

ATTACHMENT A

**A RESOLUTION SPECIFYING FOLLOW-UP TO
TRAFFIC CALMING ON OAK AVENUE
Resolution No. 154/2007-08**

WHEREAS, the Carrboro Board of Aldermen requested Town staff to provide follow-up information with reference to traffic calming on Oak Avenue, and

WHEREAS, Town staff has provided said follow-up information with recommendations,

**NOW, THEREFORE, THE BOARD OF ALDERMEN OF THE TOWN OF
CARRBORO HEREBY RESOLVES:**

1. That the Police Department continues to monitor Oak Avenue as part of their routine enforcement.
2. That edge lines should not be striped along Oak Avenue.
3. That on street parking is not feasible for Oak Ave.
4. That additional signage should not be added to the street.
5. That staff:
 - Continue routine enforcement and monitor traffic volume on Oak Ave.
 - or,
 - Conduct a comprehensive evaluation of the traffic in the neighborhood and bring back the results.
 - or,
 - Set a public hearing to determine neighborhood interest in this modification to the street network and collect baseline data consisting of traffic volume counts for the neighborhood streets.

BOARD OF ALDERMEN

ITEM NO. D(2)

AGENDA ITEM ABSTRACT
MEETING DATE: February 19, 2008

TITLE: Follow Up to Traffic Calming on Oak Ave.

DEPARTMENT: PUBLIC WORKS	PUBLIC HEARING: YES ___ NO__ X__
ATTACHMENTS: A. Resolution B. Longitudinal pavement lines guidance	FOR INFORMATION CONTACT: George Seiz, Director Public Works: 918-7427 Adena Messinger, Trans. Planner: 918-7329

PURPOSE

The purpose of this item is to provide follow up information to the Board of Aldermen about traffic calming on Oak Avenue.

INFORMATION

At its' regular meeting on October 16, 2007 the Board of Aldermen reviewed a request from residents for traffic calming on Oak Avenue between Weaver Street and Poplar Ave. As a result of that review and discussion, the BOA adopted a resolution endorsing traffic management on Oak Avenue which included five items as follows:

1. That the Board of Aldermen endorses additional enforcement for Oak Avenue.
2. The Board of Aldermen directs staff to work with residents to implement a neighborhood awareness campaign directed at all users of Oak Avenue.
3. That the Board of Aldermen ask the town staff to explore the narrowing down of the entrance to Oak Avenue off of North Greensboro, providing that the measure allows for school bus access.
4. That a speed table be installed on Oak Avenue using the High Street design.
5. That the town staff explore striping along both sides of Oak Avenue.

DISCUSSION AND FOLLOW-UP

1. *That the Board of Aldermen endorses additional enforcement for Oak Avenue.*

The Police Department will monitor and enforce speed and other violations of motor vehicle law along Oak Avenue.

2. *The Board of Aldermen directs staff to work with residents to implement a neighborhood awareness campaign directed at all users of Oak Avenue.*

The Town's transportation planner will be contacting residents to help organize a neighborhood awareness/education campaign as outlined in the *Stage 1 Traffic Calming* section of the Town's residential traffic management plan. The exact time frame is not known at this time and depends on the work load of the Transportation Planner.

3. *That the Board of Aldermen ask the town staff to explore the narrowing down of the entrance to Oak Avenue off of North Greensboro, providing that the measure allows for school bus access.*

Town staff met with District Engineer, Chuck Edwards on November 26, 2007 to discuss possible changes to the intersection. Mr. Edwards indicated there were not sufficient justifications to apply DOT funding for any intersection improvements. He compared the Oak Ave. location to the recently completed improvements at the intersection of Pleasant Dr./N. Greensboro and noted there was clear justification for the Pleasant Dr. improvements due to inadequate intersection sight distance for both approaching traffic and pedestrians. Oak Ave. has sufficient sight distance for both motorist and pedestrians. Mr. Edwards made some suggestions the Town may want to consider that may help improve safety at the intersection, and probably would be less costly than removing and replacing concrete which is what was done at Pleasant Drive. The suggestions were as follows:

1. Remove existing yellow island painted in the intersection.
2. Establish a pedestrian cross walk with a STOP bar.
3. Establish a short center line aligned with the center of the opposing intersection of the 600 block Oak Ave.
4. Delineate the west radius with hatched pavement markings and flexible delineators to create a tighter radius and slightly re-align the throat of the intersection to encourage slower speed for accessing Oak Ave. from N. Greensboro southbound traffic.

