

**5**

AGENDA #4d

**MEMORANDUM**

**TO:** Mayor and Town Council

**FROM:** W. Calvin Horton, Town Manager

**SUBJECT:** Response to a Petition by the Chandler's Green Homeowners' Association for Traffic Calming Measures on Sweeten Creek Road

**DATE:** May 13, 2002

This report responds to a petition by the Chandler's Green Homeowners' Association requesting traffic calming measures on Sweeten Creek Road. Attachment #1 is a copy of the petition.

Adoption of the attached resolution and ordinance would authorize the Manager to implement the following traffic calming measures on Sweeten Creek Road:

- Three speed humps with neighborhood funding
- Multi-way stop signs at the intersection of Sweeten Creek Road and Amesbury Lane
- Traffic Circle at the intersection of Sweeten Creek Road and Amesbury Lane, if follow-up studies show that a traffic circle is necessary at this intersection and if Town funding is available at some future time.

**BACKGROUND AND DISCUSSION**

The Town Council, at its March 25, 2002 meeting, received a petition from the Chandler's Green Homeowners Association requesting traffic calming measures on Sweeten Creek Road.

Town staff performed a traffic study on Sweeten Creek Road in the Chandler's Green neighborhood in September 2001. The results of the study are provided in Table 1 and are summarized below:

- Traffic volume on weekdays: 600 – 850 vehicles/day, Average: 725 vehicles/day
- Traffic volume on weekends: 300 – 670 vehicles/day, Average: 500 vehicles/day
- Average speed: 26 to 29 mph
- 85 % speed: 32 – 34 mph
- Highest speed: 40 – 55 mph

Traffic volumes are well below the capacity of Sweeten Creek Road and are typical for similar streets in other parts of the community. Although a portion of the traffic on Sweeten Creek Road includes vehicles from outside the Chandler's Green neighborhood, the total traffic volume does not suggest that a significant volume of cut-through traffic is using this road. Speeding appears to be a problem on Sweeten Creek Road; however, the observed speeds are not unusual on other Town streets with similar geometric characteristics. Town staff met with the Chandler's Green

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Homeowners Association and developed a traffic calming proposal that could address the speeding problem.

**TABLE 1  
TRAFFIC STUDIES ON SWEETEN CREEK ROAD**

<b>Location</b>	<b>Traffic Volume</b>	<b>Average Speed (mph)</b>	<b>85% Speed (mph)</b>	<b>Highest Speed (mph)</b>
<b>1. Near Justin Place</b>				
Wednesday, 09/26/01	841	28	34	55
Thursday, 09/27/01	842	28	33	45
Friday, 09/28/01	795	28	33	45
Saturday, 09/29/01	674	28	33	45
Sunday, 09/30/01	661	28	34	> 55
<b>2. 3708 Sweeten Creek Rd</b>				
Wednesday, 09/26/01	762	29	34	> 55
Thursday, 09/27/01	782	28	34	50
Friday, 09/28/01	740	28	34	45
Saturday, 09/29/01	613	29	34	50
Sunday, 09/30/01	603	28	34	45
<b>3. 3812 Sweeten Creek Rd</b>				
Wednesday, 09/26/01	616	29	34	45
Thursday, 09/27/01	637	28	34	45
Friday, 09/28/01	617	28	34	45
Saturday, 09/29/01	537	28	34	55
Sunday, 09/30/01	513	28	34	50
<b>4. 4002 Sweeten Creek Rd</b>				
Wednesday, 09/26/01	437	26	33	50
Thursday, 09/27/01	420	25	32	45
Friday, 09/28/01	395	26	33	45
Saturday, 09/29/01	355	26	33	45
Sunday, 09/30/01	307	26	33	45

In its petition, the Chandler's Green Homeowners' Association requested that the Council approve the proposed traffic calming plan mutually developed by Town staff and neighborhood representatives. The proposed traffic calming plan is shown on the attached map (Attachment #2), and includes the following elements:

## **SPEED HUMPS**

We recommend installation of speed humps at three locations indicated on the attached map. The exact location of the speed humps will be determined in coordination with residents. Speed humps can have a positive effect on reducing both traffic speed, and traffic volume. Studies indicate that speed humps can reduce average traffic speed by 10 to 20 percent and traffic volume by as much as 18 percent.

### **Speed Hump Description, Comments, and Costs:**

- Rounded raised areas of pavement typically 12 to 14 feet in length and 3 to 4 inches in height
- Speed hump shapes include parabolic, circular, and sinusoidal
- Often placed in a series (typically spaced 300 to 600 feet)
- Midblock placement recommended (not at intersections)
- Advance warning signs and pavement markings on the hump
- Concern over jarring of emergency rescue vehicles
- Approximate delay of between 3 and 5 seconds per hump for fire trucks and up to 10 seconds for ambulance with patient
- Elevated roadway surfaces, hidden by snow or ice, can be mistaken by snowplow operators as packed snow or ice
- Typical Cost approximately \$2,500 per hump
- A typical speed hump design is shown on Attachment #3

## **TRAFFIC CIRCLE**

We recommend installation of a traffic circle at the intersection of Sweeten Creek Road and Amesbury Lane as indicated on the attached map.

