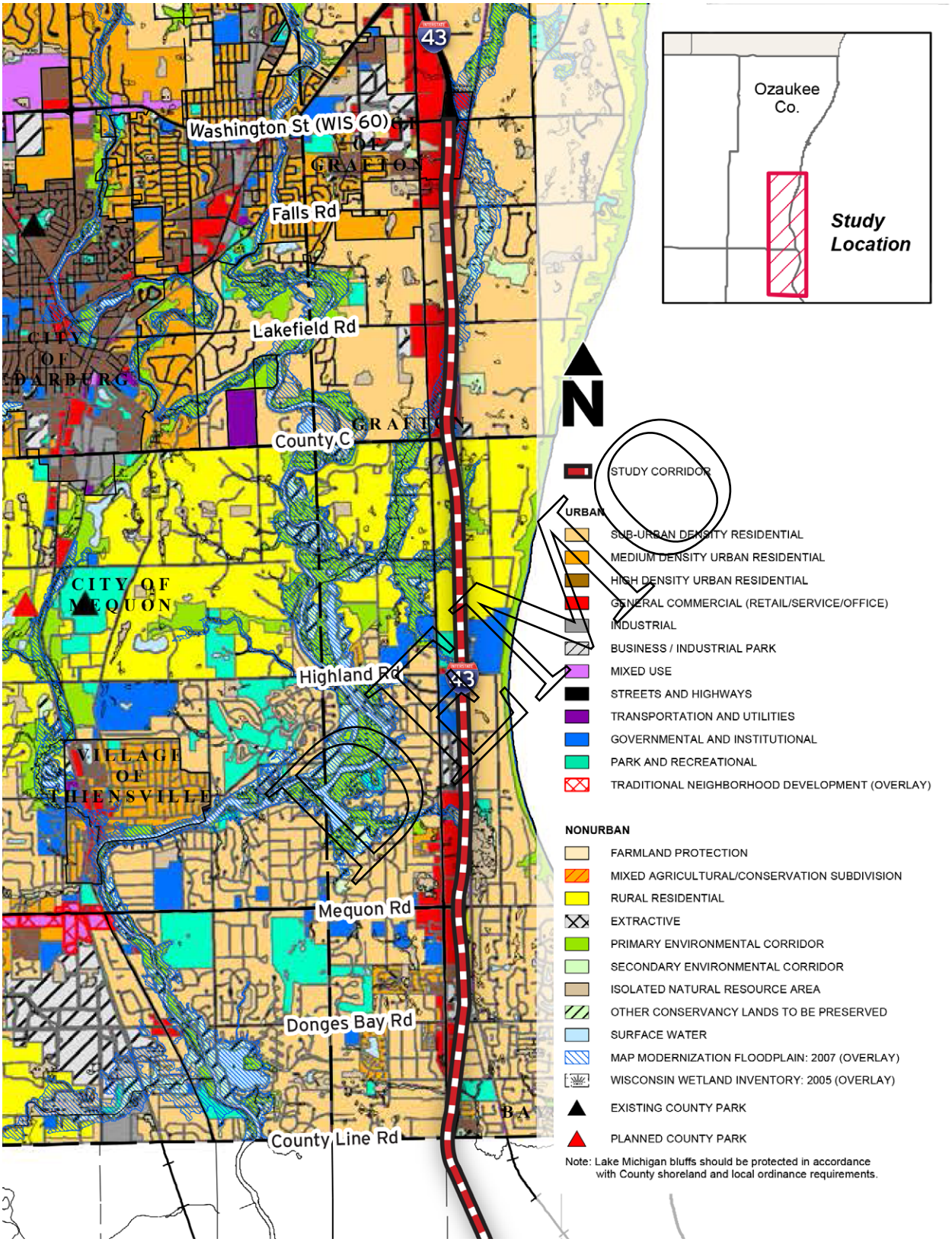
Beginning in 2004, 14 communities in Ozaukee County participated in a multijurisdictional planning process that resulted in an overall county plan and several individual plans for the participating communities. Within the I-43 study corridor, the town of Grafton, city of Mequon and village of Grafton participated in this cooperative planning effort. In conformity with Wisconsin's Comprehensive Planning Law, the adopted plans contain land use and transportation policies and future land use maps that indicate geographically where various types of land uses are desired. Ozaukee County has also prepared separate countywide planning documents for specific resources such as parks and open space and land and water resource management.

Applicable planning goals include: preserving and enhancing natural resources and agricultural land; preserving and enhancing the small-town character; and encouraging sustainable development for business and residential uses.

Ozaukee County wants to maintain and enhance new transportation routes that relieve congestion and reduce fuel consumption and air pollution. The county also supports a range of transportation choices. Adopted transportation goals include: providing an integrated; efficient and economical transportation system that affords mobility; convenience and safety; maintaining a street and highway system that efficiently serves the anticipated land use development pattern; and providing for a public transportation system in Ozaukee County that efficiently serves the anticipated land use development patterns. In addition, the plan calls for improved transportation access to Ozaukee County for passengers and freight. The Ozaukee County plan recommends a new interchange at I-43 and Highland Road, which is consistent with *Planning Report No. 49: A Regional Transportation System Plan for Southeastern Wisconsin: 2035* by the Southeastern Wisconsin Regional Planning Commission (SEWRPC) (**Subsection 1.3.4**). Within the I-43 North-South Freeway study corridor, the Ozaukee County plan recommends expanding the existing park-and-ride lot at County C, and adding a new lot in the vicinity of the Mequon Road interchange. This would increase the capacity of park-and-ride lots served by public transit.

The Ozaukee County plan encourages land use development patterns that are served by existing transportation corridors such as I-43. It recommends that local plans be prepared to consider land

Exhibit 3-3: Ozaukee County Proposed Future Land Use



uses strategies around the I-43 interchanges. The plan encourages infill development that can be efficiently and effectively supported by public sanitary sewerage and water supply. Future land use plans show that the areas surrounding I-43 interchanges and along Port Washington Road are ultimately intended for development and not for agricultural preservation.

As reported in Ozaukee County's comprehensive plan, there is a demand for additional land to accommodate urban land uses at the same time that demand for agricultural land uses is diminishing. Local communities in Ozaukee County, including Mequon, the town of Grafton and the village of Grafton, have land use plans in place to ensure that growth occurs in an efficient pattern and can be served by existing public services.

The city of Mequon's land use plan shows that the area north of Highland Road is expected to be mostly low-density residential with a lot size minimum of 5 acres. However, the city is considering the implementation of an "East Growth Area" that would allow urban land uses west of the freeway, east of the Milwaukee River, south of County C and north of Highland Road. The area east of the freeway would not be affected by the East Growth Area plan. If implemented, the East Growth Area would contain primarily residential land uses between Port Washington Road and the Milwaukee River and a mixture of commercial, industrial and multifamily uses to the east of Port Washington Road. Retail nodes could be located at the intersections of Port Washington Road with County C and Highland Road. Several local actions will be required to implement the East Growth Area plan, including an extension of the sewer service area and a change in the zoning code.

The town of Grafton plans commercial land uses along both sides of the I-43 corridor, from the County C interchange north about a mile to the Lakefield Road underpass. Much of the town is currently in agricultural and open space uses, but is planned for future suburban-density residential uses. The town recently changed the areas zoned for 3-acre lots to 1-acre lots to encourage residential growth. Expansion of existing commercial areas is also planned near Falls Road and the WIS 60 interchange.

At the northern end of the study corridor, the village of Grafton has extended its sewer service area into undeveloped lands to accommodate commercial and mixed-use types of development around the WIS 60 interchange. Commercial development is planned for the village of Grafton's extraterritorial areas along both sides of the I-43 corridor in the town of Grafton.

3.1.4. Regional Planning

There are a number of regional plans that influence both regional and local land use and that address specific planning elements such as natural resources, bike and pedestrian access, transportation and water management. **Subsection 1.3.4** discusses the regional land use in a transportation planning context, which establishes a key need to study improvements in the I-43 North-South Freeway study corridor.

3.1.5. Land Use Impacts

DIRECT LAND USE CHANGES

Appendix A shows potential new right of way required for build alternatives along the I-43 North-South Freeway study corridor. The following subsections describe the land uses that would be directly converted to highway right of way.

NO-BUILD ALTERNATIVE

Under the No-Build Alternative, no lands would be acquired and no land uses would change as a result of highway right of way acquisition. However, the No-Build Alternative would not be consistent with SEWRPC long-range regional land use and transportation plans, and it would not meet the study purpose and need. This is further discussed in **Subsection 3.1.6**.

BUILD ALTERNATIVES

The build alternatives would reconstruct the I-43 North-South Freeway study corridor and would acquire up to 28.3 acres of land, including partial acquisitions and relocations. These acquisitions are needed to accommodate proposed safety and operations improvements such as widening the mainline; interchange reconstruction; and a new interchange at Highland Road. Depending on the alternative chosen, about 13.9 to 14.2 acres in Milwaukee County and up to 14.1 acres in Ozaukee County would be acquired. Three commercial relocations and up to 12 residential relocations would be needed, which would change the land use of all or portions of those particular lots. The effects of these relocations are discussed in more detail in **Subsection 3.3** and **Subsection 3.4.**

In Milwaukee County, acquisitions would be a mix of denser residential and commercial land uses. Strip acquisitions at the North Shore Water Treatment Plant, Craig Counsell Park and Nicolet High School would convert institutional, park and government land uses to road right of way. Much of the direct land use conversion occurs between Bender Road and Coventry Court, where the build alternative widens and shifts I-43 and Port Washington Road reconstruction to the east into commercial and residential areas. Residential strip right of way acquisitions are primarily located around interchange reconstruction at Good Hope Road, Brown Deer Road and County Line Road. Right of way constraints north of Brown Deer Road require strips of commercial and residential land uses primarily on the east side of I-43. The No Access alternative at the existing County Line Road interchange would require strip right of way to reconstruct the Port Washington Road/Brown Deer Road intersection to accommodate traffic (see Sheet 5A of **Appendix A**).

In Ozaukee County, the acquisitions would be primarily a mix of less dense residential, commercial, agricultural and open space land.

Reconstructing the I-43 mainline in Ozaukee County would primarily involve widening the roadway into the existing median, which minimizes right of way impacts to adjacent land uses along the study corridor. The build alternatives would require strip right of way acquisition from commercial land uses on the west side of I-43, between Mequon Road and Highland Road, and from the railroad right of way on the east side. North of Highland Road, highway reconstruction would require strip acquisitions from mainly agricultural uses.

The Mequon Road Tight Diamond interchange would convert strips of commercial land to highway right of way in the southwest interchange quadrant. In the northeast quadrant, a strip of vacant land (zoned for residential use) would be converted. In the southeast quadrant, the alternative acquires a commercial property. The Port Washington Road/Mequon Road intersection would be reconstructed, depending on whether a new interchange is built at Highland Road (see also **Subsection 3.2.2** and **Subsection 3.4.2**). If a new interchange is built, strip right of way would be acquired from commercial properties on the north and south sides of Mequon Road. If no interchange is built at Highland Road, the intersection would be enlarged and additional strip right of way is required from properties along Port Washington Road (see Sheet 9 of **Appendix A**).

The Highland Road Tight Diamond interchange alternative would convert railroad right of way to highway right of way on the southeast and northeast quadrants of the interchange. Residential land use at a senior citizen housing complex would be converted to highway right of way in the southwest corner of the interchange quadrant. The County C Diamond interchange alternative converts strips of vacant land (currently zoned for residential use) and existing agricultural land (zoned for future business use) to highway right of way.

3.1.6. Conformity with Local and Regional Plans

NO-BUILD ALTERNATIVE

The No-Build Alternative would not be consistent with SEWRPC's transportation plans. SEWRPC recommends improvements to Southeast Wisconsin freeway system, which includes I-43, and the addition of a new interchange at Highland Road (**Subsection 1.3.4**). If the No-Build alternative is selected as a preferred alternative after the public hearing on the draft environmental impact statement (DEIS), SEWRPC would need to update its 2035 transportation plan and transportation improvement program (TIP) to account for the alternative.

BUILD ALTERNATIVES

Section 1 discusses the regional planning context for the I-43 North-South Freeway Corridor and the build alternatives are consistent with both regional land use and transportation plans that recommend freeway modernization and additional lanes. As with the No-Build Alternative, SEWRPC would need to update its long-range plan if the No Access alternative is the preferred alternative at Highland Road, or if either the Split Diamond Hybrid or No Access alternative is selected at County Line Road. The plan currently assumes a partial interchange at County Line Road, which is not consistent with the Federal Highway Administration's (FHWA) requirement that interchanges allow for all traffic movements.

As discussed in **Subsection 3.1.3**, communities along the I-43 study corridor have comprehensive land use plans, and all of these communities depend upon I-43 to provide access to and from their communities. Most of the communities cite their proximity to I-43 as an amenity or strength. The build alternatives generally conform to local plan goals and policies. Some communities do not have goals specifically related to I-43; however, many do. Relevant goals for communities in the I-43 North-South Freeway study corridor are summarized below.

The city of Glendale's *Smart Growth Update* does not specifically identify transportation goals and objectives related to I-43. The update does reference the city's competitive advantage due to its access to I-43. However, the update also notes that its *Vision Plan* cites concerns about future reconstruction, such as continued access; further loss of land uses to highway right of way; noise impacts and aesthetic impacts. A key component of the I-43 North-South Freeway Corridor Study has been to work closely with the city of Glendale and its neighborhoods to identify alternatives that best serve travel needs while also minimizing adverse effects to the surrounding community.

The village of Fox Point sees I-43 at the Brown Deer Road interchange as a primary gateway to the community and views the enhancement of this interchange as a priority. Regarding the widening of I-43, it is a stated goal to minimize noise and maximize benefits to the village. If the preferred alternative for the I-43 North-South Freeway Corridor Study advances into additional engineering phases, the Wisconsin Department of Transportation (WisDOT) would implement a formal community sensitive solutions (CSS) process to gather more input from local communities on aesthetic treatments in the corridor. **Subsection 3.15** discusses noise impacts

and potential mitigation measures in greater detail.

The village of Bayside recommends consistency for any road alignments and circulation improvements in its land use plan, which seeks to maintain the current predominant residential land use. The I-43 North-South Freeway Corridor Study build alternatives would not change land use in Bayside, and is therefore consistent with the village's plan.

Regarding I-43, the village of River Hills' plan expresses concern about traffic noise. One of the village's policies is to work with WisDOT to address traffic noise problems along I-43, especially if expansion occurs. The plan states that there are inconsistencies between the I-43 reconstruction and the village's comprehensive plan in this regard. According to WisDOT's noise analysis and policy, noise barriers do not meet the reasonableness criteria to be considered as a mitigation measure. **Subsection 3.15** discusses noise impacts in greater detail.

The city of Mequon will consider SEWRPC's policies regarding a new interchange at Highland Road and widening of I-43 from four to six lanes from the county line to WIS 57. The city seeks to maintain the commercial and industrial development patterns to encourage easy truck access to I-43. One of the city of Mequon's transportation policies is to discourage traffic congestion in the study corridor by considering interregional transportation facilities and services. This includes supporting Ozaukee County's efforts to promote interregional connections to passenger rail, bus service and General Mitchell International Airport. Improvements through the I-43 North-South Freeway Corridor Study build alternatives are expected to improve access to these services, consistent with Mequon's plan.

The town of Grafton seeks to strengthen business development at interchanges within the township to make these locations attractive to businesses (see also **Subsection 3.22** for additional discussion of indirect effects). The town plan supports collaboration with WisDOT on modifications to existing interchanges and on any new interchanges. The I-43 North-South Freeway Corridor Study build alternatives are compatible with these goals. The town's plan also recommends improvements to I-43 through the length of the town.

The village of Grafton's extraterritorial planning area extends to the areas surrounding the I-43 interchange at WIS 60 and along the I-43 mainline as far south as Lakefield Road. The village supports the study of integrated land use and states that transportation planning around the I-43 interchanges should incorporate the land use and development pattern set forth by the village. The village plan also discourages traffic congestion on I-43 and interchange areas including WIS 60. The I-43 North-South Freeway Corridor Study build alternatives are consistent with the village's plan. See **Subsection 3.22** for additional indirect and cumulative effects on land use.

Ozaukee County's plan is consistent with SEWRPC's plans to make the proposed improvements to I-43. Milwaukee County does not currently have a countywide comprehensive plan as communities in the county are well-established and have their own plans in place.

3.2. TRANSPORTATION SERVICE

3.2.1. Affected Environment

TRANSIT

Transit services in the I-43 North-South Freeway study corridor includes a variety of local, express and school-year bus routes offered by Milwaukee County Transit System (MCTS), as well as intercity buses, paratransit and shared-ride taxi. Regular transit routes within the I-43 study corridor are shown on **Exhibit 3-4** and described below:

- **Ozaukee Express (Route 143):** This route travels along I-43 between downtown Milwaukee and Port Washington (north of the study corridor) and serves park-and-ride lots and other designated stops in the study corridor. The service is provided during the weekday in both directions.
- **Freeway Flyer (Route 49):** The Brown Deer-Northshore Flyer is a weekday service between downtown Milwaukee and the village of Brown Deer, just west of the study corridor. The route includes stops along I-43 near the Brown Deer Road and Silver Spring Drive interchanges.
- **UBUS:** Two UBUS routes serve the study corridor during the fall and spring semesters. The Brown Deer UBUS (Route 49U) runs from the Downtown Transit Center to the Milwaukee Area Technical College (MATC) Mequon campus. The route connects several major destinations including MATC's downtown campus, the University of Wisconsin-Milwaukee, Bayshore Town Center, Concordia University, and MATC's Mequon campus. The Sixth Street-Port Washington Road UBUS (Route 42U) runs from MATC's Mequon campus on Highland Road to downtown Milwaukee using I-43 between Good Hope and Brown Deer roads. The route connects several major college and universities, including MATC's Mequon campus, Concordia University, Cardinal Stritch University and MATC's downtown campus.
- **Regular MCTS routes:** In addition to routes using I-43, MCTS also operates several routes that parallel or cross I-43 (**Exhibit 3-4**), including Routes 63, 10 and 15, which serve local and suburban riders in the Milwaukee metropolitan area.

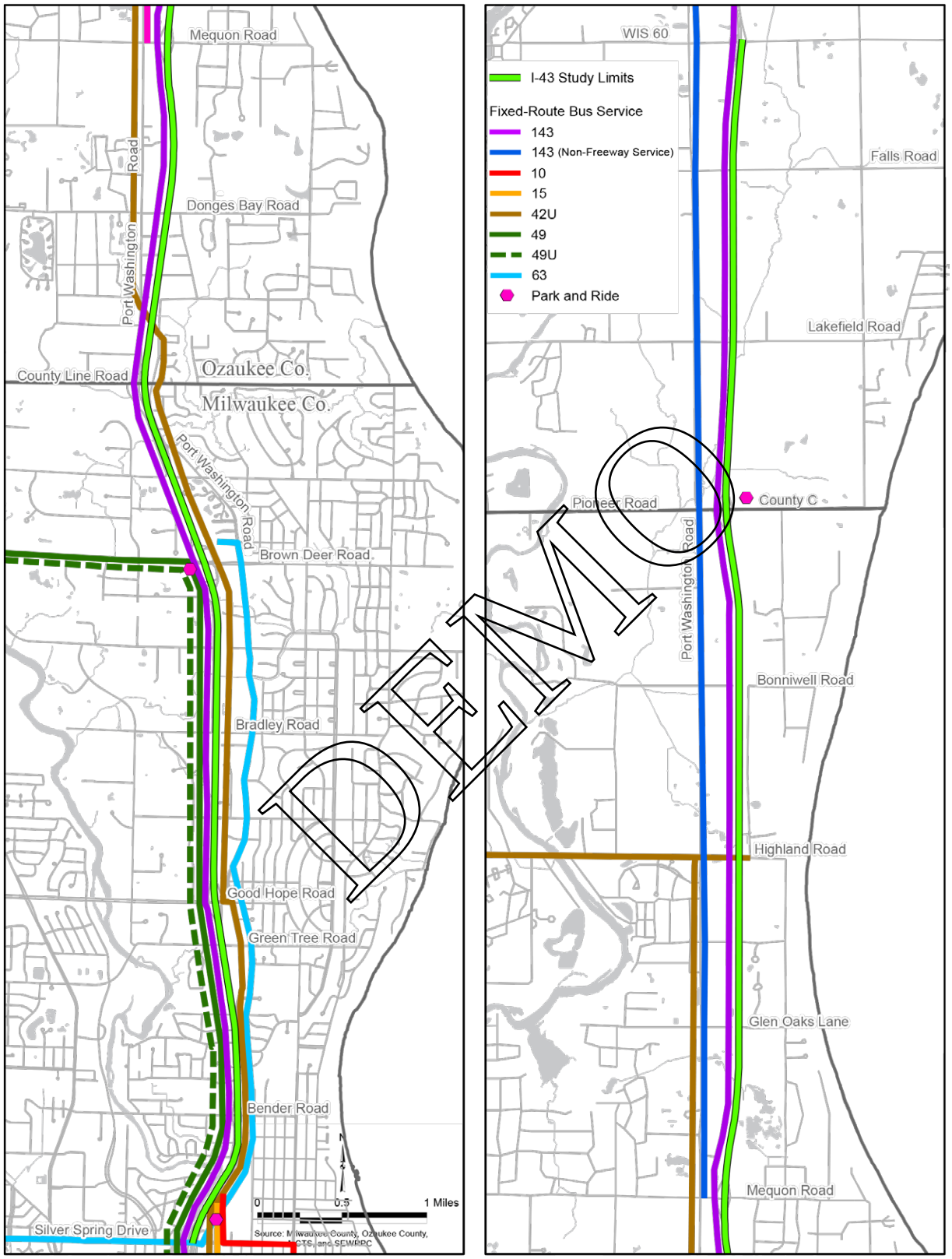
In addition to fixed-route bus service, MCTS also provides paratransit (Transit Plus) for people who are elderly, have disabilities or who have conditions that prevent them from using MCTS. Also, as part of its public transportation program, Ozaukee County offers shared-ride taxi service. Trips using the taxi service can be arranged in advance through a dispatch service.