In essence the new radius would be defined by delineators, and a new centerline would help better define the intersection alignment. Some of the work would need to be contracted and a portion would be completed with Public Works forces. The budget impact to hire contractors and purchase materials is in the range of \$7,500 to \$8,500. It would take about 34 staff labor hours for the project. If the cost of staff labor hours are included the entire project cost would range from \$9,000 to \$10,000.

Although staff agrees that these suggested modifications may improve intersection alignment, there is some question as to whether anything needs to be done to slow turning traffic. This question is based on speed data (from December 12 and 13, 2007) which shows the 85th percentile speed for those making a right turn onto Oak Ave. to be 19.73 mph (the speed limit on Oak Ave is 20 mph). There is also some concern as to the visual impact of installing numerous vertical delineators and the subsequent on-going maintenance costs for fixing knocked down delineators and re-stripping.

4. *That a speed table be installed on Oak Avenue using the High Street design.*

A speed table was installed by the Public Works Department on November 14, 2008. The table is located in the vicinity of 200 Oak Avenue (just south of the s-curve).

Follow-up traffic/speed information was gathered during the week of December 10, 2007. Table 1 below shows the recorded speed of vehicles before and after installation

of the speed table. Overall speeds have been reduced with the most significant change at the speed table.

Table 1. 85th percentile speed			
	100 Oak	200 Oak/on speed table	204 Oak
Pre-speed table	25.45*	26.48*	24.13**
Post-speed table	24.31	19.14	21.15

*This is an average, calculated from eight data points between March and September 2007
** This is an average, calculated from six data points between July and September 2007

It appears the speed table is having a favorable impact on reducing speed along Oak Avenue.

5. *That the town staff explore striping along both sides of Oak Avenue.*

According to the Manual on Uniform Traffic Control Devices (MUTCD) longitudinal lines are used to delineate vehicular paths of travel along the roadway and typically mark the center of the road, lanes of travel, and edges of pavement. The MUTCD does not provide guidance on the use of pavement markings for the purpose of visually narrowing the roadway. As a matter of practice the Town has not painted edge lines on residential streets due to slower speeds. Painted edge lines are not typically placed next to curb and gutter sections except on some higher speed roadways where it's important to delineate the edge of the travel lane from a change in surface or drop off of pavement.

Oak Avenue is 21 feet wide (face of curb to face of curb) with 2 ½ foot wide curb and gutter on both sides. The asphalt paving between the curb and gutter is 17 feet wide.

The staff does not recommend painting lines for the following reasons:

1. Painting edge lines for the purpose of traffic calming is not an accepted practice;
2. The Town has not typically painted edge lines along residential streets. To do so may set a precedent which could have significant maintenance cost impact.
3. There is already contrasting concrete curb and gutter which delineates the asphalt paving and gives a visual effect of only 17 feet width of travel (8.5 feet in each direction).

The cost of putting edge lines along both sides of Oak Avenue from N. Greensboro to Weaver Street (about 2100 ft) would be in the range of \$1,900 for painted lines to about \$5,000 for thermoplastic lines. There would be on-going maintenance costs to maintain the striping. Staff feels that there would be virtually no impact to traffic speed if lines were painted.

FISCAL AND STAFF IMPACT

As noted above the fiscal impact for the proposed modifications at the intersection of Oak Avenue and North Greensboro is in the range of \$7,500 to \$8,500 (total project cost \$9,000 to \$10,000) utilizing about 34 hours of staff time. The striping of edge lines would cost in the range of \$1,900 to \$5,000 depending on the type of lines painted. This striping work would need to be contracted.