### **Traffic Circle Description, Comments, and Costs:**

- Raised islands, placed in intersections, around which traffic circulates
- Motorists yield to vehicles already in the intersection
- Require drivers to slow to a speed that allows them to comfortably maneuver around the circle
- Sometimes called intersection islands
- Different from roundabouts
- No effect on access
- Reduction in midblock speed of about 10 percent
- Only minimal diversion of traffic
- Emergency vehicles typically slow to negotiate circle with approximate delay of between 5 and 8 seconds per circle for fire trucks
- Cost varies from \$3,500 to \$15,000
- A typical design of traffic circle is shown on Attachment #4

## FUNDING

The following table summarizes the improvements we recommend in the Chandler's Green neighborhood and the estimated costs:

**TABLE 2  
COST ESTIMATES FOR TRAFFIC CALMING MEASURES**

Traffic Calming Device	Quantity	Estimated Cost per each	Total Estimated Cost
1. Speed Humps	3	\$2,500	\$7,500
2. Traffic Circle	1	\$5,000	\$5,000
<b>Total</b>			<b>\$12,500</b>

All currently available traffic calming funds have been allocated by the Council for use in the Little Creek/Glen Lennox neighborhood, and no additional funding has been identified for traffic calming in the current budget year. The Manager's recommended FY 2002-03 budget and Capital Improvements Program does not include funding for traffic calming. We have provided below several options for funding and implementing traffic calming measures on Sweeten Creek Road:

### Options:

1. Town Council fund the complete proposal (\$12,500).
2. Chandler's Green Homeowners' Association fund the complete proposal (\$12,500).
3. Town Council and Chandler's Green Homeowners' share the cost 50/50 (\$6,250 each).
4. Chandler's Green Homeowners' Association provide funding for three speed humps (\$7,500) and Town forces install multi-way stop signs at the intersection of Sweeten Creek Road and Amesbury Lane. If follow-up studies show that a traffic circle is necessary at this intersection, the Town would pay for and construct the circle if Town funding (\$5,000) is available at some future time.

## CONCLUSION

We think that the proposed traffic calming measures on Sweeten Creek Road would benefit the neighborhood by managing traffic and allowing Sweeten Creek Road to function more effectively and safely for both vehicular and non-vehicular users. We recommend alternative #4 for the following reasons:

- Existing Town funding for traffic calming is allocated to other projects and no funding is currently available for new traffic calming proposals.
- The Manager's recommended Capital Improvements Program for FY 2002-03 does not include additional funding for traffic calming.
- The Chandler's Green Homeowners' Association has expressed willingness to consider cost sharing with the Town to have traffic calming measures implemented on Sweeten Creek Road.

**MANAGER'S RECOMMENDATION**

That the Town Council adopt the attached resolution and ordinance approving traffic calming measures on Sweeten Creek Road as described below and as noted in Option #4 above:

Chandler's Green Homeowners' Association provide funding for three speed humps (\$7,500) and Town forces install multi-way stop signs at the intersection of Sweeten Creek Road and Amesbury Lane. If follow-up study shows that a traffic circle is necessary at this intersection, the Town would pay for and construct the circle if Town funding (\$5,000) is available at some future time.

Chandler's Green Homeowners' Association requests that the Town fund the complete traffic calming proposal as described in Option #1 above (\$12,500) or; share the cost 50/50 with the Homeowners Association as described in Option #3 above (\$6,250 each).

**ATTACHMENTS**

1. Petition from Chandler's Green Association (p. 8).
2. Proposed Traffic Calming Plan for Sweeten Creek Road (p. 16).
3. Speed Hump Design and Examples (p. 17).
4. Traffic Circle Design and Examples (p. 19).
5. Recommended Traffic Calming Plan by the Manager (p. 21).

**A RESOLUTION ENDORSING CERTAIN TRAFFIC CALMING MEASURES ON SWEETEN CREEK ROAD IN CHAPEL HILL AND AUTHORIZING THE TOWN MANAGER TO IMPLEMENT THOSE MEASURES AS DESCRIBED BELOW (2002-05-13/R-5)**

WHEREAS, the Council of the Town of Chapel Hill is concerned about vehicular and non-vehicular safety and mobility on Town streets; and

WHEREAS, the Council has received a petition from the Chandler's Green Homeowners' Association and a report from Town staff about proposed traffic calming measures on Sweeten Creek Road.

NOW, THEREFORE, BE IT RESOLVED by the Council of the Town of Chapel Hill that the Council endorses the following traffic calming measures on Sweeten Creek Road:

- 1) Multi-way stop signs to be installed by Town forces at the intersection of Sweeten Creek Road and Amesbury lane.
- 2) Three Speed Humps at locations approved by the Town to be paid for by the Chandler's Green Homeowners' Association
- 3) A traffic circle at the intersection of Sweeten Creek Road and Amesbury Lane to be installed and paid for by the Town only if follow up study indicates the need and only if Town funds become available to pay for the installation.

BE IT FURTHER RESOLVED that the Council authorizes Town staff to contract for the installation of three speed humps on Sweeten Creek Road when the necessary funds are provided by the Chandler's Green Homeowners' Association.

This the 13<sup>th</sup> day of May, 2002.