Indian Trails, Jefferson Lines, Lamers, and Greyhound bus companies use the study freeway to provide bus service. None of these bus lines have stops along the study corridor.

PARK-AND-RIDE FACILITIES

Three park-and-ride lots are located at interchanges along the study corridor (**Exhibit 3-4**). In Milwaukee County, there are two park-and-ride lots: one at Silver Spring Drive in Glendale that has 105 parking spots and another at Brown Deer Road in River Hills that has 358 parking spots. In Ozaukee County, the park-and-ride lot at County C has 99 parking spots. All of these lots serve as bus stops, and the Milwaukee County lots also provide bike parking. Staff from Ozaukee County stated that there is demand for additional capacity at County C as evidenced by the recent addition of a gravel overflow lot. SEWRPC's 2035 regional transportation plan recommends adding a park-and-ride lot in the vicinity of the Mequon Road interchange.

Exhibit 3-4: Transit Routes and Park-and-Ride Lots in the Study Corridor



RAIL SERVICE

The UP Railroad provides freight services through the study area. The rail line crosses over the study corridor just north of Bender Road and runs parallel just east of the freeway throughout Ozaukee County. Railroad crossings are located in close proximity (about 250 feet) to existing interchange ramp termini at Mequon Road and County C. The existing Highland Road structure crosses over the UP Railroad. Several additional local arterial road (at-grade) crossings with the UP Railroad are also located in close proximity (within 250 feet) of I-43 in Ozaukee County at Donges Bay Road, Lakefield Road and Falls Road. The UP Railroad line terminates just north of Manitowoc, WI, about 60 miles north of the study corridor.

HIGHWAYS AND LOCAL STREETS

I-43 is the major north-south roadway in the corridor. East-west state highways that cross the study corridor are Brown Deer Road (WIS 100) in Milwaukee County, and Mequon Road (WIS 57/WIS 167) and WIS 60 in Ozaukee County. State highways near the corridor that run parallel to I-43 include WIS 57 and WIS 32, which are also partially co-located within the study corridor. Other crossroads that intersect I-43 are shown in **Exhibit 1-1** in **Section 1**.

I-43 and WIS 100 (Brown Deer Road) are designated as primary oversize-overweight vehicle routes. Vehicles that are larger and/or heavier than statutory limits must secure a permit to use the facilities.

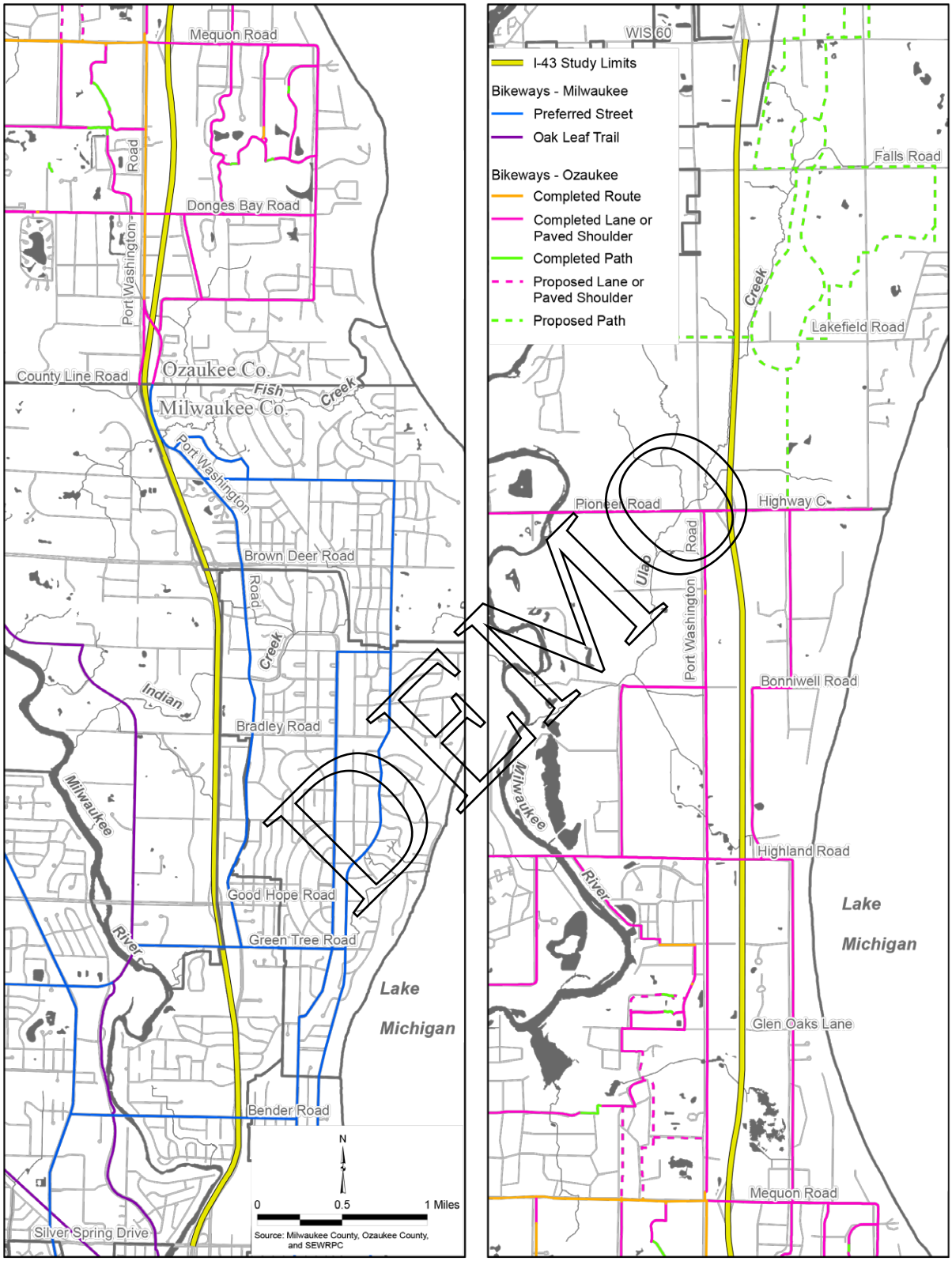
Port Washington Road serves as a frontage road on the east side of I-43 from Silver Spring Drive to Daphne Road in Milwaukee County. Port Washington Road is a local street south of Green Tree Road and a county highway (County W) north of Green Tree Road. From Montclaire Avenue to Green Tree Road, Jean Nicolet Road serves as a frontage road on the west side of I-43. The Port Washington Road/Good Hope intersection and the Port Washington Road/ Mequon Road intersection are in close proximity to the I-43 interchange ramp intersections with Good Hope Road and Mequon Road.

The only currently planned work in the corridor area is a resurfacing of I-43 from Silver Spring Drive to WIS 32 in 2014.

BICYCLE AND PEDESTRIAN FACILITIES

Bicycling is not permitted on the study freeway; however, biking is permitted on surrounding local roads as well as the county and state highways in the study area (**Exhibit 3-5**). Some of these roads have striped or signed bike lanes. Sidewalks are present on some local streets that cross the study corridor.

Exhibit 3-5: Bikeways in the Study Corridor



3.2.2. Impacts to Transportation

MASS TRANSIT

NO-BUILD ALTERNATIVE

The No-Build Alternative would not directly affect mass transit services. However, continued deterioration of pavement and ongoing safety and congestion issues would not be addressed in the study corridor, which could reduce travel reliability.

BUILD ALTERNATIVES

The build alternatives would not directly affect any transit routes; all could continue to provide service along their existing routes. However, addressing deficiencies, safety issues and congestion would improve travel reliability. Local arterial street traffic volumes may be lower under the build alternatives, as some trips along the arterials may shift to the freeway, which may improve bus transit service. Streets that carry local bus service may be closed during construction, which would require a detour (**Subsection 3.21**).

The build alternatives would continue to serve existing park-and-ride lots in the study corridor, and could accommodate a future park-and-ride facility in Ozaukee County, potentially at a new interchange at Highland Road. The build alternatives would similarly improve travel reliability for intercity bus transit services.

RAIL SERVICE

Under the build alternatives, the UP Railroad bridge that crosses over I-43 north of Bender Road would be replaced with a longer bridge to accommodate wider roadways. This new bridge would be rebuilt about 50 feet north of the existing structure.

The UP Railroad runs parallel to I-43 in Ozaukee County. The build alternatives would affect several crossings. The railroad crosses Mequon Road and County C about 250 feet east of the northbound interchange ramps. The build alternatives would reconstruct the Mequon Road and County C railroad crossings to better match the railroad profiles. Signal timing at both interchanges would be adjusted to avoid traffic queues across the railroad crossing. The potential Highland Road interchange includes a new bridge over the UP Railroad tracks that parallel I-43, about 150 feet to the east. The interchange includes retaining walls to avoid impacting the railroad corridor. Reconstructing the Donges Bay Road and Falls Road overpasses would also reconstruct the railroad crossing.

HIGHWAY TRAFFIC AND OPERATIONAL CHARACTERISTICS

This section compares the No-Build Alternative with the build alternatives with respect to how traffic would flow on I-43, or how the freeway would operate. Level of service (LOS) is a key descriptor to measure traffic flow, and is explained in **Subsection 1.3.3** and illustrated in **Exhibit 1-12**. The following discussion focuses on traffic in the morning and afternoon peak hour in year 2040 because that represents the highest anticipated traffic volumes.

NO-BUILD ALTERNATIVE

Under the No-Build Alternative, the congestion described in **Subsection 1.3.3** would occur by 2040. Most segments of the corridor study area would operate at LOS E or F either in the morning or afternoon peak hour, or both.

BUILD ALTERNATIVES

The build alternatives would improve traffic flow compared to the No-Build Alternative. The corridor study area would generally operate at level of service D or better during the morning and afternoon peak hour in 2040 (**Exhibit 3-6** and **Exhibit 3-7**). No freeway segment would operate at a level of service F. The build alternatives would continue to allow oversize/ overweight vehicles on existing designated routes.

The No Access alternative at County Line Road would remove the existing interchange. As a result, more traffic would divert to the Brown Deer Road and Mequon Road interchanges, primarily via Port Washington Road. Similarly, the No Access alternative at Highland Road would divert traffic to the Mequon Road and County C interchanges. The proposed build alternatives at the Brown Deer Road, Mequon Road and County C interchanges could accommodate traffic under the No Access alternatives.

The No Access alternatives at the County Line Road interchange and Highland Road would require changes to local intersections with Port Washington Road as discussed under “Local Roads” subsection below.

FREEWAY ACCESS CHANGES

NO-BUILD ALTERNATIVE

Freeway access will not change under the No-Build Alternative.

BUILD ALTERNATIVES

The build alternatives would possibly change freeway access at County Line Road and Highland Road. FHWA policy and regulation stipulates that newly constructed interchanges shall provide for full access. Therefore, replacing partial access is generally not desirable and would require an exception from FHWA. Under the Partial Interchange alternative, access to and from the south would be maintained. Under the Split Diamond Hybrid alternative, all traffic movements are allowed with the addition of northbound entrance and southbound exit ramps. Under the No Access alternative at County Line Road, the existing interchange would be removed and there would be no access to the local street network at this location. Traffic would divert to the Brown Deer Road or Mequon Road interchanges for access to and from I-43.

A new interchange at Highland Road would add full access to and from I-43. The decision to construct the interchange is contingent upon approval from FHWA and a local cost-share agreement with the city of Mequon.

Exhibit 3-6: 2040 Build Alternatives A.M. Peak Travel Hours Level of Service

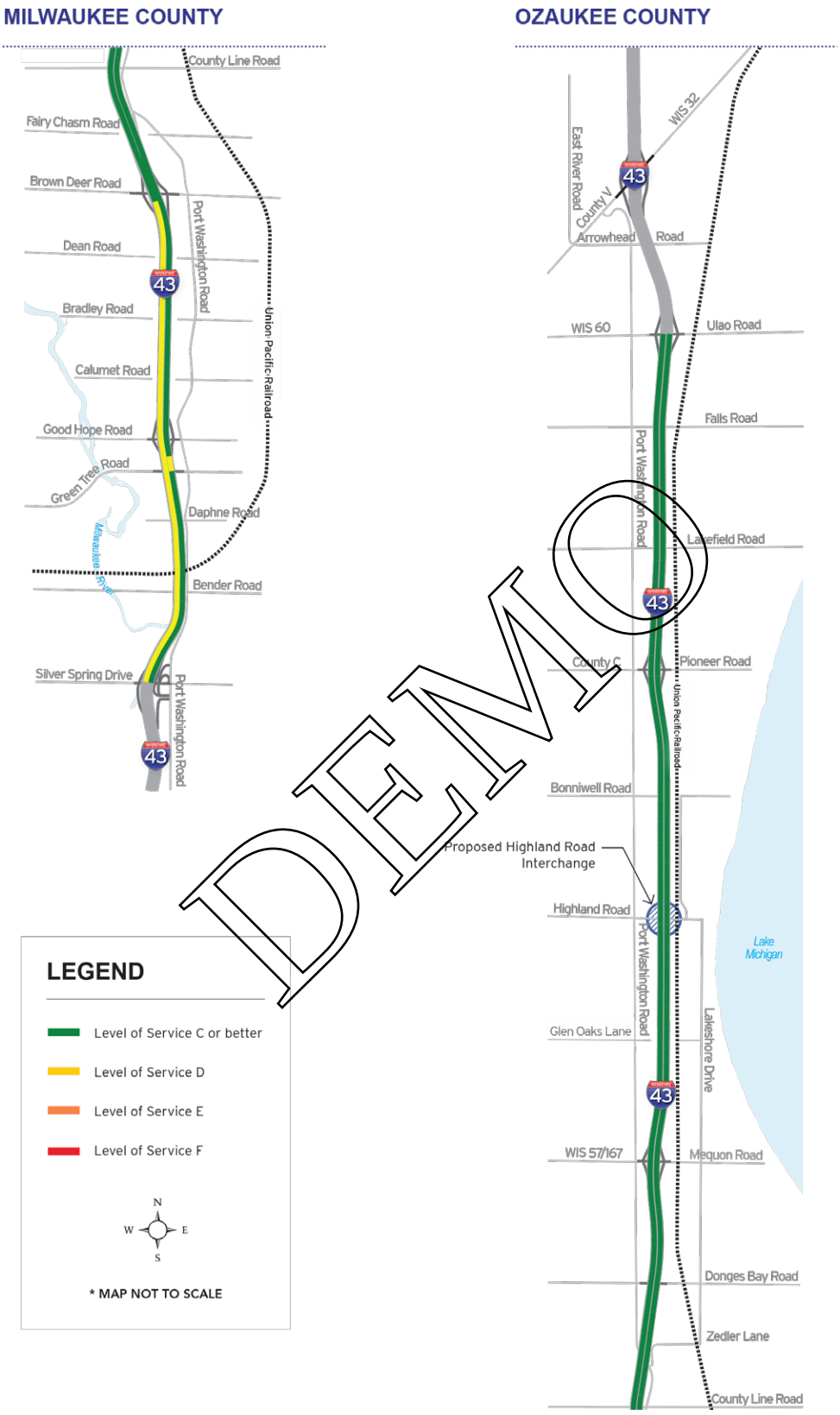
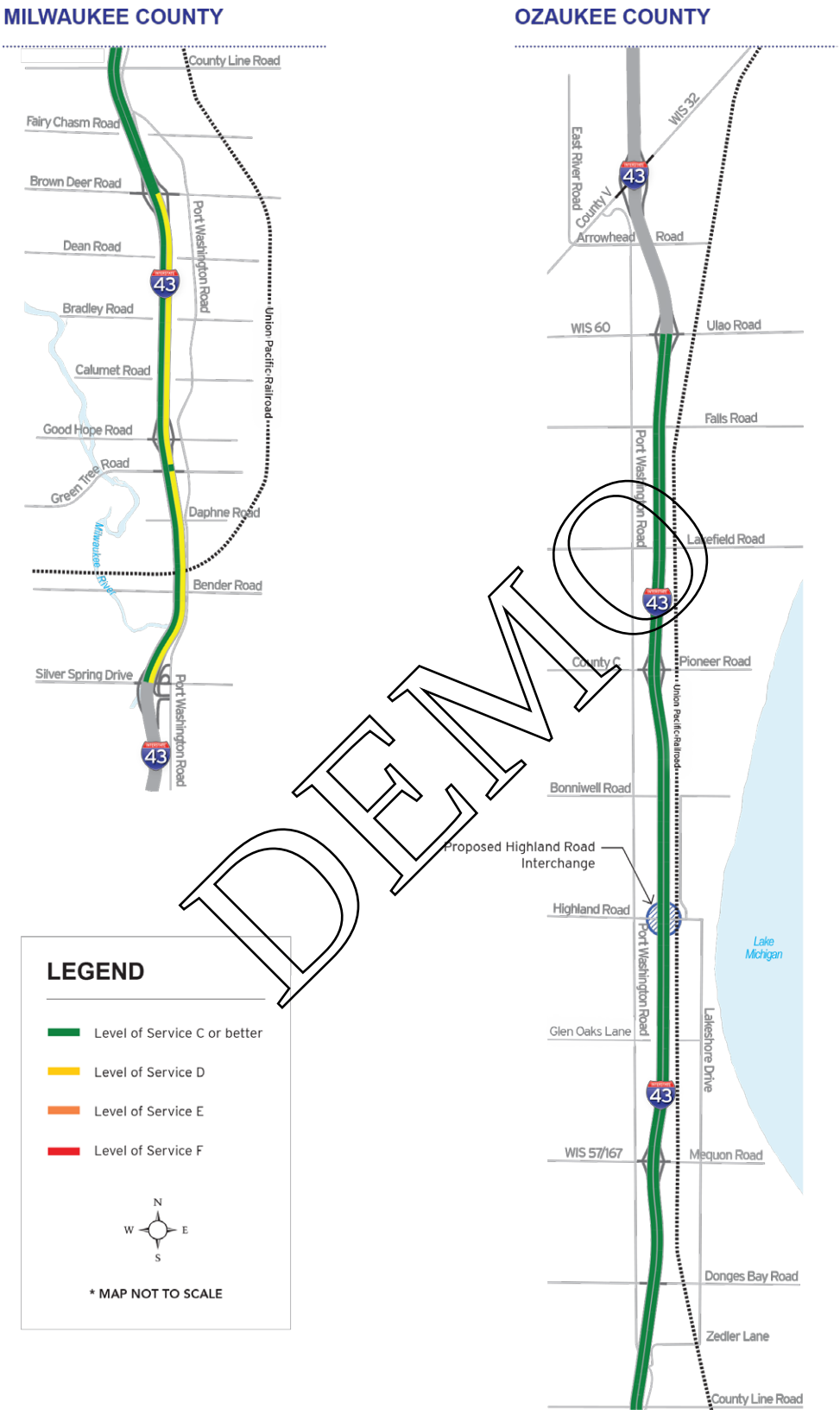


Exhibit 3-7: 2040 Build Alternatives P.M. Peak Travel Hours Level of Service



LOCAL ROADS

Local road access would largely remain similar under the No-Build Alternative and build alternatives, except as discussed below.

NO-BUILD ALTERNATIVE

The No-Build Alternative would divert additional freeway traffic onto local streets, including Port Washington Road, during morning and afternoon peak hours because the study corridor would not have the capacity to handle the anticipated traffic volumes.

BUILD ALTERNATIVES

Under the build alternatives, traffic modeling indicates that some traffic currently diverting to local streets due to congestion will return to I-43. The Split Diamond Hybrid alternative at the County Line Road interchange would provide full access to I-43, which would also redirect traffic from the local street network system. Under both the Split Diamond Hybrid subalternatives, Katherine Drive would still access Port Washington Road, but with slightly more indirection with the grade separation subalternative. The grade separation subalternative moves the Katherine Drive/Port Washington Road intersection about 900 feet further south of the existing intersection. The Split Diamond Hybrid (without Grade Separation) subalternative will require traffic to access the northbound entrance ramp via Katherine Drive.

The Partial Diamond alternative at County Line Road would replace partial access to I-43 to and from the south, similar to existing conditions. This alternative moves the exit ramp further north to terminate at the Port Washington Road crossing of I-43 near Katherine Drive to reduce weaving between that ramp and the Brown Deer Road entrance ramp to the south. The southbound entrance ramp location would remain at its existing location off of County Line Road. Traffic patterns on local roads would be unchanged from existing conditions.

Traffic flow on local roads is affected by the No Access alternative at Highland Road. If the Highland Road interchange is not constructed, the Mequon Road/Port Washington Road intersection near the Mequon Road interchange would require triple left-turn lanes for the southbound-to-eastbound movements on Port Washington Road. Also, the median crossing on Port Washington Road north of the intersection would be closed to avoid an unsafe median opening in a turn lane. **Exhibit 3-8** shows the alternatives for this intersection.

The No Access alternative at County Line Road would remove the existing interchange. As a result, more traffic would divert to the Brown Deer Road and Mequon Road interchanges, primarily via Port Washington Road. To accommodate additional traffic using the Brown Deer interchange, additional right-turn lanes from southbound Port Washington Road to westbound Brown Deer Road, and from westbound Brown Deer Road to northbound Port Washington Road would be required to maintain traffic operations. Two driveways on Port Washington Road would be closed (**Exhibit 3-8**). No additional modifications are required at the Port Washington Road/Mequon Road intersection. No additional capacity would be required on Port Washington Road between Brown Deer Road and Mequon Road.

In Glendale, widening Port Washington Road between Bender Road and Daphne Road would provide for traffic diverting from the freeway during construction and incidents. Depending on further coordination with the City of Glendale, local access onto Port Washington Road may also be modified as part of the road's reconstruction to four lanes. Cul de sacs could be installed at Brentwood lane and Apple Tree Road to reduce the number of intersection conflicts with Port Washington Road (see **Appendix A**). Access to and from the neighborhood would be available via Clovernook Lane and Daphne Road.

