Report On
Old Middleton Road Traffic and Street Reconstruction
(Capital Ave. west to Stonefield Rd/St. Dunstan Dr.)

Review of Actions Done to Date, Latest City Action--the St. Dunstan Drive Trial Reversal, New Neighborhood Ideas, & Potential Next Steps

(March 22, 2000)

Introduction

The purpose of this report is to:

1) review the history of activities already completed for the neighborhood regarding traffic and street reconstruction issues;

2) review the results of the City's latest action being done for the neighborhood on Old Middleton Road--the St. Dunstan Drive one-way reversal experiment;

3) review the recent ideas for Old Middleton Road from the neighborhood; and

4) review potential next steps to help gain a consensus on traffic conditions and street reconstruction.

Picture of Old Middleton Road from Capital Avenue looking west

Neighborhood and City Working to Develop A Consensus

Since June 1996, City staff has been working with the neighborhood on Old Middleton Road west of Capital Avenue to help develop a consensus on a package of treatments regarding neighborhood concerns for traffic and street reconstruction on this section of OMR.

To date, City staff has attended five major neighborhood meetings, along with several additional smaller meetings with representatives from the neighborhood. As a result of these meetings, a series of treatments regarding neighborhood concerns for traffic and street reconstruction already have been implemented. However, issues still remain, particularly with regard to the pending reconstruction of this section of Old Middleton Road.

Challenging Issues. As work has progressed, the neighborhood groups realized that the issues involving reconstruction are challenging. OMR needs repair, but residents are concerned that its rebuilding as a collector street may be in conflict with their interest in preserving the rural character of the street. Traditional or standard traffic controls also have limits as solutions to the neighborhood traffic concerns. Finding a complete and permanent solution or package of solutions may be difficult. However, the neighborhood groups are hopeful that there is a set of solutions that would preserve the rural and residential character of the area, and at the same time improve the traffic, pedestrian and bicycle conditions without shifting traffic problems from one neighborhood to another.

Neighborhood Concerns/Issues—Traffic, Street Reconstruction, Character

Through the course of this process, residents have expressed several traffic concerns about Old Middleton Road from Capital Avenue west to the City limits. These include:

- Speed of traffic
- Volume of traffic
- Pedestrian safety, including school walk route
- Bicycle safety
- Driver behavior
- Passing or overtaking on the left by motor vehicles
- Commuter cut through
- Backing from driveways

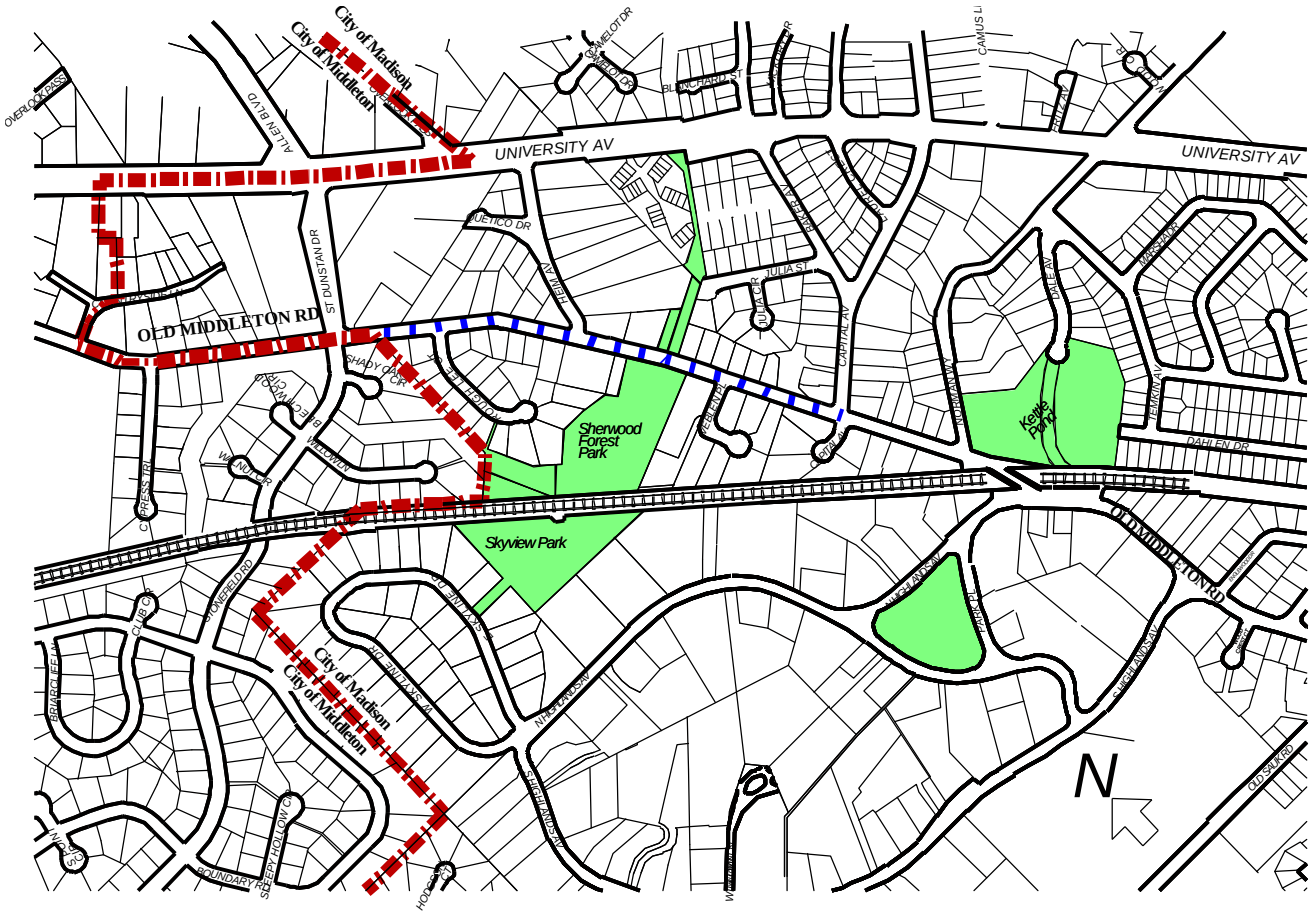
Residents have expressed concerns that the traffic volumes, driver behavior, and speeds make the street dangerous and unattractive for residents, pedestrians and bicyclists. Some residents have expressed concerns that the situation is worsened because Old Middleton Road is a rural, deteriorating, pothole-filled street with no sidewalks and narrow to non-existent shoulders. These residents state that walking, jogging or biking are rendered dangerous undertakings until one gets past the area to where sidewalks exist. On the other hand, other residents feel that the potholes may be positive conditions to help slow speeds and discourage traffic from using this route.

It seems that most residents accept that some change is necessary to address the deteriorating street. However, residents have stated that if the street needs to be reconstructed, they want a reconstructed street that is in keeping with the unique environmental quality of the current road, particularly in regard to the trees. Residents have concerns with street reconstruction over such things as street width, curb and gutter, trees, slope/grade changes, sidewalk and costs. One group's viewpoint seems to summarize the overall situation well: "*The consensus **o**f the Old Middleton Road frontage group is to maintain the rural quality and character of the neighborhood to the extent possible while at the same time reduce traffic volumes and speed, and promote pedestrian safety*."

Conditions on Old Middleton Road Today

Context and Functions. Today, Old Middleton Road is an older, rural roadway with a history dating back as the old U.S. Highway 14 (now University Avenue). The current road retains some of its importance as it functions as a collector level street in an area with few streets. As shown on maps of the neighborhood and area-wide street system, OMR provides both access and circulation to many user groups. This includes not only the 36 fronting residences, but also the hundreds more surrounding residents of Rough Lee Court, the Mendota Beach Homes Neighborhood, the Spring Harbor Neighborhood, the Highlands Neighborhood and the Stonefield Neighborhoods in Middleton. The road also is designated as a City bicycle route and school walk route due to its place in the limited street network and its important connections farther north and south into Middleton and Madison, although the road lacks all of the provisions for these functions. For some users, OMR is the only street available to access destinations both east and west, such as bus stops, schools, and other connecting streets such as Capital Avenue, Stonefield Road and University Avenue.

Map of Old Middleton Road Neighborhood
Capital Avenue West to St. Dunstan Drive and City Limits



Traffic Data. West of Capital Avenue, OMR is carrying about 3,700 to 4,200 vehicles per day. This number has been relatively steady at around the 3,900 mark since 1993, but in recent years has grown closer to the 4,200 mark as of April 1999. This represents a growth rate of about 1-2% per year. This is a typical growth rate in Madison and is consistent with variables like general population and employment growth. More information on traffic counts for this and other area streets is available in the discussion of the St. Dunstan Drive trial reversal.