It is anticipated that the Transportation Planner will need to spend 20 to 25 hours to organize and meet with residents and take preliminary steps for a neighborhood/education campaign. The time involved with implementing a campaign is yet to be determined and will be based on the type of campaign the neighborhood is interested in. As noted earlier the exact time frame is not known at this time and depends on the work load of the Transportation Planner.

The Police Department will continue to monitor Oak Avenue as part of their routine enforcement.

RECOMMENDATION

Staff recommends the following:

1. That the Police Department continue to monitor Oak Avenue as part of their routine enforcement.
2. That staff will follow through on the initiation of a neighborhood/education campaign.
3. That no intersection modifications at Oak Avenue and North Greensboro be made at this time, and the staff be directed to get a better understanding of what the treatment (if any) should be at this intersection.
4. That edge lines should not be striped along Oak Avenue.

A RESOLUTION SPECIFYING FOLLOW-UP TO TRAFFIC CALMING ON
OAK AVENUE
Resolution No.109/2007-08

WHEREAS, the Carrboro Board of Aldermen requested Town staff to provide follow-up information with reference to traffic calming on Oak Avenue.

WHEREAS, Town staff has provided said follow-up information with recommendations,

NOW, THEREFORE , THE BOARD OF ALDERMEN OF THE TOWN OF CARROBOR RESOLVES:

1. That the Police Department continue to monitor Oak Avenue as part of their routine enforcement.
2. That staff will follow through on the initiation of a neighborhood/education campaign.
3. That no intersection modifications at Oak Avenue and North Greensboro be made at this time, and the staff be directed to get a better understanding of what the treatment (if any) should be at this intersection.
4. That edge lines should not be striped along Oak Avenue.

ATTACHMENT B

Additional Information: Longitudinal Pavement Lines

Guidance for Application of Pavement Markings:

The adopted standard for the placement of Pavement Markings and Signage for Traffic Control is the Federal Highway Administration (FHWA) issued Manual on Uniform Traffic Control Devices (MUTCD). The purpose of the MUTCD is to provide uniformity of these devices, which include signs, signals, and pavement markings, to promote highway safety and efficiency on the Nation's streets and highways.

Purpose of Longitudinal Pavement Marking Lines:

Longitudinal Lines delineate vehicular paths of travel along the roadway by marking the center of the road, lanes of travel, edges of pavement, etc. The COLOR of a longitudinal line tells drivers whether they are on a one-way road or whether there may be opposing traffic to the left of the line. The PATTERN and/or WIDTH of a longitudinal line tell drivers whether it is permissible, discouraged, or prohibited to cross the line.

Background information about the existing pavement markings along E. Poplar Ave. which is a ONE WAY Street:

The existing *yellow* pavement marking line for E. Poplar Ave. along the north side of the roadway designates a Pedestrian Lane extending from W. Main to N. Greensboro St.

Reference: Carrboro Town Code: Section 6-37 Shared Usage By Bicyclists and Pedestrians - (5) The area along the north side of East Poplar Avenue shall be a pedestrian lane, and no person may ride, drive or park any vehicle (including a bicycle) upon such pedestrian lane.

The existing *white* pavement marking line for E. Poplar Ave. provides edge of pavement warning to motorist, pedestrian and bicyclist for abrupt pavement edge drop off locations along segments of E. Poplar. *Prior to March/2004, the marking designated a 3' width Bike Lane extending from W. Main to N. Greensboro St.*

Reference: Carrboro Town Code: Section 6-34 Establishment of Bikeways (d). A 3-foot strip along the southern edge of the roadway of East Poplar Avenue from Main Street to North Greensboro Street. (Deleted: 3/2/04).

