



East Park Hills Avenue Traffic Calming Study

Presentation of Additional Option for the Initial Traffic
Calming Plan

For Public Meeting #2

November 14, 2017



Presentation by

- David Modricker, PE, Public Works Director
- Ronald Seybert, PE, Township Engineer

With Technical Assistance from

- Patrick Wright, PaDOT LTAP
- Jason Stimmel, PE, Pennoni



2571 Park Center Blvd., Ste. 2
State College, PA 16801



East Park Hills Traffic Calming Study

TITLE

PROJECT : FRGU1603
SCALE : NTS
DRAWN BY : -
DATE : JAN 2017

BACKGROUND

- Resolution 2015-05, Ferguson Township BOS adopts traffic calming policy
- **What is traffic calming?**
- Traffic calming is “a combination of mainly physical measures that reduce the negative impacts of motor vehicle use, alter driver behavior, and improve conditions for non-motorized vehicle use”.
- **Why use traffic calming?**
- Used to address high speeds and cut-through volume on neighborhood streets
- **Where has it been used?**
- Europe and Canada in the 1970s and more recently in the United States
- Locally in College Heights and The Highlands in State College Borough, Cricklewood Drive in Toftrees



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BACKGROUND

- **When is traffic calming used in Ferguson Township?**
- Refer to Traffic Calming Policy adopted by resolution 2015-05
- Resident request with at least 10 signatures (policy pg 3) (7/16-14 sig)
- Initial eligibility criteria
- Defined a study area (pg 4)
- Collected data
- Compared data to criteria
- Prepared initial traffic calming plan (pg 5)
- Conducted public meeting January 25, 2017
- Presented options to mitigate traffic volume – generally not well received



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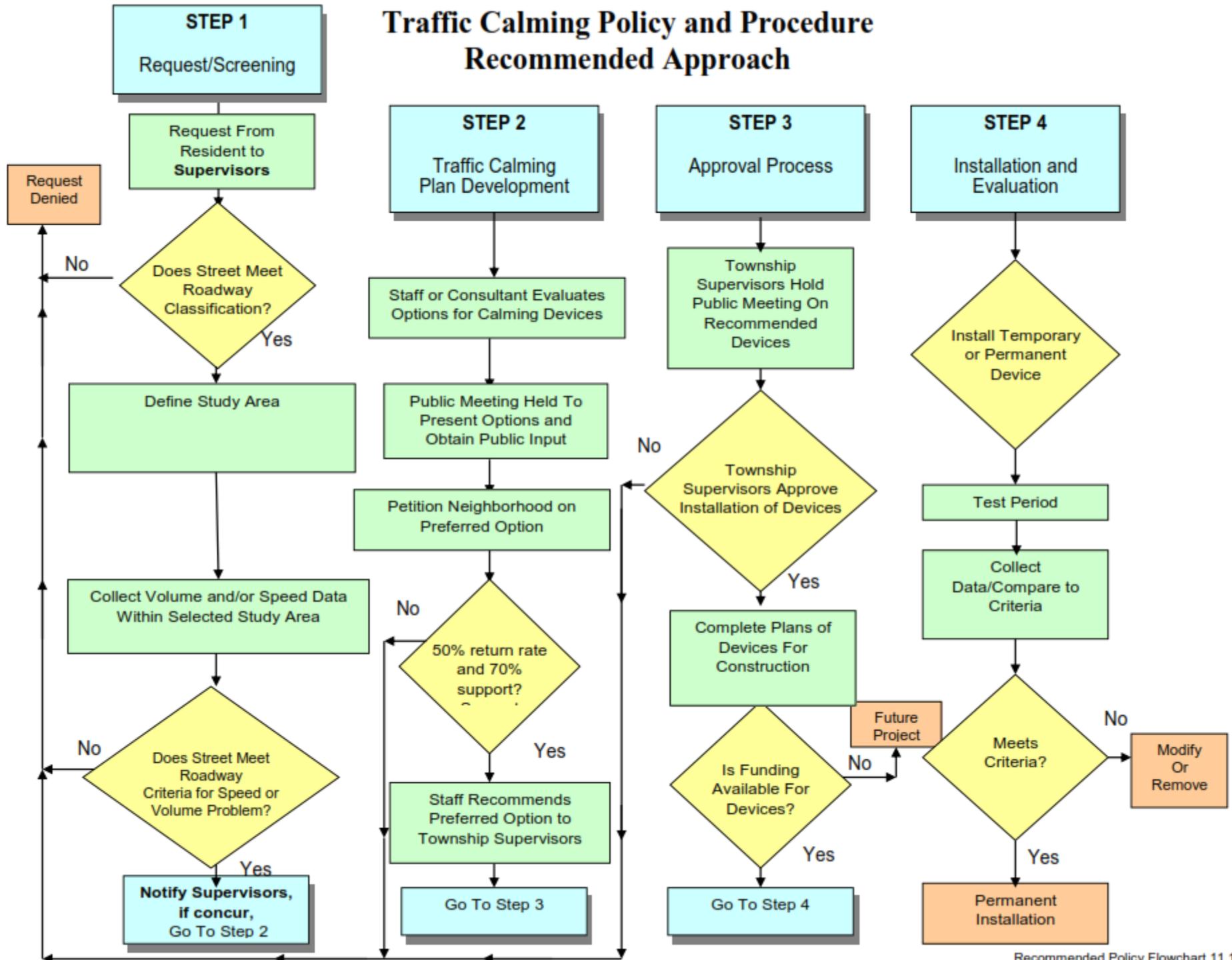


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Traffic Calming Policy and Procedure Recommended Approach



TRAFFIC CALMING STUDY

- Staff and Consultant discussed the scope of the project and defined the study area
- Pennoni conducted 24 hour traffic counts in October 2016
 - Counts completed discretely using a radar based traffic data collector
 - Counts included total traffic volume, speed and vehicle classification (size)
- Pennoni completed an evaluation of the data to check traffic calming warrants per Ferguson Township Traffic Calming Policy
 - Traffic volumes warrant volume mitigation measures
 - Speed data did not warrant speed mitigation measures



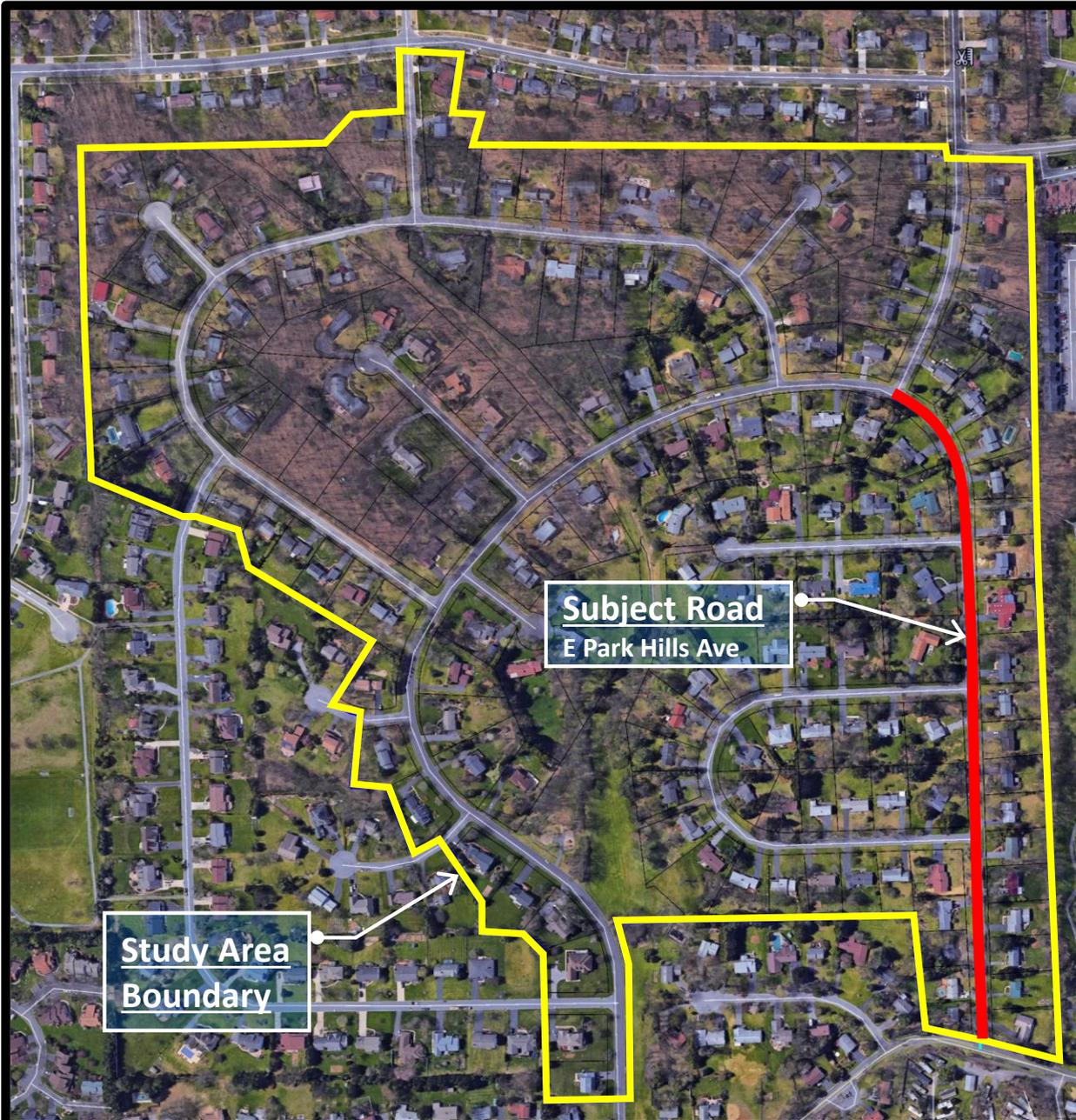
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STUDY AREA BOUNDARY

- Established based upon Township’s Traffic Calming Policy.
 - Driveways with direct access to subject road.
 - Driveways and street that cross and utilize subject road.
- Boundary also set to capture properties and roads that “may” be impacted by changes to subject road.