BICYCLE AND PEDESTRIAN FACILITIES

Under the build alternatives, WisDOT would provide bicycle and pedestrian accommodations in accordance with *Wisconsin Administrative Code Chapter Trans 75: Bikeways and Sidewalks in Highway Projects* (Trans 75) on reconstructed cross streets, Jean Nicolet Road and Port Washington Road as noted in **Subsection 2.3.1**. The Diverging Diamond interchange alternative at Brown Deer Road would accommodate bicycles and pedestrians generally as illustrated in **Exhibit 3-9**. A pedestrian tunnel or bridge that is compliant with the Americans with Disabilities Act (ADA) would be provided for use by Nicolet High School in Glendale to replace the existing tunnel, which currently provides the school with access to various athletic fields located on the east side of I-43, but is not ADA-compliant.

Exhibit 3-8: Port Washington Road Local Intersection Modifications

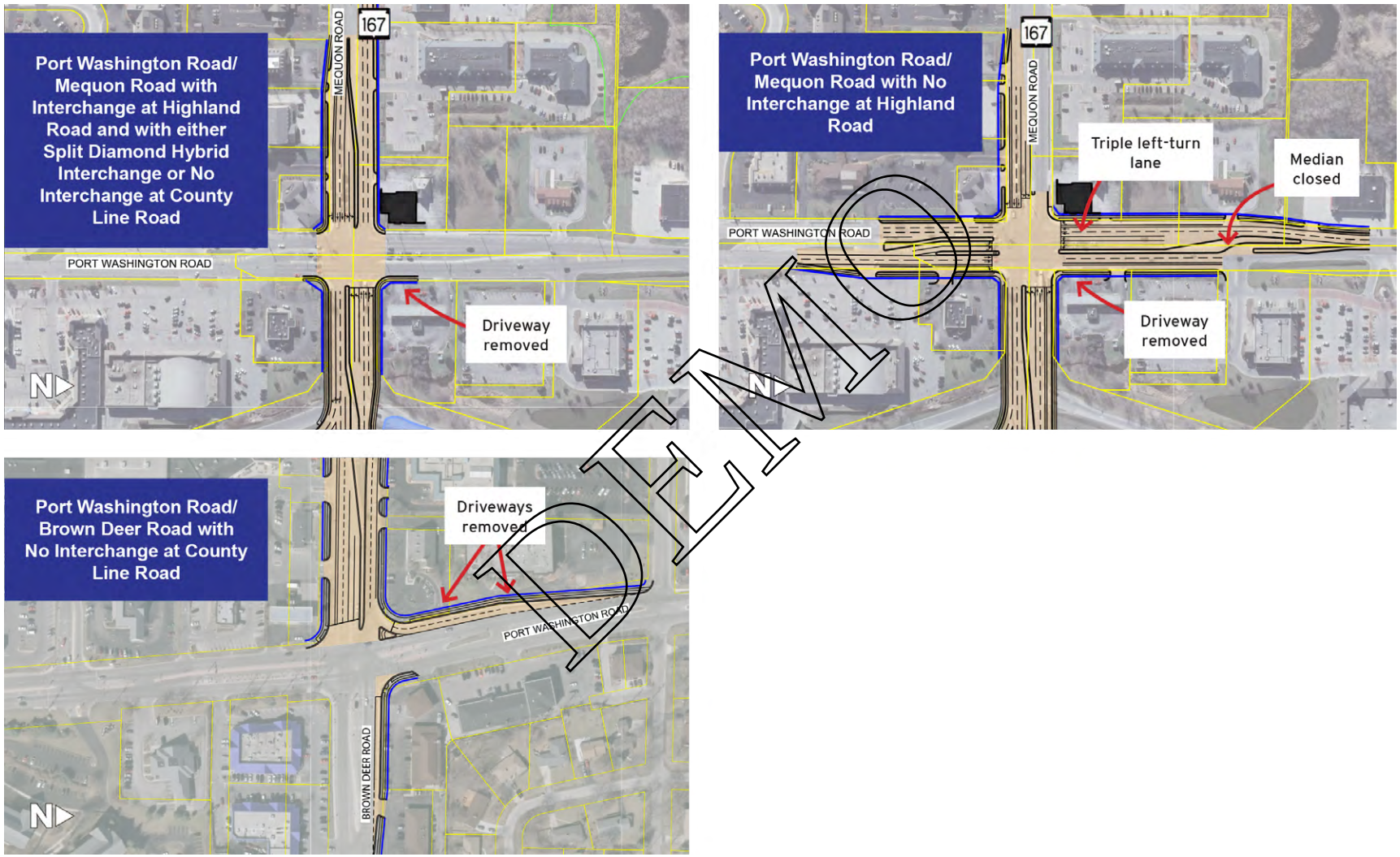
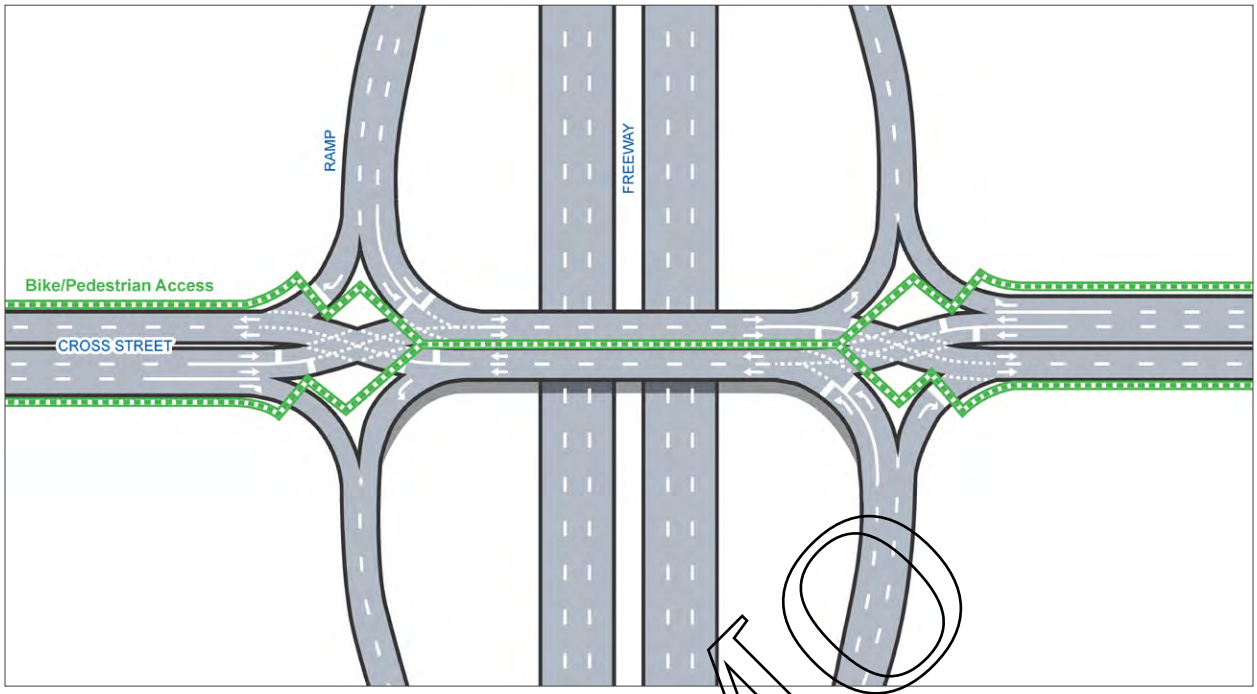


Exhibit 3-9: Bicycle/Pedestrian Facilities within Diverging Diamond Interchange Alternative (Brown Deer Road)



SAFETY

NO-BUILD ALTERNATIVE

Under the No-Build Alternative, none of the existing safety issues on the study corridor would be addressed. Congestion would continue to increase, which could further exacerbate safety problems in the corridor. As a result, more traffic would divert to local streets. In general, travel on local streets takes longer than travel on freeways and crash rates are also higher on local streets than freeways.[2] Higher traffic volumes on local streets also increase the potential for car-pedestrian and car-bicycle crashes.

BUILD ALTERNATIVES

The build alternatives would likely reduce crash rates by removing substandard design features that contribute to crashes. Available data on crashes does not allow WisDOT and FHWA to estimate the number of crashes that would be avoided by bringing the I-43 North-South Freeway corridor to current freeway design standards. However, a predictive safety analysis using the Enhanced Interchange Safety Analysis Tool (ISATe) was conducted for comparative purposes. The analysis showed that the build alternatives would result in a lower crash frequency than the No-Build Alternative. In particular, replacing the clover-leaf interchange at Brown Deer Road would help reduce ramp crashes.

[2] *http://www.dot.wisconsin.gov/drivers/drivers/traffic/crash/final.htm*

3.2.3. Mitigation of Adverse Transportation Impacts

Subsection 3.21 describes measures to manage congestion during construction which would be a result of lane closures on the freeway system and local streets in the I-43 North-South Freeway study area. The possible expansion of Port Washington Road plays a factor in determining construction impacts. WisDOT will develop a transportation management plan (TMP) to coordinate and manage impacts associated with construction. TMP strategies for a work zone may include temporary traffic-control measures and devices; public information and outreach; and operational strategies such as travel demand management, signal retiming and traffic incident management.

WisDOT will coordinate with the MCTS to minimize impacts to bus services.

WisDOT and FHWA are coordinating at-grade railroad crossings and railroad bridge construction with the UP Railroad to minimize interruptions to rail service while replacing the railroad bridge over I-43. The new overpass bridge would be constructed north of the existing bridge so that train service can continue during construction.

3.3. RESIDENTIAL

3.3.1. Affected Environment

Residential developments that share a boundary with the I-43 North-South Freeway study corridor or that are in close proximity to I-43 are located throughout Milwaukee County. In southern Ozaukee County, residential developments are generally buffered from I-43 by commercial developments along Port Washington Road west of I-43 and the UP Railroad right of way east of I-43. North of Highland Road, residential developments are widely scattered among agricultural land uses, with most of the dense residential developments located well west of I-43 in the village of Grafton (**Exhibit 3-2**). Residential development in areas immediately adjacent to the study corridor is described in detail below.

SILVER SPRING DRIVE TO GREEN TREE ROAD

Residences are located either adjacent to or in close proximity to I-43. Between Bender Road and Daphne Road (immediately south of Nicolet High School), residences in the Clovernook Estates neighborhood are located very close to I-43 on both the east and west sides of the study corridor with Jean Nicolet Road and Port Washington Road situated between the residences and I-43. Generally, owner-occupancy rates exceed 80 percent along this segment, but two block groups adjacent to I-43 have owner-occupied housing unit percentages of 45 percent and 53 percent. These rates are comparable to the Milwaukee County average of 51 percent and due in part to multifamily housing located along Port Washington Road and North Green Bay Avenue.

GREEN TREE ROAD TO COUNTY LINE ROAD

West of the study corridor, residences are located adjacent to I-43 in the village of River Hills. Generally speaking, the residences in River Hills are located on relatively large, wooded lots with the structures located further from I-43 compared to neighborhoods in Glendale and Fox Point. Several residential developments are located to the east between I-43 and Port Washington Road within the city of Glendale and the villages of Fox Point and Bayside. Most of

the residential housing along this segment is owner-occupied (90 percent or more). However, the percentages of owner-occupied multifamily residential housing units in several block groups east of I-43 range from 49 percent to 68 percent, due in part to multifamily housing, such as the Coventry Apartments in Glendale, the North Port Village Senior Apartments in Glendale, the Porticos of Fox Point, and the Elizabeth Residence in Bayside.

COUNTY LINE ROAD TO HIGHLAND ROAD

Port Washington Road crosses I-43 near County Line Road (southern border of the city of Mequon). Port Washington Road and I-43 follow roughly parallel alignments, separated by about ¼ mile between County Line Road and the northern end of the study corridor at WIS 60 in the village of Grafton. Most of the residential housing between County Line Road and Highland Road is owner-occupied (80 percent or higher). One notable exception is the area immediately west of Port Washington Road, between Donges Bay and Mequon roads, which has an owner-occupied housing rate of 60 percent – lower than the Ozaukee County average of 77 percent. Most of the residential development in the city of Mequon located close to the I-43 study corridor is in the southern and central portions of the city between County Line and Highland roads, west of Port Washington Road. Residences are located adjacent to the east of the study corridor between County Line Road and Donges Bay Road, and between I-43 and the UP Railroad. Residential developments are located east of the UP Railroad between Donges Bay and Highland roads.

HIGHLAND ROAD TO COUNTY C

Relatively few residences are located along the study corridor in the northern portion of the city of Mequon. The scattered residences are generally located along Port Washington Road west of I-43; some of the homes located between Port Washington Road and I-43 are older farmsteads. Scattered residential developments are also located east of the UP Railroad right of way, between Bonniwell Road and County C. Most of the residential housing along this segment is owner-occupied (81 percent).

COUNTY C TO WIS 60

Within this segment, there are a number of residential developments located within a half mile of I-43, on both the east and west sides of the study corridor. More recent developments include two residential developments located south of Falls Road; one located at the Falls Road/Port Washington Road intersection (Falls Crossing subdivision), and the other located at the Falls Road/Lakeshore Road intersection (Blank's Crossing Subdivision). Most residential developments are located well west of I-43, in the village of Grafton. A few scattered farmstead homes are also located between Port Washington Road and I-43 along this segment. Most of the residential housing along this segment is owner-occupied (80 percent or higher). The rates of owner-occupied housing dip to between 60 percent and 70 percent toward the center of the village of Grafton.

3.3.2. Impacts to Residences

Information for the following relocation discussion items was obtained from local government tax assessment rolls.

NO-BUILD ALTERNATIVE

No residential displacements or acquisitions would occur under the No-Build Alternative.

BUILD ALTERNATIVES

Residential relocations would be required under the I-43 South Segment mainline build and the Good Hope Road interchange build alternatives. Residential relocations are summarized in **Table 3-4** and shown on map sheets in **Appendix A**. As noted in **Subsection 3.1.5**, strip residential right of way would be acquired throughout the study corridor to accommodate the build alternatives.

Table 3-4: Residential Relocation Summary

Build Alternatives with Potential Relocations	Number of Residential Relocations
I-43 Mainline South Segment: Modernization – 6 Lanes (Mainline Shifted East)	11 total (10 located along Port Washington Road)[1]
Good Hope Road interchange – Tight Diamond	1

Table 3-5 and **Table 3-6** summarize the characteristics of the residential relocations under each alternative. **Table 3-7** summarizes the availability of replacement housing in the communities that would be affected by the study. Current vacancy rates in the corridor communities indicate a range of replacement housing options. In total, 443 homes are for sale within the communities identified as having potential relocations. This information was based on a review of the Milwaukee-area Multiple Listings Service (MLS), a digital listing of available real estate, in July 2013.[3]

[3] *http://www.coldwellbankeronline.com/Property/PropertySearch.aspx.*

Table 3-5: Residential Relocation Characteristics – Bedrooms

Number of Bedrooms	Number of Residences
I-43 Mainline South Segment: Modernization – 6 Lanes (Mainline Shifted East)	
1	0
2	1
3	4
4	5[1]
5	0
Good Hope Road interchange – Tight Diamond	
1	0
2	0
3	0
4	1
5	0

1. Information about the number of bedrooms for one home in River Hills was unavailable, so comparable number of bedrooms as other residential relocation in River Hills (four bedrooms) assumed.

Table 3-6: Residential Relocation Characteristics – Fair Market Value (Estimated)

Fair Market Value (Est.)	Number of Residences
I-43 Mainline (South Segment): Modernization – 6 Lanes (Mainline Shifted East)	
Below $99,999	0
$100,000 to $149,999	1
$150,000 to $199,999	4
$200,000 to $299,999	5
Above $300,000	0
Good Hope Road interchange – Tight Diamond	
Below $99,999	0
$100,000 to $149,999	0
$150,000 to $199,999	0
$200,000 to $299,999	1
Above $300,000	0

*Note: The business relocation along Port Washington Road, noted in **Subsection 3.4.2** includes a residential tenant.*

Table 3-7: Availability of Replacement Housing in Corridor Communities

Price Range	2 Bedrooms	3 Bedrooms	4 Bedrooms	5+ Bedrooms
City of Glendale				
Below $99,999	19	4	0	0
$100,000 to $149,999	8	6	0	0
$150,000 to $199,999	8	25	2	0
$200,000 to $299,999	1	16	13	3
Above $300,000	0	5	4	2
Apartments $885-$1,685/mo.	10	3	0	0
Village of River Hills				
Below $99,999	0	0	0	0
$100,000 to $149,999	1	1	0	0
$150,000 to $199,999	0	0	0	0
$200,000 to $299,999	0	1	1	0
Above $300,000	0	0	11	18

3.3.3. Mitigation of Adverse Impacts to Residences

Federal real property acquisition law[4] provides for payment of just compensation for residences displaced for a federally funded transportation project. Acquisition price, replacement dwelling costs, moving expenses, increased rental or mortgage payments, closing costs and other relocation costs are covered for residential displacements.

Under state law, no person or business would be displaced unless a comparable replacement dwelling, business location or other compensation (when a suitable replacement business location is not available) would be provided. Compensation is available to all displaced persons without discrimination. Before appraisals and property acquisition, an authorized relocation agent interviews each owner and renter to be relocated to determine their needs, desires and unique situations associated with relocating. The agent explains the relocation benefits and services each owner may be eligible to receive.

Property acquisitions not involving residential, business or other building relocations are also compensated in accordance with state and federal laws. Before initiation of property acquisition, WisDOT provides information explaining the acquisition process and the state's Eminent Domain Law under Wisconsin Statutes Section 32.05. A professional appraiser inspects the property to be acquired. Property owners are invited to accompany the appraiser to ensure that full information about the property is taken into consideration. Property owners may also obtain an independent appraisal. Based on the appraisal, the value of the property is determined and that amount offered to the owner. In the event agreement on fair market value cannot be reached, the owner would be advised of the appropriate appeal procedure.

Any septic tanks, drain fields or wells on acquired properties would be abandoned in accordance with state regulations and local zoning standards. WisDOT will survey all buildings to be demolished to determine whether asbestos or lead paint is present. All appropriate and

[4] *Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (Uniform Act)*

applicable engineering and regulatory controls will be followed during the handling and disposal of asbestos-containing material and lead-based paint. Contractors must comply with the most recent editions of U.S. Environmental Protection Agency (EPA) regulations; National Emission Standards for Asbestos; Occupational, Safety, and Health Administration (OSHA) regulations on asbestos removal; local government regulations; and all other applicable regulations. In addition, any person performing asbestos abatement must comply with all training certification requirements, rules, regulations and laws of the state of Wisconsin regarding asbestos removal.

Before a contractor demolishes a building that may contain or is known to contain asbestos, the contractor must notify the Wisconsin Department of Natural Resources (WDNR) and Wisconsin Department of Health and Family Services at least 10 working days before starting the work, using WDNR Form 4500-113, Notification of Demolition and/or Renovation and Application for Permit Exemption.

Demographic data for the areas in which residential displacements would occur indicate that no age or income-level characteristics that would require special relocation consideration or services. WisDOT also coordinated with potential relocated residents prior to and during public meetings and no needed special relocation considerations or services were identified at those times. If unusual circumstances were to arise during real estate activities, WisDOT real estate personnel would be available to provide appropriate relocation services.

3.4. COMMERCIAL AND INDUSTRIAL

3.4.1. Affected Environment

I-43 is a major regional and local north-south route serving economic and commercial centers. The I-43 North-South Freeway study corridor is a vital link to and from downtown Milwaukee (about 7 miles south of the study corridor), which serves as the regional employment and entertainment center.

SEWRPC's 2035 regional land use plan reports that as of 2000, 45 major economic activity centers are located throughout the seven-county southeast Wisconsin region that includes Milwaukee and Ozaukee counties.[5]

Two major activity centers located in Milwaukee County are the area around Estabrook Corporate Park and Glendale Technology Center in the southern portion of the city of Glendale (near I-43 and Capitol Drive), and Bayshore Town Center at the I-43/Silver Spring Drive interchange, a recently redeveloped 50-acre mixed-use commercial center anchored by major chain retail stores. Two other major centers are located west of the corridor: One near the Teutonia Avenue/Mill Road area includes the Glendale Industrial Park; the other is a commercial area in the village of Brown Deer near Brown Deer Road and Green Bay Road (**Exhibit 3-1**).

Many smaller commercial areas are located along the study corridor as well. In the southern portion of the city of Glendale, Port Washington Road supports substantial commercial development spanning from about Marne Avenue north to the Bayshore Town Center. Toward the northern portion of the city of Glendale, the Glendale Market is a recently redeveloped neighborhood commercial area along the east side of I-43 at the Green Tree Road/Port Washington Road intersection. North of Glendale, in the village of Fox Point, the Riverpoint

[5] *A "major" activity center is a concentrated area of commercial and/or industrial land having a minimum of 3,500 total employees or 2,000 retail employees (source: SEWRPC* Planning Report 48: A Regional Land Use Plan for Southeastern Wisconsin: 2035*).*

Village and Audubon Court shopping centers are located at the Brown Deer Road/Port Washington Road intersection, east of I-43. Both centers provide access to nationally and locally owned retail stores and restaurants. Office buildings are located in this area as well.

In Milwaukee County, substantial industrial developments are located within 2 miles of the study corridor in the cities of Glendale and Milwaukee. The village of Brown Deer also has a number of industrial developments about 2 miles west of the study corridor associated with Brown Deer's major economic activity center along Teutonia Avenue and Green Bay Road/WIS 57.

North of the Milwaukee/Ozaukee county line, the city of Mequon is home to a 2-mile stretch of commercial developments along Port Washington Road between County Line Road and Glen Oaks Lane. This area is one of two major economic activity centers along the study corridor in Ozaukee County. Port Washington Road north of Mequon Road was improved in 2011. These improvements support access to ongoing redevelopment, including the recent opening of a 60,000-square-foot Metro Market grocery store. In addition to the multiple restaurants, boutique shops and grocery stores, the *Milwaukee Journal Sentinel*[6] reports that multiple buildings ranging in size from 6,000 square feet to 13,000 square feet are either under construction or have recently been constructed along Port Washington Road.