**Carrboro Police
Dept.**

Memo

To: Adena Messinger, Transportation Planner
From: Carolyn A. Hutchison, Chief of Police
CC: Steve Stewart, Town Manager
Date: 5/12/2004
Re: Oak Avenue enforcement activity

In response to recent requests from citizens and Board of Aldermen members in late February 2008, Carrboro police officers resumed more directed patrols along Oak Avenue (from N. Greensboro to Weaver). Since this most recent request, officers have spent approximately 33 hours along the street, monitoring for violations of speed, stop signs, and other problems. In addition to the hours spent on directed patrols, officers conduct routine patrols every day along Oak Avenue as they do throughout Town.

Since late February 2008, officers have cited eight motorists for stop sign violations; one for driving while license revoked; one for fictitious registration; and one for no inspection sticker. Motorists did not violate speed limits while officers were in the area.

Following the initial request for more frequent directed patrols on Oak Avenue in February 2007, officers spent approximately 17 ½ hours of directed patrol along the street from February through April 2007. Few citations were written during that campaign. In fact, from July 1, 2006 through February 2008, only 12 citations were written, including only one for speeding. (Five were stop sign violations; two were no insurance violations; two were no operator license violations; one was a passenger seat belt (juvenile) violation; and one was a failure to change address violation.)

From July 1, 2000 to the current date, we have reports of 9 accidents along Oak Avenue.

Patrol Supervisors and officers have explained that speed enforcement is quite challenging along Oak Avenue. The narrowness of the street and the number of stop signs hamper effective radar patrols. Officers are not usually able to monitor the area and remain undetected by motorists; as a result, when officers are conducting directed patrols along the street, drivers abide by the speed limit. In the unlikely event that a motorist does violate the speed limit in an officer's presence, the officer will have to exercise great caution in apprehending the driver so that the officer doesn't create further hazard within the neighborhood.

Even so, speed counts from December 2007 indicated that speeding is less of an issue since installation of the speed table: at the three locations monitored, the 85th percentile ranged from 24 to 19 MPH. Officers will continue to monitor traffic in this area.

MEMORANDUM

To: Mayor and Board of Aldermen
From: Traffic and Parking Committee
Re: Follow up to Oak Ave. information presented on February 19, 2008
Date: May 20, 2008

1. Further study of changes to the Oak/N. Greensboro intersection.

Finding: As the budget and work plans will allow, staff recommends:

1. Removal of the existing yellow island that is painted in the intersection.
2. Establish a short center line aligned with the center of the opposing intersection of the 600 block Oak Ave.

Town staff reviewed the speed data for vehicles turning right onto Oak Ave. from N. Greensboro, and the accident data for the Oak/N. Greensboro intersection. The speed data collected from December 12 and 13, 2007 shows the 85th percentile speed for those making a right turn onto Oak Ave. to be 19.73 mph (the speed limit on Oak Ave. is 20 mph). The accident data from 2001 to 2007 indicated that there are six reports of accidents at or near the intersection of Oak Ave. and N. Greensboro. Of those six accidents, four involved rear collisions and two involved vehicles attempting to cross N. Greensboro.

Together these suggest that neither speeding nor accidents warrant any major intersection improvements. However, in studying the intersection, staff agrees that the current painting on the pavement is confusing.

2. A proposal for striping of Oak Ave.

Finding: Striping is not an appropriate measure for traffic calming on Oak Ave.

Staff took another look at the suggestion of striping edge lines along Oak Ave. and has reached the same conclusions presented on February 19th. Staff does not recommend painting edge lines for the following reasons:

1. Painting edge lines for the purpose of traffic calming is not an accepted practice according to the Manual on Uniform Traffic Control Devices (MUTCD, the MUTCD provides guidance on signage and pavement marking);
2. If the purpose is to delineate the pavement width, there is already contrasting concrete curb and gutter which delineates the asphalt paving and gives a visual effect of 17 feet width of travel (8.5 feet in each direction).
3. The Town has not typically painted edge lines along residential streets. To do so may set a precedent which could have significant maintenance cost impact.