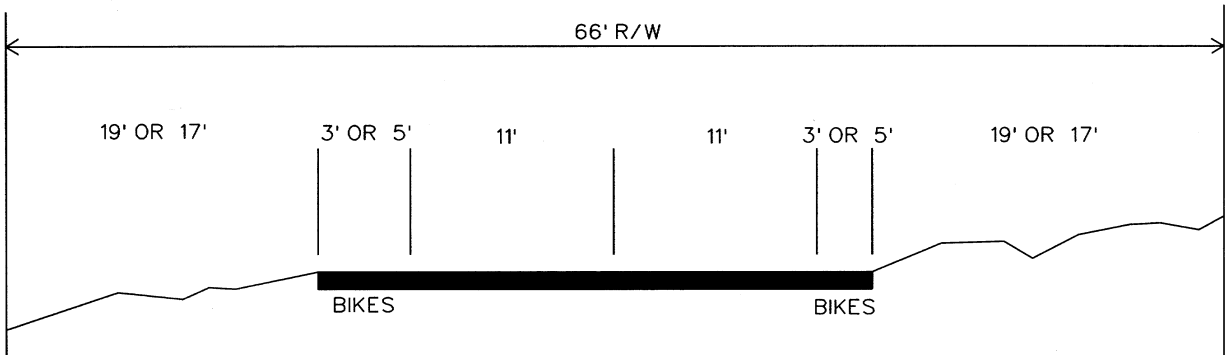
At one time, the speed limit was posted at 30 mph until the City reduced it to 25 mph as part of its work for the neighborhood. Actual speed counts taken in 1996 showed a high percentage of speeds in the high 30's and low 40's. Since some of the traffic treatments and police enforcement by the City, speeds have fallen to the lower 30's. From 1990 to1999, there were approximately 10 reported crashes on this ½ mile length of roadway (Capital Ave. to St. Dunstan Dr.). The average is about one crash per year with some years having zero accidents while other years having 2-3.

Street Cross Section Conditions. The current road has 11 foot traffic lanes with 3 to 5 foot paved shoulders on 66 feet of public right of way. Generally, the road width is 32 ft from Capital Ave. to Veblen Place, and 28 ft from Veblen Place to St. Dunstan Dr., but the widths vary.

The road has a mix of shallow ditches and some steep inclines from the roadway, and has no sidewalk on either side. The street has a mix of young and mature trees, several of significant quality. The current road and basic infrastructure is decades old, dating back to what appears to be at least 1968 or earlier. The pavement is deteriorating due to its age, shallow and poor base, and erosion and drainage problems. The road is the last remaining section of Old Middleton Road to be reconstructed. The other sections of Old Middleton Road have been reconstructed with curb and gutter, bicycle lanes, and sidewalk on one side. Several of these sections have retained a considerable number of the trees and rural qualities in place before reconstruction. In 1982, the City planned to reconstruct the subject street section but this met with resistance, so the City just continued to perform temporary maintenance. Since then, the City has done its best to keep the roadway together with pothole patching and chip sealing

Figure 1 shows the cross section for the existing street. As noted, the current pavement width varies from 28 to 32 feet, and in some areas is wider. The width of the shoulders, ditches and slopes beyond the pavement vary as the shoulders have been eroded and encroached upon. Although field investigations have been made, the exact dimensions for the pavement, shoulders, ditches, grades, trees and other features have not yet been determined. The standard practice for getting this information is a detailed engineering survey. Normally, a survey is done when the community has decided to proceed on a construction project. Once a survey is done, then definitive design alternatives and impacts can be developed.

FIGURE 1 EXISTING CONDITIONS



A Wide Range of Potential Solutions Reviewed with Residents and Neighbors

To address resident and neighborhood concerns for traffic and street reconstruction, the City Traffic Engineering Division has reviewed a wide set of alternatives and improvement options with the neighborhood ranging from:

- Traditional or standard traffic controls (signing, marking and police enforcement) to
- Street reconstruction with traffic calming features, such as raised islands to
- Street system changes, such as reversing the direction of St. Dunstan Drive

The improvement options were reviewed and developed through the course of the neighborhood meetings and report handouts provided at those meetings.

A Set of Treatments Regarding Traffic Already Implemented, But Issues Remain

After considerable review and discussion of a wide range of alternatives at the neighborhood meetings, and in response to the consensus and direction from the neighborhood and City Pedestrian-Bicycle-Motor Vehicle Commission (PBMVC), the City has implemented a series of treatments regarding traffic and street reconstruction concerns. The St. Dunstan Drive trial reversal is the latest attempt to find a sustainable solution for the neighborhood. However, issues still remain, particularly with regard to the needed reconstruction of this section of Old Middleton Road.

Changes Made. To date, the City has made the following changes with the concurrence of the neighborhood and City Pedestrian-Bicycle-Motor Vehicle Commission (PBMVC). These were made to address neighborhood concerns for traffic and street reconstruction.

1) Reduced the posted speed limit from 30 mph to 25 mph (September 1996), to better control and enforce speeds.
2) Painted and repainted double yellow centerlines on Old Middleton Road west of Capital Avenue (initially in September 1996), to reduce passing and sideswipes.
3) Installed all-way stop signs at the Capital Avenue/Old Middleton Road intersection (May 1997), to better control right of way and traffic conditions.
4) Painted and repainted edge lines/shoulder lines on OMR west of Capital Avenue, to define the shoulder and traffic lane as much as possible.
5) Reversed the direction of traffic on St. Dunstan's Drive (April 1999).*
6) Installed "No Right Turn 7-9 AM" at Heim Avenue and University Avenue (April 1999).*

*The St. Dunstan Drive trial reversal and related right turn restrictions are the latest actions being done for the neighborhood. More information on this experiment is below.

Additional Notes:

7) The City Streets Division has also patched holes in the roadway and sealcoated the street, to keep the old and deteriorating pavement together as much as possible.
8) The City Police Department has assisted with police enforcement and information.
9) The City Forestry Division has assisted with trimming vegetation and tree surveys.
10) The City Engineering Division and Traffic Engineering Division have worked on installing the public ped-bike path paralleling St. Dunstan Drive on the west side of the Asbury Methodist Church, thus providing an important ped-bike link between this part of Old Middleton Road and University Avenue

St. Dunstan Drive Reversal Experiment Implemented with the Hopes of Reducing the Traffic & Design Needs on Old Middleton Road

In an ongoing effort to identify ways to address neighborhood traffic and street reconstruction concerns on Old Middleton Road, the City has been conducting a trial reversal of St. Dunstan Drive since the spring of 1999. The City Pedestrian-Bicycle-Motor Vehicle Commission (PBMVC) approved the trial after a public hearing showed area wide support. The trial is one

option among a wide range of alternatives being studied to help minimize traffic and street reconstruction impacts on the neighborhood.

Earlier Concept of 2-Way St Dunstan w/ OMR Cul de Sac Changed to just 1-Way Reversal. The one-way reversal of St Dunstan Drive evolved out of an earlier concept of trying to redirect as much traffic as possible to University Avenue and away from Old Middleton Road. This involved making St. Dunstan Drive two-way and the replacement street for the collector function of Old Middleton Road, and cul de sacing OMR. The concept was that extending St. Dunstan Drive as two-way would direct traffic to the more appropriate facility of University Avenue, an arterial street. A two-way St. Dunstan Drive would also replace the collector street function lost with interrupting OMR at some point with a cul de sac.

The OMR neighborhood hoped that this earlier concept would be viable so that the function of Old Middleton Road could be changed from a collector street to a local street. This could then change the traffic and design parameters such that OMR could possibly be rebuilt with far fewer impacts to the existing conditions. The concept carried that if OMR had much less traffic and was not functioning as a collector street, the road could very likely be built with less stringent standards-- narrower, without dedicated bicycle lanes, without sidewalks and retain much of the current character of the road. This would not only address concerns about traffic volumes, speeding, pedestrian and bicycle safety, but also a major concern of the residents for maintaining the character and environment of the street.

However, the concept of a two-way St Dunstan Drive with a cul de sac on OMR was altered due to concerns that this might significantly increase traffic through the Stonefield neighborhoods in the City of Middleton. As part of neighborhood discussions and special traffic modelings of several street system changes by the Dane Co. Regional Planning Commission, the idea evolved of just reversing the flow on St. Dunstan Drive to carry most of the eastbound/northbound traffic to University Ave and keeping Old Middleton Road open.

The trial reversal gained widespread support in the Fall of 1998 as the next step in what had then been a multi-year discussion and alternative seeking process on the future of Old Middleton Road and traffic in the neighborhood in general. The proposal was also supported as one solution to addressing neighborhood traffic concerns without shifting the burden to other neighborhoods.

Results of St. Dunstan Drive 1-Way Reversal Experiment Limited—Issues Still Remain On How To Design & Reconstruct Old Middleton Road

City staff met with the Alderperson and a special neighborhood representative group including a representative of the St. Dunstan's Church in January 2000, to discuss the effects of the trial reversal as well as the other changes made to date. Although the traffic volumes appear to not have decreased on Old Middleton Road down to local street levels, the group felt that the speed and peak volume of traffic seem to have decreased. The general consensus of the neighborhood group was that the St. Dunstan reversal has "taken the sting out of the rush", and getting out of a driveway and onto Old Middleton Road in the morning is easier. The reversal seems to have reduced some of the regional traffic along OMR, particularly the morning peak travel period.