A second major economic activity center is located at the I-43/WIS 60 interchange in Grafton. The Gateway to Grafton and the Grafton Commons shopping centers serve local and regional customers with a variety of commercial and retail structures including Home Depot, Costco, Kohl's and Target.

In Ozaukee County, isolated industrial developments are located along the study corridor at Donges Bay Road, Liebau Road, County C, Falls Road, and WIS 60. Larger clusters of industrial developments are scattered about 2 miles to 3 miles west of the study corridor in the villages of Thiensville and Grafton, and the cities of Mequon and Cedarburg (**Exhibit 3-2**).

3.4.2. Impacts to Commercial and Industrial Properties and Access

Although the I-43 component of the study corridor is access-controlled (meaning no business entrances are connected directly to the freeway) commercial and industrial centers west of I-43 rely on access to the Interstate via interchanges throughout the corridor. Service-oriented businesses located near interchanges rely on freeway travelers for their continued viability. Additionally, numerous businesses along the study corridor are accessed from Port Washington Road. Impacts to commercial and industrial areas can include direct property impacts such as acquisitions and relocations, as well as access changes. Potential impacts are described below.

RELOCATIONS AND PROPERTY ACQUISITIONS

NO-BUILD ALTERNATIVE

No property relocations or property acquisitions would be required under the No-Build Alternative. However, without improvements to the I-43 North-South Freeway study corridor, commercial and industrial businesses that rely on access to and from I-43 may experience deterioration in safety, traffic operations and overall travel time reliability.

[6] *June 30, 2012*

BUILD ALTERNATIVES

Up to two commercial properties are acquired and relocated. The I-43 mainline South Segment build alternative acquires a building that houses a medical supply business. The Mequon Road interchange Tight Diamond alternative acquires a commercial property in the southeast quadrant of the interchange. The property is a former residential home that is now used for two businesses: an acupuncture practice, and a financial services business. Both relocated business properties also house a residential tenant. Strip acquisitions of commercial properties would be required as noted in **Subsection 3.1.5**.

COMMERCIAL AND INDUSTRIAL ACCESS CHANGES

NO-BUILD ALTERNATIVE

The No-Build Alternative would not change access to or from commercial or industrial areas. However, maintaining and replacing infrastructure in its current configuration would not address safety and operational problems at interchanges, nor would it address future traffic volumes that may cause additional congestion for vehicles entering and exiting I-43.

BUILD ALTERNATIVES

Build alternatives may reconstruct local roads and intersections that would result in modifications to median openings and driveway access points. At the Brown Deer Road interchange, WisDOT would investigate potential access modifications to address multiple existing driveways between the I-43 ramp terminals and Port Washington Road. The existing raised median along Brown Deer Road, between the northbound ramp intersections and Port Washington Road would remain in place. WisDOT would coordinate with local property owners during preliminary design to determine appropriate modifications.

The No Access alternative at County Line Road would require reconstructing the Port Washington Road/Brown Deer Road intersection. The reconstructed intersection would remove two driveways on the west side of Port Washington Road, north of Brown Deer Road. Access to the business in the northwest quadrant of the intersection would be available via a driveway on Brown Deer Road. See **Subsection 3.2.2** for intersection modifications under the County Line Road No Access alternative.

The decision to build a new interchange at Highland Road would affect local traffic volumes and the configuration of the Mequon Road/Port Washington Road intersection. If a new interchange is built, an existing driveway on the north side of Mequon Road, east of Port Washington Road would be closed. Access to the business would be available via an existing driveway on Port Washington Road.

If a new Highland Road interchange is not built, in addition to the driveway change above, the median opening immediately north of the Port Washington Road/Mequon Road intersection would be closed, allowing only right-in/right-out movements for business driveways at this location. See **Subsection 3.2.2** for intersection modifications with and without a new Highland Road interchange.

There are no anticipated access changes under the build alternatives for the Good Hope Road, County Line Road, Highland Road or County C interchanges, or at reconstructed cross streets.

ACCESS DURING CONSTRUCTION

Access to businesses would be maintained during construction. Commuters, business patrons, shippers and suppliers would experience short-term inconvenience and additional travel time. Additional discussion about traffic impacts during construction is included in **Subsection 3.21**.

3.4.3. Mitigation of Adverse Impacts to Commercial and Industrial Areas

WisDOT researched current listings of potential replacement business sites located nearby that would be adequate for the business relocations needed on Port Washington Road and Mequon Road. The affected businesses at the Mequon Road interchange is in a former residential home. As of September 2013, local listings identified 10 business leases within a 10-block radius, and eight residential buildings for sale on major arterial streets within a mile of the Mequon Road interchange. Thirteen business leases are available within a 2-mile radius of the affected business on Port Washington Road. Based on MLS, enough properties are available to provide appropriate relocations for the displaced businesses. **Subsection 3.3.2** notes that there are available rentals in the study area that would be adequate for relocated residential tenants.

Commercial and industrial acquisitions and relocations would be in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. In addition to providing just compensation for property acquired, additional benefits are available to eligible displaced businesses, including relocation advisory services, reimbursement of moving expenses, and down-payment assistance. Under state law, no person would be displaced unless a comparable business location or other compensation (when a suitable business location replacement is not practical) is provided. Compensation is available to all displaced businesses without discrimination.

Before initiating property acquisition activities, property owners would be contacted and given a detailed explanation of the acquisition process and Wisconsin's Eminent Domain Law under Wisconsin Statutes Section 32.05. Any property acquired would be inspected by one or more professional appraisers. The property owner would be invited to accompany the appraiser during the inspection to ensure that the appraiser is informed of every aspect of the property. Property owners will be given the opportunity to obtain an appraisal by a qualified appraiser that will be considered by WisDOT in establishing just compensation. Based on the appraisal, the value of the property would be determined and that amount offered to the owner.

Before a contractor demolishes a building that may contain or is known to contain asbestos, the contractor must notify the WDNR and Wisconsin Department of Health and Family Services at least 10 working days before starting the work, using WDNR Form 4500-113: Notification of Demolition and/or Renovation and Application for Permit Exemption.

One of the two affected businesses is minority-owned. No known age, ethnic, disability or minority characteristics would require special relocation consideration for the other business displacement. No unusual requirements are anticipated that would preclude successful relocation.

3.5. INSTITUTIONAL AND PUBLIC SERVICES

3.5.1. Affected Environment

FIRE, AMBULANCE AND POLICE PROTECTION

The North Shore Fire Department provides fire protection and emergency medical service to all the Milwaukee County communities along the study corridor. North Shore Fire Department has five fire stations. Three of these stations are located within the communities along the study corridor. The Mequon Fire Department provides fire protection and emergency medical services to the city of Mequon and operates two stations. The town and village of Grafton are served by the Grafton Fire Department.

Except for the town of Grafton, each community along the study corridor has its own police department. The Ozaukee County Sheriff's Department serves the town of Grafton. The recently constructed Consolidated Bayside Dispatch Center provides dispatch services for each of the following community police departments: Bayside, Brown Deer, Fox Point, Glendale, River Hills, Shorewood and Whitefish Bay. The dispatch center also provides dispatch services for the North Shore Fire Department. The locations of the study corridor communities' fire and police stations are shown on **Exhibit 3-10** and **Exhibit 3-11**.

SCHOOLS

A number of school districts serve the eight communities along the study corridor. The student demographics of the school districts are summarized in **Table 3-8**.

Table 3-8: Demographic Characteristics of School Districts in I-43 North-South Study Corridor (2013-2014 Academic Year)

District	Percent White	Percent Minority	Percent Economically Disadvantaged[1,2]	Percent Not Economically Disadvantaged[1,2]
Glendale-River Hills	53.3	46.7	26.1	61.1
Maple Dale-Indian Hills	69.2	30.8	12.5	73.8
Nicolet High School[3]	63.2	36.8	18.9	74.0
Mequon-Thiensville	81.2	18.9	8.1	80
Grafton	88.3	11.7	16.7	72.7

[1] Economically disadvantaged status. An "economically disadvantaged" student is a student who is a member of a household that meets the income eligibility guidelines for free or reduced-price meals (less than or equal to 185% of Federal Poverty Guidelines) under the National School Lunch Program (NSLP). School districts are permitted to use their best local source of information about the economic status of individual students consistent with the DPI definition. In the absence of reliable student-level NSLP meals eligibility data, districts may consider using available county data, scholarship information, post-secondary options information, etc. Economic status codes must be reported whether or not the district participates in the National School Lunch Program.

[2] Combined figures will be less than 100 percent as economic status of some enrolled students is unknown.

[3] Nicolet High School is a single school district serving Maple Dale-Indian Hills and Glendale-River Hills school districts.

Source: Wisconsin Department of Public Instruction.

The racial and income make-up of the students generally reflects the demographics of the communities along the I-43 study corridor. That is, Milwaukee County school districts (Glendale-River Hills, Maple Dale-Indian Hills and Nicolet High School) have higher minority populations compared to Ozaukee County schools (Mequon-Thiensville and Grafton). Low income students, as reflected by economic disadvantage status, which is highest in the Glendale-River Hills school district, is likely more reflective of lower income census tracts in Glendale compared to River Hills (see **Subsection 3.6.1**).

The following three public schools are located very close or adjacent to the study corridor: Nicolet High School (Glendale), Maple Dale Middle School (Fox Point) and Indian Hill Elementary School (River Hills). Concordia University, located on Highland Road/Lake Shore Drive, is adjacent to the study corridor, on the east side of the Union Pacific Railroad. Cardinal Stritch University is located east of Port Washington Road, in the vicinity of Nicolet High School.

Nicolet High School serves Glendale, Fox Point, Bayside, and River Hills and is located on Jean Nicolet Road, adjacent to the study corridor west of I-43. Some of Nicolet's athletic facilities, including a soccer field and tennis courts, are located east of I-43 and are connected to the main campus by a highway underpass.

The Maple Dale-Indian Hill School District serves parts of Glendale, Fox Point, Bayside and River Hills. Maple Dale (Grades 3-8) abuts I-43 on the east and is located south of Dean Road. Maple Dale's play and athletic fields are located immediately adjacent to the study corridor. Indian Hill School (prekindergarten-Grade 2) is located along the south side of Brown Deer Road, adjacent to the Brown Deer Road Park and Ride lot located in the southwest quadrant of the I-43/Brown Deer Road interchange. Indian Hill School is also home to the New World Montessori School, which leases space from the Maple Dale-Indian Hill School District.

The MATC Mequon campus is located on the south side of Highland Road, about 3 miles west of I-43.

Exhibit 3-10: Existing Community Facilities – South Segment

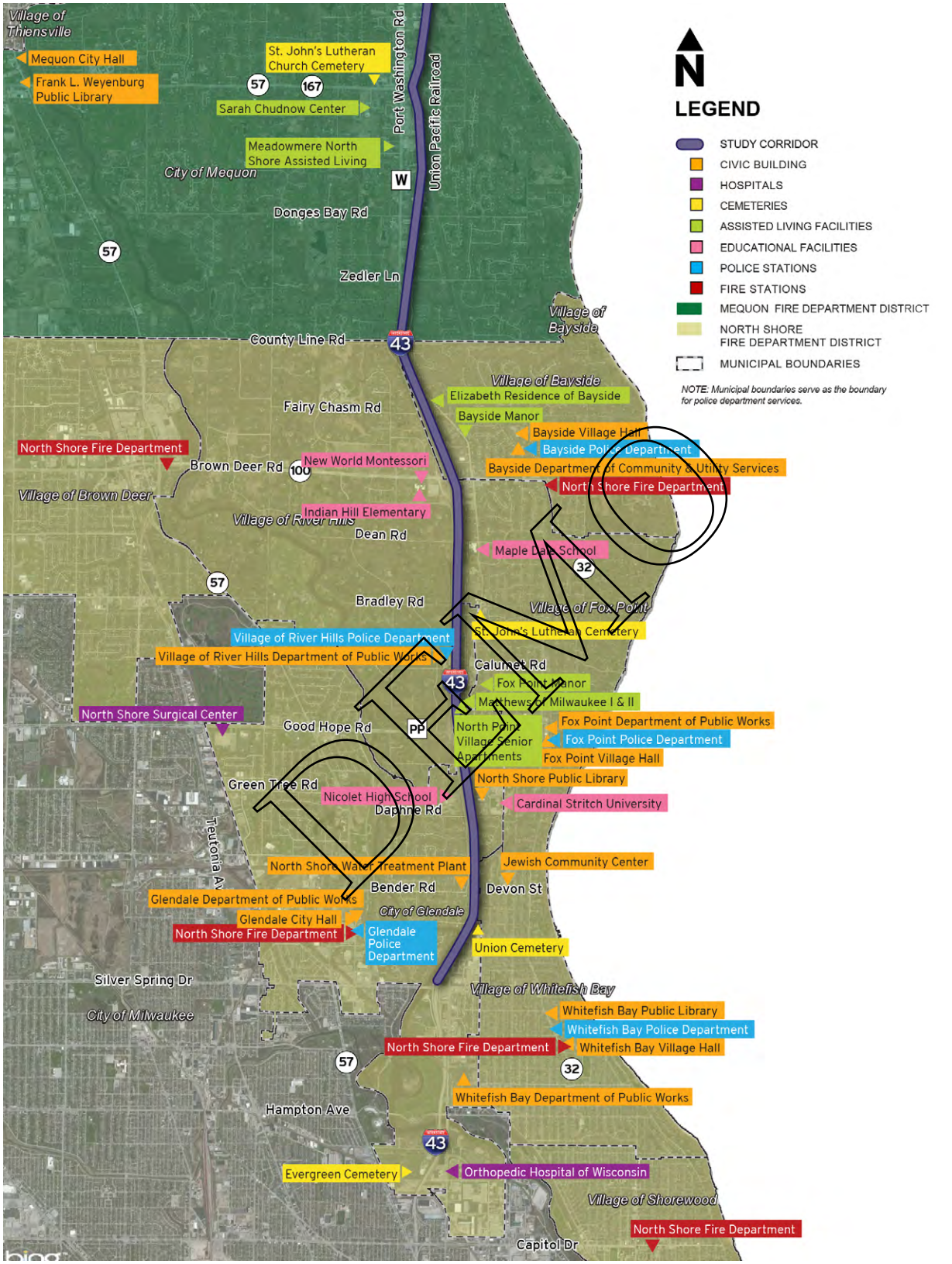
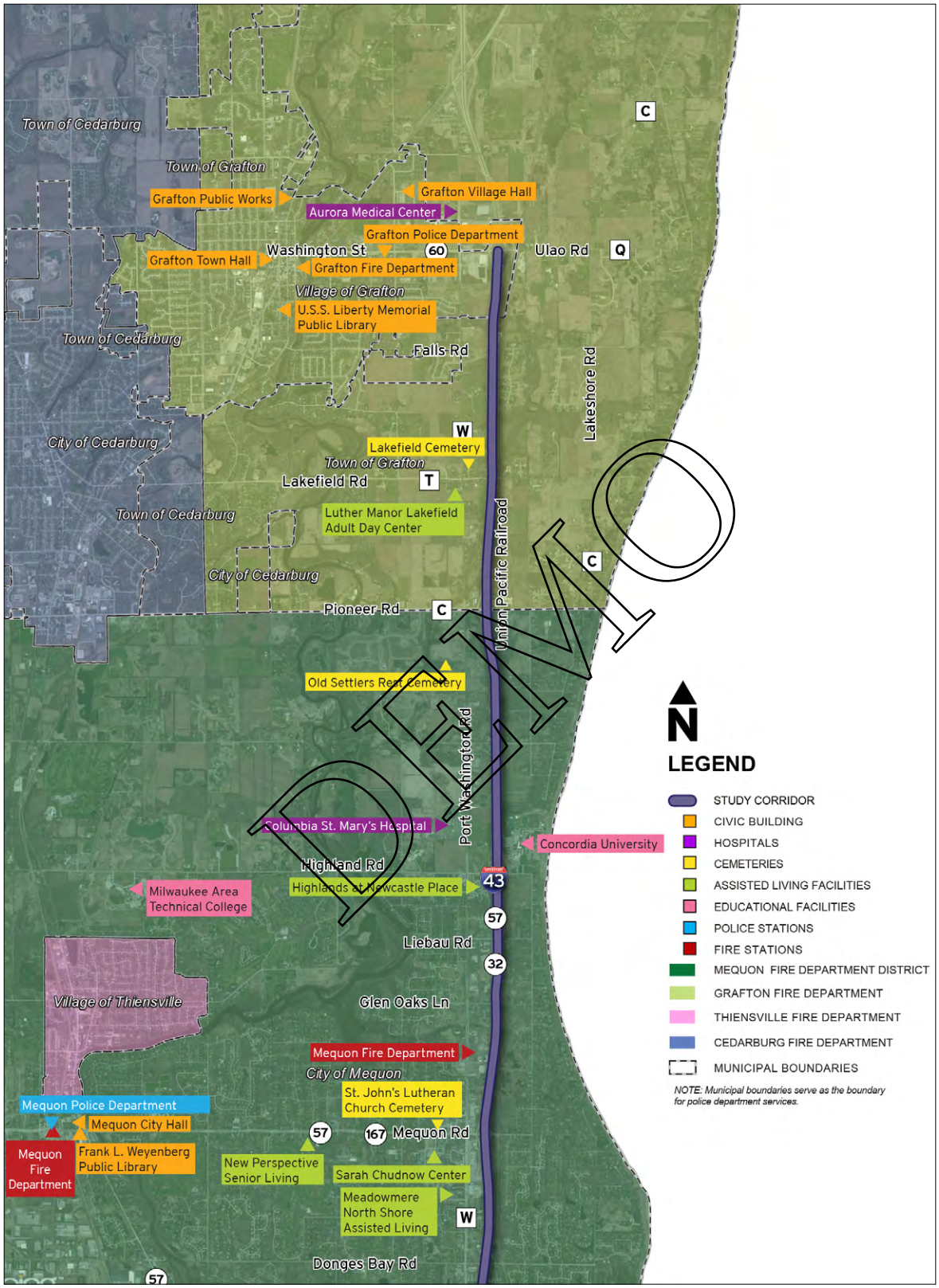


Exhibit 3-11: Existing Community Facilities – North Segment



PLACES OF WORSHIP

A number of places of worship are located throughout the study corridor communities. Several churches and a synagogue are located adjacent to or in close proximity to I-43 and along Port Washington Road. A unique feature in the study corridor is the presence of eruvin. An eruv is a ritual enclosure that some Jewish communities construct in their neighborhoods. The enclosure allows Jewish residents or visitors to carry objects from a private residence to a public domain on Shabbat (the Jewish day of rest, from Friday evening to Saturday night). These physical boundaries are maintained by the Jewish community. Three eruvin are present in the study corridor, in Glendale, Bayside and Mequon.

ASSISTED-CARE AND ASSISTED-LIVING FACILITIES

Multiple assisted-care and assisted-living facilities are located throughout the study corridor communities. These facilities provide care for individuals with developmental and physical disabilities, substance abuse, advanced age, emotionally disturbed/mental illnesses, and terminal illnesses. Most of these facilities are located a substantial distance from the study corridor, nine are located close to I-43, predominantly along Port Washington Road. Four of the nine facilities are located in Ozaukee County and five are located in Milwaukee County.

CEMETERIES

Five cemeteries are located in the general vicinity of the study corridor. Most cemeteries are not located close to the study corridor. The closest cemeteries to the study corridor, Union Cemetery and Lakefield Cemetery, are located along Port Washington Road in the city of Glendale and in the town of Grafton, respectively. Cemeteries are noted on **Exhibit 3-10** and **Exhibit 3-11**.

HOSPITALS

Two hospitals are located along the study corridor in the city of Mequon and the village of Grafton (**Exhibit 3-10** and **Exhibit 3-11**). Columbia Saint Mary's Hospital is located on the west side of Port Washington Road, between Highland Road and Bonniwell Road, and it serves Milwaukee, Ozaukee, Sheboygan and Washington county communities. The Aurora Medical Center is a recently constructed hospital in the village of Grafton, located just west of I-43, near the northwest quadrant of the Port Washington Road/WIS 60 intersection. Both hospitals provide emergency room services. Supporting medical services centers are also located throughout the study corridor along Port Washington Road.

COMMUNITY CENTERS AND FACILITIES

Municipal facilities and community centers are located throughout the study corridor communities, with most located well away from the study corridor (**Exhibit 3-10** and **Exhibit 3-11**). Three exceptions are the North Shore Water Treatment Facility (Bender Road), North Shore Public Library (south of Green Tree Road), and the village of River Hills Department of Public Works and Village Hall (Calumet Road), which are close to I-43.

The North Shore Water Commission owns and operates a municipal water treatment plant located at the intersection of Bender and Jean Nicolet Roads, on the west side of the study corridor. The plant is a conventional water treatment facility. The plant also serves other growing communities indirectly through the Mequon Water Utility. The plant draws water from a single intake in Lake Michigan which is about 4,000 feet offshore from Klode Park (village of Whitefish Bay). Water is

pumped 1 mile west, beneath I-43, through a single transmission main. The facility includes four underground reservoirs that can store 7 million gallons of water.

The village of River Hills Department of Public Works, Police Department, and village hall are located along the west side of I-43 just north of Calumet Road. The garage and communication towers are located immediately west of the I-43 right of way. The village hall is located on the west side of the property, closer to Pheasant Lane. The village of River Hills maintains Memorial Park with several walking paths and park benches north of the village hall.

The North Shore Library, located in the first floor of an office building on Port Washington Road, serves North Shore communities. The library is planning to relocate to a new stand-alone facility in the nearby area. No site has been selected at this time.

Located at the south end of the study corridor, the Jewish Community Center is a nonprofit social organization that provides diversified social, educational, recreational and cultural programs to the community within a Jewish setting. The center, which is located on a 28-acre campus in Whitefish Bay, serves multiple functions within the community. An access road from the Jewish Community Center to Port Washington Road travels through Craig Counsell Park. This access was included as one of the recent renovations to the facility to minimize traffic impacts to residential neighborhoods associated with deliveries to the Jewish Community Center.

3.5.2. Impacts to Institutional and Public Services

IMPACTS TO FIRE, AMBULANCE AND POLICE PROTECTION

NO-BUILD ALTERNATIVE

The No-Build Alternative would not impact fire, ambulance or police services along the study corridor. However, design deficiencies and poor traffic operations would continue to persist, which would affect travel reliability and safety.