**AN ORDINANCE AMENDING CHAPTER 21 OF THE TOWN CODE OF ORDINANCES REGARDING STOP REGULATIONS (2002-05-13/0-2)**

BE IT ORDAINED by the Council of the Town of Chapel Hill as follows:

Section 1. Section 21-13(a) of the Town Code of Ordinances, "Right-of-way and stop regulations." is hereby amended by deleting the following:

<i>"Through Streets</i>	<i>Stop Streets</i>
<del>Sweeten Creek Road</del>	<del>Amesbury lane</del>

Section 2. Section 21-13(c) of the Town Code of Ordinances, "Right-of-way and stop regulations." is hereby amended by inserting the following, in appropriate alphabetical order:

*"Intersection(s)*  
Sweeten Creek Road and Amesbury Lane

Section 3. This ordinance shall become effective July 1, 2002.

This the 13<sup>th</sup> day of May, 2002.

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14 March 2002

The Honorable Kevin Foy, Mayor  
Town Council of Chapel Hill  
306 N. Columbia Street  
Chapel Hill NC 27516

Dear Mr. Mayor and Members of Council:

The Chandler's Green Homeowners' Association offers the following petition for consideration by the Town Council at its business meeting on 25 March 2002.

In the past year, after the extension of Sweeten Creek Road and its connection to Perry Creek Road, which linked Chandler's Green to the adjacent neighborhoods of Silver Creek and Springcrest, the residents of Chandler's Green have noticed a significant increase in traffic through our neighborhood. More importantly, we have observed a high incidence of vehicles traveling at speeds well in excess of the speed limit (25 mph) and we are concerned for the safety of our neighborhood and its children.

At our request, the Town Engineering Office conducted a traffic survey in our neighborhood in September of 2001, and found a significant speeding problem (see exhibit A, the Town Engineer's report). After several meetings with Mr. Neppalli, a plan for traffic calming in our neighborhood has been developed. This is described in Mr. Neppalli's report to us on 30 January 2002 (exhibit B) and schematically represented on a site map of Chandler's Green neighborhood (exhibit C).

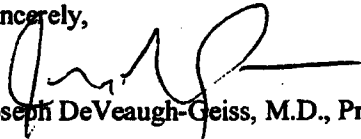
In brief, it recommends the installation of three speed humps, and a traffic circle.

The residents of Chandler's Green reviewed and approved, at the Annual meeting of the Homeowners' Association in November 2001, the implementation of traffic calming measures for our neighborhood.

We now petition the Town Council for approval of this plan, and for the allocation of funds to implement these changes. The Chandler's Green Homeowners' Association will consider a cost sharing arrangement in order to implement these important safety measures in our neighborhood.

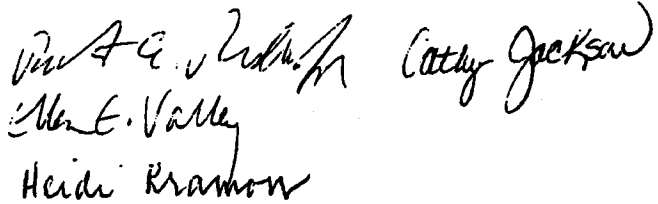
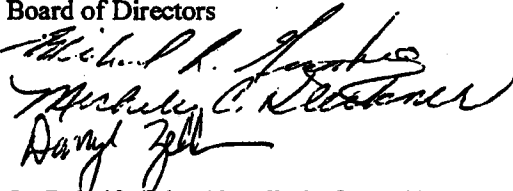
Thank you for your consideration of this petition and we thank you in advance for what we hope will be a favorable decision and action upon this request.

Sincerely,



Joseph DeVeough-Geiss, M.D., President

Board of Directors



On Behalf of the Chandler's Green Homeowners' Association





(13)

**TOWN OF CHAPEL HILL**

October 23, 2001

Mr. Darryl Zeldin  
4004 Sweeten Creek Road  
Chapel Hill, N.C. 27514

Dear Mr. Zeldin:

The Town staff met several representatives of the Chandler's Green Neighborhood on June 5, 2001 to discuss the traffic concerns on Sweeten Creek Road. The Town staff agreed to conduct a traffic study in September of this year. Town staff also agreed to provide information on possible traffic calming devices. This information was sent to Ms. Dana Cattani in June of this year.

The Town completed the traffic study during the week of September 24 and presented a summary of the results at each location in the attached table. I have faxed the summary table to you as per your request. Detailed studies are also attached for your information. A quick summary of traffic study results are provided below:

- Traffic volume on weekdays: 600 – 850 vehicles/day, Average: 725 vehicles/day
- Traffic volume on weekends: 300 – 670 vehicles/day, Average: 500 vehicles/day
- Average speed: 26 to 29 mph
- 85 % speed: 32 – 34 mph
- Highest speed: 40 – 55 mph

Traffic volumes are well below the capacity of Sweeten Creek Road and are typical for similar streets in other parts of the community. Although a portion of the traffic on Sweeten Creek Road includes vehicles from outside the Chandler's Green neighborhood, the total traffic volume do not suggest excessive cut-through traffic problem. Speeding appears to be a problem on Sweeten Creek Road, however, the observed speeds are not unusual on a street like Sweeten Creek Road due to the geometric conditions. It is possible that traffic calming measures could address this problem. Town staff will be attending the association meeting on Wednesday, October 24 at 7:00 pm to discuss these results.

If you have any questions, please feel free to call me at 968-2833.