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Traffic Data Review

- Data collected using Radar Traffic Recorder (no tubes) to influence driver behavior.
- Data collected on a Tuesday, Wednesday and Thursday (typical weekdays) in October.
- Traffic Volume and Speed Thresholds established in Township's Policy.
 - Traffic Volume > 1,000 Vehicles Per Day (Avg.)
 - 85th Percentile Speed > 10 mph over Posted Speed Limit

DAY	DAILY VOLUME	85 th %tile SPEED
Tuesday	1,510	34 mph
Wednesday	1,565	35 mph
Thursday	1,517	34 mph



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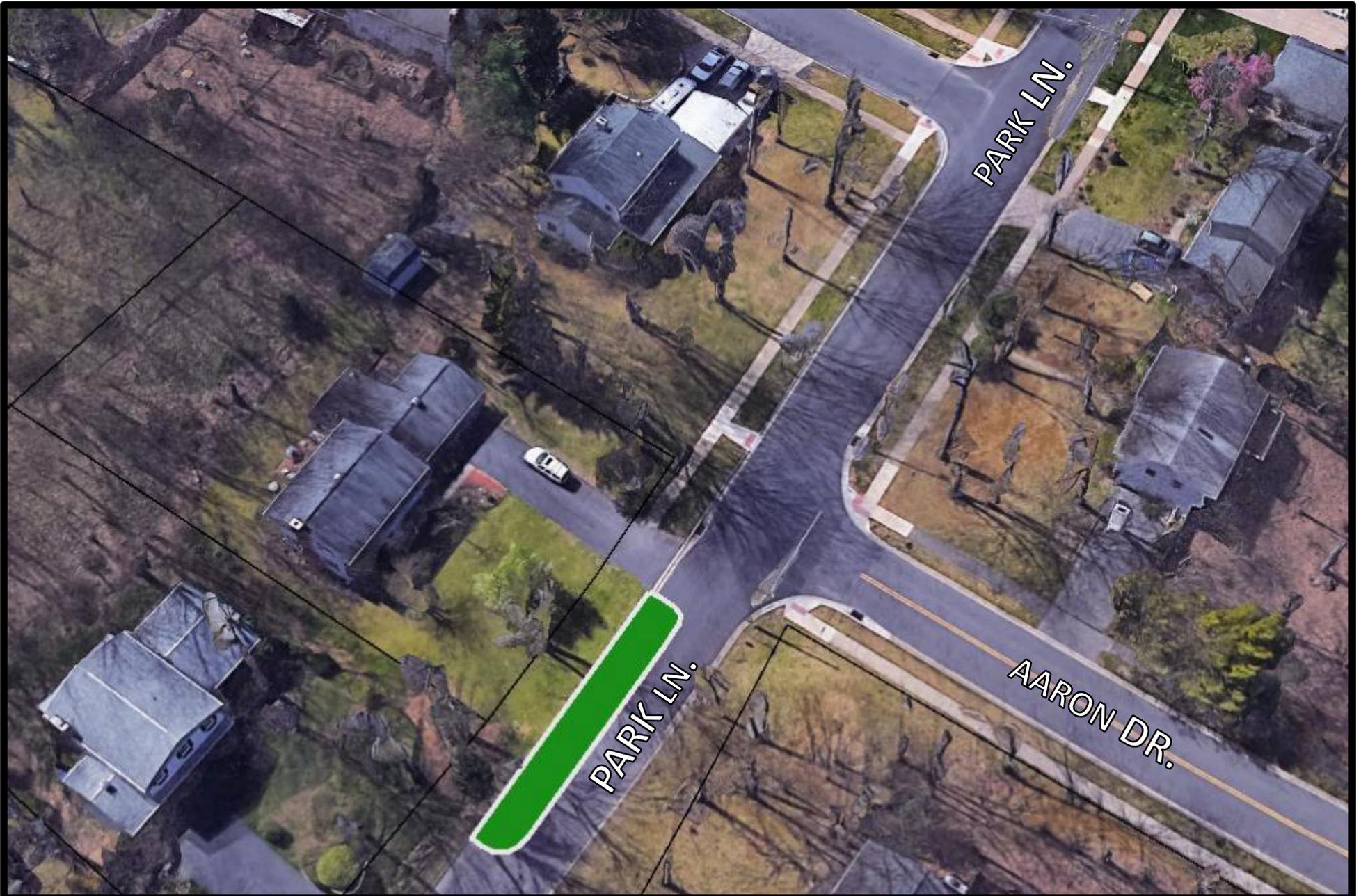


East Park Hills Traffic Calming Study

TITLE

Location of Volume Mitigation Options

PROJECT : FRGU1603
 SCALE : NTS
 DRAWN BY : JWS
 DATE : 12.16.2016



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East Park Hills Traffic Calming Study

TITLE

Option 1 : Southbound Park Lane
Partial Diverter

PROJECT : FRGU1603
SCALE : NTS
DRAWN BY : JWS
DATE : 12.16.2016

OPTION 1

Partial Diverter for Southbound Park Lane

POSITIVES

- Eliminates pass-through trips from Park Forest Neighborhood area.
- Has no impact on emergency service provides (EMS, Fire, Police)
- Reduces traffic volume along E. Park Hills Avenue closer to 1,000 veh./day threshold for residential collector street.

IMPACTS

- Inconvenience for residents along Park Lane (no access from Aaron Drive).
- Impacts SCASD bus route for Park Forest Middle School.
- Reduced service for CATA Route A to the Park Hills Neighborhood.
- Potential to increase traffic on Wiltshire Drive -> Princeton Drive



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East Park Hills Traffic Calming Study

TITLE

Option 1 : Southbound Park Lane
Partial Diverter

PROJECT : FRGU1603
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DRAWN BY : JWS
DATE : 12.16.2016



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East Park Hills Traffic Calming Study

TITLE

Option 2 : Northbound Park Lane
Partial Diverter

PROJECT : FRGU1603
SCALE : NTS
DRAWN BY : JWS
DATE : 12.16.2016

OPTION 2

Partial Diverter for Northbound Park Lane

POSITIVES

- Eliminates pass-through trips heading to Park Forest Neighborhood and Aaron Drive
- Has no impact on emergency service provides (EMS, Fire, Police)
- Has no impact on SCASD bus routes.
- Reduces traffic volume along E. Park Hills Avenue closer to 1,000 veh./day threshold for residential collector street.

IMPACTS

- Inconvenience for residents along Park Lane (no access from East Park Hills).
- Reduced service for CATA Route A to the Park Hills Neighborhood.
- Potential to increase traffic on Wiltshire Drive -> Princeton Drive



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East Park Hills Traffic Calming Study

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Option 2 : Northbound Park Lane
Partial Diverter

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East Park Hills Traffic Calming Study

TITLE

Option 3 : Park Lane Full Diverter

PROJECT : FRGU1603
 SCALE : NTS
 DRAWN BY : JWS
 DATE : 12.16.2016

OPTION 3

Park Lane Full Diverter

POSITIVES

- Eliminates all pass-through trips along East Park Hills Avenue
- Reduces traffic volume along East Park Hills Avenue to less than 1,000 veh./day threshold for residential collector street.
- Creates a “quieter” residential street.