A better solution to providing a safer walk along Oak Ave. would be to install a sidewalk; however, during the consideration of streets identified as high priorities for sidewalk installation in 2004, residents of Oak Ave. requested that their street be removed from the sidewalk priority list, due to a concern about drainage and a concern that a sidewalk would change the quality and quaintness of the street. This request was granted.

3. A report on the street resurfacing schedule for Oak Ave.

- a) Oak Ave. was last resurfaced in 1991.
- b) At the present time the average PCR (pavement condition rating) for Oak Ave. from Weaver to N. Greensboro is 91¹. For the 6 block segments that make up Oak Ave., the highest PCR was 98 and the lowest low was 85. Public Works does not anticipate resurfacing Oak Ave. within the next 5-6 yrs. The next resurfacing will either involve milling out 6' along each side or paving into the gutter

4. A report on the feasibility of on-street parking on Oak Ave.

Finding: On-street parking is not feasible for Oak Ave. Parked cars, even on only one side of the street, would obstruct passage of an emergency fire vehicle.

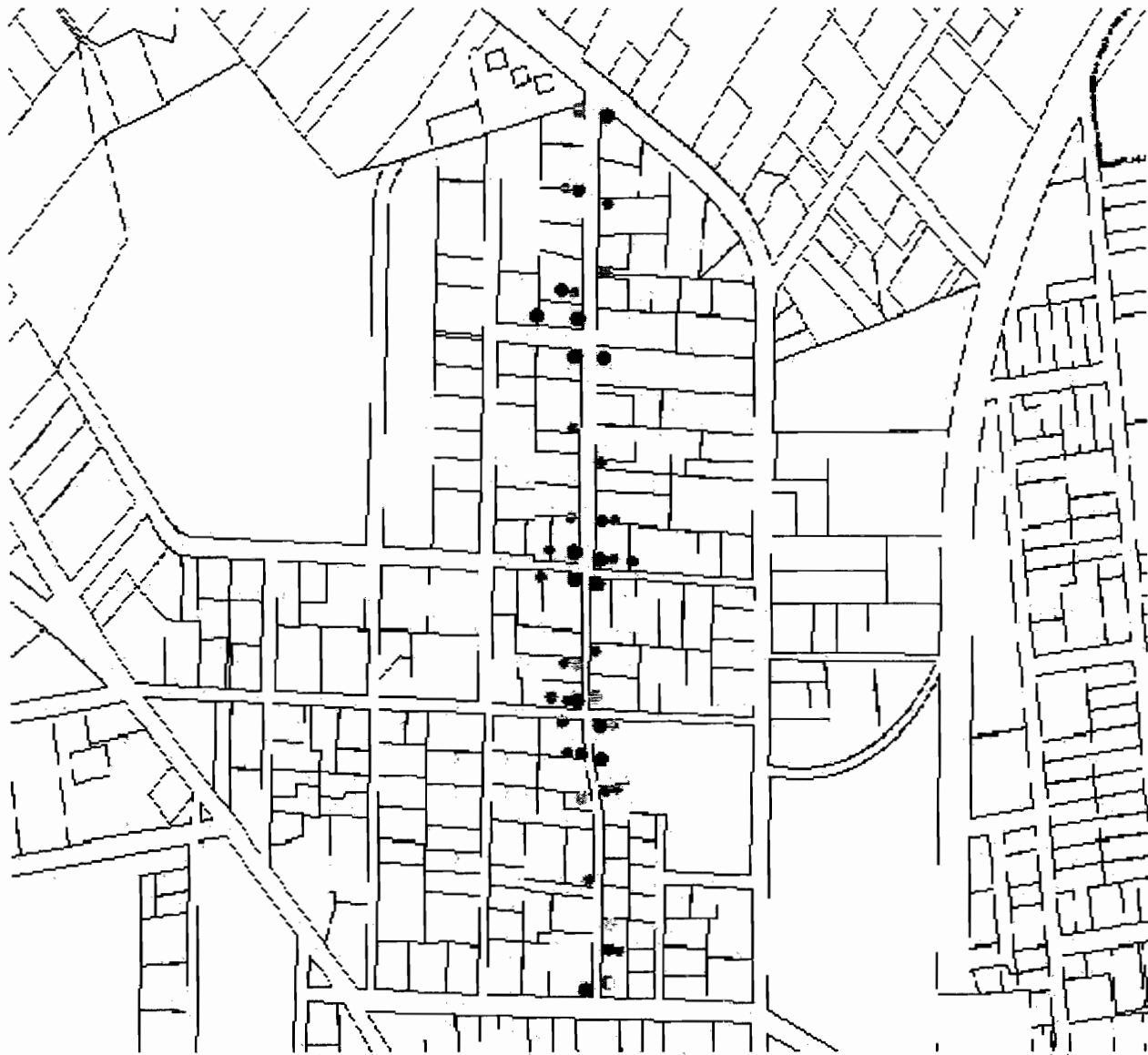
According to section 503.2 of the North Carolina Fire Code: “Fire apparatus access roads shall be installed and arranged in accordance with Sections 503.2.1 through 503.2.7.