Traffic count data support this observation for the morning rush hour. Traffic counts on Old Middleton Road between Veblen and Heim between 7 and 8 am were 440 vehicles before the reversal of St. Dunstan's Drive and 359 vehicles after the reversal of St. Dunstan's Drive, a change of 80 vehicles or about 18% for the one hour. In the afternoon, however, the trend was

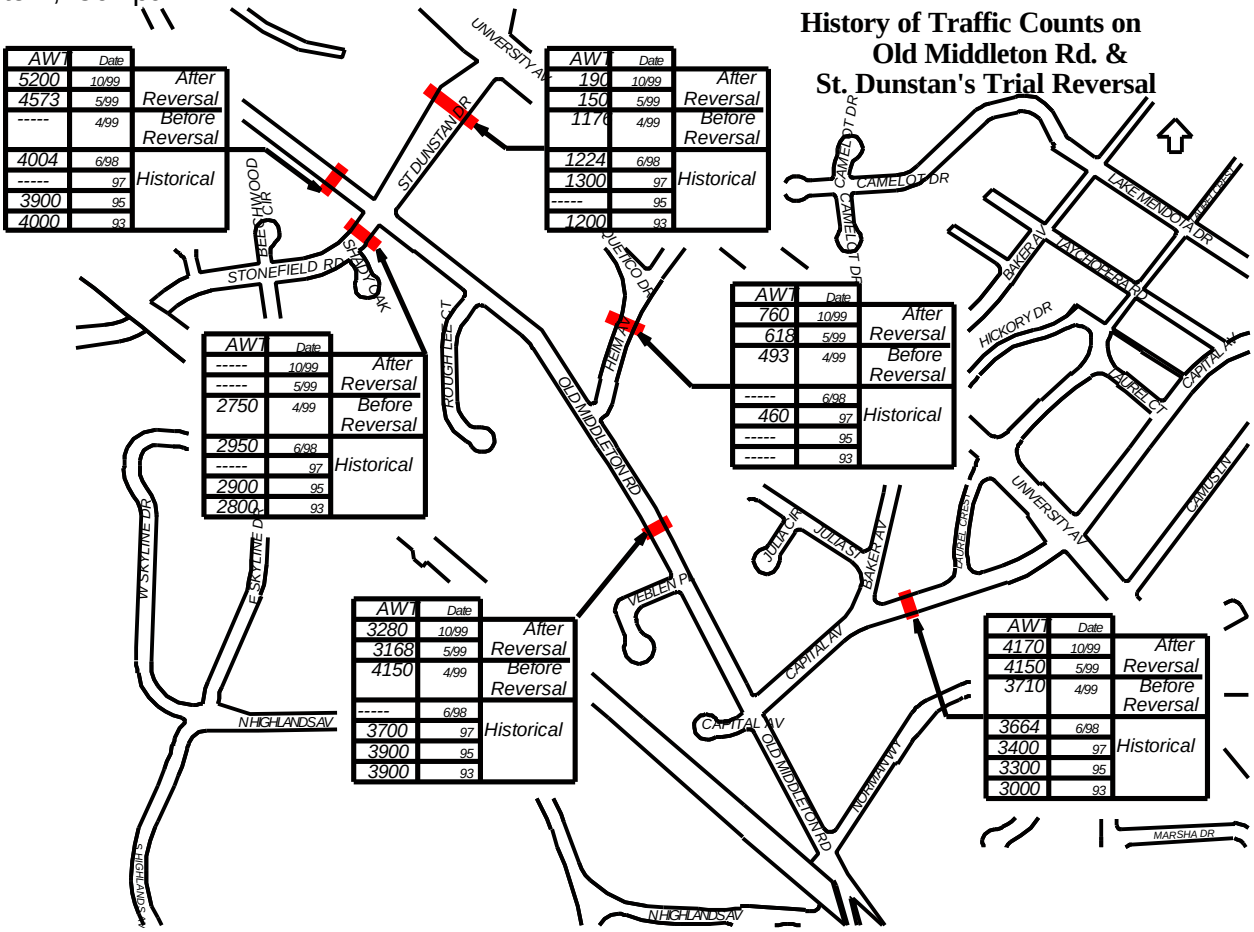
reversed. Between 4 and 6 p.m. there were 502 vehicles before the reversal and 720 vehicles after the reversal (a change of 220 vehicles or about 43% for the two hours).

Before the reversal, studies showed that St. Dunstan carried about 220 vehicles in the a.m. peak hour, with about 75% of this traffic turning left, eastbound on OMR, indicating a strong commuter level of traffic using St. Dunstan to OMR. In the p.m. peak hour, before the reversal, studies showed that St. Dunstan carried about 120 vehicles, with about 35% of this traffic turning left, eastbound on OMR, and 55% heading straight to Stonefield Rd, indicating a different pattern, perhaps more use by the neighborhood and/or more trips toward the West Towne activity center. The reversal has obviously changed these numbers and patterns dramatically.

Overall, as shown on the map below, daily volumes on St. Dunstan Dr. changed quite significantly from 1,200 vpd to about 200 vpd. This represents a change of about 1,000 vpd, vehicles, which basically have had to use other routes, and vehicles the study should account for.

Daily traffic volumes on OMR dropped considerably over the study period, but not to the levels of a local street (500-1,500 vpd). Studies show volumes on OMR dropping from about 4,150 vpd to 3,250 vpd, or about 900 vpd.

While study numbers show volumes down on OMR and St. Dunstan, the daily volumes on Heim Ave and Capital Ave have risen. Daily traffic on Heim Ave rose by about 250 vpd, from about 500 vpd to 750 vpd. Daily traffic on Capital Ave rose by about 450 vpd, from about 3,700 vpd to 4,150 vpd.



The City TE Division has received very few comments or complaints since the reversal of St. Dunstan so it appears that the reversal and its impacts have been acceptable to the community. A news article in the Wisconsin State Journal on Feb. 13, 2000 seemed to indicate general support and general success for the St. Dunstan reversal, based on the reporter's story and interviews.

Generally, the feedback from the January 2000 meeting with the neighborhood representative group and Alderperson was that the St. Dunstan reversal has had a positive effect. An important point, however, is that the traffic volume on Old Middleton Road has not been reduced down to the local street levels. Increases in traffic volumes on Heim Avenue and Capital Avenue also must be noted. One goal of the reversal of St. Dunstan's Drive was to reduce the volume on Old Middleton Road to levels more consistent with a local street rather than a collector street. The trial reversal essentially did not achieve this desired outcome.

In short, from the data available, it appears that the St. Dunstan trial reversal has reduced the a.m. peak hour traffic on Old Middleton Road. It seems to have cut down on the morning commuter rush hour and cut through traffic that existed before with a direct connection from Allen Boulevard to Old Middleton Road. Reducing this commuter element of the traffic on OMR has also likely cut down on some of the speeds and more aggressive driver behaviors on OMR. Studies to date show that the St. Dunstan reversal has reduced volumes on OMR by about 900 vpd, but this has not sufficiently reduced the volumes and speeds to change the function of OMR from what it was before the trial reversal. Some traffic conditions have improved, but the street is functioning in a collector street mode, as it did before the trial reversal.

Most Recent Neighborhood Proposals—Still Trying To Find A Silver Bullet Solution

From cul-de-sacing Old Middleton Road to making it one-way, the neighborhood is generating a new round of ideas in hopes of finding a solution that might reduce traffic volumes down to local street level, and/or avoid some of the impacts of reconstruction and the need for such things as dedicated bicycle lanes and a sidewalk on one side.

In response to the partially successful, but limited results of the St. Dunstan reversal, the neighborhood representative group and Alderperson generated several additional traffic and street system changes as potential next steps or ideas for the neighborhood to consider. Some of the ideas included:

- Eliminating Old Middleton Road as a through street by installing cul-de-sacs west of Veblen Pl.;
- Making Old Middleton Road one-way westbound from Capital Avenue to St. Dunstan Drive;
- Additional traffic calming measures were brought up for consideration; and
- An all-way STOP sign at Stonefield Road was also requested. This intersection of Stonefield Rd./St. Dunstan Dr./Old Middleton Rd is half in the City of Middleton and half in the City of Madison.

As noted, there was hope that some acceptable major street system change such as the St. Dunstan reversal experiment would reduce traffic volumes on Old Middleton Road sufficiently to be able to consider it more like a "local" street vs. a "collector" level street as the street functions today. If the street were more like a local street, the volume, speed and pedestrian and bicycle demands would be lessened and therefore the street could be designed and constructed with fewer impacts to the existing conditions. This would allow for fewer impacts on what the

neighborhood calls the “character” or the “environment” of the street. However, the St. Dunstan Drive reversal experiment and review of other St. Dunstan options did not achieve what the neighborhood had hoped for. Some volume and speed reductions were achieved with the experiment, but these were limited. The street functions much the same as it did before the reversal. The volume and speed have been lowered but not to local street levels, and the street’s pedestrian and bicycle conditions are still issues to be resolved.

Since the experiment of reversing St. Dunstan Drive has had limited results in reducing the traffic and pedestrian and bicycle safety concerns on Old Middleton Road, the question remains of whether or not any other viable alternatives are available. If there are not any other viable alternatives, there remains the issue of what design elements need to be included on the still busy collector street of OMR.

Review of Most Recent (January 2000) Neighborhood Proposals

City staff has reviewed some of the latest neighborhood ideas and identified for neighborhood and policy-maker consideration the potential advantages and disadvantages of each. It should be noted that some of the ideas have been brought up and reviewed before. What follows is an initial review of some of the latest ideas from the neighborhood.

