

## ALTERNATIVE ANALYSIS

### INTRODUCTION

This section analyzes the three previously discussed land use scenarios relative to adopted goals, objectives, and policies for both transportation and land use. To facilitate this analysis, each of the scenarios was represented in a different compilation of the socioeconomic projections. The specific data compilation for each of the scenarios can be found in Appendix B. Each of the scenarios is measured as to its compliance with the goals, objectives, and policies previously discussed in this document. The following text describes the highlights of the policy analysis.

### LAND USE

Land use goals, objectives and policies adopted in 2004 address four areas: growth management, urban service delivery, environmental resources, and open space. Discussion of the scenario analysis under each of these topic areas follows:

#### Growth Management

**Allocated Growth.** This objective promotes a balanced allocation of land, compatibility, and appropriate mix of land uses to provide accessibility to residents. As the basis for the compilation of the future population growth is based on the sewer service planning process, it fits well, in theory, with the policies under this objective. By definition, the land allocated for urban development approximates the current and future needs as determined from population, employment and land use projections developed in conjunction with adopted comprehensive or urban service area plans. How well that process supports the policies related to the encouragement of higher density, mixed use development, is in question. Since the land allocations in the sewer service area planning process are generally based on the average density of the last five years of development in each jurisdiction, compact development is not necessarily promoted. In fact, the current process may actually work against this policy, as communities developing at lower densities are allocated more acreage per projected dwelling unit than communities developing at higher densities. However, since the majority of development in the area does occur within the sewer service area, the Current Plans Scenario is more effective in managing growth than is depicted by the Full Build Scenario.

**Planned Urban Communities.** The Current Plans Scenario may not fully meet the stated policies encouraging dense development, but the sewer service area planning process has served to steer development toward infill areas for sewer extension purposes. Also, efforts in the preservation of natural and man-made features of the region have been effective. The analysis shows that a compact development situation would better accomplish these desires through the use of strong regulation and drastically lower land consumption, while the full build growth scenario would not meet any of these policies.

**Efficient Development.** The compact development scenario rates highly against the policies under this objective. Infrastructure costs are lower if significantly less concrete and pipe are needed. Denser development is inherently more conducive to efficient serviceability by alternative modes of transportation than scattered, low density development which discourages alternative modes. With low density development, pedestrian and bicycle travel is no longer convenient. Public transportation becomes inconvenient and very expensive, as vehicles must travel longer distances to pick up fewer people traveling to more dispersed destinations.

Within the context of this non-real world compact development scenario is a full variety of housing types and locations. As it is illustratively drawn, little low density development exists other than farms, a few scattered rural lots, and a limited number of large urban lots. While this may be more efficient, freedom of choice is limited, not necessarily by style, price, or prestige, but indeed by density. The Full Build Scenario, on the other hand offers limitless urban or suburban choice, but overtly defies the policy of discouraging urban sprawl; unplanned development which is non-contiguous, low density scattered, and inefficiently served. Over time, a rural environment no longer exists. Farmers and individuals desiring a truly rural environment are pushed out beyond the study area.

**Community Character Preservation.** The preservation of community character is encouraged by the adopted policies in terms of preserving and enhancing central business districts, using a coordinated scheme of preservation, renewal, and removal to maintain a viable land use mix, preservation of unique amenities, and attention to urban waterfront use and preservation. While it is understood that these policies are not necessarily inherent in any of the scenarios, the difference lies in distribution of resources. A less dense community would need to commit more of its resources to serving less efficient development, with consequently fewer resources available to maintain and enhance existing land uses. A community with more dense land use would have less infrastructure to build and maintain.

**Rural Land Development.** This objective is aimed at preventing the intermingling of rural and urban land uses. Rural development should be allowed only if it does not disturb agriculture or open space uses. One policy specifically states that rural subdivision development should be restricted in urban planning areas until long-term urban services are provided. The compact development more closely follows these policies, while even the Current Plans Scenario has little control over the pattern of rural development. In the Full Build Scenario, large tracts of rural land do not exist.

#### Urban Service Delivery

**Economical Public Facilities.** The provision of public services is undoubtedly more economical in denser development. As discussed earlier, whether sewer pipes or transit service, it costs more to go a longer distance to service fewer people.

**Cooperative Provision of Services.** While the relationship between the two extreme scenarios is similar to that for 'economical public facilities', above, the Current Plans Scenario is ranked higher than in the previous objective because of the promotion and existence of intergovernmental agreements in the sewer service districts, as well as some other public service areas, such as libraries.

**Equitable Service Delivery.** A differentiation between the scenarios in terms of equitable service delivery is impossible with the given information. While one may be obviously more efficient, equitability is an administrative issue that could be handled in a range of manners under any scenario.