BUILD ALTERNATIVES

Because the build alternatives would be reconstructed largely on the existing alignment, access points to and across I-43 would be maintained, and no reduced accessibility for emergency service is anticipated. If a new interchange is constructed at Highland Road, access to emergency medical services would be enhanced. Both of the Split Diamond Hybrid interchange subalternatives at County Line Road would provide access for all traffic movements compared with the existing partial interchange, which could improve emergency response times. The No Access alternative at County Line Road would create more indirection for emergency services responding to incidents between County Line Road and Brown Deer Road. Vehicles would need to travel to the Mequon Road interchange to access I-43 southbound lanes.

IMPACTS TO SCHOOLS

NO-BUILD ALTERNATIVE

The No-Build Alternative would not impact schools located along the study corridor.

BUILD ALTERNATIVES

The build alternatives discussed below would impact schools at specific locations along the

corridor. Overall, the build alternatives would not affect access to study corridor schools or affect school functions or district boundaries.

The Modernization – 6 Lanes alternative would require strip acquisitions from the Nicolet High School campus on the east and west sides of I-43. This alternative would impact about 0.58 acre of strip right of way along both the east and west sides of I-43. This alternative would not impact existing athletic facilities, which include tennis courts, track and field structures, soccer fields and a football field. The alternative includes acquiring 0.35 acre of residential property and a house owned and rented by the school. Additionally, the pedestrian underpass beneath I-43 would be removed and replaced with either a tunnel or pedestrian bridge. The replaced access would comply with the ADA.

Both build alternatives at the Brown Deer Road interchange may require minor strip right of way acquisition at Indian Hill Elementary School (also the site of New World Montessori School and daycare facilities). Neither alternative would impact school facilities, functions, parking or structures.

A new interchange at Highland Road would require property (0.20 acre) from land owned by Concordia University, on both the north and south sides of Highland Road. The build alternatives could include the reconstruction at the university's entrance on the north side of Highland Road and the driveway leading to a newly constructed parking lot located south of Highland Road. The interchange would not impact school functions, parking or campus structures. A new interchange would provide direct access to Concordia University, and provide a more direct route to MATC.

IMPACTS TO PLACES OF WORSHIP

NO-BUILD ALTERNATIVE

The No-Build Alternative would not impact churches, synagogues and other places of worship located along the study corridor.

BUILD ALTERNATIVES

The Modernization – 6 Lanes alternative would acquire property from Ozaukee Congregational Church in the town of Grafton. About 0.83 acre of property, immediately west of I-43, would be required. The right of way impact would not affect structures or functions of the church. The remainder of the build alternatives would not impact activities or access to churches, synagogues or other places of worship. WisDOT would coordinate with local Jewish communities to maintain eruvin that may be affected by construction activities.

IMPACTS TO ASSISTED-CARE AND ASSISTED-LIVING FACILITIES

NO-BUILD ALTERNATIVE

The No-Build Alternative would not directly affect assisted care and living facilities.

BUILD ALTERNATIVES

The build alternatives could require strip acquisitions from assisted care and living facilities at specific locations along the corridor. Overall, the build alternatives would not impact activities or access to facilities along the study corridor.

The Good Hope Road Tight Diamond interchange alternative would require a strip right of way acquisition from the Port Village senior apartment complex (0.04 acre). The acquisition would

occur along the west side of the parcel and would not affect parking, access to, or the function of the facility or any of the residential units.

Reconstructing Port Washington Road for the County Line Split Diamond Hybrid interchange, Partial Diamond and No Access alternatives would acquire about 0.32 acre of right of way from the Elizabeth Residence of Bayside. The acquisitions would occur along Port Washington Road and would not affect parking, access to, or the function of the facility or any of the residential units.

The Highland Road Tight Diamond interchange alternative would require a strip right of way acquisition at the Highlands at Newcastle Place in the city of Mequon (1.05 acres). Most of the acquisition would occur along I-43 and would not affect parking, access to, or the functions of the facility or any of the residential units. This build alternative includes reconstructing Highland Road between Port Washington Road and I-43, which acquires strip right of way in the northwest corner of the property, adjacent to the Highland Road/Port Washington Road intersection. This build alternative would also reconstruct New Castle Place's driveway along Highland Road.

IMPACTS TO CEMETERIES

NO-BUILD ALTERNATIVE

The No-Build Alternative is not expected to directly affect cemeteries along the corridor.

BUILD ALTERNATIVES

Under the build alternative, Port Washington Road would be reconstructed north of Union Cemetery in the city of Glendale. No construction is proposed at the Port Washington Road/ Lakefield Road intersection where Lakefield cemetery is located; therefore, the build alternative is not expected to directly affect cemeteries along the corridor.

IMPACTS TO HOSPITALS

NO-BUILD ALTERNATIVE

The No-Build Alternative would not directly affect hospitals in the study area or their services. However, traffic operations and safety would continue to decline with a lack of investment in modernizing and adding capacity to the freeway. The No-Build Alternative could impact overall travel reliability to and from hospitals, including emergency access.

BUILD ALTERNATIVES

None of the build alternatives impact hospitals in the study corridor. The Modernization – 6 Lanes alternative for the I-43 mainline would improve safety and travel reliability for facilities including Columbia Saint Mary's Hospital, Aurora Medical Center and other medical services providers near the study corridor. Access to Columbia Saint Mary's Hospital would be enhanced under the build alternative that constructs a new interchange at Highland Road.

IMPACTS TO COMMUNITY CENTERS AND FACILITIES

NO-BUILD ALTERNATIVE

The No-Build Alternative would not impact community centers and facilities located along the study corridor.

BUILD ALTERNATIVES

The I-43 Mainline South Segment Modernization – 6 Lanes (Mainline Shifted East) alternative would require 0.16 acre of strip right of way from the North Shore Water Treatment Facility property. The right of way would be required along the east side of the treatment plant property and would avoid the plant's facilities and maintain the existing driveway access on Port Washington Road. The build alternatives would not impair the uses of community centers or facilities in the study corridor.

3.5.3. Mitigation of Adverse Impacts to Institutional and Public Services

WisDOT and FHWA will fairly compensate schools, churches and other institutions for land acquired as part of the study. WisDOT will continue to coordinate with affected institutions and other community stakeholders to minimize property impacts with future design refinements. Among specific issues, WisDOT will also continue coordination with the North Shore Water Commission to minimize impacts to operations and Nicolet High School regarding pedestrian access to the athletic fields east of I-43.

During preliminary engineering, WisDOT would begin its Community Sensitive Solutions (CSS) process, which would develop aesthetic concepts through coordination with study corridor communities and stakeholders. WisDOT is developing a traffic mitigation plan, which will include coordination with emergency service providers and other stakeholders to mitigate traffic impacts and maintain access during construction. WisDOT will coordinate with local Jewish communities to maintain eruvin that may be affected by construction activities.

3.6. SOCIOECONOMIC CHARACTERISTICS

3.6.1. Affected Environment

The study corridor is located in both Milwaukee and Ozaukee counties in southeastern Wisconsin. Communities adjacent to the study corridor are listed in **Table 3-1**. The following subsections describe the demographic and economic characteristics of the study corridor communities.

POPULATION CHARACTERISTICS

Table 3-9 shows the 2000 and 2010 population figures for the state of Wisconsin, the southeastern Wisconsin region, Milwaukee and Ozaukee counties, and the eight communities along the study corridor.

Between 2000 and 2010, the state's population increased by 6 percent and the region's population increased by 4.6 percent. Milwaukee County, which is the most populous county in the state and the region, had a slight population increase of 0.8 percent during this timeframe. This was the county's first 10-year population increase since the 1960s. All five Milwaukee County communities along the study corridor experienced slight decreases in population (-0.4 percent to -4.4 percent). Ozaukee County, which is the least populous county in the region, increased in population by 5.0 percent between 2000 and 2010. This was the county's slowest rate of growth in several decades. The populations in the city of Mequon and village of Grafton increased at a faster pace than the county at 6.0 percent and 11.1 percent, respectively. The town of Grafton had a slight decrease in population at 1.9 percent.

Table 3-9: Past Population – State, Region, Counties and Community

Place	2000 Population	2010 Population	Difference	Percent Change
State of Wisconsin	5,363,675	5,686,986	323,311	6.0
Southeast Wisconsin Region	1,931,165	2,019,970	88,805	4.6
Milwaukee County	940,164	947,735	7,571	0.8
City of Glendale	13,367	12,872	-495	-3.7
Village of Bayside	4,518	4,389	-129	-2.9
Village of Fox Point	7,012	6,701	-311	-4.4
Village of River Hills	1,631	1,597	-34	-2.1
Village of Whitefish Bay	14,163	14,110	-53	-0.4
Ozaukee County	82,317	86,395	4,078	5.0
City of Mequon	21,823	23,132	1,309	6.0
Village of Grafton	10,312	11,459	1,147	11.1
Town of Grafton	4,132	4,053	-79	-1.9

Source: U.S. Census Bureau, 2010, and SEWRPC

SEWRPC's projected population trends are shown in **Table 3-10** for the region and Milwaukee and Ozaukee counties. The population for the region is expected to increase 16.5 percent between 2010 and 2050. The projected population growth for Milwaukee County at 3.1 percent is expected to be slower than the regional growth in population. Ozaukee County's population is projected to increase at a faster pace than the region at 26.3 percent. This rate of growth is slower in comparison to the previous 40 year period (1970 to 2010) when Ozaukee County's population increased by 58.6 percent.

Table 3-10: Population Projections – Milwaukee and Ozaukee Counties and Region

Place	2010	2020	2030	2040	2050	Difference (2010-2050)	Percent Change (2010-2050)
Milwaukee County	947,735	959,830	970,831	973,264	976,704	28,969	3.1
Ozaukee County	86,395	92,031	99,123	104,657	109,075	22,680	26.3
Southeast Wisconsin Region	2,019,970	2,109,005	2,207,828	2,285,766	2,354,040	334,070	16.5

Source: SEWRPC's Technical Report No. 11: The Population of Southeastern Wisconsin Preliminary Draft (5th Edition). Dec. 17, 2012.

Table 3-11 shows the Wisconsin Department of Administration (DOA) population projections for the study corridor communities between 2010 and 2040. The Milwaukee County corridor communities are expected to have fairly stable populations with some communities having a slight decline in population, while Whitefish Bay shows a population increase. The corridor communities in Ozaukee County are expected to increase in population.

Table 3-11: Population Projections – Corridor Communities

Place	2000	2030	Difference (2010-2030)	Percent Change (2010-2030)
Milwaukee County Communities				
City of Glendale	12,872	12,660	- 212	-2%
Village of Bayside	14,110	15,010	900	6%
Village of Fox Point	6,701	6,270	- 431	-6%
Village of River Hills	1,597	1,615	18	1%
Village of Whitefish Bay	4,389	4,355	- 34	- 1%
Ozaukee County Communities				
City of Mequon	23,132	25,510	2,378	10%
Village of Grafton	11,459	12,770	1,311	11%
Town of Grafton	4,053	4,505	452	11%

Source: DOA

HOUSEHOLDS

Table 3-12 shows the number of households for the state of Wisconsin, the southeastern Wisconsin region, Milwaukee and Ozaukee counties and study corridor communities. Between 2000 and 2010, the number of households in the state of Wisconsin increased 9.4 percent and the region's households increased by 6.8 percent.

Milwaukee County experienced a relatively small increase of households (1.6 percent) between 2000 and 2010, reflecting the relatively built-out nature of Milwaukee County's communities. Household figures for the Milwaukee County study corridor communities were fairly stable between 2000 and 2010, ranging from a 2.8 percent decline to a 3.5 percent increase.

The growth in Ozaukee County households (10.9 percent) increased at a somewhat faster pace than the state and the region between 2000 and 2010. The three Ozaukee County study corridor communities experienced growth in households ranging between 2.7 percent in the town of Grafton and 20.1 percent in the village of Grafton. Household growth in the city of Mequon (9.4 percent) was the same as the state, but slightly less than the countywide household growth rate of 10.9 percent.

The difference in growth rates between population and households in communities along the corridor are consistent with regionwide trends. According to SEWRPC, households in the region have increased at a faster rate than the regional population for each decade going back to at least 1950. Since 1950, the number of households in the region increased by about 126 percent, while the total population increased by about 63 percent.[7] The difference in growth rates between population and households is a result of a long-term decrease in household size in the region. According to SEWRPC, the average household size for the region decreased from 2.52 in 2000 to 2.47 in 2010. In Milwaukee County and Ozaukee County the average household size decreased from 2.43 to 2.41 and 2.61 to 2.47, respectively, during this same timeframe. The historic decline in household size is due to the fact that non-family households (one-person households and households comprised of unrelated persons) have been increasing more rapidly than family households for the past several decades. This trend explains why some

[7] *SEWRPC. Technical Report No. 11: The Population of Southeastern Wisconsin Preliminary Draft (5th Edition). Dec. 17, 2012.*

communities experienced increases in the number of households while experiencing a slight decrease in population during the same time period.

Table 3-12: Households – State, Region, County and Community

Place	Households (2000)	Households (2010)	Difference (2000-2010)	Percent Change (2000-2010)
State of Wisconsin	2,084,544	2,279,768	195,224	9.4
Southeast Wisconsin Region	749,039	800,087	51,048	6.8
Milwaukee County	377,729	383,591	5,862	1.6
City of Glendale	5,772	5,815	43	0.7
Village of Bayside	1,769	1,831	62	3.5
Village of Fox Point	2,825	2,747	-78	-2.8
Village of River Hills	590	595	5	0.8
Village of Whitefish Bay	5,457	5,355	-102	-1.9
Ozaukee County	30,857	34,228	3,371	10.9
City of Mequon	7,861	8,598	737	9.4
Village of Grafton	4,048	4,863	815	20.1
Town of Grafton	1,569	1,612	43	2.7

Source: U.S. Census Bureau, 2000, 2010

Table 3-13 shows SEWRPC's household projections for the region and Milwaukee and Ozaukee counties. Households for the region are expected to increase 21.5 percent between 2010 and 2050. The projected growth in households for Milwaukee County and Ozaukee County are expected to be 6.8 percent and 26.6 percent, respectively. The household growth in Milwaukee County and Ozaukee County would account for about 15 percent and 6 percent, respectively, of the region's total household growth between 2010 and 2050. According to SEWRPC, the long standing trend of declining household size is expected to continue through 2050. The average household size between 2010 and 2050 for the region, Milwaukee County and Ozaukee County is expected to decrease from 2.47 to 2.36, 2.41 to 2.32 and 2.47 to 2.39, respectively.

Table 3-13: Household Projections – Milwaukee and Ozaukee Counties and Region

Place	2010	2020	2030	2040	2050	Difference (2010-2050)	Percent Change (2010-2050)
Milwaukee County	383,591	392,111	399,756	403,930	409,624	26,033	6.8
Ozaukee County	34,228	36,720	39,868	42,340	44,474	10,246	29.9
Southeast Wisconsin Region	800,087	844,043	892,407	932,899	972,423	172,336	21.5

Source: SEWRPC's Technical Report No. 11: The Population of Southeastern Wisconsin Preliminary Draft (5th Edition). *Dec. 17, 2012.*

AGE

The I-43 North-South Freeway study corridor extends through several communities with relatively older populations. **Table 3-14** provides an overview of the percentages of individuals who are 65 years or older for the state of Wisconsin, Milwaukee and Ozaukee counties and the municipalities along the study corridor. As of 2010, 13.7 percent of the state's population was 65 years or older. In comparison to the state, the percent of people 65 years and older was less in Milwaukee County (11.5 percent) and greater in Ozaukee County (15.3 percent).

The percentage of people 65 years and older within the Milwaukee County corridor communities typically exceeded the countywide percentage. The city of Glendale had the highest percent of persons 65 years and older at 22.6 percent. The village of Whitefish Bay at 10.6 percent was the only Milwaukee County corridor community that had a senior population percentage below the countywide percentage. In Ozaukee County, the village and town of Grafton had senior populations of 15.3 percent and 15.7 percent, respectively, which was about the same as the countywide percentage. Mequon at 17.3 percent had a higher percentage of seniors in comparison to the county, but it was still below most of the corridor communities in Milwaukee County.

Table 3-14: Persons 65 Years or Older (2010) – State, County and Community

Place	Total Population	65 and Older	Percent older than 65
State of Wisconsin	5,686,986	777,314	13.7
Milwaukee County	947,735	109,133	11.5
City of Glendale	12,872	2,908	22.6
Village of Bayside	4,389	915	20.8
Village of Fox Point	6,701	1,236	18.4
Village of River Hills	1,597	305	19.1
Village of Whitefish Bay	14,110	1,492	10.6
Ozaukee County	86,395	13,208	15.3
City of Mequon	23,132	4,003	17.3
Village of Grafton	11,459	1,751	15.3
Town of Grafton	4,053	636	15.7

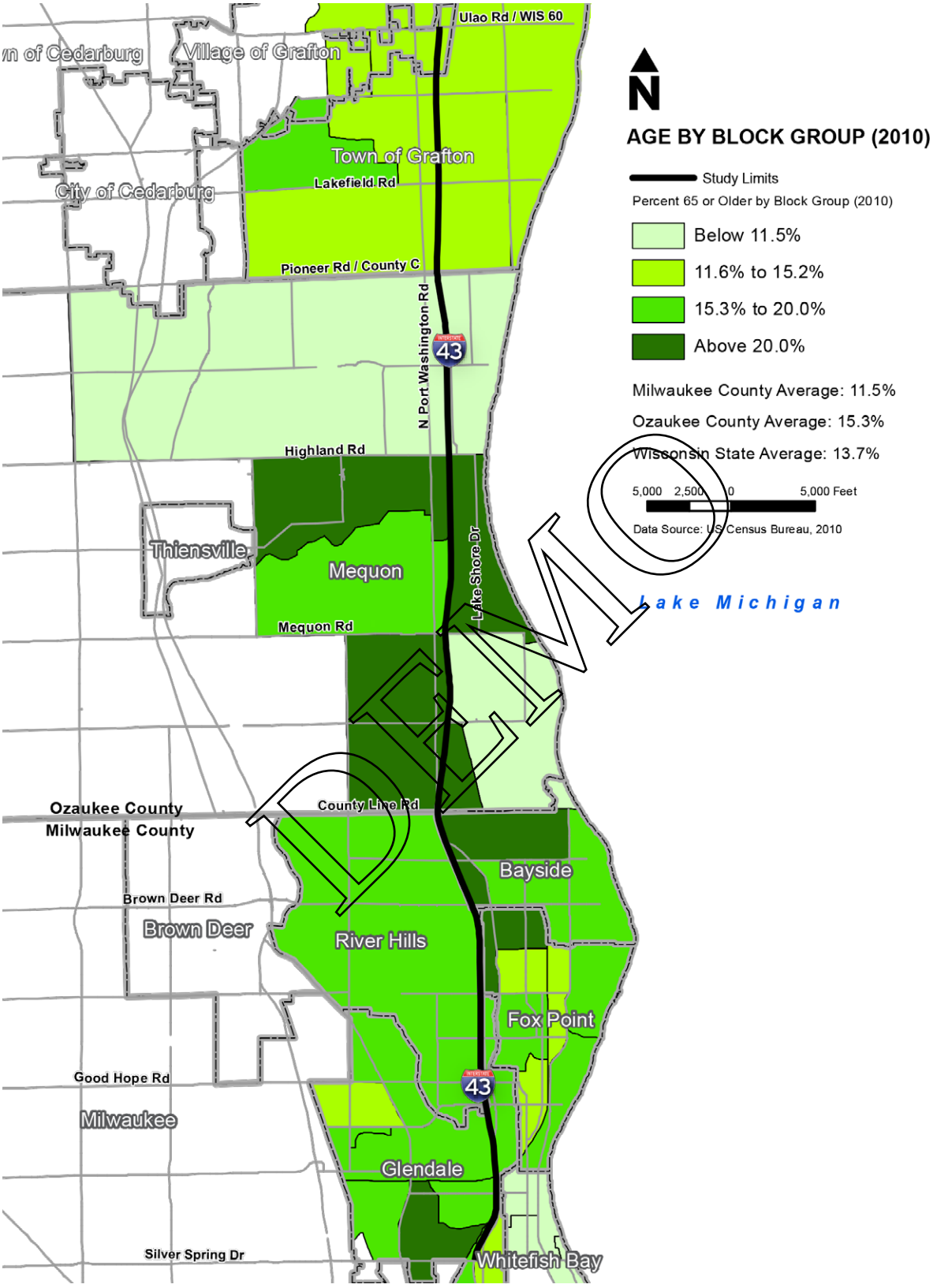
Source: U.S. Census Bureau, 2010

Exhibit 3-12 shows the percentage of people 65 years and older by census block group for the study corridor.

A few areas have substantially higher percentages of seniors living along the study corridor. One area is located in the southern portion of the city of Mequon between County Line Road and Mequon Road; the percentages of seniors in the area's three block groups range from 32.1 percent to 37.8 percent. Another area is located in the city of Glendale, west of the study corridor, in the Silver Spring Drive and Bender Road area. The percentage of seniors in this block group is 42.2 percent. Other block groups that have a high percentage of seniors (above 20 percent) are located in the northern half of the city of Mequon and in the villages of Bayside and Fox Point.

Several senior and assisted-living housing facilities are located along the study corridor, which may contribute to the relatively higher percentage of seniors along the corridor.

Exhibit 3-12: Persons 65 Years and Older by Block Group (2010)



DISABILITY

Table 3-15 provides an overview of the percentages of individuals with a disability for the state of Wisconsin, and Milwaukee and Ozaukee counties. Milwaukee County (12.1 percent) has a slightly higher percentage of disabled individuals than the state of Wisconsin (10.8 percent). Ozaukee County (8.5 percent) has a lower percentage of disabled individuals than the state. Disability status is currently not available at the municipal or block group level.