503.2.1: Fire apparatus access roads shall have an unobstructed width of not less than 20 feet (6069 mm)...”

5. A recommendation regarding additional signage

Finding: Staff does not recommend additional signage due to the existing number of signs already along this street (see map below), including the sign “Drive Slowly We Love Our Children”. There is doubt than additional signage would have an impact above what the speed table is showing.

¹ The PCR scale goes from 0 to 100.

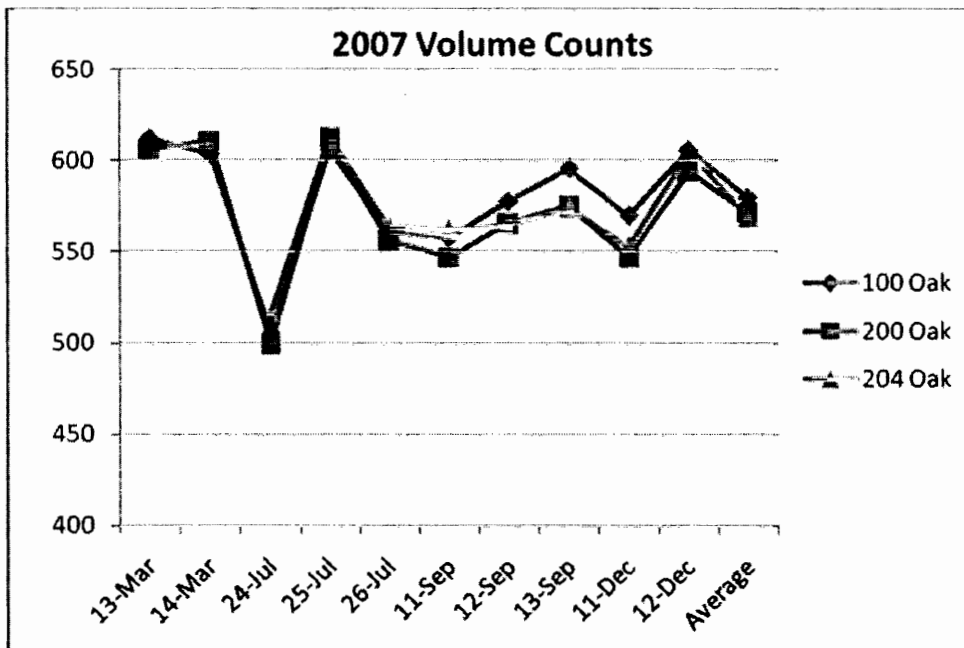


- STOP SIGN
- SPEED LIMIT 20
- NO TRUCKS
- SPEED TABLE AHEAD 15 MPH
- DRIVE SLOWLY WE LOVE OUR CHILDREN
- DO NOT ENTER
- STOP AHEAD
- NO PARKING ANY TIME
- 1 WAY

MEMORANDUM

To: Mayor and Board of Aldermen
 From: Traffic and Parking Committee
 Re: Oak Ave. traffic volume
 Date: May 20, 2008

A key question is whether or not the volume on the 100/200 block of Oak Ave. is excessive. As the table below shows, there is little variation in the volume of vehicles on Oak Ave. between Weaver St. and E. Poplar: the average volume ranges from 569 to 578 in the three locations where data was collected.