IMPACTS

- Inconvenience for residents along Park Lane (no access to East Park Hills).
- Impacts emergency service providers – delays response time
- Eliminates service for CATA Route A to the Park Hills Neighborhood.
- Significant impacts to SCASD bus routes
- Potential to increase traffic on Wiltshire Drive -> Princeton Drive



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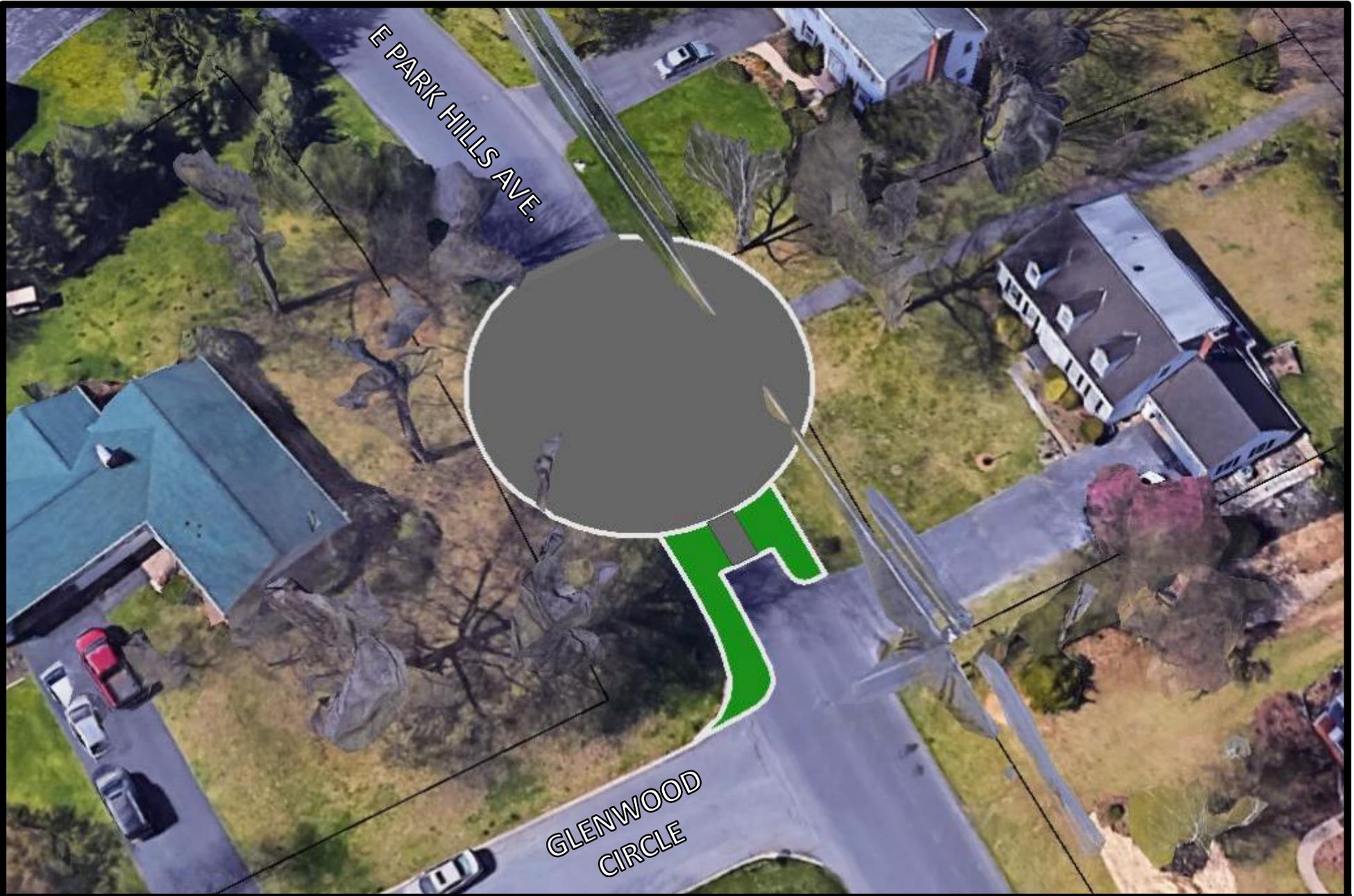


East Park Hills Traffic Calming Study

TITLE

Option 3 : Park Lane Full Diverter

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East Park Hills Traffic Calming Study

TITLE

Option 4 : Glenwood Diverter

PROJECT : FRGU1603
 SCALE : NTS
 DRAWN BY : JWS
 DATE : 12.16.2016

OPTION 4

Glenwood Diverter

POSITIVES

- Eliminates all pass-through trips along East Park Hills Avenue
- Significant reduction in traffic volumes. Only local residents will use East Park Hills Avenue.
- Creates a “quieter” residential street.
- No impact to CATA bus routes.

IMPACTS

- Inconvenience for residents along East Park Hills Avenue – divides street.
- Impacts emergency service providers – delays response time
- Potential to cause increase traffic volumes on West Park Hills Avenue.
- Significant impacts to SCASD bus routes.



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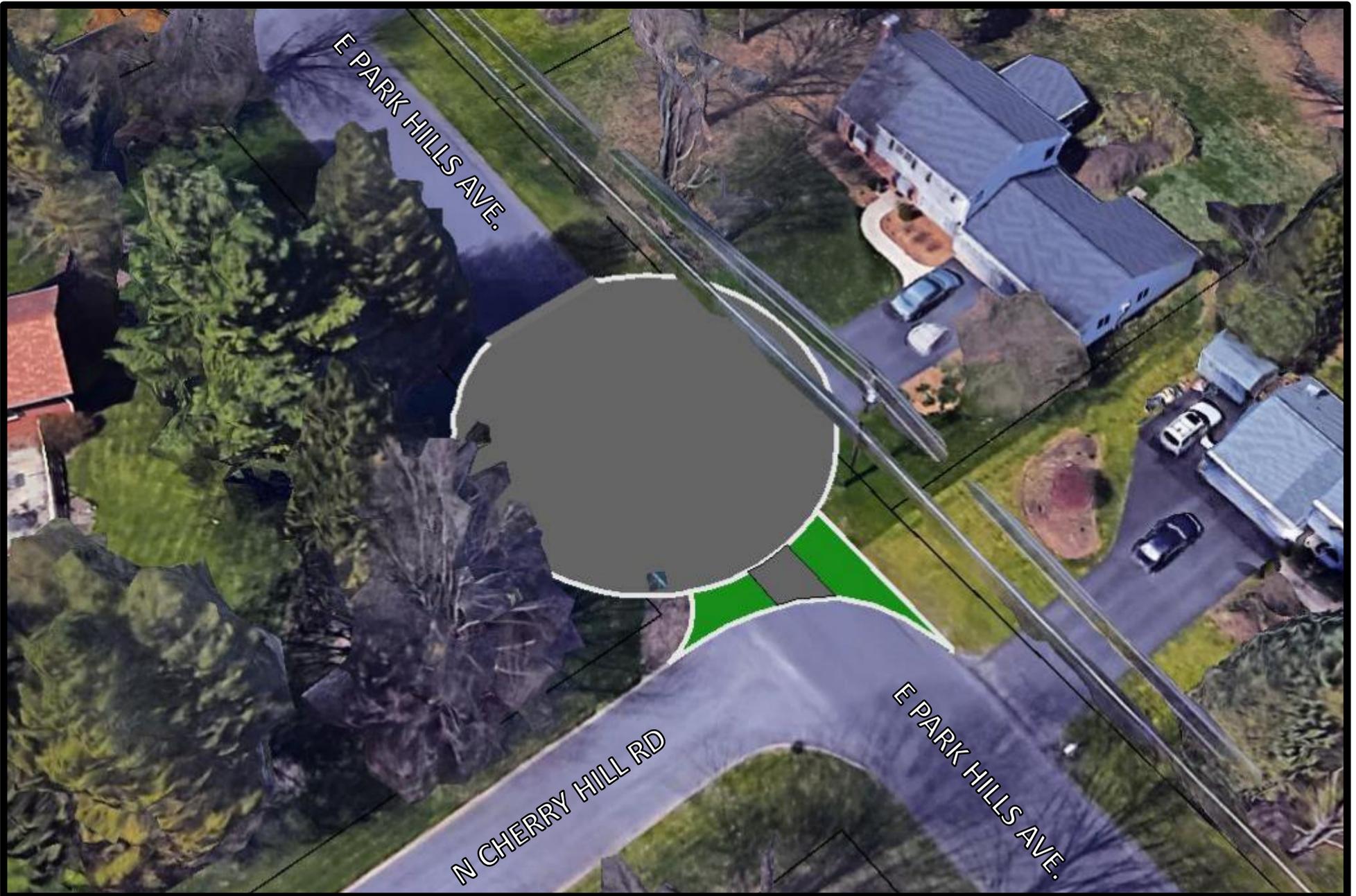


East Park Hills Traffic Calming Study

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Option 4 : Glenwood Diverter

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East Park Hills Traffic Calming Study

TITLE

Option 5 : Cherry Hill Road Diverter

PROJECT : FRGU1603
SCALE : NTS
DRAWN BY : JWS
DATE : 12.16.2016

OPTION 5

Cherry Hill Road Diverter

POSITIVES

- Eliminates all pass-through trips along East Park Hills Avenue
- Significant reduction in traffic volumes. Only local residents will use East Park Hills Avenue.
- Creates a “quieter” residential street.
- No impact to CATA bus routes.