**Effective Sewerage Systems.** In terms of centralization of sewerage treatment, the more contiguous development of the Compact Scenario lends itself to a more effective system. The effects of sewer service regulation, however, do encourage alternative analysis and system design based on cost-effectiveness, giving the Current Plans Scenario a fairly high rating. The scattered growth of the remaining scenario, however, encourages non-sewered development, likely system failure, and the lack of a cost-effective manner for fixing such problems.

## Environmental Resources

**Water Quality Protection.** The unregulated assumption built into the Full Build Scenario, gives way to the inherent risk of water quality deterioration, contrasted with the Current Plans Scenario which assumes at least the current Department of Natural Resources regulations protect wetlands and shorelands, and control construction site erosion. The compact development simply disturbs less land, including sensitive rural wetlands, and does not create as much construction site erosion.

**Air Quality Protection.** The analysis of the air quality implications was largely examined in terms of projected emissions from the transportation model runs. Consistently, based on VMT, a more compact development ranks better. Also, a denser land use pattern will encourage increased use of alternative transportation modes such as transit, carpooling, bicycle use, and walking. The prevalence of longer trip lengths under the Current Plans scenario more closely resembles the Full Build Scenario.

**Environmentally Sensitive Area Protection.** Under current regulations, environmentally sensitive areas are fairly well protected from development and contamination. Such regulations would be assumed to not be in place under the Full Build Scenario, and the scattering of development would likely cause damage. A more tightly urbanized pattern would not be using as much land and would be less likely to threaten sensitive areas, causing less challenge to protective regulations.

**Wildlife Habitat Management.** Land use illustrated in the Full Build and Current Plans Scenario may not have a devastating effect on wildlife, however, it could result in the fragmentation of habitats or corridors. While the Current Plans Scenario has significant scattered development, there are regulations in place to protect wildlife habitat to a large degree. Also, the somewhat lower density of urban development could be more conducive to urban wildlife proliferation than a higher density urban pattern. The Compact Scenario does not disturb as much habitat and generates less traffic on rural highways reducing the threat to animal mobility.

**Food and Fiber Production.** The primary difference between the scenarios in terms of food and fiber production is land consumption. In the Current Plans and Compact Scenario, food and fiber production still takes place within the study area. In the Full Build scenario, no land is available for such uses. The viability of farming is additionally threatened by increases in land values, land use conflicts, and safety concerns, coupled with a decrease in the availability of productive farmland caused by scattered residential, commercial, and industrial growth. Under development pressure, property taxes on farmland can increase to a point which discourages continued farming, and results in a domino effect loss in productive land. The farmland preservation program, in an attempt to curb this loss, rewards farmers for keeping land in farming with tax credits. In reality, if the demand exists and the developer is offering the right price, the temptation still exists to use the inflated value of the farmland as a retirement program, particularly when development is already making farming difficult. For that reason, the Current Plans Scenario does not fair well in this relative analysis.

**Solid Waste Management.** With regard to solid waste management, the Full Build Scenario does not fair well due to higher costs for transportation of solid waste, as well as increased potential for land use conflicts which complicate and drive up costs of disposal site location. Land use conflicts can largely be avoided through land use planning and zoning regulations assumed to exist in the other two scenarios. Compact development stifles land use conflicts of this type by leaving more opportunities available for proper and efficient facility siting.

## Open Space

**Recreational Opportunity.** A hierarchy of park sites, from neighborhood to regional parks, is needed to adequately serve an urban area. While scattered development could reduce accessibility to some residents, appropriate park development is possible under all of the land use patterns, granted community needs are properly assessed and accordingly addressed. The lesser population densities inherent in scattered development also makes it difficult to economically justify the provision of neighborhood parks, which should be spaced within a safe and convenient walking distance of residential development.

**Preservation Areas.** This objective not only calls for the preservation of uniquely significant areas, but also for the public use and enjoyment of those areas. Full build growth could pose a threat to such areas. In fact, the attractiveness of these areas could lead to their development and destruction. The preservation of these areas and public access rests on the willingness and ability of responsible governmental entities to purchase, or otherwise control use and access of the preservation areas as appropriate. History has demonstrated that there is less commitment to invest in the protection of these resources in areas of scattered development.

**Urban Recreation Needs.** Urban recreation needs could be addressed under any of the scenarios. However, with a general diluting of resources in all service areas, an urban sprawl situation could create difficulty in siting and developing adequate urban park facilities. Fragmentation of land in rural area and the higher land values for undeveloped land brought about by urban sprawl can also complicate and increase costs of acquisition and development of environmental corridors and the provision of open space for outdoor recreational activities.

**Cost Effective Recreation.** Providing all types of services to a population that is widely dispersed over a larger area can not be as cost effective as serving a more reasonably compact population. The adopted policies related to cost effective recreation discourage duplication of recreational facilities and programs and call for coordination between jurisdictions. While such coordination may be possible under scattered development, it is more complex and therefore more expensive. Concentrated growth areas would have more easily defined and consistent recreational needs that could simplify coordination efforts.