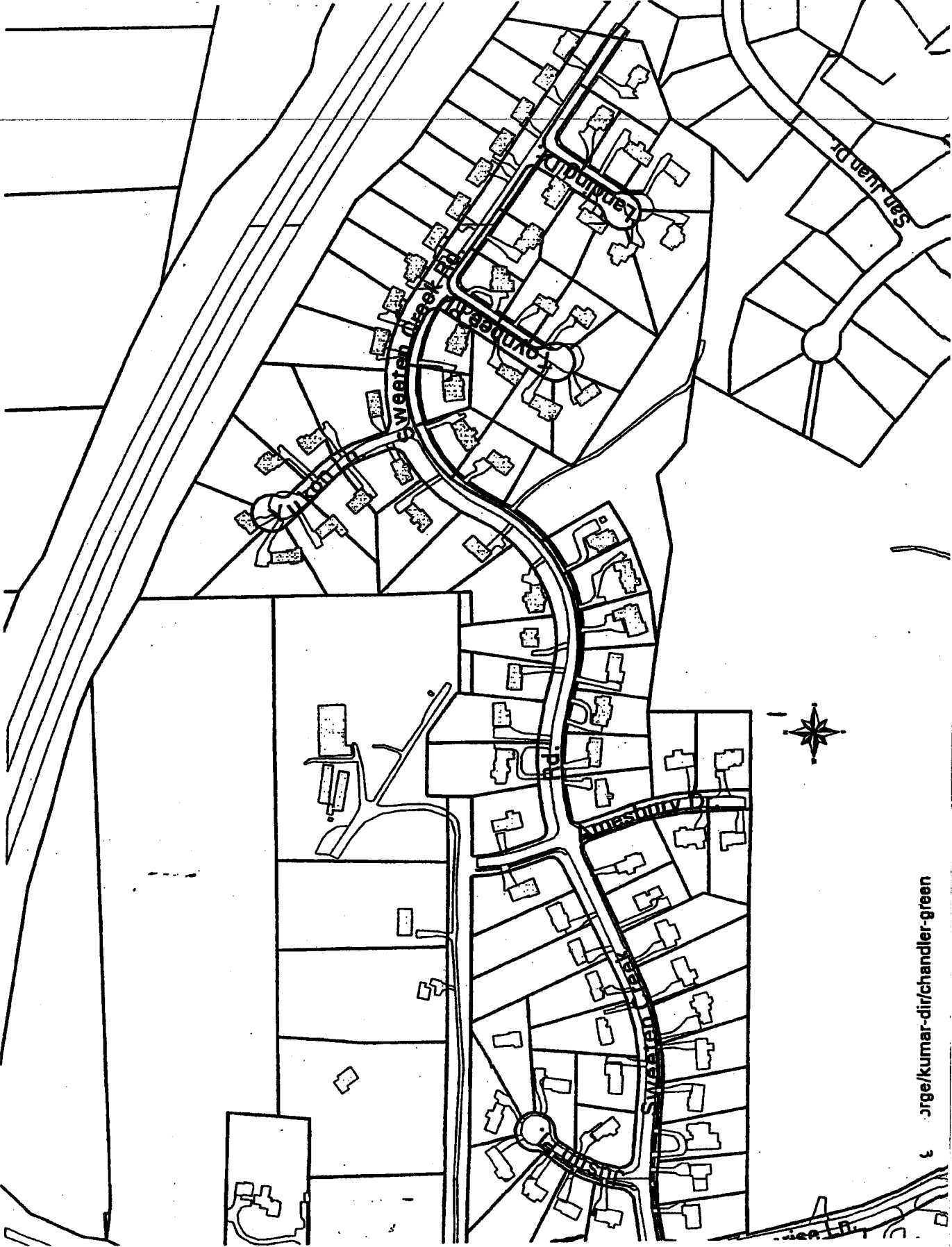
Sincerely,

  
Kumar Neppalli, E.I.T.  
Traffic Engineer

(14)

**CC: Cal Horton, Town Manager  
George Small, P.E., Director of Engineering**

**Attachments: Vicinity Map  
Traffic Studies**



## TRAFFIC STUDIES ON SWEETEN CREEK ROAD

Location	Traffic Volume	Average Speed (mph)	85% Speed (mph)	Highest Speed (mph)
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Sunday, 09/30/01	307	26	33	45

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**From:** Kumar Neppalli [mailto:kneppalli@townofchapelhill.org]  
**Sent:** Wednesday, January 30, 2002 1:51 PM  
**To:** Zeldin@niehs.nih.gov  
**Cc:** George Small; Sonna Loewenthal; Cal Horton; Joyce Smith  
**Subject:** Traffic Calming Plan on Sweeten Creek Road

Dear Mr. Zeldin,

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This is in confirmation of our discussions last night at the Chandler's Green Neighborhood meeting. Neighborhood selected a traffic calming plan for Sweeten Creek Road based on the speed studies and recommendations by the Town staff. The plan consist of the following calming devices:

- 1. 3 speed humps
  - one between Amesbury Drive and Justin Place
  - one between Amesbury Drive and Yukon Lane
  - one between Landing Drive and Toynbee Place
  
- 2. Traffic Circle at the intersection of Sweeten Creek Road and Amesbury Lane

The exact location of speed humps still needs to be determined based on the Engineering Principles. The total estimated cost to implement the plan is approximately \$12,500. Town staff informed that existing funding for traffic calming was allocated to several neighborhoods and no funding available in the current budget year. Homeowners Association agree to petition Town Council on funding source with a cost sharing plan.