Table 3-15: Disability Status of the Civilian Noninstitutionalized Population (2010) – State and Counties

Place	Total Civilian Noninstitutionalized Population	Number of People with a Disability	Percent of People with a Disability
State of Wisconsin	5,613,402	605,869	10.8
Milwaukee County	940,063	113,986	12.1
Ozaukee County	86,303	7,328	8.5

Source: U.S. Census Bureau, 2006-2010 American Community Survey

INCOME AND POVERTY

The I-43 North-South Freeway study corridor extends through communities with low poverty rates and high median incomes. **Table 3-16** provides an overview of the median household incomes and family poverty rates for the state of Wisconsin, Milwaukee and Ozaukee counties, and the corridor communities as of 2010.

The study corridor communities in Milwaukee County have higher median household incomes relative to Milwaukee County ($43,215) and the state of Wisconsin ($51,598). Median incomes range from $60,437 in the city of Glendale to $186,154 in the village of River Hills. Reflective of the high income levels, the Milwaukee County corridor communities have a lower percentage of families in poverty compared to Milwaukee County (14.9 percent) and the state (7.7 percent). Family poverty rates for the corridor communities range from 1.4 percent in the village of Bayside to 3.2 percent in the city of Glendale.

Ozaukee County's median household income ($74,966) was the second highest in the state as of 2010. The median incomes along the study corridor range from $65,544 in the village of Grafton to $107,429 in the city of Mequon. The percentage of families in poverty was lower in the city of Mequon (0.9 percent) and the town of Grafton (1.0 percent) compared to Ozaukee County (2.4 percent). The village of Grafton's family poverty rate (3.7 percent) was slightly higher than the countywide poverty rate, but lower than the state's family poverty rate.

Exhibit 3-13 shows the median household incomes by block groups along the study corridor in Milwaukee and Ozaukee counties in 2010. Median household incomes in block groups along the corridor range from $40,190 to $250,000.

The block groups with the lowest median household incomes are at the southern end of the study corridor in the city of Glendale. The highest median household incomes are typically found in the center of the study corridor in Mequon, Bayside and River Hills.

Exhibit 3-14 shows percentage of families in poverty by block group along the study corridor in 2010. The vast majority of block groups along the corridor had family poverty rates below the Ozaukee County percentage of 2.4 percent and many block groups had no families in poverty.

Four block groups had percentages higher than 5 percent and were located in Milwaukee County. The block group with the highest percentage of families in poverty (20.8 percent) is located west of the study corridor in the city of Glendale, where low income housing and assisted living facilities are located.

Table 3-16: Median Household Income and Percent Families below Poverty Level (2010) – State, County and Community

Place	Median Household Income	Percent Families Below Poverty Level	
		Number	Percent
State of Wisconsin	$51,598	113,928	7.7
Milwaukee County	$43,215	32,661	14.9
City of Glendale	$60,437	106	3.2
Village of Bayside	$82,930	18	1.4
Village of Fox Point	$96,350	43	2.3
Village of River Hills	$186,154	7	1.4
Village of Whitefish Bay	$106,845	97	2.5
Ozaukee County	$74,996	580	2.4
City of Mequon	$107,429	60	0.9
Village of Grafton	$65,544	110	3.7
Town of Grafton	$83,293	13	1.0

Source: U.S. Census Bureau, 2006-2010 American Community Survey

The block group poverty data discussed above was obtained to help identify low income persons as part of the environmental justice analysis discussed in **Subsection 3.6.4**, Environmental Justice. FHWA Order 6640.23, Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, issued in 2012, defines low income as a person whose median household income is at or below the U.S. Department of Health and Human Services (HHS) poverty guidelines. The HHS poverty guidelines are a simplified version of the U. S. Census Bureau poverty thresholds. The HHS poverty guidelines are used to determine financial eligibility for a number of Federal programs. The U.S. Census Bureau poverty threshold figures vary by household size and number of dependents, whereas the HHS poverty guidelines vary by household size only. According to HHS, the 2014 poverty guideline for a family of four is $23,850.[8] Because the HHS does not tabulate the number of people below the poverty guidelines for specific geographic areas, the poverty thresholds determined by the U.S. Census Bureau provide the most appropriate approximation of families below the HHS poverty guidelines.

[8] *http://aspe.hhs.gov/poverty/14poverty.cfm*

Exhibit 3-13: Median Household Income by Block Group (2010)

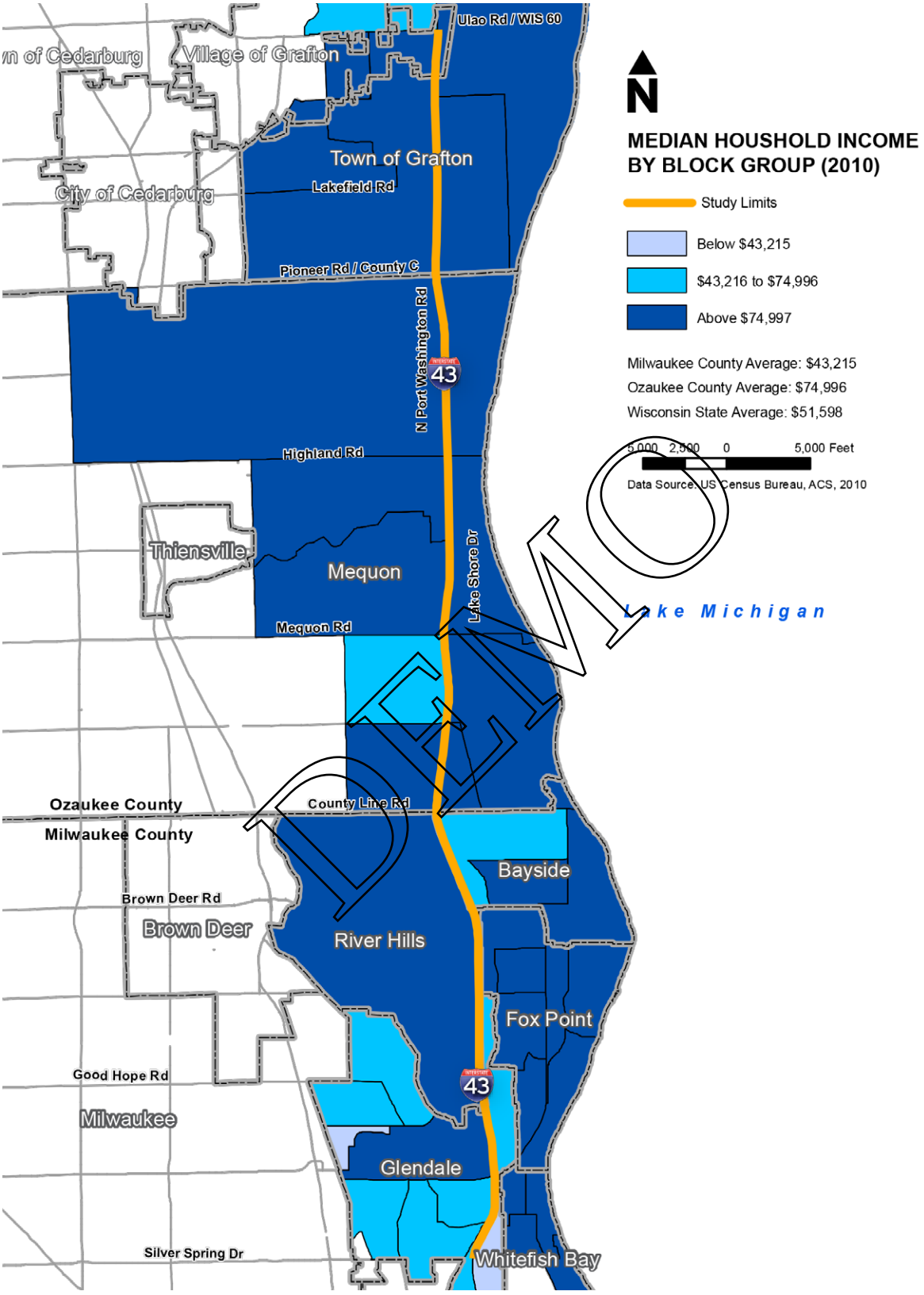
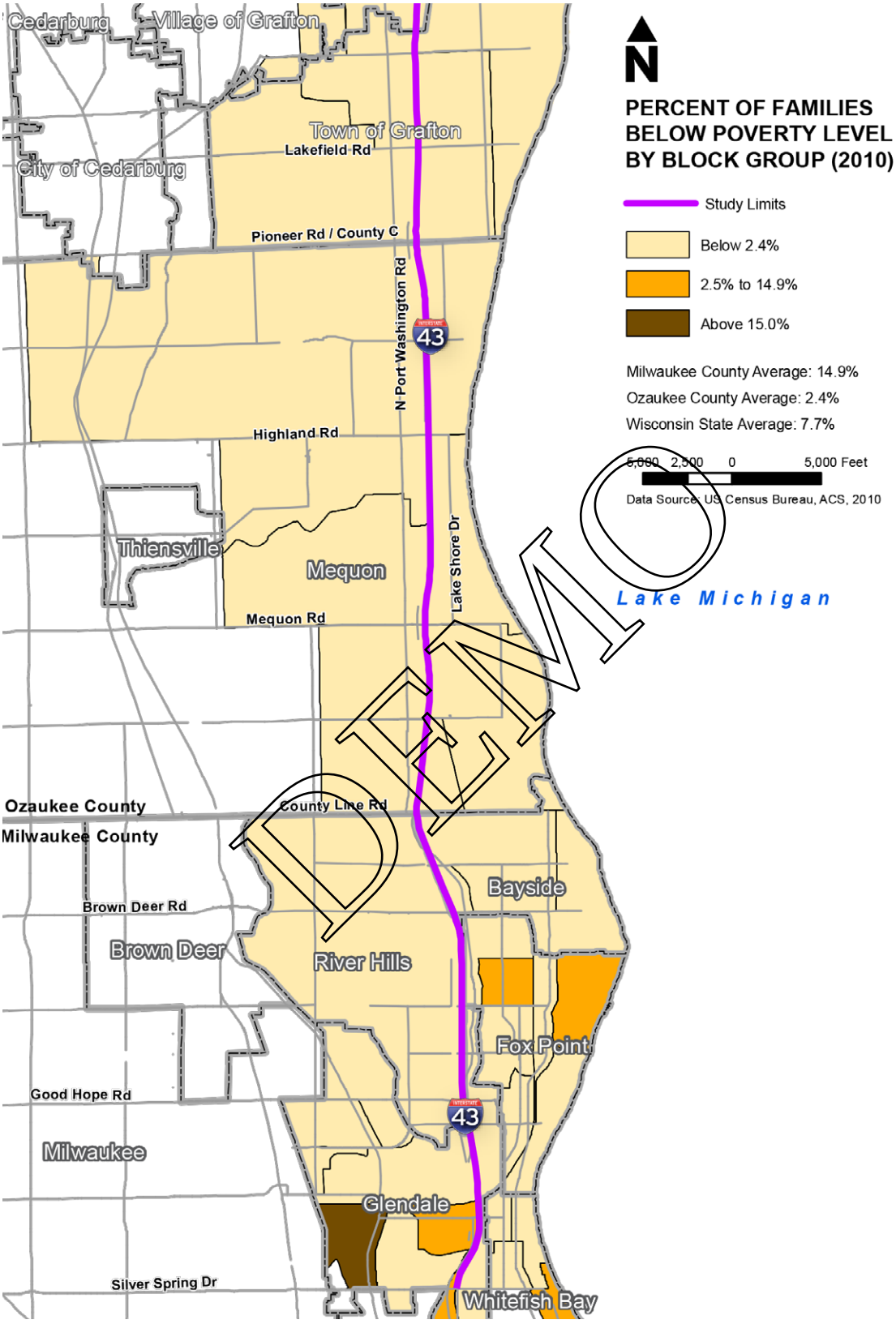


Exhibit 3-14: Percentage of Families below Poverty Level by Block Group (2010)



VEHICLE OWNERSHIP

The percentage of households with no vehicles available in Milwaukee County (13.8 percent) is about twice that of the state of Wisconsin (6.8 percent) while the percentage in Ozaukee County (3.2 percent) is about half the state average. The percentages of households with no vehicles available are relatively low among the study corridor communities ranging from 0.6 percent to 3.8 percent. One exception is the city of Glendale which has a somewhat higher percentage (9.5 percent) of households with no vehicles available, although it is still lower than the Milwaukee County percentage.[9]

In Milwaukee County, 5.8 percent of the workers 16 years and older use public transportation as a means of transportation to work. This rate is higher compared to workers who use public transit at the regional and state level, which is 3.1% and 1.8%, respectively. Transit utilization within the Milwaukee County corridor communities is lower than the countywide percentage and ranges from 0.7 percent in the village of River Hills to 2.0 percent in the village of Whitefish Bay. In Ozaukee County, which has limited transit service, only 0.4 percent of workers 16 years and older use public transportation as a means to work. Transit utilization is also very low for the Ozaukee County corridor communities ranging from 0.2 percent in the village of Grafton to 0.6 percent in the city of Mequon.[10] **Subsection 3.2.1** provides more information on transit service in the study corridor.

RACE

Table 3-17 shows the racial distribution for the state of Wisconsin, Milwaukee and Ozaukee counties and the corridor communities. The state had a minority population of 16.7 percent in 2010. Black or African American (6.2 percent) was the largest minority group in the state followed by Hispanic (5.9 percent) and Asian (2.3 percent).

In Milwaukee County, the minority population accounted for 45.7 percent of the population in 2010, which is substantially higher compared to the statewide percentage. Black or African American (26.3 percent) was the largest minority group followed by Hispanic (13.3 percent). All the Milwaukee County corridor communities had minority population percentages lower than the countywide percentage. The city of Glendale (23.1 percent) and the village of River Hills (20.0 percent) were the only Milwaukee County corridor communities with minority percentages that exceeded the state's minority percentage.

Ozaukee County's minority population was 6.6 percent in 2010, which was lower than the statewide percentage. The largest minority group in the county was Hispanic (2.3 percent) followed by Asian (1.7 percent) and Black or African American (1.3 percent). The city of Mequon's minority percentage (9.6 percent) was higher than the countywide percentage and the village of Grafton's minority percentage (6.0 percent) was just below the countywide percentage. The town of Grafton had the lowest minority percentage (4.1 percent) within the corridor communities. Asians made up the largest percentage of minorities in the city of Mequon and Hispanics made up the largest percentage of minorities in the village and town of Grafton.

Exhibit 3-15 shows the percentages of minority populations along the study corridor by block group as of 2010. The block groups that have the highest percentages of minorities are generally located at the southern end of the study corridor in the city of Glendale. In the city of Mequon, a block group located east of I-43, between Highland and Mequon roads also has a relatively high percentage of minorities (26.4 percent).

[9] *U.S. Census Bureau, 2006-2010 American Community Survey*

[10] *U.S. Census Bureau, 2006-2010 American Community Survey*

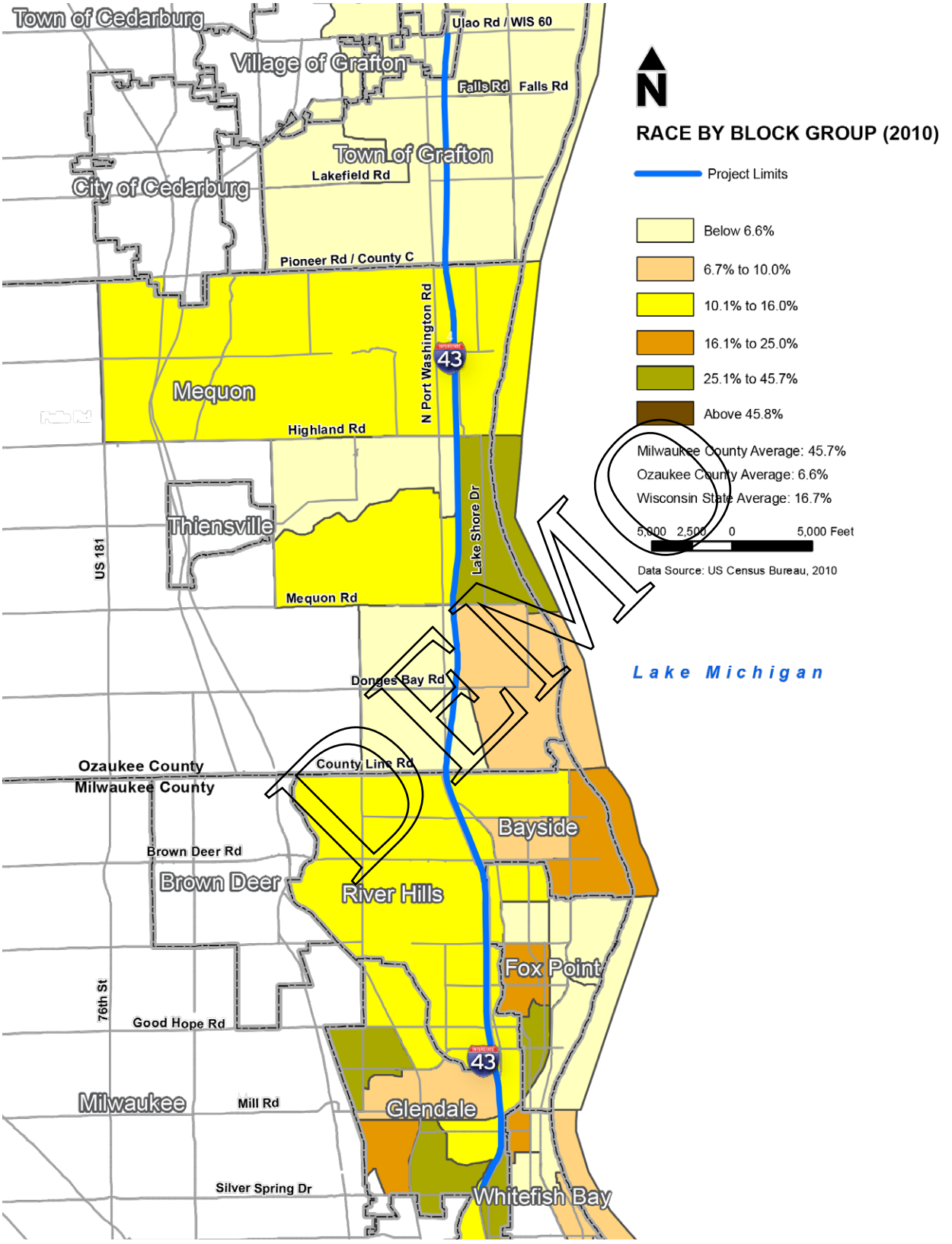
Table 3-17: Percentages of Racial Composition (2010) – State, County and Community

Place	Total	White	Black or African American	American Indian/ Alaska Native	Asian	Native Hawaiian/ Other Pacific Islander	Other	Two or More Races	Hispanic	Total Minority Population
State of Wisconsin	100%	83.3%	6.2%	0.9%	2.3%	0.0%	0.1%	1.4%	5.9%	16.7%
Milwaukee County	100%	54.3%	26.3%	0.6%	3.4%	0.0%	0.1%	2.0%	13.3%	45.7%
City of Glendale	100%	77.0%	13.8%	0.2%	3.2%	0.1%	0.2%	2.0%	3.6%	23.1%
Village of Whitefish Bay	100%	89.7%	1.9%	0.1%	3.6%	0.0%	0.2%	1.7%	2.8%	10.3%
Village of Fox Point	100%	89.6%	2.7%	0.1%	3.7%	0.0%	0.2%	1.3%	2.4%	10.4%
Village of River Hills	100%	80.0%	6.0%	0.2%	7.5%	0.0%	0.1%	2.1%	4.1%	20.0%
Village of Bayside	100%	88.4%	3.4%	0.3%	3.6%	0.1%	0.1%	1.4%	2.8%	11.7%
Ozaukee County	100%	93.4%	1.3%	0.2%	1.7%	0.0%	0.1%	1.0%	2.3%	6.6%
City of Mequon	100%	90.4%	2.7%	0.1%	3.6%	0.0%	0.1%	1.1%	2.0%	9.6%
Village of Grafton	100%	94.0%	0.7%	0.3%	1.7%	0.0%	0.1%	0.9%	2.3%	6.0%
Town of Grafton	100%	95.9%	0.5%	0.1%	0.7%	0.0%	0.2%	0.9%	1.6%	4.1%

Source: U.S. Census Bureau, 2010

Note: Minority population includes persons reported in the U.S. Census as being of Hispanic origin or reporting their race as non-Hispanic Black or African American, American Indian/Alaska Native, Asian, Native Hawaiian/Pacific Islander, some other race, or more than one race.

Exhibit 3-15: Percent Minority by Block Group (2010)



LANGUAGE

Table 3-18 shows the language spoken at home for the population 5 years and older for the state, Milwaukee and Ozaukee counties and the corridor communities in 2010. As shown in the table, English is the dominate language in the state with 91.6 percent of the population speaking English at home. Only 3.2 percent of the state's population spoke English less than "very well" as of 2010.

In Milwaukee County, 84.3 percent of the population spoke only English at home and 6.7 percent of the population spoke English less than "very well" in 2010. In comparison to the countywide percentage, most of the study corridor communities have lower percentages of individuals that speak English less than "very well," ranging from 1.4 percent in the village of Whitefish Bay to 4.5 percent in the village of River Hills. The village of Bayside is the only corridor community in Milwaukee County that has a slightly higher percentage (7.2 percent) than the county.

In Ozaukee County, 6.4 percent of the population spoke a language other than English at home and 1.8 percent spoke English less than "very well" in 2010. These percentages are lower compared to Milwaukee County and the state. The city of Mequon (2.6 percent) and the village of Grafton (2.8 percent) had slightly higher percentages of people who spoke English less than "very well" at home compared to Ozaukee County, but were still lower than the statewide percentage.

Among individuals who speak a language other than English, Indo-European languages were the most commonly spoken throughout the communities located along the study corridor. However, the data indicates that these individuals generally speak English proficiently, with only a relatively low percentage of these individuals speaking English less than "very well."