**Attractive Communities.** Again with the concentration of resources over a smaller area, dollars for beautification programs could be more concentrated and have stronger impact on the attractiveness of a community. Similar to the community character preservation objective, a stronger identification of residents with a centralized community will increase local support for such projects. The Full Build scenario increases the potential for land use conflicts, resulting in reduced visual continuity and overall community attractiveness. The planned redevelopment of waterfront properties in Fond du Lac, from older industrial use to multi-family residential development and parkland closely follows the policies in the current plan.

## **TRANSPORTATION**

The data depicted in Appendix B was used as input to the transportation model for street and highway analysis of the scenarios. The computer model provides a fairly quantitative analysis in relation to the adopted transportation policies. Exhibits 60, 61, 62 show the projected deficiencies of the existing highway plus committed projects network under the three scenario's demographic projections. Deficiencies are defined as all segments which function at level of service D, E, or F.

**Integrated Planning.** Requirements of the Transportation Equity Act for the 21<sup>st</sup> Century (TEA-21) are the basis for the policies under this objective. TEA-21 requires the update of long range transportation/land use plans every five years. These plans are to address the needs of existing and future development within a 20 to 30 year horizon and require the input of local citizens. In practice, the arena in which these plans are produced promotes compatibility between local, regional and state policies and plans, as well as between public and private transportation services. While this objective, pertaining more to the process than the product, does not realistically allow for comparison between the scenarios, the Current Plans Scenario is a product of an integrated planning process in the urban area under existing regulations.

**Maximum System Effectiveness for all Residents.** While the Current Plans Scenario does a reasonably good job of meeting the transportation needs of all residents, the somewhat dispersed land use creates challenges for public transportation for the economically disadvantaged, as well as the elderly, persons with disabilities, and other non-drivers. Efforts to meet such needs are currently being made through a coordinated effort of rural and urban services. For reasons similar to those deterring public transit use, bicycle and pedestrian modes are also deterred by dispersed land uses, and additionally by a shortage of safe and effective facilities. The Current Plans Scenario has some control over density and contiguity of development as the sewer service planning effort does base a municipality's sewer service acreage allocation on the density of the development in the previous five years. This process therefore allows continued low density development in the towns where such development has occurred in the past, having the effect of expanding the area which cannot be effectively or efficiently served by public transportation. A denser than status quo scenario would better serve those who are economically disadvantaged. The analysis demonstrates that the Compact Scenario would be more conducive to service by public transportation, and likewise encourage bicycle and pedestrian trip-making. If, indeed, development had occurred in this manner since 1960, public transportation would be servicing a more substantial role in urban trip making and the economically disadvantaged would be on a more even playing field, in terms of access to employment and services. On the other hand, the Full Build Scenario strains the ability of public transportation to economically serve those without access to an automobile. The increasing trip lengths also discourage auto owners from using public transportation for some of their trips.

**An Efficient Street and Highway System.** While a future transportation network is not being developed for each of the three land use scenarios at this time, a comparison can be made between each scenario's ability to function with the existing network plus the committed projects. Again, exhibits 60, 61, 62 show the projected deficiencies of the existing highway plus committed projects network under the three scenario's demographic projections.

Three types of emissions are monitored within the Urbanized Area. Carbon Monoxide (CO) is an invisible, poisonous gas given off in the burning of fossil fuels. The other two, Nitrous Oxide (NO) and Hydrocarbons (HC) combine to form ozone. Another form of ambient air pollutant that is of concern to the U.S. Environmental Protection Agency is particulate matter, or PM-2.5. The annual arithmetic mean for PM-2.5 cannot exceed 15 micrograms per cubic meter of air and the 24 hour average cannot exceed 65 micrograms per cubic meter of air. The Fond du Lac area is within the attainment standards for all monitored pollutants at this time. Efforts must be made to avoid exceeding these standards and maintain attainment status. It could also be noted that the Environmental Protection Agency (EPA) is currently reviewing the standards used in determining attainment status. A change in these standards could potentially cause a change in the area's status.

The traffic volumes produced by each scenario are loaded on the network to analyze deficiencies, and to compare the location and magnitude of those deficiencies between the scenarios. Exhibits 60, 61, 62 display all highway segments which operate at or below LOS D for the respective scenario. The model does not account for probable increases in the use of alternative modes when densities are higher and trip lengths are shorter. Such considerations could moderate the slightly higher strain experienced on the streets in the downtown under the Compact Scenario.

The Current Plans Scenario and the Full Build Scenario, with their more dispersed patterns of both employment and residential land uses, create more deficiencies on the outlying highways. The excessive short-comings under these scenarios, especially the Full Build Scenario, display a harshly inefficient use of the network.