IMPACTS

- Inconvenience for residents along East Park Hills Avenue – divides street.
- Impacts emergency service providers – delays response time
- Potential to cause increase traffic volumes on West Park Hills Avenue.
- Significant impacts to SCASD bus routes



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East Park Hills Traffic Calming Study

TITLE

Option 5 : Cherry Hill Road Diverter

PROJECT : FRGU1603
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DRAWN BY : JWS
DATE : 12.16.2016

Progress since last public meeting

- Received and tabulated comments from public meeting in January
- Discussed comments and reviewed policy internally
- Received technical consultation from PaDOT Local Technical Assistance Program (LTAP)
- Conducted field views
- Reviewed other traffic calming polices and standards - eg Seattle
- Gave consideration to other measures – speed humps, circles, striping, signage
- Conducted some limited survey and preliminary design of traffic circles
- Prepared turning movement diagrams
- Prepared estimate of probable cost

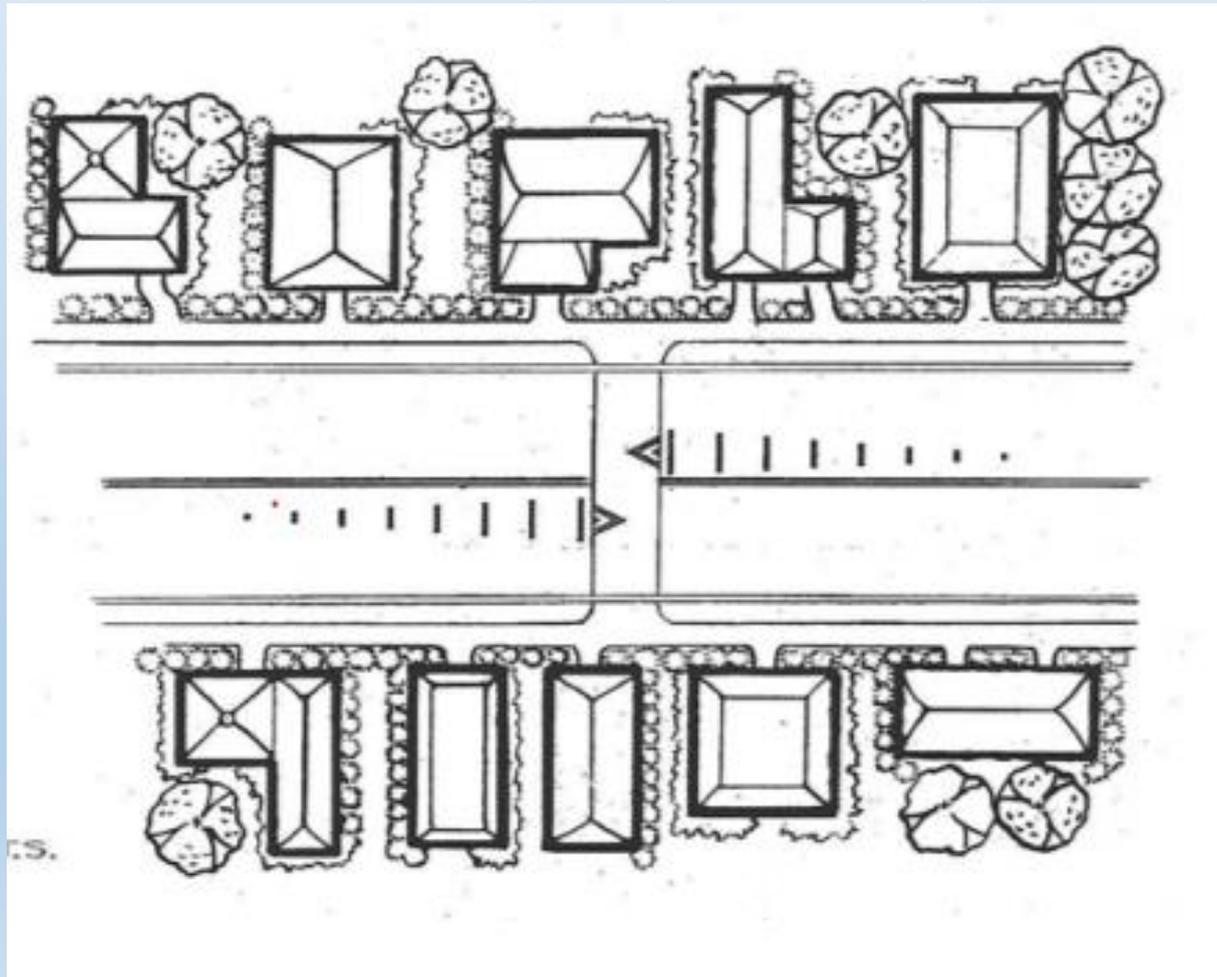
Option 6 Speed Humps, Circle, Lines, Legends, Signs



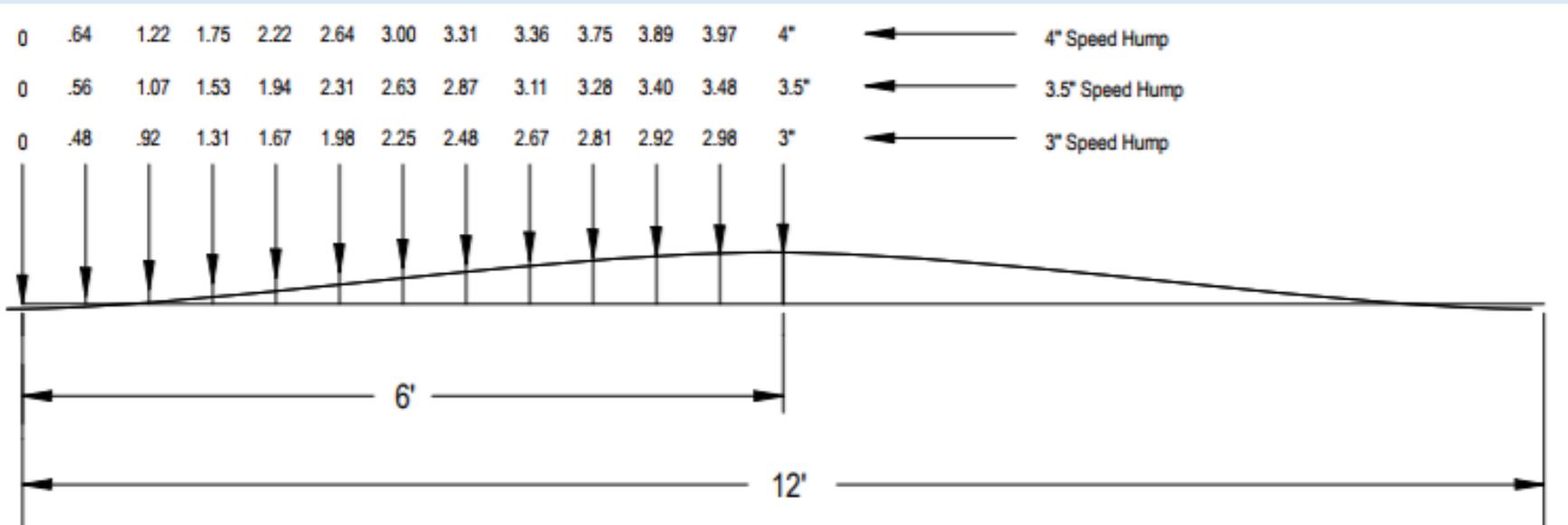
Speed Humps

Description and Plan View

- Raised surface typically 3" to 4" in height and 12 to 20 feet in length
- Watts hump and Seminole County hump are most popular