Cul de sac Proposal

With the limited results of the St. Dunstan reversal experiment, there have been renewed calls for turning this section of Old Middleton Road into a cul-de-sac, but without providing a replacement street. A cul de sac represents the most extreme technique for deterring traffic short of barring all traffic from the street in question. Since a cul de sac is completely effective at its task of preventing through motor vehicle traffic, the choice of where and whether or not to use this treatment largely depends on other aspects of traffic movement such as the alternative streets available, impacts, and general policies and community planning.

The City Traffic Engineering Division subscribes to a policy that a set of streets should be provided to serve an area and share the tasks and burdens of carrying traffic. This is most often done with several streets in a system or grid pattern providing multiple routes, options and circulation or diffusion of traffic. The use of cul de sacs is discouraged.

Cul de sacs also run counter to the concept of Traditional Neighborhood Development (TND) and the grid street system principles and concepts of urban planning. When an area has fewer streets, the remaining available streets become more important for access and circulation for residents, businesses, pedestrians, bicyclists, and transit, service and emergency vehicles. When employed, cul de sacs are most often used on local, residential streets where access and circulation demands are very low. In addition, the cul de sac is the technique most objectionable to emergency and service personnel. Cul de sacs are also usually less well received where and when they shift traffic from one street to another.

Streets that form an important part of the street system and have performed a function for years almost always are needed unless a replacement street is provided, with community-accepted impacts identified. The alternative is that the other, remaining streets carry too much of the burden and become problematic or incompatible with surrounding uses. In addition, calls for cul de sacs are a somewhat common request in the traffic field, but they are a fleeting argument. Streets perform the dual role of property access and circulation. Not all streets can be restricted to property access. The simple fact of the matter is that a system of streets is needed for residents, neighborhoods, businesses and the community to use to move about.

While discussions with the Old Middleton Road neighborhood included the idea of a cul-de-sac, the original concept always required having a two-way St. Dunstan to act as a replacement street to cul-de-sacing the existing collector street of Old Middleton Road. In staff's opinion, any action of cul-de-sacing Old Middleton Road without a viable replacement street does not meet the needs of the greater area and without such a replacement would not be considered.

One Way OMR Proposal

Along with the cul-de-sac proposal, a new idea from the neighborhood has emerged to make this section of Old Middleton Road, from Capital Avenue to St. Dunstan/Stonefield Road, one-way westbound. Like cul-de-sacs, making streets one-way is one of the more extreme treatments for a street and community. The standard practice is to provide the community with two-way, multi-purpose streets in the most economical and maintenance free manner as possible.

At first glance, applying the neighborhood's concept of a one-way street in this situation may seem positive, to potentially save space, trees and resolve other frontage assets/issues that may otherwise be lost because of the reconstruction of existing two-way streets. However, research and experience indicate that one-way streets can have many drawbacks and must be reviewed cautiously.

Major Advantages.

1) The biggest potential advantage of the neighborhood's concept of simply designing a one-way street for this section of OMR is that a new street with bicycle lanes and sidewalk on one side may be built within or close to the same width of the existing pavement. This would potentially offer the advantages of fewer impacts to the current character and street frontage conditions. While no detailed designs and impacts have been developed based on an engineering survey, the one-way street conceptually could offer a narrower total impact. With presumably one less traffic lane, the pavement width could be narrower. The sidewalk on one side could be installed but not be much closer to residences than the existing pavement. And presumably, these types of factors would have fewer impacts on such things as trees and grades.

2) At this time, this discussion is only conceptual. Although requested, no survey has been performed to allow for a definitive review of alternative designs and impacts to substantiate the real differences of a two-way street alternative to a one-way alternative. A survey is needed to do this, before a final judgment can be made that the one-way alternative would offer this advantage.

   In staff's opinion, this is a significant point that has to be made before a one-way alternative could go forward much further, notwithstanding other issues to be discussed below. That is, first a survey must be done by the City Engineering Division or outside consultant; and then a definitive design and review of alternative designs and impacts developed and compared, to clearly show that the differences between the two-way street and one-way alternatives are significant.

Major Impacts/Concerns. While staff has developed a hypothetical and conceptual design for a one-way street, simply designing and constructing a one-way collector level street cannot be done in a vacuum, and without looking at several other impacts and concerns.

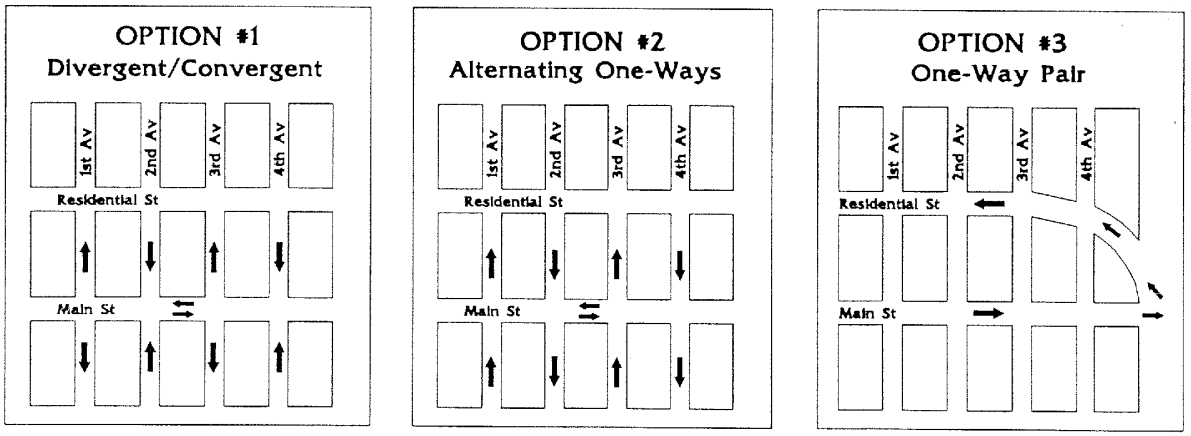
- A first concern is that the trend for one-way streets in the City of Madison and across the country is opposite from the concept proposed for OMR. In general, municipalities are

moving in the opposite direction of one-way streets by replacing many one-way streets back to two-way operation.

Recent literature around the country point to returning one-way streets to two-way for the express purpose of improving the "livability" of residential neighborhoods. From Sacramento to Denver to Madison and Cincinnati, cities across the country are changing back to two-way streets to "calm traffic and bring more life to their streets." Downtown Madison has a system of one-way streets to make best use of its limited Isthmus constraints and high traffic and parking demands. However, recent adopted Common Council neighborhood plans call for turning many (not all) streets near residential areas to two-way rather than one-way. This reflects a movement nationwide for replacing one-way streets with two-way streets. Advocates of two-way streets are vocal about returning or keeping streets two-way so they are simpler and more in keeping with the residential and business surroundings and nature of the street, and less traffic and speed oriented.

- A second concern is that one-way streets are not typically used in this type of situation—a spot or segment treatment on a collector street. So the one-way concept for this case is less standard and ambiguous.

  One-way streets are most often used in a system or with one-way pairs in high traffic demand areas, specifically in downtowns to reduce congestion and improve safety. On a case by case basis, one-way streets are used on low volume, local access streets to solve specific parking or service/delivery issues. In some cases, one-way streets are used in a maze or system of one-way streets for neighborhood traffic calming schemes. Literature suggests that the conversion of two-way streets to one-way operation for the purposes of residential street traffic control takes three general forms:



- Third, it has been found that community reaction for one-way streets is heavily mixed. Studies show opposite reactions by residents on the same one-way converted street. The higher speeds are perceived by residents to increase accident hazards, however, accident analysis often proves that this increased speed does not equate to a higher accident rate. Residents may also object to reduced access by 1-way streets. Where the impacts of a 1-way add traffic to a street, these residents contend that this has a negative impact on livability and property value on that street.

- Fourth, in this specific case, the street system in this area is already limited. A one-way segment of OMR will exacerbate this limitation. As noted, OMR is one of the few backbone streets in an area of the community with few streets. The City of Middleton, an adjoining street system user, also has a limited street system in this area. As noted, OMR provides multiple functions, and for some users, OMR is the only street available to access destinations, bus stops, schools, and other connecting streets such as Capital Avenue, Stonefield Road and University Avenue. This also raises questions regarding adding more pressure or double duty on University Avenue, where many have said this street is already overloaded. From a functional, general planning, and street system perspective, this is not considered good or recommended practice in general and in particular for this area.

- Fifth, while it is difficult to model or estimate the potential impacts of a one-way OMR segment, there is concern over impacts on other streets and intersections. The St. Dunstan Dr. trial reversal has already increased volumes on certain streets and intersections. It is estimated that there would be new impacts to St. Dunstan Drive, Heim Ave., Capital Ave, University Ave. and other streets in the City of Middleton. There is also no guarantee that volumes will be reduced on Old Middleton Road. More community input and debate on these issues would be needed.

- A sixth concern is that at some point in the future, after the street is reconstructed, the continuing inconvenience of a one-street will cause the residents and the community to request it be converted back to two-way. This will most likely be at the expense of the bicycle lanes. It is plausible that residents likely could grow tired of the routing, its drawbacks and inconveniences, and likely call for returning the street to two-way operation. Even in the downtown where many of the one-way streets are needed and workable, they are a source of complaints from a sector of the population.