**Safety.** Scattered development produces longer trips on higher speed facilities which generally results in more accidents. Higher speeds generally result in higher cost accidents as well, both in terms of property damage and personal injury. It is expected that problem areas would be addressed in a traffic operations program under any scenario, but at least in theory, this would be a more challenging effort under the Full Build Scenario. Safety and a multimodal crash analysis will be discussed in the next chapter.

**Minimum Environmental Disruption.** The results of the model analysis of these scenarios show significant difference in environmental impact between the three. For the sake of control, all three were modeled on the same highway network, the existing network plus committed projects. In examining the model output it becomes obvious that scattered development requires longer trips which result in higher VMT, higher carbon monoxide, and particulate emissions, and an apparent need for more lane miles. The higher demand for lane miles means more construction and more surface runoff which, if not properly managed, contributes to water pollution. Perhaps most significantly, denser development promotes the provision and use of more efficient and effective public and private transit services. The reduction of single occupant vehicle trips would further reduce emissions.

**Compatibility with Land Use Patterns.** The key difference between the scenarios in terms of land use compatibility concerns agricultural land uses. Since more prime agricultural land would be developed in the Full Build Scenario, significant demand for local roads to access the development as well as eventual increased capacity needs on the arterial system would occur, in many cases consuming additional prime agricultural land. The scenario which best supports the policy of minimizing the amount of land used in roadways is the Compact Scenario, with lower capacity needs in outlying areas and less need for local road development. The Current Plans scenario fairs relatively low because of the apparent need for roadway construction to serve new development areas and because of existing difficulties in effectively reserving right-of-way for proposed transportation facilities.

**Conservation of Energy.** The previously discussed propensity toward increased transit ridership, ridesharing, bicycling, etc. under the Compact Scenario would contribute to energy conservation. Generally improved levels of service (LOS) on the highway network under that situation would result in less delay for drivers and reduced emission levels.

### **Multimodal Interaction**

**-Freight Transportation.** In each scenario USH 41 provides the primary link between Fond du Lac and freight origins and destinations. Also, all three scenarios would allow for

the development of highway related uses in proximity to the corridor. One policy under this objective pertains to minimizing conflicts between truck and auto traffic. Increased volumes on USH 41 under the Full Build Scenario would increase these conflicts.

**-Public Transportation.** One of the strongest determinants of the productivity and efficiency of a public transportation system is population density. An exception to this could be an outlying destination frequented by transit dependent persons, but in general, lower density, scattered development is not conducive to this type of transit. Other types of public transit are more appropriate in lower density, or even in rural, areas. Demand responsive service responds only to requested trips, and therefore does not incur constant costs. In many rural areas, public transportation is offered at a much lower service level. Often scarce resources provide only weekly opportunities to travel to the central city, likely on a very inflexible schedule. Generally, the service level provided is dictated by density and the related trip generation potential. The aging of the population over the planning period will increase the dependence on public transportation, worsening this difficult situation.

**-Bicycle and Pedestrian Travel.** Shorter trip lengths and safe walking and riding conditions promote pedestrian and bicycle tripmaking. The policies under this objective promote the consideration of these modes in the planning and design stages for highway and street improvement projects, site design and considerations, the provision of appropriate amenities at destinations, and education and enforcement of rules of the road. The Compact Scenario has significantly higher potential for increased bicycle and pedestrian travel. Some difficulty still lies in dealing with the infrastructure which has developed to date with strong bias toward the automobile. Opportunities for retrofitting to serve these other modes effectively will likely only occur as highway expansion or reconstruction projects are required, and a full network of bicycle facilities will be slow in coming based on current trends.

## SCENARIO COMPARISON TRAVEL MODEL OUTPUT

### Current Plans (2035) Scenario Deficiencies

Under the Current Plan Scenario, projections for 2035 reveal a number of road network deficiencies in the Fond du Lac area. The deficiencies range in severity, increasing in severity from Potential to Deficient to Severely Deficient, as is evident in [Exhibit 60](#). All severity levels are present in the Fond du Lac area road network, although most occur on the west edge of the City of Fond du Lac, specifically USH 41 and its frontage roads, as well as STH 23/Johnson Street, an east-west corridor that runs the entirety of the urban area. The following is a discussion concerning deficiencies that will potentially exist for the Fond du Lac Urbanized Area under the Current Plans Scenario for 2035.

An effort has been made to arrange deficiencies to follow major transportation corridors, which is where the vast majority of deficiencies are projected to be. Nevertheless, there are few outlier deficiencies that exist and are discussed at the end of this section.