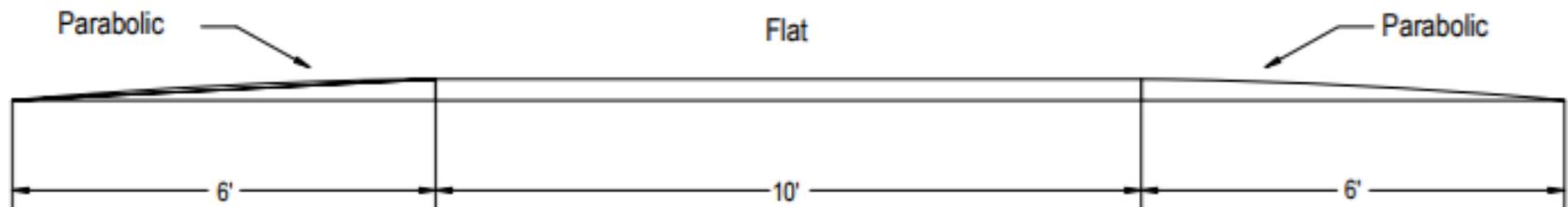
Speed Humps Watts Profile



Source: ITE, Guidelines for the Design and Application of Speed Humps

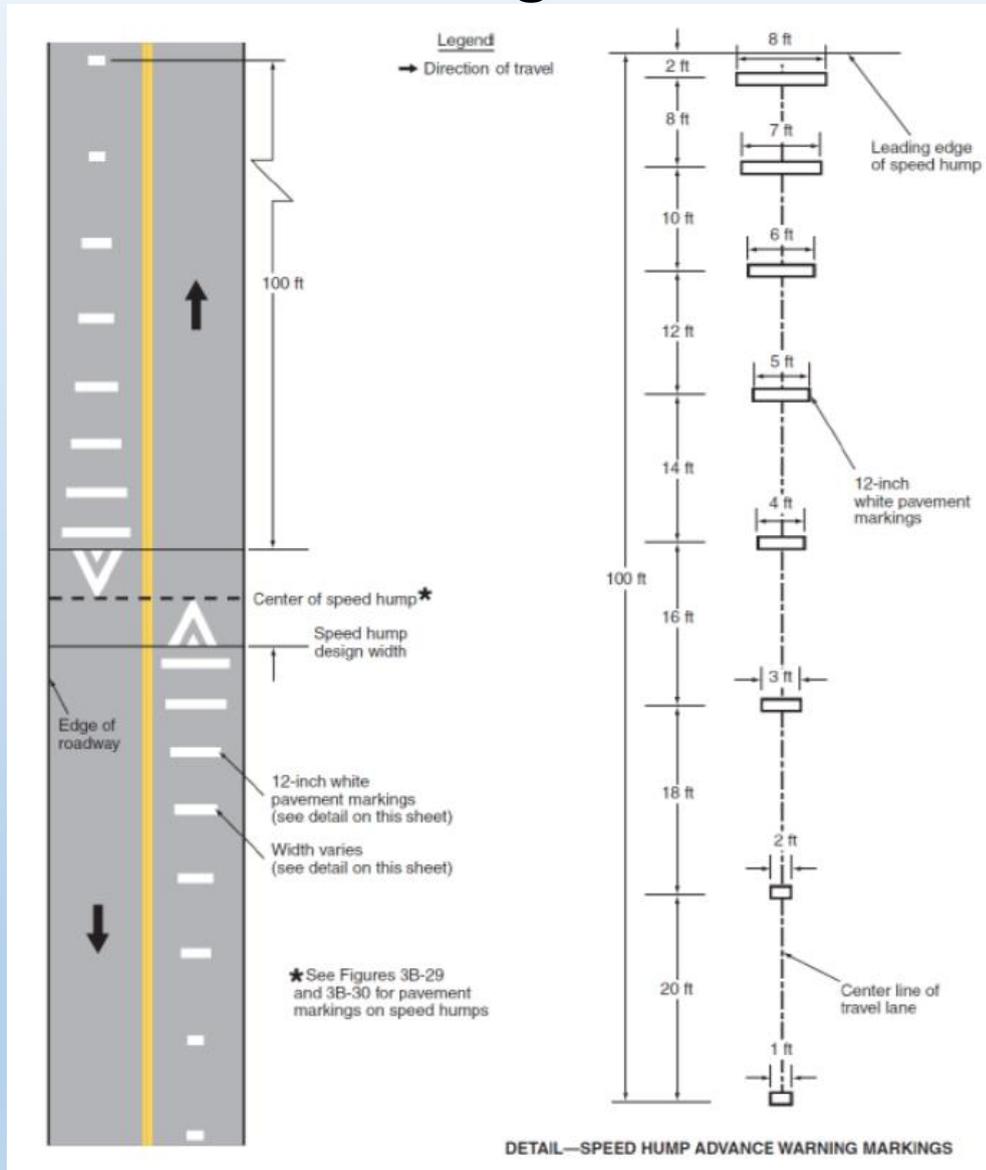
Speed Hump/Table

Seminole County Profile



Source: Seminole County, Florida

Speed Hump/Table Legends



Speed Humps

- Positives
 - Effective in slowing traffic speeds
 - Relatively inexpensive
- Negatives
 - Need more humps to effectively lessen volume of traffic
 - Effect on emergency response time
 - Should be avoided on major transit routes
 - Consider drainage and snow plowing operations

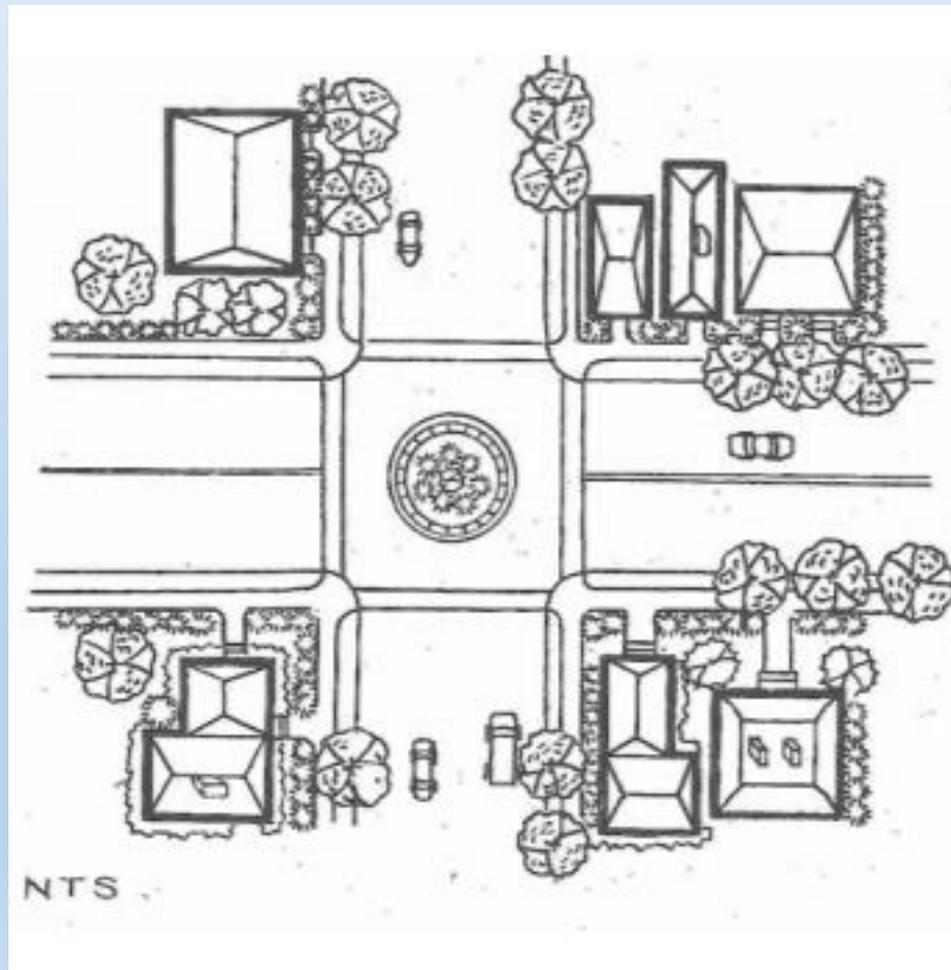
Speed Humps Photographs



Traffic Circle

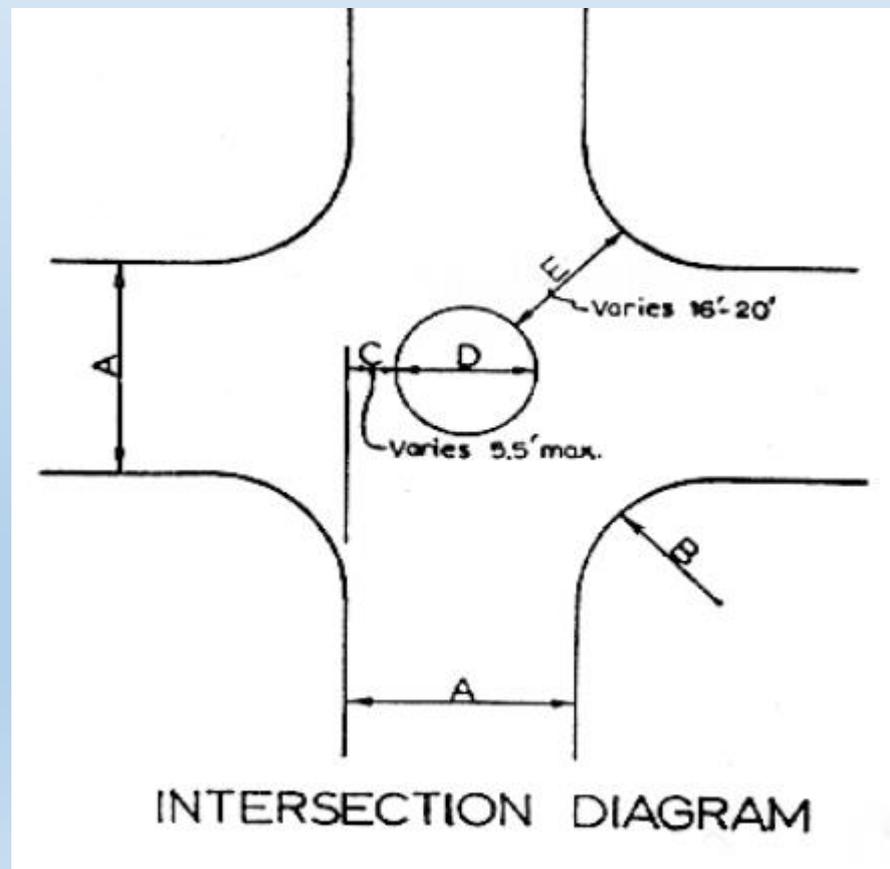
Description and Plan View

- Raised island located in the center of an intersection
- Used Seattle Circle



Traffic Circle Seattle Design

- Typically a 4 legged intersection with each street 25 feet wide and 20 foot radii on the corners
- Intersections with unusual geometry are designed with turning templates