- Seventh, from a policy and practice standpoint, this situation lends itself towards poor planning, practice and precedent. While staff are sensitive to the concerns of the residents and neighborhood, staff also have a responsibility to raise issues and questions of Citywide concern which might arise over:

    - Failure to come to a consensus on what role and multiple purposes a public street should provide; i.e., transferring the problem elsewhere, to the advantage of others.
    - Setting a precedent for city planning and potential future similar situations.
    - Undermining/weakening basic street design, and the elements to be included.
    - Undermining/weakening basic street system and planning; losing collector street functions of OMR; placing double duty on University Ave.; limiting options for the future and overall comprehensive plan.
    - Raising concerns over traffic diversion and impacts to other streets such as Capital Avenue, and Heim Ave., and how this is to be reconciled with these streets.
    - Raising questions over sound or responsible transportation planning or policy alternatives.
    - Raising questions over investing in a street like this to serve one-half of its capable purpose, not generally fiscally responsible, especially when City budgets for streets are constrained.

Based upon the above initial review, staff's opinion is that a one-way street is not a sustainable solution that the neighborhood and city should be pursuing.

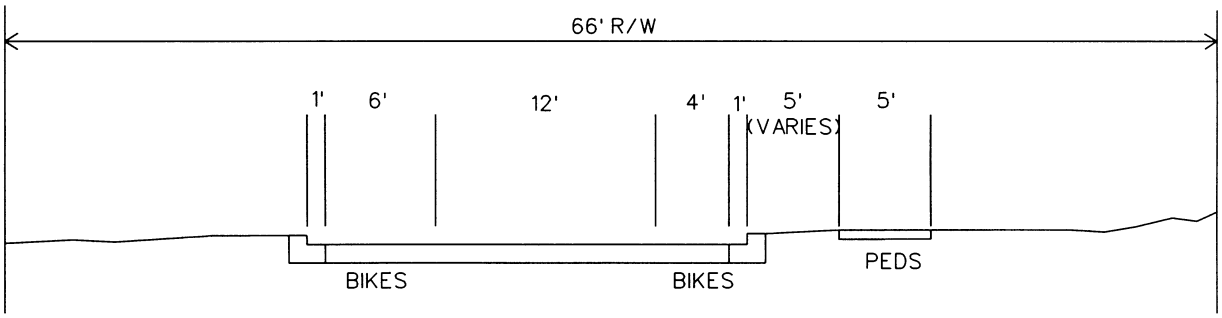
Also, selecting a one-way option is premature given that the detailed comparison of this option versus other alternatives cannot, in staff's opinion, be made without an engineering survey.

With this survey and more information about the reconstruction impacts, staff could then more completely review the one-way issue. At this time, the case has not been made that the advantage of a one-way street outweighs the disadvantages.

For discussion purposes and in response to the neighborhood's idea, staff has reviewed what a one way street could look like. In addition to the above, staff has provided a list of some of the advantages and disadvantages of a one way street.

Hypothetical/Conceptual One-Way Street Cross Section. Based on professional design guidelines, such a street would include a 24-26 foot wide street for one way operation with a 5-foot wide terrace and a 5-foot wide sidewalk. This results in a total width of 34-36 feet, including terrace and sidewalk on one side, compared to the existing roadway width of 28 to 32-plus feet. This would include dedicated bike lanes in each direction.

FIGURE 2 – ONE WAY WITH BIKE LANES AND SIDEWALK



Various Advantages

- Improve pedestrian safety and potentially encourage more walking rather than auto based trips.
- Provide needed physical separation between motorists and pedestrians.
- Provide important pedestrian and bicyclist links from Old Middleton Road to Capital Avenue and bus stops.
- Minimize conflict with maintaining the character of the road particularly with regard to preserving trees.
- Provide better vision for residents pulling out of driveways.

Various Disadvantages

- If a one way street is built and then converted back to two way, the bicycle accommodations will be lost.
- A one way street may not cut the volume of traffic on OMR.
- Could cause conflict with maintaining character of the road particularly with regard to preserving all trees and drainage ditch, which are strong sentiments of some residents.
- Using the regional arterial system (e.g. University Avenue) as a local circulatory street is undesirable, but would be necessary for many trips.
- Increased response time for emergency vehicles.
- A one-way street in this area will not meet driver expectancy.
- It is not consistent with the concept of Traditional Neighborhood Design and the idea that every street should carry a share of the traffic load.
- A one-way street in neighborhoods may be a short-lived phenomenon, as the residents may become dissatisfied with increased

inconvenience and subsequently request the return to two-way operation.
- One-way streets can have higher speeds.
- It places more traffic on Stonefield, Capital, Heim and St. Dunstan's. Stonefield Rd residents will likely see this as an option that adversely impacts them.
- May have transit/Metro impacts.
- Because of the substantial impact to the street system, this alternative would need Common Council approval and budget allocations.

Potential Traffic Calming Strategies

In addition to the ideas of a cul de sac and one-way street, the latest ideas of the neighborhood representatives included the consideration of traffic calming measures on OMR. Traffic Engineering staff support certain traffic measures on OMR as sustainable and effective solutions. Since this process began, staff has been considering traffic calming as an integral part of addressing traffic concerns. It was and still is expected that certain traffic calming measures would be added to a reconstructed street.

At the January 2000 meeting City staff discussed aspects of traffic-calming measures appropriate for Old Middleton Road. There is good potential to include median islands at intersections (similar to those on Farley Avenue), neighborhood entrance/gateway treatments to the neighborhood, and some road curves to better avoid major trees. These measures would not solve all of the traffic concerns, but would provide a step above traditional traffic controls. Small neighborhood traffic circles and speed humps are not considered appropriate for this street due to the volume of traffic on the street and character of the surrounding road network.

All-Way Stop Signs at the Stonefield Road Intersection

All-way stop signs at this location have been raised by the neighborhood. The location has some potential, but has not been studied or pursued aggressively due to such things as other higher priority locations, relatively low intersection volumes, a good safety record and the fact that the intersection straddles the boundary lines between the City of Middleton and the City of Madison. All-way stop signs would require approval by both municipalities.

There is a standard special study and justification process for all-way stops. It would be reasonable to explore all-way stop signs at this intersection, in conjunction with the City of Middleton. If the study and justification process, and separate City approvals are positive, staff recommends installing all-way STOP signs at the Stonefield Road intersection on a 90-180 day trial basis. Staff recommends that the trial include before/after data collection and specific measures of effectiveness, and that public input be considered during and following the trial, prior to making all-way stop signs at this location permanent.

Other Considerations In Addition To Neighborhood Ideas

Bicycles and Street-Bicycle Compatibility, including Access, Mobility & Community Bike Route

The City of Madison subscribes to a policy of actively promoting the bicycle as a transportation mode and basic element of the infrastructure. The Common Council has adopted several plans and programs to create a bicycle "friendly" transportation network. These help to provide travel options and a supportive environment for bicycling, particularly with such plans as the Council- adopted bicycle plan, and bike route plan and maps. The City of Madison is rated as one of the top ten bicycling communities in the nation. As a success story and proponent, the City considers the conditions for bicycling carefully.

In determining the design and attractiveness of a roadway for bicyclist use, the TE Division considers a number of factors, but the most important are the route's importance/connectivity and the bicycle compatibility factors of roadway width (outside lane), volume of traffic, and the speed of motorists. These last three factors are combined to determine a bicycle compatibility rating. This rating helps illustrate how changes in traffic volume and speed, and changes in street design, affect the attractiveness of the road for bicyclist use. Bicycle compatibility ratings vary from very good, good, moderate, poor, and very poor.

Based on data collected by the City, the following cases for bicycle compatibility could apply to Old Middleton Road:

- Existing Conditions. (11 ft traffic lanes plus 3ft +/- paved shoulders/ bike lanes--not counting the poor condition of the pavement) a "moderate" rating.

- Dedicated Bicycle Lanes. If the road is rebuilt with bike lanes (two-way) (11 ft traffic lanes plus 4 ft bike lanes and a 1 ft gutter pan), the rating would improve to a "good" rating.

- No Dedicated Space for Bicycles. If the road is rebuilt without bike lanes (11-foot lanes plus a 1-ft gutter pan) (as would be the case if the hypothetical one-way cross section is changed back to two-way without reconstruction), the street would fall to a "poor" rating.

As shown, the design of the street will have a substantial impact on its attractiveness for bicyclist use. The policy is to design for a "good" to "moderate" rating, with bike routes closer to the "good" to "very good" rating. The recommended usable lane width is 14 ft, which does not include the gutter pan. This assumes an 11-ft. traffic lane and a 3-ft wide essential operating space for a bicyclist. Where a street or corridor is more important for bicycling, 4-ft wide bike lanes are established outside the gutter pan. Bike lanes are intended to positively delineate right of way or space assigned to bicyclists and motorists, and to provide more predictable movements by each. Bicyclists and others perceive a bicycle lane as a significantly better facility.