Table 3-18: Language Spoken at Home (2010) – State, County and Community

Place	Population 5 Years and Older	English Only (Percent)	Language Other than English (Percent)	Speak English Less than "Very Well" (Percent)
State of Wisconsin	5,283,093	91.6	8.4	3.2
Milwaukee County	869,764	84.3	15.7	6.7
City of Glendale	12,113	89.5	10.5	3.1
Village of Bayside	4,084	80.5	19.5	7.2
Village of Fox Point	6,320	88.7	11.3	3.6
Village of River Hills	1,583	86.3	13.7	4.5
Village of Whitefish Bay	13,008	89.7	10.3	1.4
Ozaukee County	81,342	93.6	6.4	1.8
City of Mequon	22,260	89.2	10.8	2.6
Village of Grafton	10,538	93.5	6.5	2.8
Town of Grafton	3,965	95.0	5.0	1.0

Source: U.S. Census Bureau, 2006-2010 American Community Survey

COUNTY EMPLOYMENT

Table 3-19 shows the employment levels for Milwaukee and Ozaukee counties and the Southeastern Wisconsin region between 2000 and 2010 and the projected employment levels for 2050. Employment levels for the region in 2010 were at 1,176,600, which was a 2.7 percent

decrease from 2000. According to SEWRPC, prior to the 2000s, the region had experienced a substantial net increase in jobs each decade going back to at least 1950. Job losses during the 2000s were due to the national economic recession that occurred in the late 2000s. By 2050, the region's employment is projected to increase to 1,386,900, which is a 17.9 percent increase from 2010.

Milwaukee County is the largest county in the region in terms of employment. It had 575,400 jobs in 2010. Within the region, Milwaukee County was the hardest hit by the economic recession of the late 2000s and lost 42,900 jobs between 2000 and 2010. Prior to the 2000s, Milwaukee County had relatively slow, but stable employment growth. Milwaukee County's employment is projected to increase to 608,900 in 2050, which is a 5.8 percent increase from 2010.

Within the region, Ozaukee County contains the smallest number of jobs. In 2010, the county had 52,500 jobs, which was a slight increase of 2,100 jobs since 2000. Ozaukee County's employment growth during the 2000s (4.2 percent) was much slower compared to the county's employment growth experienced during the 1990s (43.6 percent) and the 1980s (24.5 percent). Ozaukee County's employment is projected to increase to 69,300 in 2050, which is a 32 percent increase from 2010.

Table 3-19: Employment – Milwaukee and Ozaukee Counties and Region

Place	2000	2010	Difference (2000-2010)	Percent Change (2000-2010)	2050 Projection	Percent Change (2010-2050)
Milwaukee County	618,300	575,400	-42,900	-6.9	608,900	5.8
Ozaukee County	50,400	52,500	2,100	4.2	69,300	32.0
Southeast Wisconsin Region	1,209,800	1,176,600	-33,200	-2.7	1,386,900	17.9

Source: SEWRPC's Technical Report No. 10: The Economy of Southeastern Wisconsin Preliminary Draft (5th Edition). Jan. 23, 2013.

Table 3-20 shows the breakdown of employment by industry in 2010 for Milwaukee County as reported by the Wisconsin Department of Workforce Development. According to this source, Milwaukee County supported more than 465,000 jobs in 2010 with a total payroll of $21.5 billion. The education and health industry and the trade, transportation and utilities industry made up Milwaukee County's largest employment sectors, accounting for 44 percent of the county's jobs and 41 percent of the total payroll in 2010. The professional services industry was also a significant industry, accounting for another 15 percent of the county's jobs and 17 of the total payroll. Johnson Controls, with over 2,500 employees, is located less than 2 miles west of the study corridor, north of Silver Spring Drive in the city of Glendale.

Table 3-20: Employment Sectors – Milwaukee County (2010)

Industry	Annual Average Number of Jobs		Total Payroll	
	Number	Percent	Dollars (Millions)	Percent
Natural resources	85	<1	4	<1
Construction	10,594	2	621	3
Manufacturing	52,141	11	3,149	15
Trade, transportation and utilities	78,609	17	3,003	14
Financial	34,686	7	2,259	11
Professional and business services	69,880	15	3,657	17
Education and health	127,239	27	5,756	27
Leisure and hospitality	43,556	9	874	4
Other	16,719	4	406	2
Public administration	21,965	5	1,184	6
All industries	**465,103**	**–**	**21,506**	**–**

Source: Wisconsin Department of Workforce Development, 2011.

Note: The "All industries" subtotals do not sum to the "All industries" total due to suppressed data associated with Information and Unassigned industry sectors.

Table 3-21 provides information regarding the annual average number of jobs and the total payroll (in millions of dollars) in Ozaukee County. According to this data source, there were more than 37,000 jobs in Ozaukee County in 2010, with a total payroll exceeding $1.4 billion. The manufacturing industry and the education and health industry were Ozaukee County's largest employment sectors, accounting for 42 percent of the total jobs and 51 percent of the total payroll in 2010. Three of the top employers in Ozaukee County, Columbia St. Mary's Group, Concordia University and Aurora Medical Center Grafton, are located close to the study corridor.[11] See **Subsection 3.4** for more information on major economic centers in the vicinity of the corridor.

[11] *http://worknet.wisconsin.gov/worknet/jsprofile_results.aspx?menuselection=js&area=089*

Table 3-21: Employment Sectors – Ozaukee County (2010)

Industry	Annual Average Number of Jobs		Total Payroll	
	Number	Percent	Dollars (Millions)	Percent
Natural resources	193	1	6	<1
Construction	1,100	3	50	3
Manufacturing	8,216	22	425	29
Trade, transportation and utilities	6,574	18	207	14
Financial	2,118	6	121	8
Professional and business services	4,248	11	196	13
Education and health	7,588	20	328	22
Leisure and hospitality	4,102	11	52	3
Other	1,257	3	27	2
Public administration	1,678	5	58	4
All industries	**37,404**	**–**	**1,489.5**	**–**

Source: Wisconsin Department of Workforce Development, 2011

Note: The "All industries" subtotals do not sum to the "All industries" total due to suppressed data associated with Information and Unassigned industry sectors.

3.6.2. Impacts to Socioeconomic Characteristics

NEIGHBORHOOD AND COMMUNITY COHESION

The impacts of reconstructing and adding capacity to the study corridor relate to changes in the physical and social setting, community services and other factors that promote a sense of community among residents along the study corridor. Community cohesion encompasses buildings and services provided along the corridor such as churches, commercial development, social services, municipal buildings and services, parks, and schools. Neither the No-Build Alternative nor build alternatives split any neighborhoods; all existing roads across I-43 would be maintained. The I-43 mainline and related interchanges, overpasses and underpasses would remain largely within the existing freeway footprint and maintain or enhance bike and pedestrian accommodations on overpasses, underpasses and interchanges. The visual impacts would be minor and would not alter existing conditions.

During public information meetings, some comments received from local residents near the proposed Highland Road interchange expressed concern about increased traffic through residential areas west of I-43. Additional traffic may divert to Highland Road but increased traffic is also related to land uses, which influence traffic demand. **Subsection 3.22** provides detailed information about potential indirect and cumulative effects of the study alternatives.

CHANGES IN TRAVEL PATTERNS

NO-BUILD ALTERNATIVE

No substantial changes in travel patterns are expected under the No-Build Alternative. I-43 is already a well-established travel route with limited alternative north-south travel options. As congestion increases on I-43, local traffic may use Port Washington Road and Lake Drive as alternative north-south routes, causing additional congestion on local roads.

BUILD ALTERNATIVES

I-43 mainline build alternative along with the interchange build alternatives would not substantially change travel patterns in this well established travel corridor. It is expected that some traffic currently using local streets to avoid congestion on I-43 would divert back to the freeway. The expansion of Port Washington Road between Bender and Daphne roads to four lanes would serve existing travel patterns along this local road. Specific locations where travel patterns could change are at Highland Road and County Line Road, as discussed below.

A new interchange at Highland Road would change travel patterns. Destinations such as Concordia University, MATC, Columbia St. Mary's hospital and other businesses along Port Washington Road would be more accessible by the new interchange. Traffic would divert from the Mequon Road and County C interchanges, as well as Port Washington Road and Lakeshore Drive, since the new interchange would provide more direct access. Under the No Access alternative for Highland Road, the existing travel patterns would remain.

The Partial Diamond interchange alternative at County Line Road would not change travel patterns, but moves the northbound exit ramp further north to terminate at the Port Washington Road crossing of I-43 near Katherine Drive to reduce weaving between that ramp and the Brown Deer Road entrance ramp to the south. Both Split Diamond Hybrid interchange subalternatives at County Line Road also move the existing northbound exit ramp, similar to the Partial Diamond alternative, and adds a northbound entrance ramp and southbound exit ramp. The Split Diamond Hybrid (Grade Separation) subalternative has slightly more indirection for Katherine Drive access to Port Washington Road compared to existing access. The Katherine Drive/Port Washington Road intersection is moved approximately 900 feet south of the existing intersection. The Split Diamond Hybrid (without Grade Separation) subalternative maintains the intersection largely at its current location. These subalternatives would thus divert some traffic that currently uses the Brown Deer Road and Mequon Road interchanges. Access to and from County Line Road would be available via Port Washington Road. Port Washington Lane would remain to serve local residents. Under these full access subalternatives for County Line Road, local officials and some residents have raised a concern about additional traffic using local roads as shortcuts to destinations. This potential impact could be moderated by the fact that the County Line Road interchange primarily serves a residential area. Plus, non-local traffic using the interchange for access to commercial destinations on Port Washington Road are likely to remain on Port Washington Road since it is the most direct route to commercial areas.

Under the No Access alternative for County Line Road, traffic would divert to the Brown Deer Road and Mequon Road interchanges for access to and from I-43. Modifications to the Port Washington Road intersections with Mequon Road and Brown Deer Road are discussed in **Subsection 3.2.2**

BICYCLE AND PEDESTRIAN ACCOMMODATIONS

NO-BUILD ALTERNATIVE

The No-Build Alternative would not change existing bicycle or pedestrian accommodations in the study corridor.

BUILD ALTERNATIVES

Existing pedestrian and bicycle access along the study corridor would remain under the build alternatives, and access would be added or improved in certain locations. Sidewalks and bike lanes would be added where Port Washington and Jean Nicolet roads are reconstructed. Bike and pedestrian accommodations also would be included as part of reconstruction activities at cross streets at interchanges, overpasses and underpasses along the study corridor. If a build alternative is selected, the pedestrian tunnel under I-43 at Nicolet High School would be replaced to accommodate bicyclists and pedestrians and comply with ADA requirements. **Subsection 3.2.2** provides additional discussion on transportation impacts.

CHANGES IN PROPERTY VALUES

The build alternatives would require property acquisition and relocation along the study corridor, and WisDOT would fairly compensate relocated stakeholders and property owners whose property is acquired as part of a future project.

Residents who live near I-43 have expressed concern about the potential for their property values to decrease if I-43 is expanded and reconstructed, which also potentially contributes to increased noise levels along the corridor. Property values are frequently cited as a concern regarding highway reconstruction projects, but home property values are affected by numerous variables, including location, home condition, mortgage rates and the economy. Although studies have not provided conclusive evidence that highway noise reduces property values, there are strong indications that highway noise does affect values when the property use is incompatible with the highway.[12] The FHWA and WisDOT have an established process to evaluate noise impacts and potential mitigation measures, which is discussed in more detail in **Subsection 3.15**.

IMPACTS TO TAX BASE

Infrastructure improvements can permanently remove property from the local tax base, which could impact tax revenues in a community. The tax base impact for each alternative was determined using 2012 assessment figures from the Wisconsin Department of Revenue.[13] The analysis used the full assessed value for properties that would be relocated. For those properties where only a portion of land would be acquired (partial or strip acquisitions), the land value from county assessment data was used to determine the value of land to be acquired.

NO-BUILD ALTERNATIVE

The No-Build Alternative would not affect local governments' property tax receipts.

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[12] *FHWA Office of Planning, Environment, & Realty, The Audible Landscape, http://www.fhwa.dot.gov/environment/noise/noise_compatible_planning/federal_approach/audible_landscape/al07.cfm*

[13] *http://www.revenue.wi.gov/pubs/slf/tvc12.pdf*

BUILD ALTERNATIVES

Under the build alternatives, some buildings and private property would be acquired, thereby removing the property from the tax rolls. Potential impacts by community and by alternative are summarized in **Table 3-21**.

MILWAUKEE COUNTY COMMUNITIES

City of Glendale

The city had a full tax base of $1,909,411,000 and a total property tax of $54,713,436 in 2012. The gross property tax rate was 2.87 percent. The build alternatives for the I-43 mainline South Segment and the Good Hope Road interchange could reduce the city of Glendale's overall tax base by up to $2,673,478 and decrease the tax levy by up to $76,595.

Village of Whitefish Bay

There are no impacts to the tax base in the village.

Village of Bayside

The village had a full tax base of $561,263,900 and a total property tax of $16,212,302 in 2012. The gross property tax rate was 2.89 percent. The build alternatives for the I-43 mainline North Segment, and Brown Deer Road and County Line Road interchanges could reduce the village of Bayside's overall tax base by up to $865,502 and decrease the tax levy by up to $25,022.

Village of Fox Point

The village had a full tax base of $1,030,559,100 and a total property tax of $29,325,561 in 2012. The gross property tax rate was 2.85 percent. The build alternatives for the I-43 mainline North Segment and Brown Deer Road interchange would reduce the village of Fox Point's overall tax base by up to $21,331 and decrease the tax levy by up to $607.

Village of River Hills

The village had a full tax base of $470,716,900 and a total property tax of $12,807,911. The gross property tax rate was 2.72 percent. The build alternatives for the I-43 mainline North Segment, and the Good Hope Road, Brown Deer Road and County Line Road interchanges could impact the village's overall tax base by up to $593,250 and decrease the tax levy by up to $15,666.

OZAUKEE COUNTY COMMUNITIES

City of Mequon

The city had a full tax base of $3,972,167,500 and a total property tax of $71,489,490. The gross property tax rate was 1.80 percent. The build alternatives for the I-43 mainline North Segment, and County Line Road, Mequon Road, Highland Road and County C interchanges could decrease Mequon's overall tax base by up to $1,157,435 and decrease the tax levy by up to $20,834.

WisDOT requires local participation in funding the Highland Road interchange. The city may increase property taxes to raise the required funds. The city of Mequon's communitywide survey said property taxes could increase $30 to $50 per year over 20 years, depending on the value of the property.[14]

Town of Grafton

The town had a full tax base of $532,014,900 and a total property tax of $9,536,053. The gross property tax rate was 1.79 percent. The build alternatives for the I-43 mainline North Segment and County C interchange would impact the town of Grafton's overall tax base by $165,335 and decrease the tax levy by $2,963.

Village of Grafton

The build alternatives would not impact the village tax base.

Table 3-22: Build Alternatives Impacts to Property Tax Revenues

	Estimated Tax Revenue Impacts[1]					
Build Alternative Name	**Glendale**	**Bayside**	**Fox Point**	**River Hills**	**Grafton**	**Mequon**
I-43 Mainline South Segment Modernization – 6 Lanes						
Mainline Shifted East	$70,330	–	–	$7,347	–	–
I-43 Mainline North Segment: Modernization – 6 Lanes						
Milwaukee County	–	$74	$318	$21	–	–
Ozaukee County	–	–	–	–	$2,573	$6,178
Good Hope Road interchange						
Tight Diamond	$6,295	–	–	$6,312	–	–
Brown Deer Road interchange						
Diamond	–	$12,481	$287	$1,478	–	–
Diverging Diamond	–	$20,563	$289	$1,221	–	–
County Line Road interchange						
No Access	–	$4,385	–	$508	–	$520
Partial Diamond	–	$4,385	–	$508	–	$644
Split Diamond Hybrid (both subalternatives)	–	$4,385	–	$508	–	$644
Mequon Road interchange						
Tight Diamond (Mainline Shifted East)[2]	–	–	–	–	–	$12,399
Highland Road interchange						
Tight Diamond	–	–	–	–	–	$1,465
County C interchange						
Diamond	–	–	–	–	$390	$148
Total Impact	$76,559	$16,940-$25,022[3]	$605-$607[3]	$15,409-$15,666[3]	$2,963	$20,710-$20,834[3]

Source: http://www.revenue.wi.gov/pubs/slf/tvc12.pdf

1. Estimated tax revenue impacts calculated by sum partial acquisitions and relocations multiplied by 2012 gross property tax rate by community.

2. With or without Highland Road interchange.

3. Impact depends on selection of Diverging Diamond or Tight Diamond interchange at Brown Deer Road interchange and No Access or Split Diamond Hybrid at County Line Road interchange.

[14] *http://www.ci.mequon.wi.us/vertical/sites/percent7BEC6048ED-C06B-457B-A49D-CC38EE9D051C percent7D/uploads/07-23-13_COW_packet.pdf, Page 25 of 45.*

EFFECTS ON SOCIAL GROUPS

WisDOT assessed the study's potential effects on several social groups through corridor research and its public involvement program. **Section 5** summarizes the study's public and agency outreach activities.

SENIORS

Based on census data, the majority of the block groups located along the study corridor have higher percentages of people 65 years or older than Milwaukee and Ozaukee county averages.

NO-BUILD ALTERNATIVE

The No-Build Alternative would not directly affect elderly residents.

BUILD ALTERNATIVES

Under the build alternatives, minor strip acquisitions would be required from properties with multifamily housing along the corridor including units in the city of Glendale, village of Fox Point and city of Mequon. Some of these multifamily housing developments, such as the North Port Village Senior Apartments (Glendale), Elizabeth Residence of Bayside and Newcastle Place (Mequon) are examples of known multifamily senior living facilities. Right of way acquisitions from these properties would not impact services to these facilities.

The build alternatives could have an overall benefit to senior citizens who use the I-43 corridor by providing a safer design that meets current design standards and can accommodate future travel demand. WisDOT conducted a road safety audit of the I-43 North-South Freeway study corridor in spring 2013. Recommendations from the study's safety audit would benefit all users, including senior citizens. Among the audit's recommendations that could be considered during subsequent design phases are simplistic signs and messages to assist seniors by allowing them to process one item at a time. Decision points along the corridor could be separated so seniors can respond accordingly. The build alternatives would not directly affect senior citizens who do not drive.

PEOPLE WITH DISABILITIES

There are multiple assisted care and living facilities throughout the study corridor communities.[15]

NO-BUILD ALTERNATIVE

The No-Build Alternative would not directly affect populations of people who have disabilities.

BUILD ALTERNATIVES

Under the build alternatives, strip acquisitions would be required from several parcels that house assisted care and living facilities noted above, but WisDOT is not aware of any direct impacts to disabled residents. The acquisitions would be minor and would not require relocations of residents, or impact functions that these facilities provide.

[15] *Wisconsin Department of Health Services: http://www.dhs.wisconsin.gov/; calls to Ozaukee County Aging and Disability Resource Center: http://www.co.ozaukee.wi.us/adrc/ and Milwaukee County Disabilities Services Division: http://county.milwaukee.gov/dsd.htm*

NON-DRIVERS AND PEOPLE WHO ARE TRANSIT-DEPENDENT

NO-BUILD ALTERNATIVE

The No-Build Alternative would not directly impact non-drivers and people who are transit-dependent; however, decreasing safety and increased congestion could indirectly impact travel times and reliability for transit users.

BUILD ALTERNATIVES

Transit routes and transit riders that use the I-43 corridor would benefit from the improved safety and traffic operations under the build alternatives. The build alternatives also include transportation system management (TSM) measures and transportation demand management (TDM) measures that would benefit transit services in the study corridor. The I-43 Mainline Modernization – 6 Lanes alternative would improve travel time reliability by providing freeway capacity to the study corridor.

3.6.3. Mitigation of Adverse Impacts to Socioeconomic Characteristics

WisDOT will continue to coordinate with communities to minimize unavoidable socioeconomic impacts during future design phases for a preferred alternative. Improved travel reliability and safety in the study corridor can also support local economic development efforts, which can help offset unavoidable impacts to the local tax base. **Subsection 3.22** discusses the indirect and cumulative effects of the build alternatives. Measures to mitigate relocations and adverse noise impacts are further discussed in **Subsection 3.3.3** and **Subsection 3.15**, respectively.

3.6.4. Environmental Justice

The key legislation and policy directives behind environmental justice assessment requirements are Title VI of the Civil Rights Act of 1964 and Executive Order 12898 issued by President Clinton in 1994.

Title VI of the Civil Rights Act of 1964 prohibits intentional discrimination, as well as disparate impact discrimination, which results when a seemingly neutral policy has disparate impacts on protected population groups.[16] President Clinton issued Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. The Executive Order requires each federal agency to address the impacts of their programs with respect to environmental justice. To the extent practicable and permitted by law, minority and low-income populations cannot experience disproportionately high and adverse impacts as a result of a proposed project. The order also requires that representatives of low-income populations or minority populations that could be affected by the study are given the opportunity to be included in the impact assessment and public involvement process.

FHWA guidance on environmental justice and NEPA[17] outlines the elements to consider and the steps to be followed in addressing environmental justice during the NEPA review, including documentation requirements as follows:

[16] *Title VI states that "(n)o person in the United States shall, on the ground of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance."*

[17] *FHWA*. Guidance on Environmental Justice and NEPA. *Dec. 16, 2011*.

- Identification of existing populations;
- Explanation of the process involved in coordination, access to information, and participation; and
- Identification of disproportionately high and adverse effects.

As part of the I-43 North-South Freeway Corridor Study, WisDOT and FHWA conducted an environmental justice analysis to determine the potential for disproportionately high and adverse effects[18] on minority populations and low-income populations.[19] If high and adverse impacts were found to be borne disproportionately by minority populations and low-income populations, further analysis would be necessary to examine mitigation measures, offsetting benefits and impacts of other system elements in accordance with FHWA Order 6640.23, Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, issued in 2012. In conducting the environmental justice analysis, WisDOT and FHWA assessed the impacts to natural resources, the impacts to the general public and the impacts to minority populations and low-income populations, with a focus on whether or not the impacts were disproportionately borne by minority groups and low-income groups.