#### Corridor Deficiencies

**USH 41.** USH 41 is a freeway that acts as a major arterial for the Fond du Lac Urbanized Area, providing rapid access to the immediate area as well as to Oshkosh and the Fox Cities to the north and Milwaukee to the south. This freeway is projected to experience the greatest amount of deficiencies for the Fond du Lac Urbanized Area under the Current Plans Scenario. This route is the area of greatest concern for the Fond du Lac Urbanized Area.

Severe deficiencies are expected for almost the entire urbanized area, stretching from Townline Road in the north to the southern boundaries of the Fond du Lac Urbanized Area. The exception is the portion from Military Road/USH 151 to Hickory Street, where only potential deficiencies are likely. On and off ramps to the freeway are not exempt from deficiencies. All ramps associated with deficient stretches of USH 41 are also deficient. Coupled with severe deficiencies for the highway itself makes for a route that will most likely not operate effectively.

**Rolling Meadows Drive.** Rolling Meadows Drive acts as the western frontage road for USH 41 spanning from CTH 00 to the north and Hickory Street to the south. The road functions primarily as access for industrial and commercial uses, and is classified as an urban minor arterial. The Current Plans Scenario projects a moderate amount of deficiencies, the majority of which are in commercial and/or industrial areas.

The segment from Industrial Avenue to Johnson Street is projected to be potentially deficient in the northern half, and deficient in the southern half. A portion of the drive just south of Johnson Street is expected to be potentially deficient. The drive then remains free of deficiencies until Rogersville Road, where potential deficiencies are expected up to Military Road/USH 151. No other deficiencies are projected for Rolling Meadows Drive east of Military Road.

**Pioneer Road.** Like Rolling Meadows Drive, Pioneer Road acts as the eastern frontage road for USH 41 for the majority of its length. Extending from Melody Lane in the Village of North Fond du Lac to USH 45 on the southeast corner of the City of Fond du Lac, Pioneer Road, an urban minor arterial, sweeps across a great extent of the urbanized area. Under the Current Plans Scenario, Pioneer Road is expected to experience a moderate amount of deficiencies by 2035, primarily around key intersections and adjacent to areas of key retail, commercial, and industrial establishments.

Specifically, the portion just north of Johnson Street is projected to be potentially deficient. This segment lies just west of the largest retail mall in the Fond du Lac Urbanized Area. In addition, a small portion just south of Johnson Street will be severely deficient. This segment serves many restaurants, large retailers, and convenience stores, which may add to the congestion levels. All other sections of Pioneer Road are not projected to experience any deficiencies under the Current Plans Scenario.

**Johnson Street-STH 23.** Johnson Street is an urban principal arterial that cuts through the entire urban area, from USH 41 and beyond, to the west, and the soon to be completed USH 151 and beyond to the east. Johnson Street, as it is called in the City of Fond du Lac, is also known as STH 23 outside the city. Johnson Street will likely experience deficiencies on both its western and eastern reaches, with the middle section being relatively free of deficiencies under the Current Plans Scenario.

Beginning in the west, STH 23 is projected to experience severe deficiencies from Townline Road to USH 41. This span of the corridor is primarily rural in origin, although many housing developments exist on the country roads that empty onto the highway.

The interchange with USH 41 proves to be another area for projected deficiencies under the Current Plans Scenario. The entire stretch from Rolling Meadows Drive to Brooke Street will

likely experience deficiencies, primarily in the deficient to severely deficient classification. These deficiencies may be related to the current and planned land uses. This area provides access to the mall to the north, and restaurants, large retailers, strip malls, and other commercial establishments to the south.

The eastern set of deficiencies will likely begin at University Avenue, which provides access to the University of Wisconsin-Fond du Lac and to Fond du Lac High School, among other things. Severe deficiencies are expected up to the intersection with the USH 151 bypass, and after that a portion of Johnson Street will likely be potentially deficient.

**USH 151 corridors.** This corridor, as of 2035, will be relocated to the bypass. Currently, USH 151 goes through the city, beginning on Military Road, turning east onto Western Avenue, then north onto Macy Street and Main Street. At Scott Street, the route turns east, and eventually branches northward onto Winnebago Drive in the Town of Taycheedah. The new alignment breaks east of USH 151 in the Town of Lamartine, near CTH D. This bypass heads east, just south of the City of Fond du Lac, eventually turning north, hugging the eastern boundaries of the city, finally rejoining with the old route at Winnebago Drive, in the Town of Taycheedah.

Following the old route first and beginning in the south, deficiencies and severe deficiencies begin at Townline Road and end after the USH 151 bypass, extending over 1 mile in length. Deficiencies throughout almost the entire City of Fond du Lac are absent, with the next reappearing after the junction with Scott Street, where Winnebago Drive veers northward. The entire segment from Park Avenue, in the City of Fond du Lac to Brookhaven Beach Road in the Town of Taycheedah is likely to experience at least some form of deficiency, primarily in the potentially deficient to deficient range.