Sidewalks or Walkways for Safety, Pedestrians and Children

Like bicycling, the Traffic Engineering Division subscribes to a policy of promoting a walkable community—a city in which transit, shops, parks, schools, work, and residential areas can all be safely accessed by pedestrians. The Common Council has adopted a Pedestrian Transportation Plan. This plan, while not intended to impose sidewalks everywhere, is used to better plan and provide for pedestrian accommodations and affect land use patterns necessary to provide pedestrian safety, connectivity and walkability.

Research indicates that of the approximately 42,000 motor vehicle deaths each year in the United States, about 5,900 of these are pedestrians. Annually, about 84,000 pedestrians are injured in collisions with motor vehicles. Pedestrians make up about 14% of the total U.S. traffic fatalities, with more in urban areas. The resulting economic loss to the nation is almost $20 billion per year in medical expenses, lost productivity, insurance benefits, and other societal costs. Annually, more pedestrians are killed than the 3rd, 4th, and 5th leading causes of accidental deaths, i.e., poisonings (5,700), drownings (5,200), and fires (4,300), respectively.

Bicycling, while not as severe as ped crashes, resulted in about 700 deaths in collisions with motor vehicles.

Overall, approximately 15% of the ped crashes occur when a pedestrian was walking along a roadway. Special problems relate to age, and dusk and darkness. Children have the highest pedestrian injury rate per population. As noted by the Red Cross and National Safety Council, the six most common childhood injuries are motor vehicle passenger injuries, pedestrian injuries, bicycle injuries, drowning, burning, and firearm injuries. Special pedestrian safety problems arise during the hours of dusk and darkness, when it is most difficult for motorists to see pedestrians. In northern cities like Madison, morning and evening peak traffic hours in winter coincides with darkness.

Research findings indicate that walkways and sidewalks are effective in increasing pedestrian safety, mobility, and access. Research further indicates that providing separate pedestrian walkways or wider shoulders will reduce pedestrian accidents. This, taken in combination with the benefits and convenience, make walkways a recommended design element of the roadway cross section. A physically separated walkway is always preferred, but shoulders will provide a safer pedestrian accommodation than walking closer to the traffic lanes of the road as is required when there are no shoulders. Installing a raised sidewalk on the very edge of the roadway is preferable to not having sidewalk at all. The greater the distance the walkway is from the road edge, the lesser the chance of a pedestrian-vehicle collision. A five foot raised grass terrace between the road edge and the walkway is the recommended space.

Research, experience and professional literature indicate that sidewalks or walkways should be provided really along almost all streets, especially those used for pedestrian access to schools, parks, shopping areas, and transit stops. Providing a walkway or sidewalk is one of the most cited elements to make a street safer and more comfortable for pedestrians, and is normally recommended on both sides of a street. Several different guidelines and publications reinforce this. Some publications go further. For example, in her book on cities and city life, *The Death and Life of Great American Cities, Jane Jacobs* devotes three chapters to the importance of sidewalks for street security, neighborly contact, and assimilation of children into society. These functions are performed on top of the their main function, safely protecting the pedestrian from traffic, while ensuring access to all activities.

From a legal standpoint, providing sidewalks is also important. Wisconsin pedestrian laws and their interpretation basically provide that pedestrians in the street/roadway have little or no legal standing. Streets/roadways are for vehicles.[1] Sidewalks are constructed for the use of pedestrians. When there are no sidewalks, pedestrians are to travel on the left side of the road, facing traffic, and shall, if practicable, move to the extreme outer limit of the traveled portion of the road when meeting a vehicle. The responsibility is on the pedestrian, not the motorist.

An option to traditional sidewalks is the provision of paved paths. They may be slightly winding paths located within the street right of way or walkways that, well removed from the street, weave their way through a neighborhood. Sidewalks and walkways can be constructed of materials other than the traditional concrete surface. The use of asphalt can contribute to a park-like atmosphere and alleviate the concerns expressed by some that concrete sidewalks are aesthetically unpleasing. Concrete is preferable to asphalt because it maintains its walking service integrity far longer and requires far less maintenance. However, although asphalt has to be replaced more often, it offers the advantage that grading can be kept to a minimum and the path can better follow the natural contour of the ground and be curved to avoid trees.

Potential Impacts to Trees

A substantial concern of neighborhood residents is the potential loss of trees due to street and sidewalk construction. Traffic Engineering staff supports a detailed review of the potential impacts to trees with different cross sections. This review should identify all the high quality trees and which trees will need to be removed and how many will remain. Other City of Madison projects such as the Wingra Creek bike path have had similar challenges, however with careful design, impacts to trees have been minimized. To minimize impacts to trees, the sidewalk may need to go around trees rather than staying a constant distance behind the curb. Likewise, the street itself may need to have some curves to minimize tree impacts, and slopes retained by retaining walls. To fully determine the physical impacts the various alternatives may have, a detailed survey to the right of way limits will be needed.

Once a survey is completed, a more definitive review of alternative designs and impacts can be made. With this data, a design sensitive to the most important identified concerns can then be developed.

An important concept in context sensitive design is that every project is unique. The setting and character of the area, the values of the community, the needs of the multiple street users, and the challenges and opportunities are unique factors that designers and engineers must consider with each project. This relates to a number of street design elements including street width,

[1] Bikes are accorded vehicle status by the State statutes.

bicycle lanes, curb and gutter, shoulders, drainage, utilities, sanitary sewers, street grades, terrace width, sidewalk design, and slopes and grades.

Preliminary Findings and Recommendations

The issues involved with this section of OMR are challenging and have been for decades. They are one reason the road pavement condition is in the state it is today. Finding a complete and permanent solution or package of solutions has proved difficult now, as it has in the past. There are a number of competing issues involved, many or all of which are legitimate and not easy to reconcile.

To help resolve the neighborhood concerns City staff have been working with the neighborhood on Old Middleton Road west of Capital Avenue to assist their developing a consensus on the issues and help develop a package of treatments regarding neighborhood concerns for traffic and street reconstruction.

From these discussions and interaction, it is clear that the road and its setting and environment have a unique quality and a mix of significant trees that add character to the rural roadway of today. The shoulders, ditches and slopes, lack of curb and gutter, and the age of the corridor also add a character. These qualities and values for a rustic, rural-like setting, in an otherwise urban City, are shared by a good number of the fronting residents and neighborhood.

Contrasting with this rural-in-an-urban setting, is a deteriorating roadway that has a poor pavement surface and little space for bicycling, even though the street both upstream and downstream provides bike lanes and is a basic and needed bike route. The corridor has a considerable volume of traffic that underscores its natural function as a neighborhood and community collector street. The corridor is a school walk route and neighborhood-connecting collector street, but does not have a sidewalk, walkway or shoulder suited to perform the basic function of safely accommodating a pedestrian or a child from traffic, while ensuring access to all activities.

To date, five major neighborhood meetings have been held, a separate City Commission public hearing, and several additional smaller meetings with representatives from the neighborhood. As a result of the multi-year discussions and alternative seeking process, a series of treatments regarding neighborhood concerns for traffic and street reconstruction already have been implemented. However, issues still remain, particularly with regard to the reconstruction.

Traffic control changes and additions, including a yearlong street system change experiment, have been done, but these have their limits. These changes, with the help of police enforcement and perhaps better driver behavior, have reduced speeds from the high 30 and low 40-mph range to the high 20 and low 30-mph range. Traffic volumes have decreased, from about 4,200 to about 3,300 vpd, as a result of the St. Dunstan Drive reversal experiment, but not down to local street levels. The street is “calmer,” more in control than it has ever been, with all-way stop signs at Capital Avenue; with, not a 30-mph speed limit but a 25-mph speed limit. It is more controlled with a double yellow centerline. These types of treatments have made a difference. But they have not yet solved the pedestrian and bicycle issues. And they have not solved the uncertain impacts, tree questions and character changes of a potential street reconstruction.

The rural environment and character interests of the residents and neighborhood have to be respected. At the same time, there are other legitimate public and neighborhood-oriented purposes that need to be balanced and integrated with the environment of this street and

neighborhood. It appears that there are limits to finding a complete set of acceptable and responsible solutions to address all of the concerns of the residents, neighborhood and the City.

After reviewing the situation further, the TE Division has developed a list of findings and recommendations it hopes will provide the optimum, most sensitive set of solutions for all concerned. The TE Division is in a difficult position of trying to respond to many competing interests, but feels that a multifaceted package of context-sensitive design elements is the best approach for the situation. It seems that a package of measures that 1) discourages and controls motor vehicle traffic; 2) promotes pedestrian and bicycle as alternatives to automobile traffic; and 3) attempts to minimize changes to the existing character or environment, is a reasonable solution or compromise to integrate the many and varied interests and needs of this important street. Other solutions either do not address all of the issues or they are non-sustainable

The detailed findings and recommendations include:

1) Make the current St. Dunstan Drive reversal experiment permanent, including the "No Right Turn 7-9 am" turn restrictions at Heim Ave. and University Ave.