IDENTIFYING EXISTING MINORITY POPULATIONS AND LOW-INCOME POPULATIONS

WisDOT performed an analysis to identify socioeconomic characteristics of the corridor and to identify minority and low-income populations. The analysis also reviewed age, disability, vehicle ownership, and language characteristics. The analysis used U.S. Census Bureau block groups within a mile of the study corridor that are in communities adjacent to I-43, and it was supplemented by the I-43 North-South Freeway Corridor study team's public involvement program.

In addition to analyzing census data, WisDOT sought to identify minority and low-income populations through stakeholder interviews, contact with local property owners and discussions with elected officials and municipal staff. The study corridor block groups contain a predominately white, non-minority population with small numbers of minority residents. Some census block groups next to the study corridor have percentages of minority populations that are higher than the average percentage of minority populations in Milwaukee and Ozaukee counties. Overall, the study corridor block groups have high median household incomes and no substantial areas in the immediate study corridor have low-income populations. See **Subsection 3.6.1** for more information about race, income and language characteristics in the I-43 North-South Freeway study corridor.

COORDINATION, ACCESS TO INFORMATION AND PARTICIPATION

WisDOT developed a Public Involvement Plan, which describes the process to share information and to receive input on the I-43 North-South Freeway Corridor study. **Section 5** describes the public involvement process for the study. WisDOT contacted local municipalities, specifically the city of Glendale, where relatively higher minority populations reside, to identify if any specific environmental justice populations were present in the study corridor. While no

[18] *Adverse effects are defined in FHWA Order 6640.23 as the totality of significant individual or cumulative human-health or environmental effects, including interrelated social and economic effects, which may include, but are not limited to: bodily impairment, infirmity, illness, or death; air, noise, and water pollution and soil contamination; destruction or disruption of human-made or natural resources; destruction or diminution of aesthetic values; destruction or disruption of community cohesion or a community's economic vitality; destruction or disruption of the availability of public and private facilities and services; vibration; adverse employment effects; displacement of persons, businesses, farms, or nonprofit organizations; increased traffic congestion, isolation, exclusion, or separation of minority or low-income individuals within a given community or from the broader community; and the denial of, reduction in, or significant delay in the receipt of, benefits of FHWA programs, policies, or activities.*

[19] *Disproportionately high and adverse effect on low-income and minority populations is defined in FHWA Order 6640.23 as (1) is predominately borne by a minority population and/or a low-income population; or (2) will be suffered by the minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effect that will be suffered by the non-minority population and/or non-low-income population.*

specific groups were identified, the study team attempted to contact property owners who could be directly impacted by the build alternatives. Public information meetings were locally advertised and flyers were mailed out to residents and businesses within 1 mile of the study corridor. WisDOT held public meetings in Glendale, including Nicolet High School and St. Eugene Church, so that meeting sites were readily accessible to surrounding neighborhoods directly affected by the study alternatives. Transit service is limited in Ozaukee County; however, all the public information meeting sites in Milwaukee County were accessible by transit routes.

In addition to public information meetings, WisDOT study team members met with stakeholders throughout the corridor, including a neighborhood meeting with Glendale residents directly affected by the build alternatives. Members of minority community groups and organizations that serve low-income populations were also invited to and participated in the Indirect and Cumulative Effects focus group meeting conducted in July 2013.

IDENTIFYING DISPROPORTIONATELY HIGH AND ADVERSE EFFECTS

NO-BUILD ALTERNATIVE

While the No-Build Alternative would not have as many direct environmental impacts as the build alternatives, failure to address the condition of the I-43 North-South Freeway Corridor may have an adverse effect on low-income and minority residents, as well as the general population, because safety and traffic operations would continue to decline, compared with the build alternatives.

BUILD ALTERNATIVES

SOCIOECONOMIC EFFECTS

The build alternatives would require relocating up to 12 residences and up to three businesses adjacent to the study corridor. Before public information meetings, WisDOT attempted to contact the households and businesses that may be relocated and determined that one minority business may be relocated under the build alternative for the Mequon Road interchange, and one minority resident may be relocated as part of the I-43 Mainline South Segment Modernization – 6 Lanes (Mainline Shifted East) alternative.

Property would be required from the Ozaukee Congregational Church (0.83 acre) under the I-43 mainline North Segment build alternative. Property would also be required from Nicolet High School under both I-43 Mainline South Segment Modernization – 6 Lanes alternatives. The property impacts are not anticipated to impact the functions of the church or the school. The limited potential right of way impacts to the school and the churches would not result in disproportionate impacts to low-income populations or minority populations. **Subsection 3.3** and **Subsection 3.4** describe measures to mitigate relocation impacts. There are available business and residential properties available in the study area communities (Mequon and Glendale) that will allow the affected business and resident to relocate within the same community. Impacts could be further minimized during construction with steeper slopes and the use of retaining walls, where appropriate. Potential indirect and cumulative socioeconomic effects are discussed in detail in **Subsection 3.22**. See discussions under **Subsection 3.22.1** “Step 6: Assess Consequences and Identify Mitigation Activities” and **Subsection 3.22.2** “Regional Land Use Patterns.”

PHYSICAL AND NATURAL ENVIRONMENTS

The build alternatives would result in temporary construction impacts, greater stormwater runoff volumes and increased noise levels along the corridor. The study is not expected to

have adverse air quality effects on residents or students adjacent to the study corridor. See **Subsection 3.16.2** for air quality discussion, **Subsection 3.21.4** for construction impacts on air quality, and **Subsection 3.22.2** for cumulative effects analysis on air quality. Future construction activities could also impact travelers in the vicinity of the study corridor resulting in inconveniences and additional delays during construction.

The proposed reconstruction of the I-43 North-South Freeway Corridor and local roadway system would comply with regulations regarding stormwater runoff from highways. As a result, less pollution and suspended solids would be discharged from I-43 and the local roadway system into streams compared to the No-Build Alternative. Increased stormwater runoff quantities due to likely increases in impervious surfaces would be addressed through compliance with statewide drainage regulations and using best management practices for stormwater management.

The study's noise impacts are localized and confined to areas adjacent to the study corridor (**Subsection 3.15**). Air quality impacts of the study alternatives are described in **Subsection 3.16**. The study is not expected to have an adverse effect on residents or students adjacent to the study corridor. Carbon monoxide levels are expected to be below national standards and particulate matter concentrations should decrease based on decreases in diesel truck emission rates. Mobile source air toxics (MSATs) are expected to diminish under the build alternatives, primarily as a result of reduced emissions from new motor vehicles corridor.

TRANSPORTATION

The I-43 Mainline Modernization – 6 Lanes alternatives, along with the interchange build alternatives, would not substantially change travel patterns in this well-established travel corridor. The build alternatives would enable I-43 to continue to serve as an important link connecting low-income or minority communities with jobs. The addition of a new Highland Road interchange would divert traffic entering and exiting I-43 from other interchanges due to improved access to destinations in the immediate area. The expansion of Port Washington Road between Bender Road and Daphne Road to four lanes would serve existing travel patterns along Port Washington Road. See **Subsection 3.2** and **Subsection 3.22** for additional discussion of transportation effects.

SUMMARY

All residents and businesses would benefit to some extent through the efficient movement of goods and services. Based on WisDOT's public outreach, those directly affected by the study No-Build Alternative or build alternatives, through property acquisition, relocation, noise and other impacts, generally reflect census data for neighborhoods adjacent to the study corridor. WisDOT reviewed the census data and conducted extensive public outreach efforts which generally indicated that minority populations are present and low-income populations are not widespread in the vicinity of the study corridor.

Based on the above discussion and analysis, the build alternatives will not cause disproportionately high and adverse effects on any minority populations or low-income populations in accordance with the provisions of Executive Order 12898 and FHWA Order 6640.23. No further environmental justice analysis is required.

3.7. UTILITIES

3.7.1. Affected Environment

Underground and overhead utilities are located throughout the study corridor. Typical and notable utilities in the study corridor are described below.

- No major transmission lines cross I-43 in the study area. Underground and overhead electric utilities cross the corridor in several locations to provide electricity for local businesses and residences. Overhead electric lines run parallel to the UP Railroad throughout the study corridor.
- Gas mains run parallel to the corridor and cross I-43 within the study area. One high-pressure natural gas main crosses I-43 diagonally about 0.4 miles south of County Line Road, north of Fairy Chasm Road.
- Water mains cross I-43 in the study corridor. The cities of Mequon and Glendale and the village Fox Point receive municipal water service. The Milwaukee Water Works provides drinking water to Mequon. The North Shore Water Commission serves Fox Point, Glendale and Whitefish Bay, and it operates a the North Shore Water Treatment Plant along the west side of I-43 on Jean Nicolet Road in Glendale. Underground storage tanks for the water treatment plant are located along the existing right of way. A large intake main crosses I-43 at Bender Road to supply water from Lake Michigan to the water treatment plant. The Grafton Water and Wastewater Utility serves the village of Grafton.
- Drinking water in the village of River Hills and town of Grafton is via private wells; private wells and municipal service from Mequon provide drinking water in the village of Bayside.
- Several metropolitan interceptor sewers cross I-43. MMSD provides sanitary sewer service to most of the study corridor communities. The sanitary sewer in Grafton is maintained by the Grafton Water and Wastewater Utility.
- WisDOT has communication lines, electric lines, and storm sewers in the freeway right of way.
- WisDOT, AT&T and CenturyLink have underground fiber optic lines in the study area.

3.7.2. Impacts to Utilities

NO-BUILD ALTERNATIVE

Under the No-Build Alternative, utility impacts would be those associated with normal roadway maintenance.

BUILD ALTERNATIVES

The build alternatives may require relocation or replacement of overhead or buried utilities that would be in conflict with roadway improvements. Currently, several utility lines parallel or cross the study area freeway. The extent of utility relocations would be determined based on more detailed design during a future engineering phase. Utility impacts may include:

- Relocating electrical distribution lines and power poles;
- Relocating water mains and sewer lines;
- Relocating fiber optic lines (AT&T, CenturyLink and WisDOT);
- Relocating gas mains; and
- A small strip acquisition from the North Shore Water Commission, involving about 0.16 acres.

The underground storage tanks and operation of the plant would not be impacted.

3.7.3. Mitigation of Adverse Impacts to Utilities

WisDOT and FHWA will continue coordinating with utilities, municipalities, and Milwaukee and Ozaukee counties during the design process to avoid or minimize utility impacts, and avoid service interruptions during construction.

3.8. AGRICULTURAL RESOURCES

3.8.1. Affected Environment to Agricultural Resources

In Milwaukee County, no agricultural lands are adjacent to or near the study corridor.

In Ozaukee County, agriculture is a prevalent land use and an important economic activity. According to *Planning Report No. 87: A Farmland Preservation Plan for Ozaukee County: 2035*, in 2007, farming made up about 53 percent of the land cover and generated about $59 million in sales and revenue. Dairy farming makes up just more than half of this total, with various types of crop and livestock farming making up the remainder.[20]

According to the Natural Resource Conservation Service's soil survey, the soil in Ozaukee County is well-suited for farming. Soil associations are a distinctive pattern of soils and provide a general idea of the soils located within an area. Within the corridor area, the main soil association is Kewaunee-Manawa, which contains well-drained to somewhat poorly drained soils that have a subsoil of clay to silty, clay loam formed in thin loess, and silty clay loam till on uplands. Erosion control and drainage of low, wet areas are the main concerns in managing these soils.

Along the study corridor, agricultural land uses are limited to the northern portion of the city of Mequon and the town of Grafton. Although farming is still prevalent in Ozaukee County, it is a declining land use in the county and in the study corridor. *Planning Report No. 87: A Farmland Preservation Plan for Ozaukee County: 2035* shows that from 1980 to 2007, agricultural land uses in Ozaukee County decreased by almost 17 percent. As of August 2013, no parcels along the study corridor participate in the state's Working Lands Initiative, a program that provides income tax credits with the goal of preserving eligible farmland. Further, Ozaukee County future land use plans show all of the existing farmland along the study corridor in the city of Mequon and town of Grafton being converted to residential uses.

3.8.2. Impacts to Agricultural Resources

The build alternatives for the I-43 North-South Freeway study corridor would directly convert up to 9.6 acres of land that is currently farmed. Impacts are a result of strip acquisitions along the I-43 corridor in Ozaukee County, largely north of Highland Road, for the Modernization – 6 Lanes alternative and the County C Diamond interchange alternative. Most acquisitions from individual parcels are less than an acre in size, excepting one parcel where up to 2 acres would be acquired. No farm buildings would be acquired and no parcels are severed. Farm access would not be altered.

WisDOT completed the federal farmland impact rating form, which indicates that the build alternatives would not cause substantial impact to farmland (**Appendix C**).

[20] Planning Report No. 87: A Farmland Preservation Plan for Ozaukee County: 2035

WisDOT prepared an Agricultural Impact Notice for the Wisconsin Department of Agriculture, Trade and Consumer Protection (DATCP). DATCP responded that the potential impacts to agricultural lands are not significant and therefore an Agricultural Impact Statement would not be necessary (**Appendix C**).

3.8.3. Mitigation of Adverse Impacts to Agricultural Resources

WisDOT will continue to evaluate measures to further minimize unavoidable impacts to farmlands through preliminary engineering. During preliminary design, WisDOT will follow up with Ozaukee County to confirm that no affected properties are in wetland reserve program or conservation reserve programs.

3.9. VISUAL CHARACTER AND AESTHETICS

3.9.1. Affected Environment

In general, the topography of the corridor is level to gently rolling, with low-lying areas associated with stream crossings or wetland areas. The freeway is level with the surrounding landscape for most of the study corridor and clearly visible from the surrounding area.

The viewshed in the southern portion of the corridor contains a built environment. East of the freeway, large-scale commercial activity is visible near Silver Spring Drive as well as strip commercial development. On the west side, noise walls restrict the view of people traveling on the study corridor. North of the UP Railroad overpass, the viewshed is largely suburban, with well-established residential areas, commercial shopping centers and institutional uses, most notably Nicolet High School and its associated athletic fields. Many of the residential areas are screened by substantial tree lines. Earthen berms along both sides of I-43, located on private properties, are a noteworthy feature in the southern part of the study corridor. Within the Village of River Hills, substantial landscaped berms are located on the west side of the freeway, from just south of Bradley Road to Dean Road, and then north of Brown Deer Road to just north of Fairy Chasm Road. These berms provide a visual barrier to the freeway for some of the residences close to the freeway; they also restrict views from the freeway. There are also three berms on the east side of I-43. The first, between Bradley Road and Maple Dale Middle School, provides a visual barrier for the Porticos apartments. Two berms, located between County Line Road to Katherine Drive provide a visual barrier for residences.

In Ozaukee County, the views from I-43 are generally more rural. The wide, grass median conveys the rural character of the area. Within the city of Mequon, commercial and residential development on Port Washington Road is visible from the freeway, particularly at the Mequon Road interchange. Throughout the rest of Ozaukee County, the view from the highway includes woodlots; rolling terrain of farmland and fields; residences dotting the landscape; and some nodes of commercial and institutional uses at overpasses and interchanges.

Regarding the existing freeway design, members of the public have commented that the existing beam guard in the median and on the outside near Bender Road where the freeway narrows down into two lanes is unattractive and detracts from the overall aesthetics of the area.

3.9.2. Impacts to Visual Character and Aesthetics

Highways are prominent features in the landscape that can affect the visual quality of the natural and built environment; likewise, the visual quality of the adjacent natural and built environment affects highway travelers' visual experience. FHWA Technical Advisory T6640.8A provides guidance on the preparation and processing of environmental documents. It states that when potential for visual impact exists, an environmental study should identify the impacts to the existing resource, the relationship of the impact to potential viewers of and from the freeway, as well as measures to avoid, minimize or reduce the adverse impact.

NO-BUILD ALTERNATIVE

The No-Build Alternative would not change the visual environment.

BUILD ALTERNATIVES

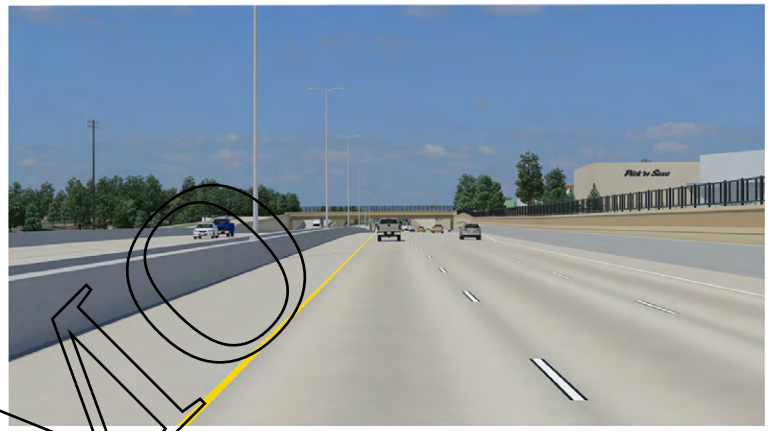
The Modernization – 6 Lanes alternative in the I-43 mainline South Segment features profile changes that may impact the visual quality of the viewshed to or from I-43 (**Exhibit 3-16**).

Exhibit 3-16: Corridor Visual Characteristics and Aesthetics

Jean Nicolet Road, looking north, near Nicolet High School

Build alternative

I-43, looking north, near Nicolet High School



Build alternative

Existing

Existing

The Modernization – 6 Lanes alternative would adjust the I-43 mainline to correct substandard design, which changes the freeway profile between Bender Road and Green Tree Road. In some locations, I-43 would be lower than its existing profile (such as near Apple Tree Road and Green Tree Road), and higher in other locations (near Nicolet High School, for example). In general, the overall effect of these alternatives would be to make the freeway less visible in some locations, which would benefit local stakeholders, but it may be more prominent at the Nicolet High School athletic field on the west side of the freeway, which may be perceived as a negative impact.

In addition to profile changes, additional visual impacts may occur due to relocations. WisDOT would relocate one home next to Jean Nicolet Road and 9 homes along Port Washington Road. Removing the impacted homes would expose the second row of homes to views of the freeway.

The No Access alternative at County Line interchange would remove the existing interchange. This alternative would remove the existing ramps and they would no longer be visible from Port Washington Road and Pheasant Lane. Overall, the Modernization – 6 Lanes alternative for the I-43 mainline North Segment would not substantially change the view from the freeway. The reconstructed highway would feature a beamguard or concrete median barrier, as opposed to the existing grass median with cable guard. This may change the corridor to have a more suburban or urban feel. The freeway would be widened to the inside to minimize impacts to wetlands and streams adjacent to the study freeway. A new interchange at Highland Road would introduce new highway infrastructure for ramps and replace the existing bridge that crosses over I-43 and the UP railroad.

Several temporary visual impacts throughout the study corridor, such as exposed earth, job-site equipment and vegetation loss, would occur during construction. Construction of feasible and reasonable noise barriers in the study corridor could eliminate views of and from the freeway in several locations.

3.9.3. Mitigation of Adverse Impacts to Visual Character and Aesthetics

If the I-43 North-South Freeway Corridor Study proceeds to preliminary engineering for a preferred alternative, WisDOT will initiate a community sensitive solutions (CSS) process to identify measures to enhance visual quality of the freeway corridor. WisDOT will form a CSS committee of local stakeholders to identify aesthetic treatments and beautification measures to ensure the freeway complements surrounding communities' cultural context, including their architectural, historic and natural features. The build alternatives could create excess fill material during construction, which may offer WisDOT an opportunity to coordinate with local communities to identify suitable locations for earth berms to block views of the freeway. WisDOT will continue during design to quantify available fill and work with local communities to refine potential berm locations if fill material is available.

3.10. WATER RESOURCES

3.10.1. Affected Environment

SURFACE WATER AND FISHERY

The majority of the study area corridor is contained in the southern branch of the Milwaukee River Watershed. A portion of the study area corridor drains directly to Lake Michigan via Fish Creek. Several tributary streams cross the study corridor. The subsections below describe watersheds in the study area corridor.

MILWAUKEE RIVER WATERSHED

The Milwaukee River Watershed, part of the Milwaukee River Basin, consists of 204 miles of river and streams and drains 168 square miles in Milwaukee and Ozaukee counties. The Milwaukee River Watershed includes the Indian Creek and Ulao Creek subwatersheds, as well as their tributaries. All of these streams cross the freeway system within the I-43 North-South Freeway study area (**Exhibit 3-17**).

Indian Creek is a 2.6-mile-long stream that crosses the study area under I-43 south of the Brown Deer Road interchange in two 15-foot-by-15-foot box culverts. It flows primarily southwest to join the Milwaukee River near Bradley Road in Glendale. According to the Wisconsin Administrative Code (NR 104.03), Indian Creek is designated for a special variance use, meaning it is unable to support full warm-water fish communities. Indian Creek is listed as impaired water under Section 303(d) of the Clean Water Act, which refers to water bodies that do not meet Federal Clean Water Act standards. Pollutants of concern in Indian Creek include high levels of suspended solids, phosphorus and metals. Indian Creek is impaired with elevated water temperature, chronic water toxicity, a degraded biological community and habitat, and low dissolved oxygen.

Without sufficient oxygen in the water, desirable species of fish and aquatic life cannot survive. The amount of dissolved oxygen in water is one of the most important water quality indicators. Stream and wetland modification, urban and rural runoff, construction site erosion, and industrial point sources of pollution are major contributors to degraded water and habitat quality within the Milwaukee River Watershed.

Ulao Creek, an unofficially named tributary of the Milwaukee River, is an 8.6-mile-long perennial stream that crosses I-43 within the study area. Ulao Creek passes under I-43 approximately 0.9 miles north of County C in three 6-foot-by-9-foot concrete box culverts, and it joins the Milwaukee River near Bonniwell Road in Mequon. Ulao Creek is considered swimmable and fishable, and is not listed as impaired water under Section 303(d) of the Clean Water Act. However, Ulao Creek does cause flooding problems. The Ozaukee County Planning and Parks Department's Ecological Division's Ozaukee Fish Passage Program is working to complete a large-scale habitat improvement and restoration project along the Milwaukee River and its tributaries, including Ulao Creek. This program is intended to improve the connectivity of Ulao Creek to allow for access to high quality habitat for native fish and wildlife.

Several small unnamed tributaries to the Milwaukee River cross I-43 within in the study area via culverts.