The USH 151 bypass will remain relatively free of deficiencies, with a few exceptions. The southern junction with the old USH 151 is projected to have severe deficiencies just to the west of the intersection. The intersection with USH 41 proves to garner deficiencies as well. Specifically, both lanes just west of the intersection are projected to experience potential deficiencies under the Current Plans scenario. The last set of deficiencies occurs just north of Johnston Street/STH 23, where potential deficiencies are projected until Golf Course Road.

**Scott Street.** Scott Street, as it is called in the City of Fond du Lac, is called CTH 000 in the rest of the urbanized area. In addition, STH 175 and USH 45 run with Scott Street in the western portion of the City, until Main Street. This street is classified as an urban principal arterial for the segments of concern. Deficiencies on Scott Street are projected to occur on a large proportion of the street which lies west of Main Street. The portion of Scott Street immediately surrounding USH 41 is projected to experience potential deficiencies. A lull in deficiency exists until Van Dyne Road. From Van Dyne Road to Main Street, some deficiency is likely under the Current Plans Scenario. They will likely range from being potentially deficient to deficient.

#### Other Deficient Segments

**Peters Avenue.** Peters Avenue runs north/south and provides access to commercial, institutional and residential areas. In its entirety, the avenue is likely to experience potential deficiencies from Scott Street to Johnson Street.

**Hickory Street.** Hickory Street extends from Scott Street/CTH 000 to the north and runs past USH 41 to the south. This street is classified as an urban minor arterial. Northern portions of the street provide access to residential and commercial areas, whereas in the south the road accesses industrial areas. Only the southern portion of Hickory, which lies in the industrial areas, is expected to experience deficiencies. For the most part, the deficiencies will be potential, likely stretching from Pioneer Road to USH 41.

**Main Street.** Main Street is an urban principal arterial that extends through the entire city of Fond du Lac, from Lake Winnebago to USH 41. The majority of Main Street is not projected to have any deficiencies, yet two block-long segments of the street are projected to experience potential deficiencies. The northernmost deficiency may occur between Fifth Street and Sixth Street/STH 45. The second deficiency could occur between Tenth Street and Eleventh Street. Main Street functions as both STH 45 and STH 175 in the northernmost segment, and STH 175 in the southern segments.

**Park Avenue.** Park Avenue, an urban principal arterial, is similar to Main Street due to the fact that it acts as a route from the northern most regions of the City of Fond du Lac, to the southernmost portions of the entire urban area. The avenue may experience several deficiencies, all of which are classified as potentially deficient. The first segment begins at Johnson Street and ends at Rees Street, spanning two city blocks. The other segment spans one block, from Gillett Street to First Street.

## **Full Build Scenario Deficiencies**

Projected deficiencies under the Full Build Scenario, seen in [Exhibit 61](#), are much more prevalent and more widespread when compared to the Current Plans Scenario. The Full Build Scenario assumes all land within the study area is developed. Under this scenario, it is apparent that much of the current road network for the Fond du Lac metropolitan planning area is insufficient.

For the most part, these deficiencies will occur on major corridors that transect the Urbanized Area and were intended to act as a means of traversing the area in the quickest and most efficient route. Unfortunately, many of these routes, once relatively uncongested, safe and effective paths to key locations in the area, will be cluttered and congested with a heavy amount of traffic under the Full Build Scenario.

A case by case analysis of these key corridors will be provided in the next section and will reveal the difficulties that will face the Fond du Lac Urbanized Area if completely developed. First, specific corridors of travel will be identified and briefly described. Then projections as created from the Full Build deficiency scenario will be described. This scenario will reveal the three conditions of concern: potentially deficient, deficient, and severely deficient, as they appear on the road network.

### Corridor Deficiencies

**USH 41.** As one of the key linkages connecting the Fond du Lac Urbanized Area to other urbanized areas such as Oshkosh and Fox Cities to the north, and Milwaukee and Chicago to the south, USH 41 serves a large role in the transportation network. With two lanes of traffic going both north and south, the highway is one of only a few other routes in the area to transport rapidly by motor vehicle. Creating a Full Build Scenario for the Fond du Lac area reveals that the current infrastructure of USH 41 will probably be insufficient in terms of serving the needs of the traffic that uses this route. In fact, almost the entirety of the

USH 41 corridor will be classified as severely deficient, or at the very least deficient. Although the entire highway will not be classified as deficient, the alarmingly large proportion of deficient areas to sufficient areas will inevitably create a route that is insufficient for any vehicle traveling through the Urbanized Area on the highway. The key problem areas will be explained in greater detail to illustrate the insufficiencies.