Curb, Cement Concrete Mountable

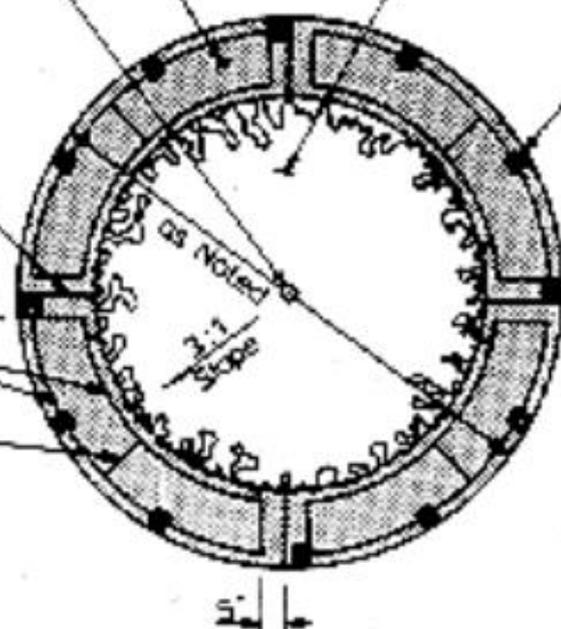
Object Marker, Sign Code, W-81 (P4-10)
See Std Plan No. 626.1

Plant Material

Through Joints:
Use 4 For $\leq 20'$ Dia
Use 8 For $\geq 20'$ Dia

2-#3 Bars
(Typ. Between Joints)

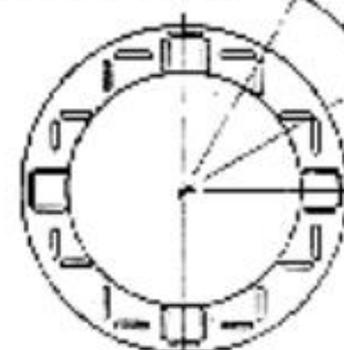
3-#3 Curb Dowels
(Typ. Between Joints)



Typical Traffic Circle

Lane Markers, Type No 28
See Reflector Layout
Diagram Below

Typical, See
Spacing
Chart



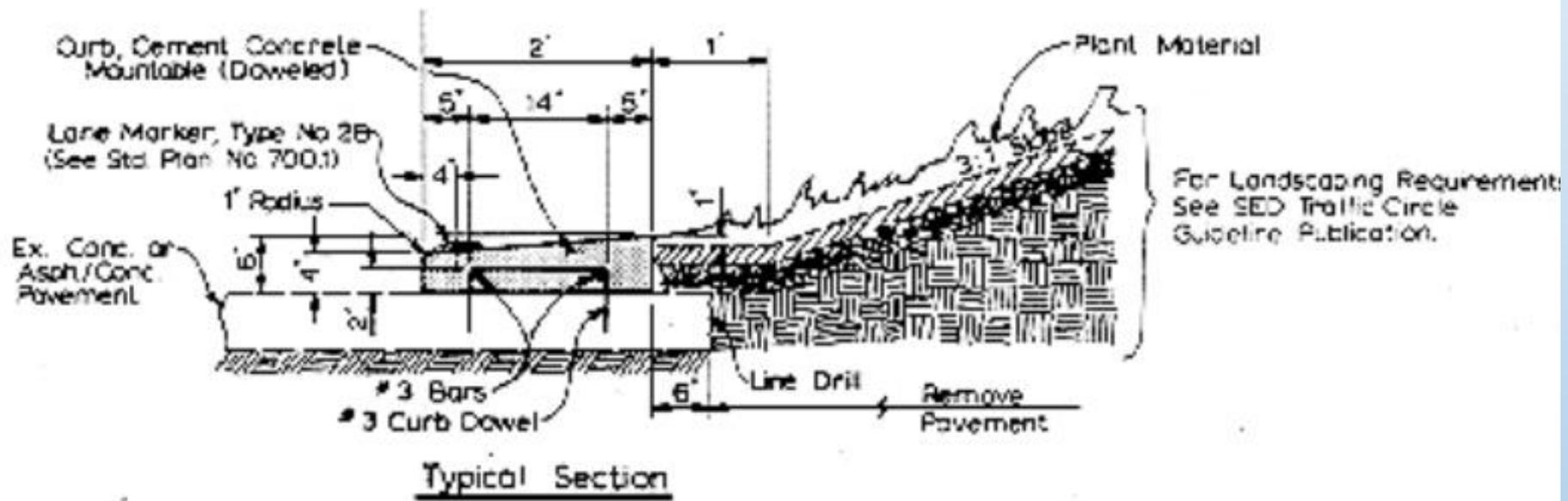
Centerline
of "Ave"

Diameter of Circle	Degree of Spacing
$\leq 12'$	Every 45°
$\leq 20'$	Every 30°
$> 20'$	Every 22 1/2°

(Facing Vehicle Approaches)

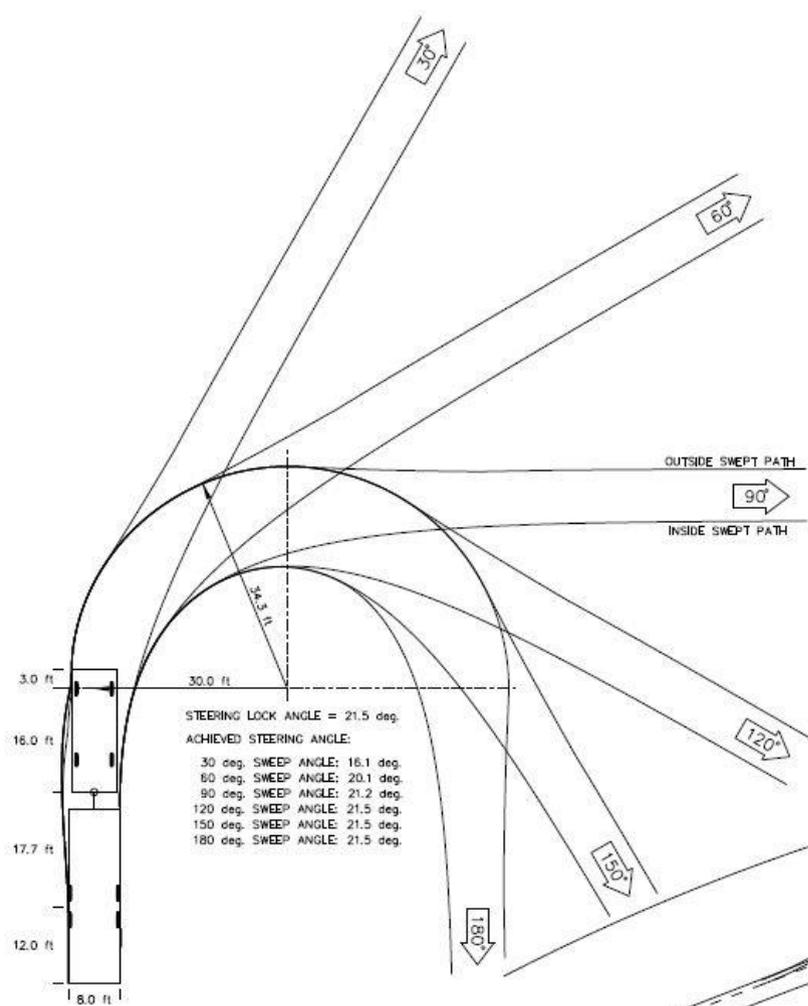
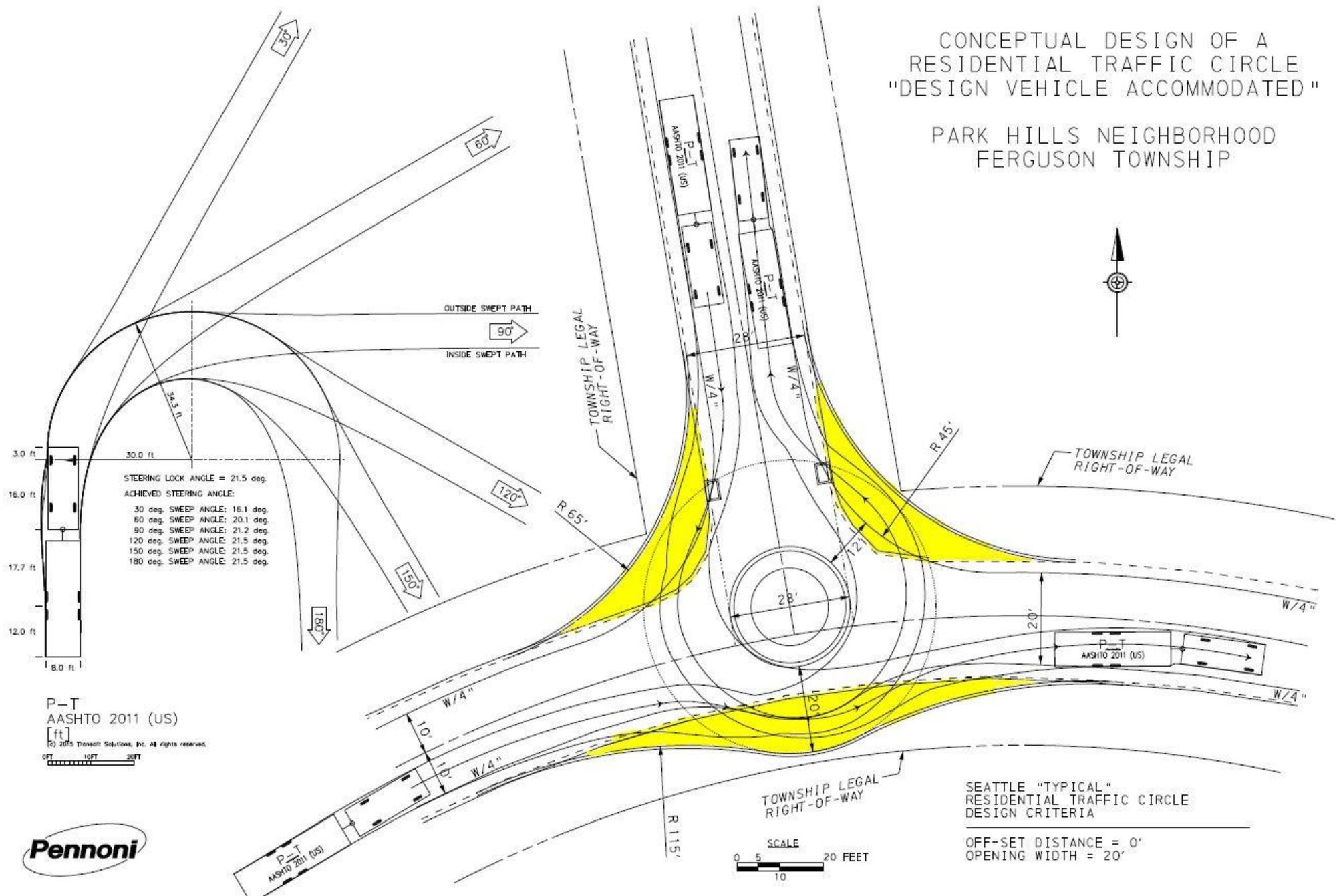
Traffic Circle