According to the Residential Traffic Management Plan (RTPM,), street volume is determined by the function of the street. In the case of Oak Ave., it functions as a subcollector:

In the LUO a subcollector is defined as:

A street whose principal function is to provide access to abutting properties but is also designed to be used or is used to connect minor and local streets with collector or arterial streets. Including residences indirectly served through connecting streets, it serves or is designed to serve at least twenty-six but not more than one hundred dwelling units and is expected to or does handle between two hundred (200) and eight hundred (800) trips per day.

Oak Ave. (in its entire length) serves 44 dwelling units on the street itself (not including units on Evans Ct. or Merritt St.) and it connects two arterials: N. Greensboro and Weaver.

Several residents have questioned the functional classification of Oak Ave. due to its design: no sidewalks and 21 feet curb face -to-curb face. If Oak Ave. were being constructed today, under

the LUO, it would have sidewalks on both sides and have 26 feet curb face-to-curb face. However, despite the dimensions, the street still functions as a subcollector.

This raises the questions: How to treat a traffic calming request for streets whose design does not meet new-development standards? Is the RTPM equipped to do so?

At the February 19th meeting, one suggestion for limiting access to Oak Ave. was to turn the 100/200 block into a one-way street going north. This could potentially eliminate 2/3 of the volume, as only 1/3 of the volume recorded is headed north. Staff was directed to report on the feasibility of this one-way configuration.

A report on the feasibility of one-way traffic on 100 block of Oak Ave.

Finding: Staff is providing three options for Board of Aldermen consideration.

Option 1. No additional action at this time. Given its current function as a subcollector, the 100/200 block of Oak Ave. is carrying an amount of traffic within the range defined in the LUO. Though not intended to reduce the volume of traffic, the recent installation of a speed table has been shown to reduce vehicle speeds, thus calming the traffic and increasing safety. One option is for the Board to direct staff to not proceed with any further action at this time, other than continuing to monitoring traffic volume on Oak Ave. and routine enforcement.

Option 2. Full analysis first. Since turning a portion of Oak Ave. is likely to divert traffic, the area-wide system should be considered. To determine the neighborhood impacts, another option is for the Board to direct staff to conduct a comprehensive evaluation of the traffic in the neighborhood as follows:

Assess neighborhood interest. The suggestion to make the 100/200 block of Oak Ave. one-way was not included in the neighborhood petition that was circulated and submitted to the Town (March 5, 2007). As such, staff recommends that a new petition – specific to the proposal for a one-way configuration on Oak Ave. from Weaver to E Poplar – be circulated to a newly defined area of influence.

Data collection and analysis. Should at least 75% of the area of influence desire the Town to explore the feasibility of a one-way configuration, staff advises that the following be undertaken to identify the impacts of this change:

- Data collection to consist of turning counts at the intersections of Oak/Merritt; Oak/Shelton; Oak/Poplar; Oak/Weaver
- Data collection to consist of traffic volume counts for the full length of Oak, Lindsay, and Merritt
- Data analysis to consist of trip distribution to get a sense of how traffic would be redistributed to the neighboring streets and intersections.
- A better understanding of the pros and cons of a one-way street, especially within a network that already provides minimal north-south connectivity
- Identify cost associated with implementing this one-way street configuration on Oak to include: enforcement, signage, markings, etc...

Staff would then bring the results back to Board of Aldermen with recommendations.

Option 3. Partial analysis. Conduct a public hearing to determine neighborhood interest in this modification to the street network and decide how to proceed based on results of the public hearing. In addition, collect baseline data consisting of traffic volume counts for the neighborhood streets.