With the exception of one small segment, the entire 9.5 mile stretch of USH 41 as it extends through the Fond du Lac metropolitan planning region is projected to experience severe deficiencies. This is true for both the southbound and northbound lanes. The segment of USH 41 immediately adjacent to the USH 151 bypass interchange is expected to experience only potential deficiencies, although this is still not an optimal level. USH 41 is a transportation corridor that was designed to provide a rapid means of transport for individual motorists as well as freight. Under the Full Build Scenario, the current infrastructure of the highway will most likely be insufficient in providing efficient transportation. Rather, unsafe, congested, and traffic logged journeys on the highway are to be expected.

The on and off ramps cannot be left out of the analysis, for they provide strategic points of access to and from the freeway and play an integral role in the functioning of the highway. The vast majority of on and off ramps are projected to be deficient or severely deficient, thus adding to the overall problems likely for the USH 41 corridor in the Full Build Scenario.

The highway, by itself, does not fully explain this key corridor in the Fond du Lac Urbanized Area. The two frontage roads—Pioneer Road and Rolling Meadows Drive—supplement the capacity of USH 41 and provide access to business, industrial, and residential areas that coincide with the highway.

**Pioneer Road.** Pioneer Road, with one lane traveling in each direction, acts as the eastern frontage road for USH 41 for a great deal of its length. Not until Hickory Street does it veer away from the highway and take on an east-west alignment. At that point, it takes on the job of handling much of the traffic traveling in those directions for the southern portion of Fond du Lac. The troubled areas of Pioneer Avenue are not isolated to either its north-south stretch or its east-west stretch. Rather, the entirety of Pioneer Avenue is projected to experience deficient traffic conditions.

Beginning in the north, severe deficiencies are expected to occur around the Village of North Fond du Lac, specifically from the Melody Lane to Edgewater Drive. The remainder of the extent of Pioneer Road, culminating at Fond du Lac Street/USH 45 will likely experience deficiencies.

**Rolling Meadows Drive.** Rolling Meadows Drive is the counterpart to Pioneer Road, acting as the western frontage road to USH 41. Like Pioneer Road, Rolling Meadows Drive is projected to experience severe deficiencies in addition to deficiencies under the Full Build Scenario. The majority of the road is expected to be deficient. Severe deficiencies can be expected from Johnson Street to Military Road/USH 151. The southernmost portion of the road will most likely experience potential deficiencies.

**STH 23-Johnson Street.** Johnson Street could be viewed as one of the most important east-west corridors in the City of Fond du Lac, and perhaps for the entire urbanized area. Deficiencies span the breadth of the STH 23/Johnson Street Corridor, with essentially the entire corridor expected to experience severe deficiencies.

**USH 151-Military Road-Scott Street-Winnebago Drive.** It was noted above that STH 23/Johnson Street was perhaps the most important east-west corridor for the Fond du Lac Urbanized Area. With the completion of the USH 151 bypass, a new and rapid means of getting from the west side to the east side of the city—one without traffic lights, driveways, and stopping and starting—may begin to challenge this statement. The impact that the completion of the bypass will have is significant, raising questions about where centers of residence, commerce, and industry will and should be located. The impact of the bypass is not fully predictable, but whenever looking to the future of the transportation network in the Fond du Lac Urbanized Area, this new corridor is something that should never be overlooked—rather it should be contextualized into every analysis of traffic patterns. Heavy amounts of traffic will be traveling south and/or east to access the freeway, causing burdens on prior sufficient roadways. These are just a few potential impacts of this enormous infrastructural project for the Fond du Lac Urbanized Area.

Using projections derived from expected land use and socioeconomic conditions in the areas surrounding this large transportation project, predictions as to the deficiencies that may occur on the USH 151 bypass have been generated. From the point where the bypass veers east from traditional USH 151, severe deficiencies are expected to occur right at the access ramps and extend for over 4 miles until the intersection with USH 41. For the remainder of the bypass, in general, the bypass will be deficient. The ramps associated with the USH 151 bypass have not gone unaffected, with most expected to be deficient or severely deficient.

In light of this, under the Full Build Scenario, the USH 151 bypass, which was built in an effort to provide a quick, safe, and effective route of access for the Fond du Lac Urbanized Area is expected to be congested, unsafe, and deficient in its entirety. The traditional route of USH 151 is not expected to fair much better, as will be illustrated in the next section.

Beginning in the south, at the border of the Fond du Lac Metropolitan Planning Area boundary, severe deficiencies will likely occur all the way to Pioneer Road. Through the city of Fond du Lac, the highway will most likely experience intermittent portions of potential deficiencies. Once the business USH 151 route merges with Scott Street, deficiencies are likely until the juncture with the bypass. Severe deficiencies are expected for most of the northern stretch of USH 151, as it extends into the Town of Taycheedah.