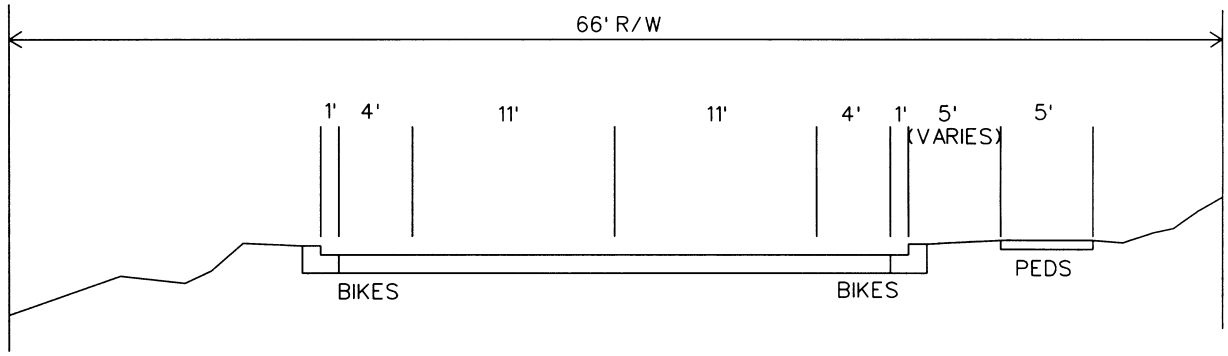
2) Maintain the traffic control changes made for the neighborhood that include:
   - ✓ Double Yellow Centerline
   - ✓ Speed Limit 25 mph
   - ✓ All-Way Stop Signs at Capital Ave. and OMR

3) Actively seek approvals or decision on All-Way Stop Signs at Stonefield Rd. and OMR with the City of Middleton. If the study and justification process, and separate City approvals are positive, the All-Way STOP signs at the Stonefield Road intersection should be installed on a 90-180 day trial basis. Staff recommends that the trial include before/after data collection and specific measures of effectiveness, and that public input be considered during and following the trial, prior to making all-way stop signs at this location permanent.

4) Request the City Engineering Division or private consultant to conduct a standard engineering survey and special tree survey, prior to Fall 2000.

5) Once a standard engineering survey and special tree survey is performed, the City Traffic Engineering Division along with the City Engineering Division or a private consultant shall provide a definitive review and comparison of alternative two-way street reconstruction designs and impacts for review by the residents, neighborhood, PBMVC and Board of Public Works. All of the alternative street designs are recommended to include 2 motor vehicle traffic lanes, dedicated bicycle lanes and a sidewalk or walkway on one side of the roadway. All of the alternative street designs shall include traffic calming measures to better control speed, pedestrian safety, and complement the residential and rural character of the residents and neighborhood. The alternative designs shall also include a potential street design as a parkway, as one of the most context-sensitive designs available to reduce potential impacts and conserve the scenery and natural objects of today as much as possible. The main recommended geometric cross section would follow closely to the following, with the exception that that sidewalk be replaced with a 5-6 ft paved walkway that would provide a park-like atmosphere, follow the natural terrain and meander as much as possible around trees.

FIGURE 3 – TWO TRAFFIC LANES, WITH BIKE LANES, AND A 5 FT SIDEWALK ON ONE SIDE



A two-way street, with bike lanes, and a 5 foot wide sidewalk on one side only. This would provide adequate width for bicycle lanes. Although sidewalk on both sides of the street would serve pedestrians better, this is balanced by the goal of minimizing impact to trees in the corridor.

This alternative is presented with some advantages and disadvantages of each which are compared to the neighborhood's goals of improving pedestrian safety, improving bicyclist safety, minimizing the speed of traffic, and minimizing the changes to the road's character.

The sidewalk in this alternative, and possibly the street alignment, would likely need to meander to minimize the impact to trees, grades, rock walls and other features in or near the right of way. A survey is needed to determine the definitive impacts for any alternative. Street widths are given to the face of the curb.

Various Advantages

- Improve bicyclist and pedestrian safety.
- Provide needed physical separation between motorists and pedestrians.
- Provide important pedestrian links from Old Middleton Road to Capital Avenue and bus stops.
- Provide better vision for residents pulling out of driveways.
- Potentially encourage more walking and biking rather than auto based trips.

Various Disadvantages

- Could cause conflict with maintaining character of the road particularly with regard to preserving all trees and drainage ditch, which is a strong sentiment of some residents.

6) TE staff has conducted field visits of OMR to investigate the potential impacts of a street reconstruction, and specifically the addition of a sidewalk or walkway. Based on these field investigations, TE staff feel there is potential for a paved walkway to be installed on the north side, that would have a separate profile from the roadway, follow the contours, and meander around trees. It is recommended that a 6-foot wide strip of asphalt be used to contribute to a park-like atmosphere and alleviate the concerns expressed by some that concrete sidewalks are aesthetically unpleasing. Although asphalt has to be replaced more

often, it offers the advantage that grading can be kept to a minimum and the path can better follow the natural contour of the ground and be curved to avoid trees. The cost and maintenance of this paved walkway path will need to be finalized. The City PBMVC and Board of Public Works may wish to consider the cost of the walkway considering the history of the emergency maintenance issues in 1982. These commissions may also wish to consider having both fronting sides of the street share in the cost of the walkway. The City Engineering Division is more closely reviewing the feasibility and potential impacts of such a sidewalk/walkway. Their initial feedback is that such a sidewalk may have considerable impacts.

7) If the Board of Public Works decides to reconstruct the street, several traffic calming measures shall be included to better control speed, pedestrian safety, and complement the residential and rural character of the residents and neighborhood. While the exact measures will be worked out more fully with the residents and neighborhood, there appears to be good potential to include median islands at intersections (similar to those on Farley Avenue), neighborhood entrance/gateway treatments to the neighborhood, and some road curves to better avoid major trees.

   - ✓ OMR neighborhood might wish to consider funding a neighborhood identification entrance sign and consider a center median just east of Stonefield Road as a gateway treatment. Additional landscaping may also be provided.
   - ✓ OMR might include a series of "S" curves around Heim Avenue to weave a potential new road around the major oak trees at this location.
   - ✓ OMR neighborhood might wish to consider funding a neighborhood identification entrance sign and consider a center median or intersection choker just west of Capital Avenue as a gateway treatment and traffic calming measure. Additional landscaping may also be provided.

It should be noted that it is not in the City Traffic Engineering Division's purview to reconstruct OMR. Rather, reconstructing the street, the pavement, and the drainage is the role of the Board of Public Works and City Engineering Division. The TE Division is, however, responsible for establishing the geometric or horizontal transportation elements of a street, as well as responding to and working to better control traffic volume and speed, and looking at ways to provide the safest conditions for pedestrians and bicyclists.

In this case, it appears that the range of reasonable alternatives from traditional traffic controls to street system changes has been exhausted. The remaining but not welcome alternative is to reconstruct the street with reasonable and legitimate transportation and neighborhood-oriented provisions. This is not unlike the rest of the mile-long sections of OMR and many other streets in Madison and Middleton. The hope is that the street can be reconstructed in the most context-sensitive way as possible, with the least trees lost, and the least change to the environment as possible.

OMR is, has been, and remains an important street. It is, has been, and remains an important collector street. Due to the nature of the street system and development pattern in the area, OMR for most users is the only street available to access destinations, bus stops, schools and other streets. OMR is also a City bicycle route. The rail corridor could be used but it is not a complete and connecting route. The rail corridor could not replace the backbone and neighborhood through route of OMR, as OMR connects with too many community aspects.

Due to the nature of the street system and development pattern, OMR is also a school walk route and transit access route. Children and others should be able to walk along the street in a safe and comfortable manner. While the presence and maintenance of sidewalks is not always

welcome, the data is irrefutable that a sidewalk or walkway farther from a road is the recommended treatment. A park-like meandering asphalt walkway, following the terrain and curving around trees and other features does not seem inconsistent with a rural-urban setting, and will do much to assuage the concerns of parents who let their children walk to school, the bus or the store.

Recommended Process and Potential Next Steps

The report is intended to provide staff's perspective on the many issues and ideas for neighborhood information, discussion and consensus building. A 30 day comment period from the neighborhood meeting of March 29, 2000 is proposed, after which the City Pedestrian-Bicycle-Motor Vehicle Commission would review the subject report and comments received and make a recommendation for City/Neighborhood action at its May 23, 2000 meeting.

Questions or comments should be directed to Dan McCormick, of the City Traffic Engineering Division, at 267-1969 or email: dmccormick@ci.madison.wi.us.