Stimsonite Reflector Layout



CONCEPTUAL DESIGN OF A RESIDENTIAL TRAFFIC CIRCLE "DESIGN VEHICLE ACCOMMODATED"

PARK HILLS NEIGHBORHOOD
FERGUSON TOWNSHIP

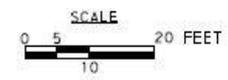


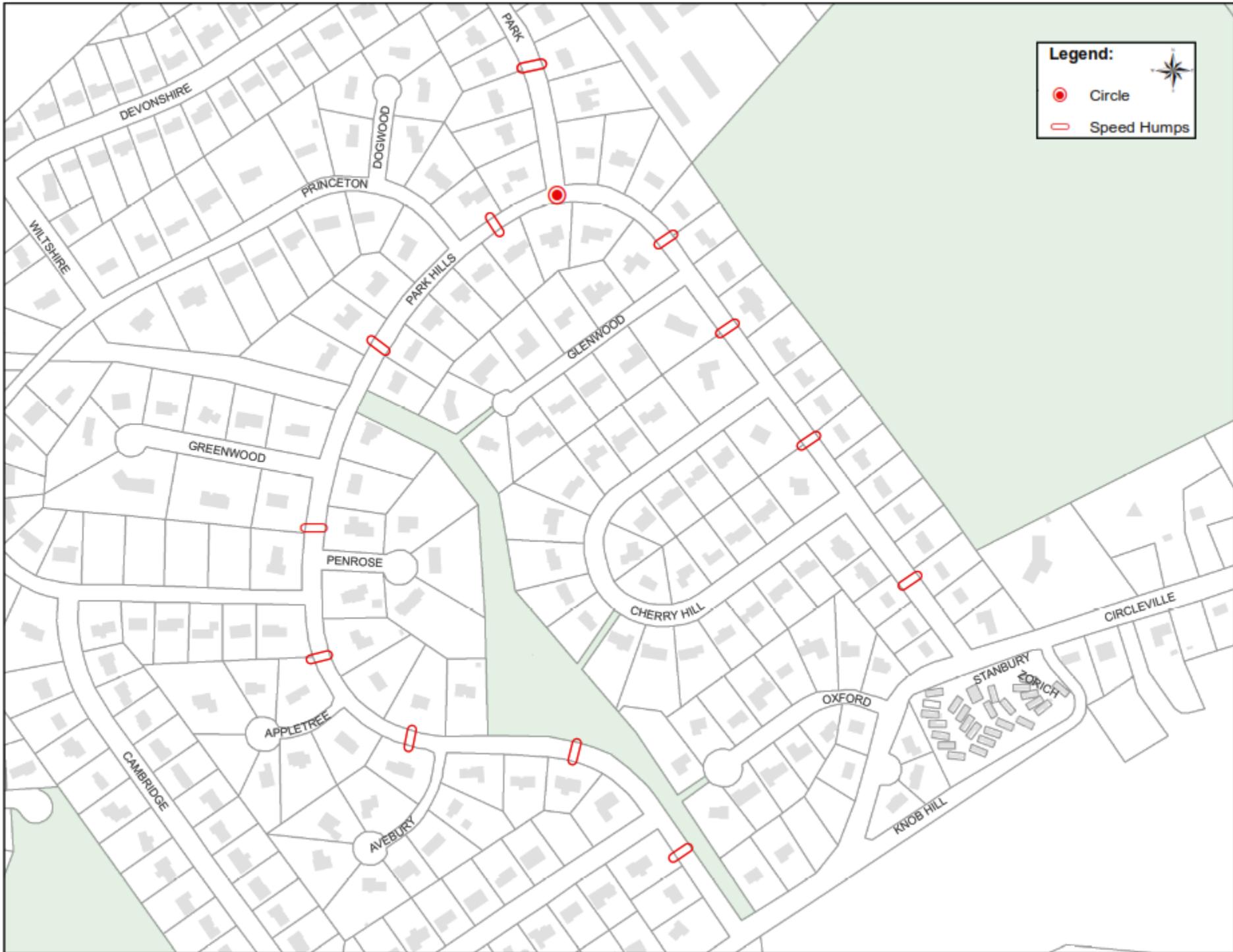
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SEATTLE "TYPICAL"
RESIDENTIAL TRAFFIC CIRCLE
DESIGN CRITERIA

OFF-SET DISTANCE = 0'
OPENING WIDTH = 20'





Legend:

- Circle
- ▭ Speed Humps



DEVONSHIRE

WILTSHIRE

PRINCETON

DOGWOOD

PARK

PARK HILLS

GLENWOOD

GREENWOOD

PENROSE

CHERRY HILL

CAMBRIDGE

APPLETREE

AVEBURY

OXFORD

STANBURY

ZORICH

KNOB HILL

CIRCLEVILLE



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TITLE

Roadway Pavement Markings
Shoulder Striping

PROJECT : FRGU1603
SCALE : NTS
DRAWN BY : JWS
DATE : 12.16.2016

Traffic Circle Estimate (E Park Hills and Park Lane)

Item	Item Description	Qty	Unit	Unit Price	Total
1	Mobilization	1	LS	\$2,000	\$2,000
2	Excavation	80	CY	\$30	\$2,400
3	Concrete Curb	330	LF	\$25	\$8,250
4	Stone base	90	Ton	\$30	\$2,700
5	Base Course	90	Ton	\$125	\$11,250
	Wearing Course	22	Ton	\$140	\$3,080
	Concrete island ribbon	17	CY	\$300	\$5,100
	Landscape Island	1	LS	\$1,000	\$1,000
	Signage	6	Ea	\$250	\$1,500
	Line Stripping	1	LS	\$250	\$250
	Traffic control	210	hrs	\$35	\$7,350
	Subtotal				\$44,880
	10% contingency				\$4,488
	Total				\$49,368

Speed hump estimate (12 total along E and W Park Hills Ave)

Item	Item Description	Qty	Unit	Unit Price	Total
1	Mobilization	1	LS	\$2,000	\$2,000
2	Milling	10	hrs	\$30	\$300
3	Wearing Course material only (5 tn ea)	60	ton	\$75	\$4,500
	Paving Crew (paver, roller, 2 tr, F, 2O, 3L)	20	hrs	\$435	\$8,700
4	Delineators	144	ea	\$50	\$7,200
5	Seal joint	1	LS	\$75	\$75
	Line striping and legends	12	EA	\$150	\$1,800
	Signs	24	EA	\$250	\$6,000
	Traffic control	60	hrs	\$35	\$2,100
	Subtotal				\$32,675
	10% contingency				\$3,268
	Total				\$35,943

Striping 4 foot shoulder not included and incidental to annual line striping contract					\$0.00
Grand total for all traffic calming measures above					\$85,311

NEXT STEPS

- Petition study area on preferred option
 - Preferred Option selected / modified as appropriate by staff / consultant based on resident input
 - Petition with plan and narrative mailed to each property owner in study area – 30 day response



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QUESTIONS?