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I checked the Town Council meetings schedule and their Budget work session schedule. The first public forum on next year budget was held last night. Petitions may not be accepted by regular citizens in the Budget work sessions. If neighborhood decides to petition the Council, I suggest that you do that at one of their regular meetings to get the funding request into the overall budget packet. I have provided below the scheduled Council regular business meetings from February and March:

- February 11, 2002
- February 25, 2002
- March 4, 2002
- March 25, 2002

You can call Ms. Joyce Smith, Town Clerk (Ph: 968-2743) or me to discuss the procedure on how to petition Council.

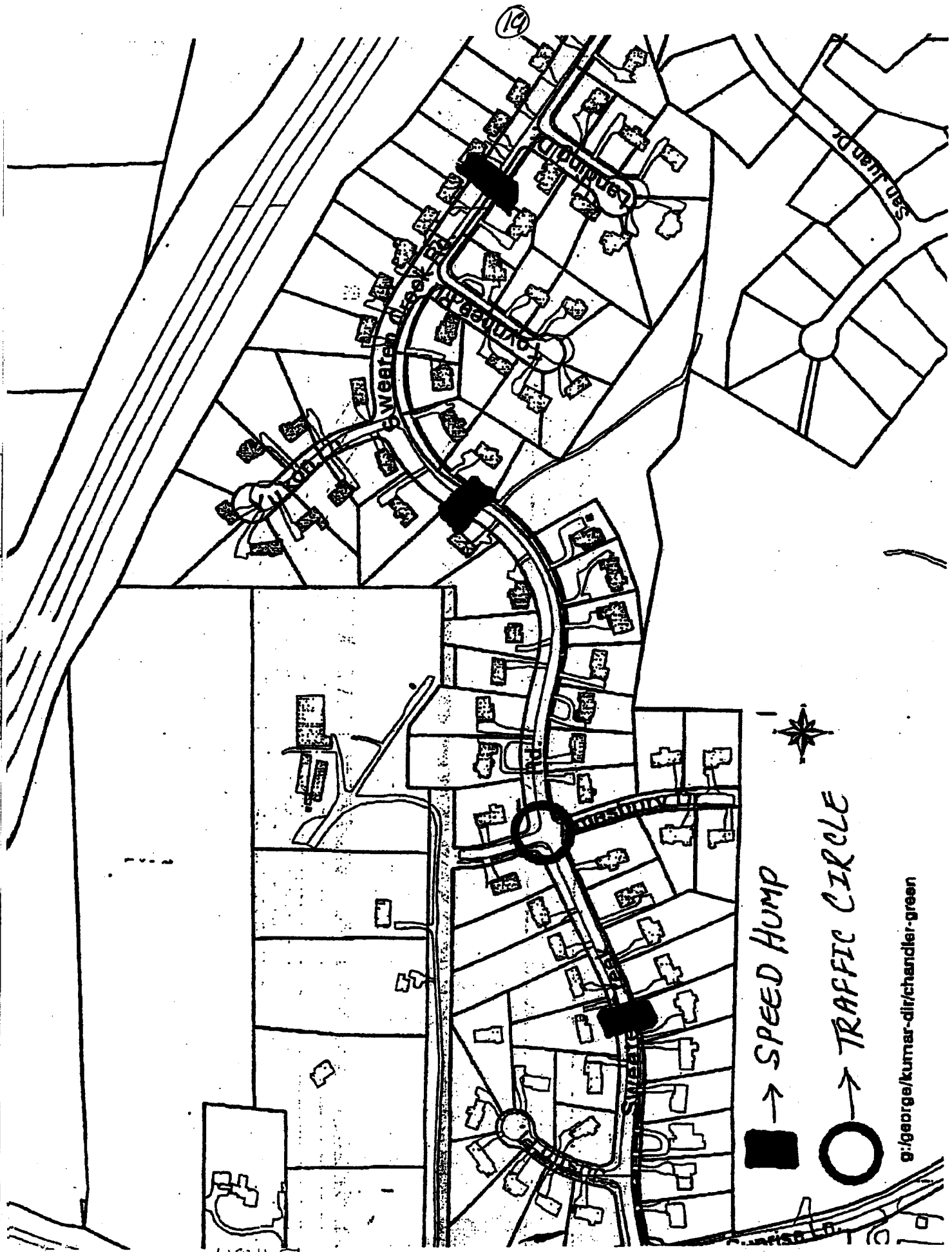
If you need additional information, please let me know. Thank you and I enjoyed the discussion last night.