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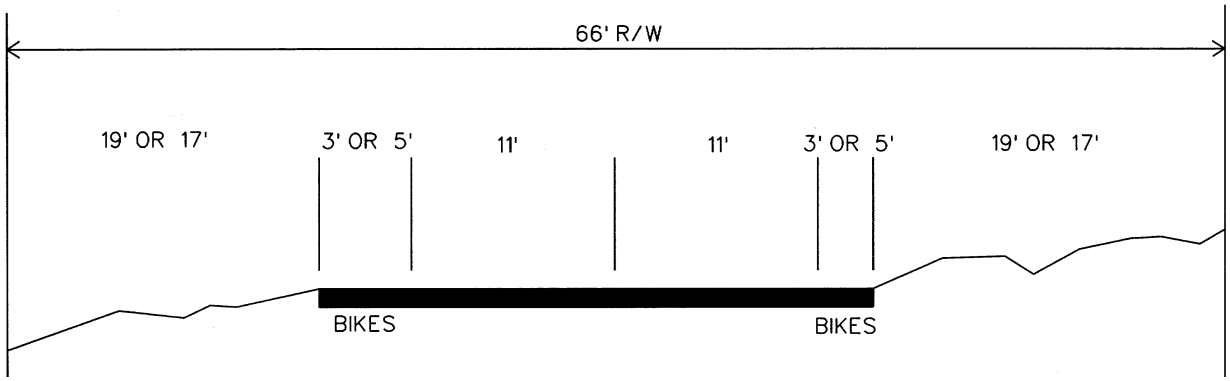
Various Geometric Cross Sections Reviewed

Potential Old Middleton Road Reconstruction
Capital Avenue west to St. Dunstan Drive

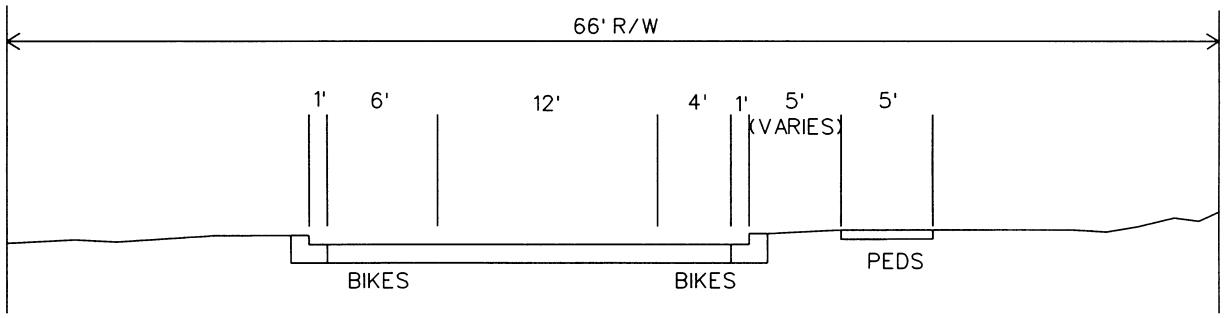
Existing Street Cross Section. The current pavement width varies from 28 to 32 feet. The shoulders/bike lanes are raveled and in poor condition. The width of the shoulders and ditches beyond the pavement vary as well. The exact overall current conditions, including trees, ditches and slopes, have not yet been determined. A detailed survey is required for this.

FIGURE 1 EXISTING CONDITIONS



Hypothetical/Conceptual One-Way Street Cross Section. Based on professional design guidelines, such a street would include a 24-26 foot wide street for one way operation with a 5-foot wide terrace and a 5-foot wide sidewalk. This results in a total width of 34-36 feet, including terrace and sidewalk on one side, compared to the existing roadway width of 28 to 32-plus feet. This would include dedicated bike lanes in each direction.

FIGURE 2 – ONE WAY WITH BIKE LANES AND SIDEWALK



Various Advantages

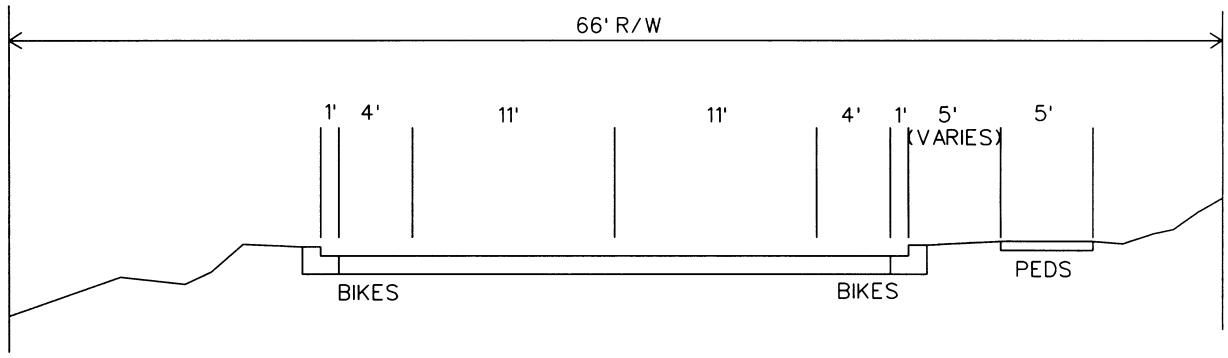
- Improve pedestrian safety and encourage more walking rather than auto based trips.
- Provide needed physical separation between motorists and pedestrians.
- Provide important pedestrian and bicyclist links from Old Middleton Road to Capital Avenue and bus stops.
- Minimize conflict with maintaining the character of the road particularly with regard to preserving trees.
- Provide better vision for residents pulling out of driveways.

Various Disadvantages

- If a 1-way street is built and then converted back to 2 way, the bicycle provisions will be lost.
- A one way street may not cut the volume of traffic on OMR.
- Could cause conflict with maintaining character of the road particularly with regard to preserving all trees and drainage ditch, which are strong sentiments of some residents.
- Using the regional arterial system (e.g. University Ave) as a local/collector street is undesirable, but would be necessary for many trips.
- Increased response time for emergency vehicles.
- A one-way street in this area will not meet driver expectancy.
- It is not consistent with the concept of Traditional Neighborhood Design and the idea that every street should carry a share of the traffic load.
- A 1-way street in neighborhoods may be a short-lived phenomenon, as the residents may become dissatisfied with increased inconvenience and subsequently request the return to two-way operation.
- One-way streets can have higher speeds.
- It places more traffic on Stonefield, Capital, Heim and St. Dunstan's. Stonefield Rd residents will likely see this as an option that adversely impacts them.
- May have transit/Metro impacts.
- Because of the substantial impact to the street system, this alternative would need Common Council approval and budget allocations.

A two-way street, with bike lanes, and a 5 foot wide sidewalk on one side only. This would provide adequate width for bicycle lanes. Although sidewalk on both sides of the street would serve pedestrians better, this is balanced by the goal of minimizing impact to trees in the corridor.

FIGURE 3 – TWO TRAFFIC LANES, WITH BIKE LANES, AND A 5 FT SIDEWALK ON ONE SIDE



This alternative is presented with some advantages and disadvantages of each which are compared to the neighborhood's goals of improving pedestrian safety, improving bicyclist safety, minimizing the speed of traffic, and minimizing the changes to the road's character.

The sidewalk in this alternative, and possibly the street alignment, would likely need to meander to minimize the impact to trees, grades, rock walls and other features in or near the right of way. A survey is needed to determine the definitive impacts for <u>any</u> alternative. Street widths are given to the face of the curb.

<u>Various Advantages</u>

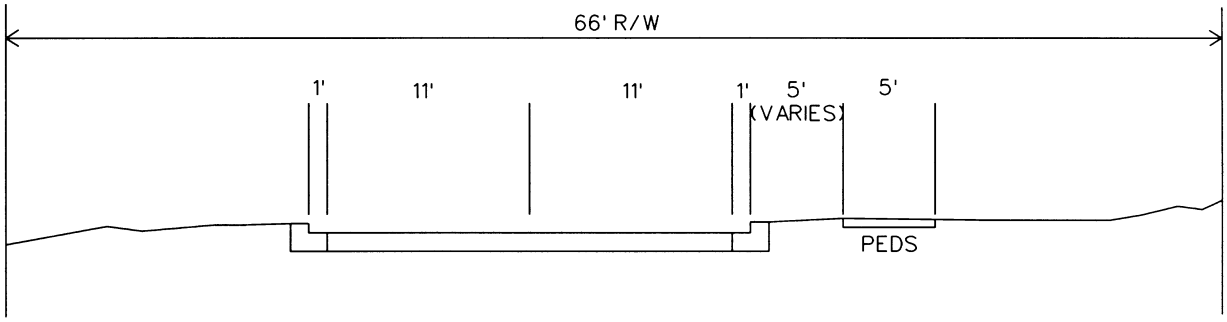
- Improve bicyclist and pedestrian safety.
- Provide needed physical separation between motorists and pedestrians.
- Provide important pedestrian links from Old Middleton Road to Capital Avenue and bus stops.
- Provide better vision for residents pulling out of driveways.
- Potentially encourage more walking and biking rather than auto based trips.

<u>Various Disadvantages</u>

- Could cause conflict with maintaining character of the road particularly with regard to preserving all trees and drainage ditch, which is a strong sentiment of some residents.

*A two-way street, **without** bike lanes, and a 5 foot wide sidewalk on one side only*. This would not provide adequate width for bicycle lanes.

FIGURE 4 – 2 TRAFFIC LANES, NO BIKE LANES, AND A SIDEWALK ON ONE SIDE
~~FIGURE 3 WITH SIDEWALK NO BIKE LANES~~



Advantages

- Improve pedestrian safety and potentially encourage more walking rather than auto based trips.
- Provide needed physical separation between motorists and pedestrians.
- Provide important pedestrian links from Old Middleton Road to Capital Avenue and bus stops.
- Minimize conflict with maintaining character of the road particularly with regard to preserving trees.

Disadvantages

- Could cause conflict with maintaining character of the road particularly with regard to preserving all trees and drainage ditch, which are strong sentiments of some residents.
- Would be a worse facility for bicyclists than currently exists. Bicycle compatibility rating would be poor.
- Cross section does not match Old Middleton Road to the east and west.