**STH 175-Scott Street-Main Street.** The STH 175 corridor is essentially a north-south corridor for the entire Fond du Lac urbanized area. STH 175 is a highway that is parallel with USH 41 for most of its extent and is a less rapid option to get to essentially the same state-wide destinations. While in the Fond du Lac area, it winds through the City of Fond du Lac, running concurrent with Scott Street on its east-west journey, and eventually with Main Street for its north-south extent. This corridor is expected to experience deficiencies in a variety of places, over the extent of most of the urbanized area.

The majority of the STH 175 route is expected to experience deficiencies. Exceptions include the downtown business district, where deficiencies will likely be potentially deficient, and just south of the USH 151 bypass, where severe deficiencies are likely.

**Hickory Street.** The Hickory street north-south corridor begins in the north at Scott Street and extends southward through the Urbanized Area, becoming Hickory Road in the Town of Fond du Lac. Expected deficiencies are rather bi-polar on this route, most occurring either on the north end or the south end, but virtually none in the middle.

On the north end, the portion from Johnson Street to Division Street will most likely experience deficiencies for the vast majority of the stretch. On the southern end, deficiencies are likely from Arlington Avenue until Scott Road, in the Town of Fond du Lac. The portion immediately south of Scott Road is likely to have severe deficiencies.

**Park Street.** Although the Park Street corridor only provides north-south access for the City of Fond du Lac, as opposed to the greater urban area and beyond, deficiencies are projected to be prevalent and thus a discussion is necessitated. For the majority of the road, at least some form of deficiency can be expected. These deficiencies will range between potentially deficient to deficient.

**Division Street.** Much like Park Street, Division is a corridor for only the City of Fond du Lac. Nonetheless, this thoroughfare is projected to experience deficiencies under a Full Build Scenario. This street has a continuous stretch of deficiencies beginning at Hickory Street and ending at University Drive.

**Forest Avenue.** Forest Avenue is projected to experience deficiencies primarily on the western portions of its length. The 1 mile stretch between Pioneer Road and Hickory Street will be intermittently classified as potentially deficient. From Hickory Street to Main Street, the avenue will mostly be deficient, with a few blocks with potential deficiencies or no deficiencies at all.

**Western Avenue-Fourth Street-CTH T.** This corridor runs primarily east-west, beginning at Pioneer Road and extending almost to the Fond du Lac metropolitan planning boundary. Beginning at Hickory Street, Western Avenue is projected to be classified as deficient until Military Road. The portions that run through the central area of Fond du Lac are most likely to experience potential deficiencies. Eastern portions of this corridor will most likely be deficient or severely deficient.

**CTH Q-Lakeview Road-STH 149-CTH UU-CTH T.** This corridor is a collection of mostly rural roads and highways that link together in such a way that they span almost entirely the northernmost and southernmost reaches of the eastern half of the Fond du Lac urbanized area. This corridor is expected to experience several large areas of substantial and severe deficiencies under the Full Build Scenario. Under a Full Build Scenario, an unlimited number of single family residences would be permitted to be constructed in rural areas, potentially taxing the rural road network and resulting in these deficiencies. Northern portions of this corridor are projected to be potentially deficient or deficient. The central and southern portions are most likely to experience severe deficiencies.

### Common Trends

It would be impossible, if not redundant, to describe every single deficiency that is projected to occur in the Full Build Scenario. Rather, by describing the key corridors, a good understanding of the predicted state of the Fond du Lac urbanized area's road network under the Full Build Scenario can be grasped. Nevertheless, some key trends need to be noted and reinforced.

First, almost the entire network is expected to experience at least some level of deficiency, especially the extreme western sections, such as the USH 41 corridor and the many roads that feed into it. These deficiencies are so dense and severe that traffic movement along this corridor could be potentially paralyzed periodically.

Second, under a Full Build Scenario, the entire Fond du Lac urbanized area is not restrained in terms of where development could occur. This helps explain the projected deficiencies on many rural roads and highways. As many people begin to build single family residences on roads designed for light use such as agricultural and other rural needs, these once adequate routes could become overburdened by the increase in traffic brought along with their new residents.

Lastly, the historic downtown area of Fond du Lac seems to have less expected deficiencies than many other areas of the city. With the movement of commerce and retail to the west by USH 41 and perhaps to the south and east by USH 151 bypass, the pull of the central city could be replaced by the pull of the freeway.

### **Compact Scenario Deficiencies**

With a higher concentration of people using the existing road network, the vast majority of the entire Fond du Lac road network is projected to be deficient in the Compact Scenario ([Exhibit 62](#)). Compact development could produce a situation where the capacity of the roads to serve the public in an efficient manner may not be able to meet the needs of the new urban dwellers. As a result, the roads could become congested and overused. People may become frustrated with the difficulties in driving and may opt for alternative transportation modes. Higher rates of public transportation and increases in bicycling and walking to destinations could become more prevalent in this scenario.