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Sincerely,

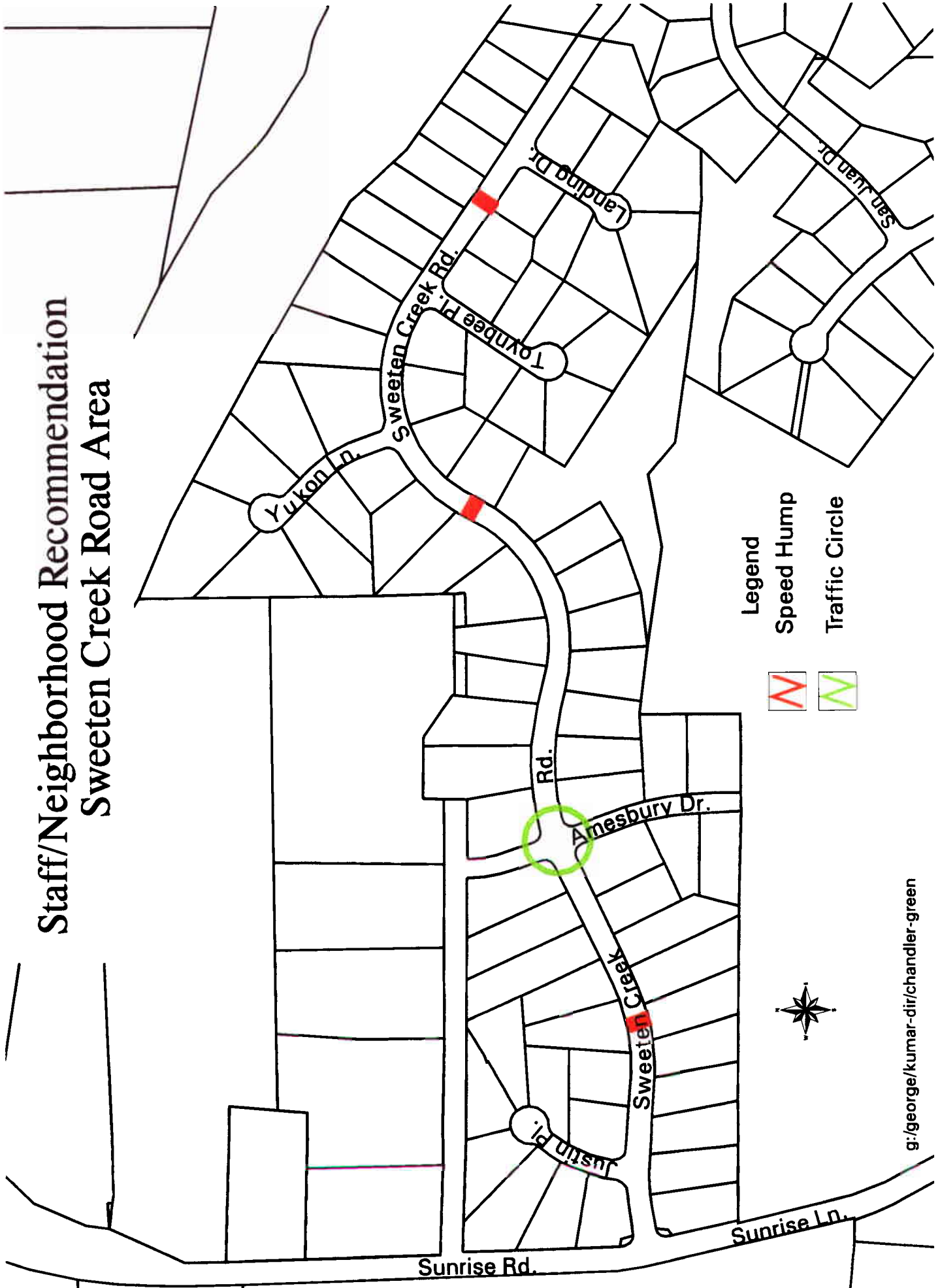
***Kumar Neppalli, E.I.T.***  
Traffic Engineer  
Town of Chapel Hill  
306 N. Columbia Street  
Chapel Hill, NC 27516-2124

Tel: (919) 968-2888 ext. 256  
FAX: (919) 967-8406  
E-mail: [kneppalli@townofchapelhill.org](mailto:kneppalli@townofchapelhill.org)



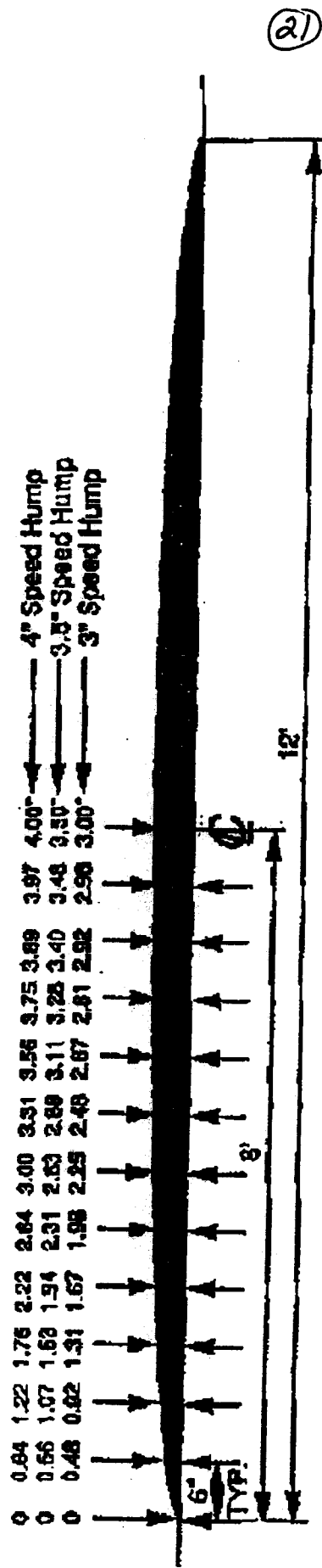
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# Staff/Neighborhood Recommendation Sweeten Creek Road Area