- David Modricker, PE, Public Works Director
- Ronald Seybert, PE, Township Engineer
- This presentation, the Traffic Calming Policy, and the East Park Hills Traffic Calming Study are available via:
- www.twp.ferguson.pa.us or by email to
- dmodricker@twp.Ferguson.pa.us or by calling
- 814-238-4651 or at
- 3147 Research Drive, State College, PA



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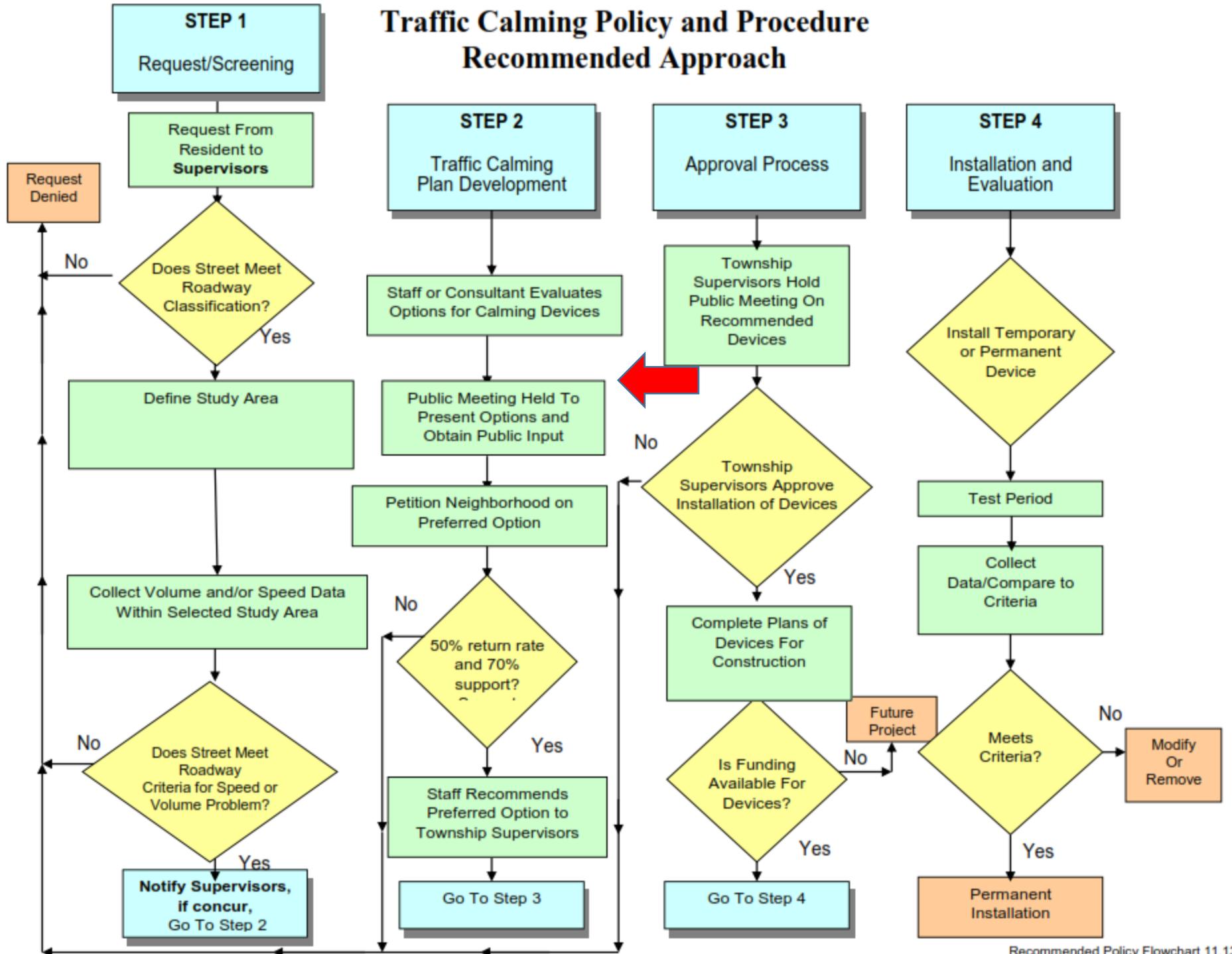
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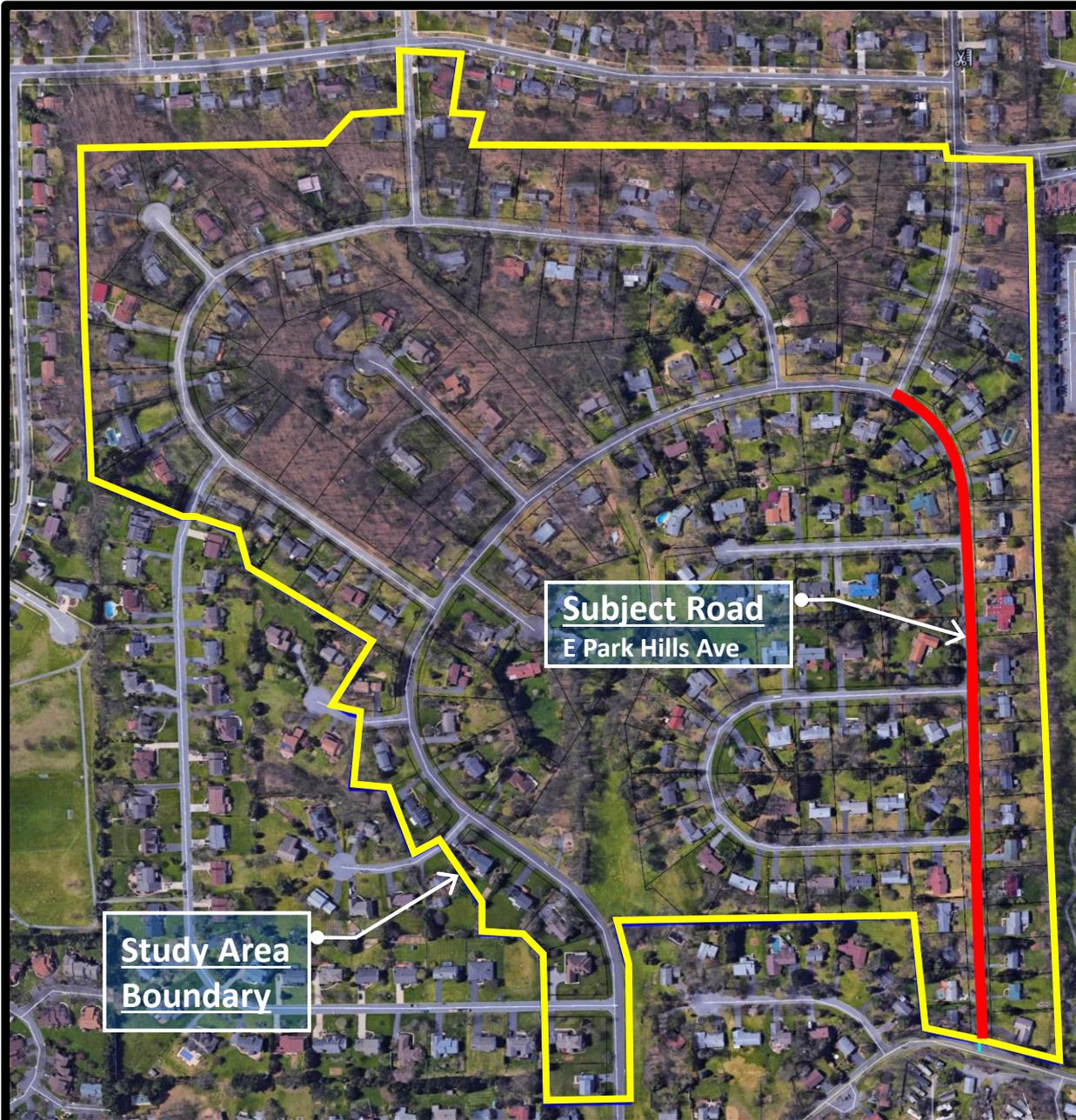
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Additional slides follow for clarity if needed

Traffic Calming Policy and Procedure Recommended Approach





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NEXT STEPS continued

- Petition study area on preferred option
 - Need 50% return rate or petition is rejected; and
 - Need 70% support of respondents or petition is rejected.
 - If $> 50\%$ & $> 70\%$, then proceed to Approval Process



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NEXT STEPS continued

- BOS holds public meeting and approves / disapproves / modifies plan
- If approved, programs funding
- Complete final design for construction
 - Consider temporary devices
- Monitor and evaluate
 - Construct permanent, modify, or remove and abandon project



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