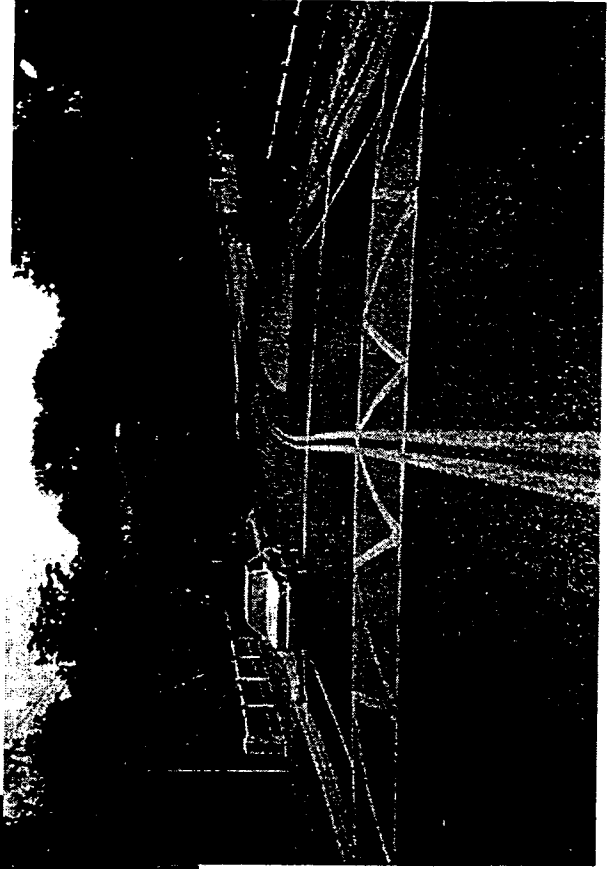


# 12' Speed Hump Profile



Source: Clement, J.P. "Speed Humps and The Thousand Oaks Experience." City of Thousand Oaks. Thousand Oaks, CA, September 1982

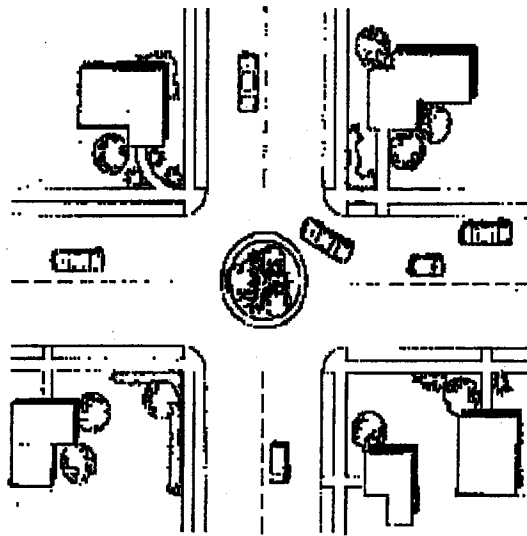
# Aesthetics of Speed Humps



# Traffic Circles (rotaries, intersection islands)

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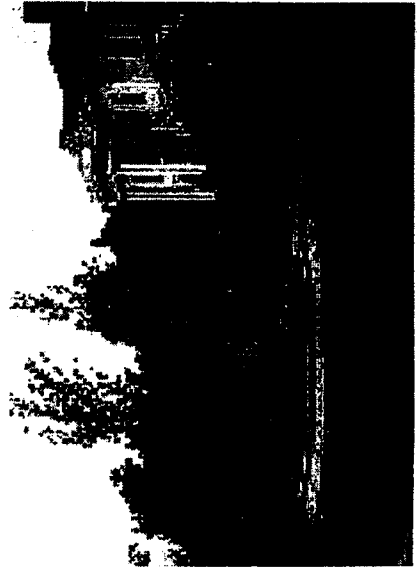


Charlotte, NC

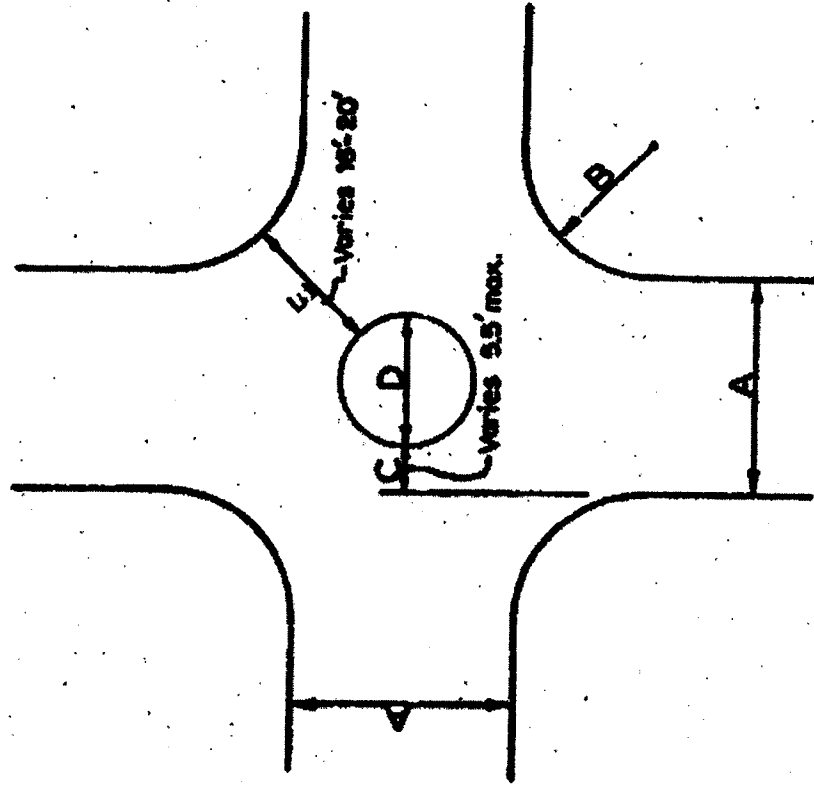


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Portland, OR



# Designing Circles to Fit Intersections



**Legend :**

- A Street Width
- B Curb Return Radius
- C Off-Set Distance
- D Circle Diameter
- E Opening Width

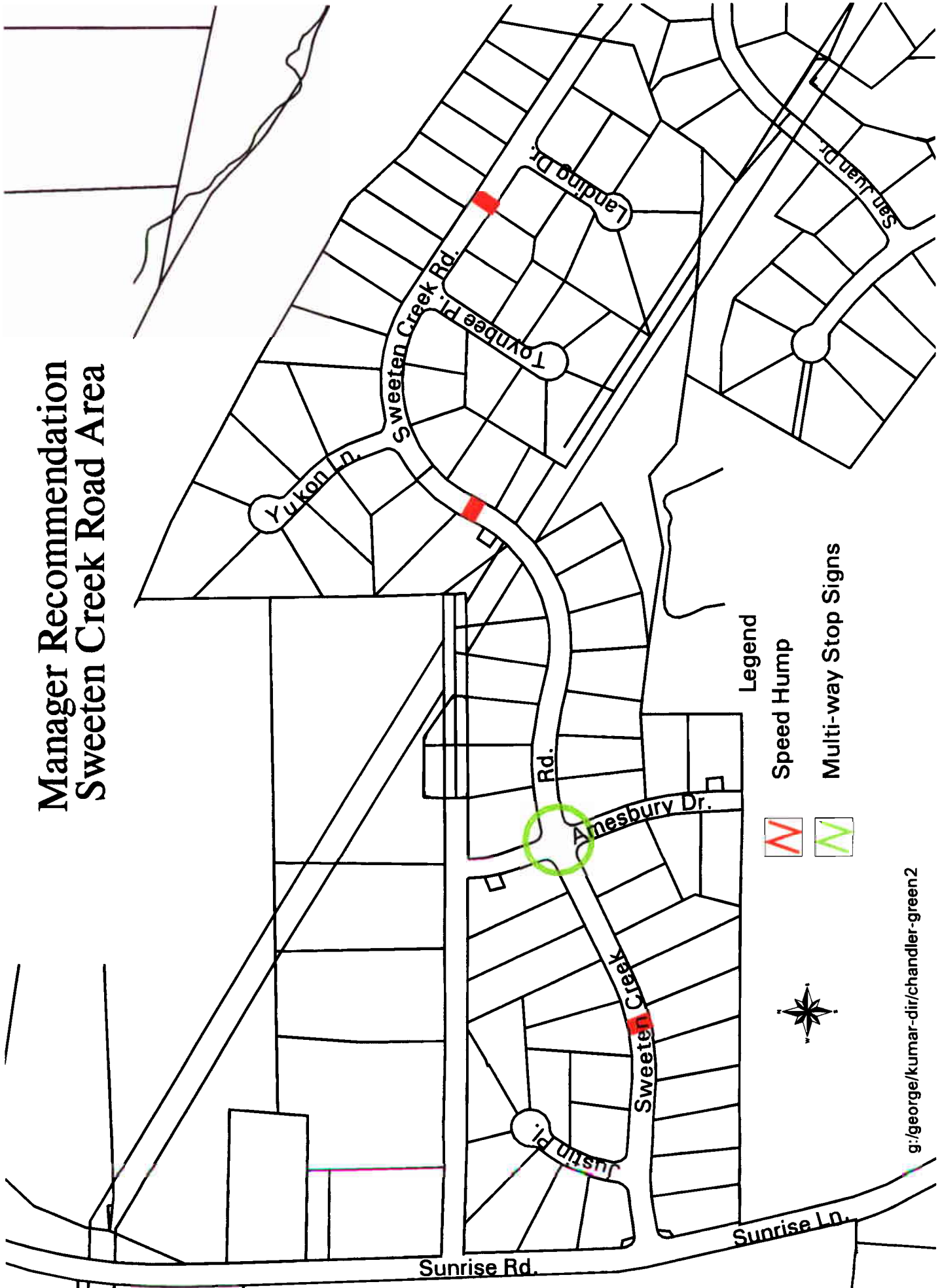
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**OPTIMUM CRITERIA**

Off-Set Distance	Opening Width
5.5' max	16' min
5.0'	17'
4.5'	18'
4.0'	19'
3.5' or less	20'

Source: City of Seattle, "Neighborhood Traffic Control Program - Citizen Requested Traffic Circle (City Funded)," Policy No. 23, Seattle, WA, 1986

# Manager Recommendation Sweeten Creek Road Area



- Legend
- Speed Hump
  - Multi-way Stop Signs