



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



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

- **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



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

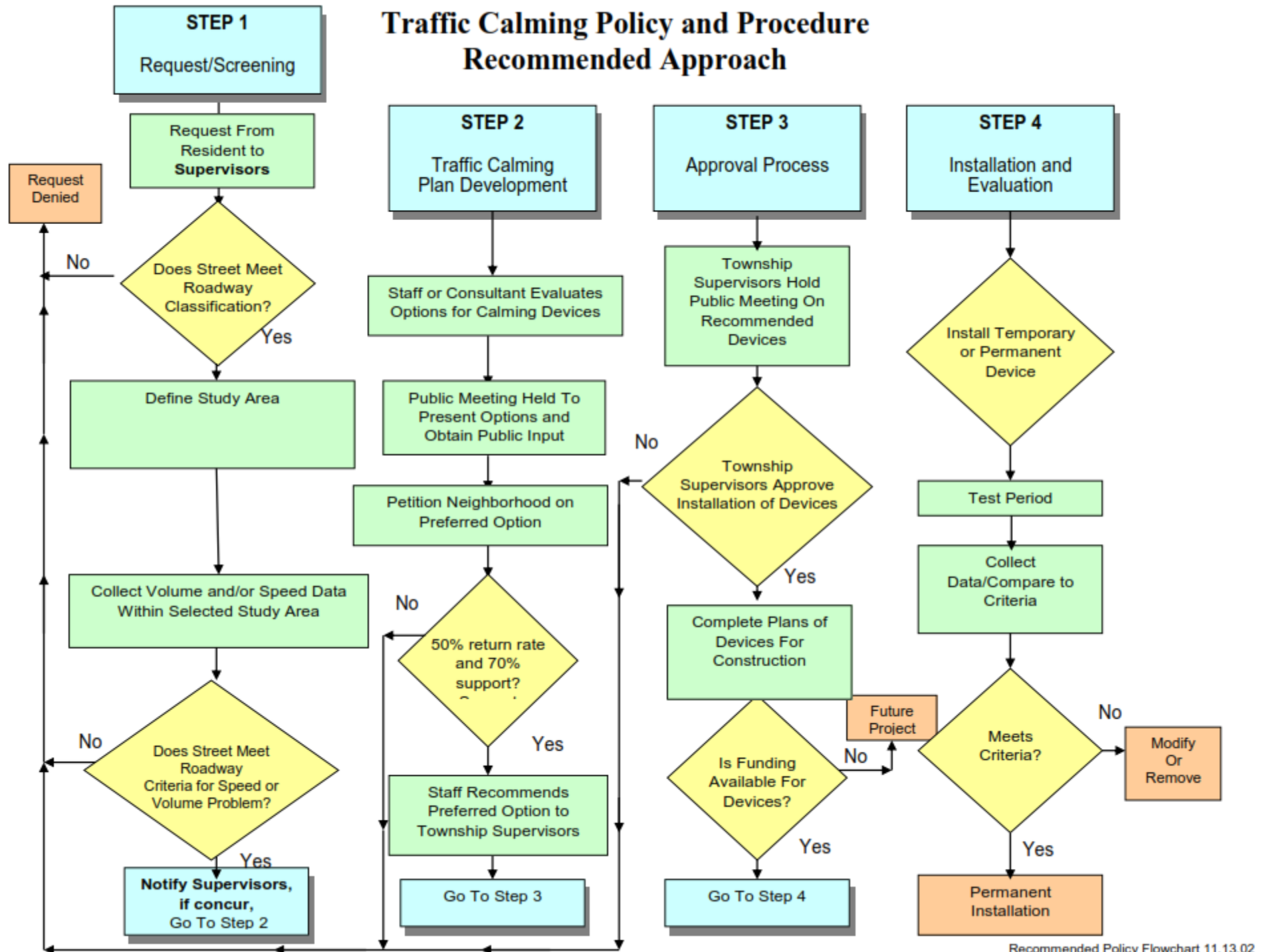


East Park Hills Traffic Calming Study

TITLE

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

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



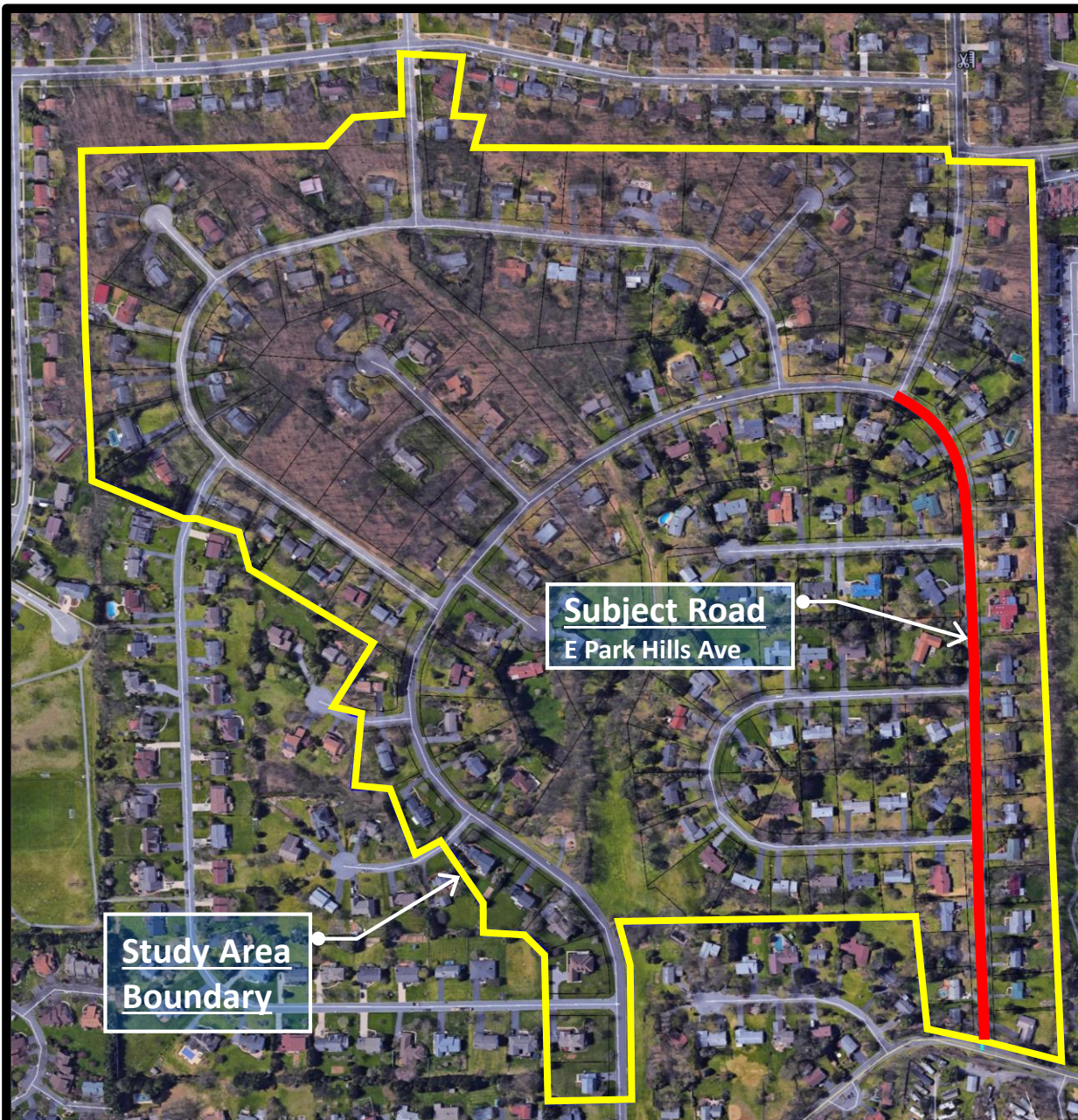
2571 Park Center Blvd., Ste. 2
State College, PA 16801



East Park Hills Traffic Calming Study

TITLE

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



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.



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



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



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



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



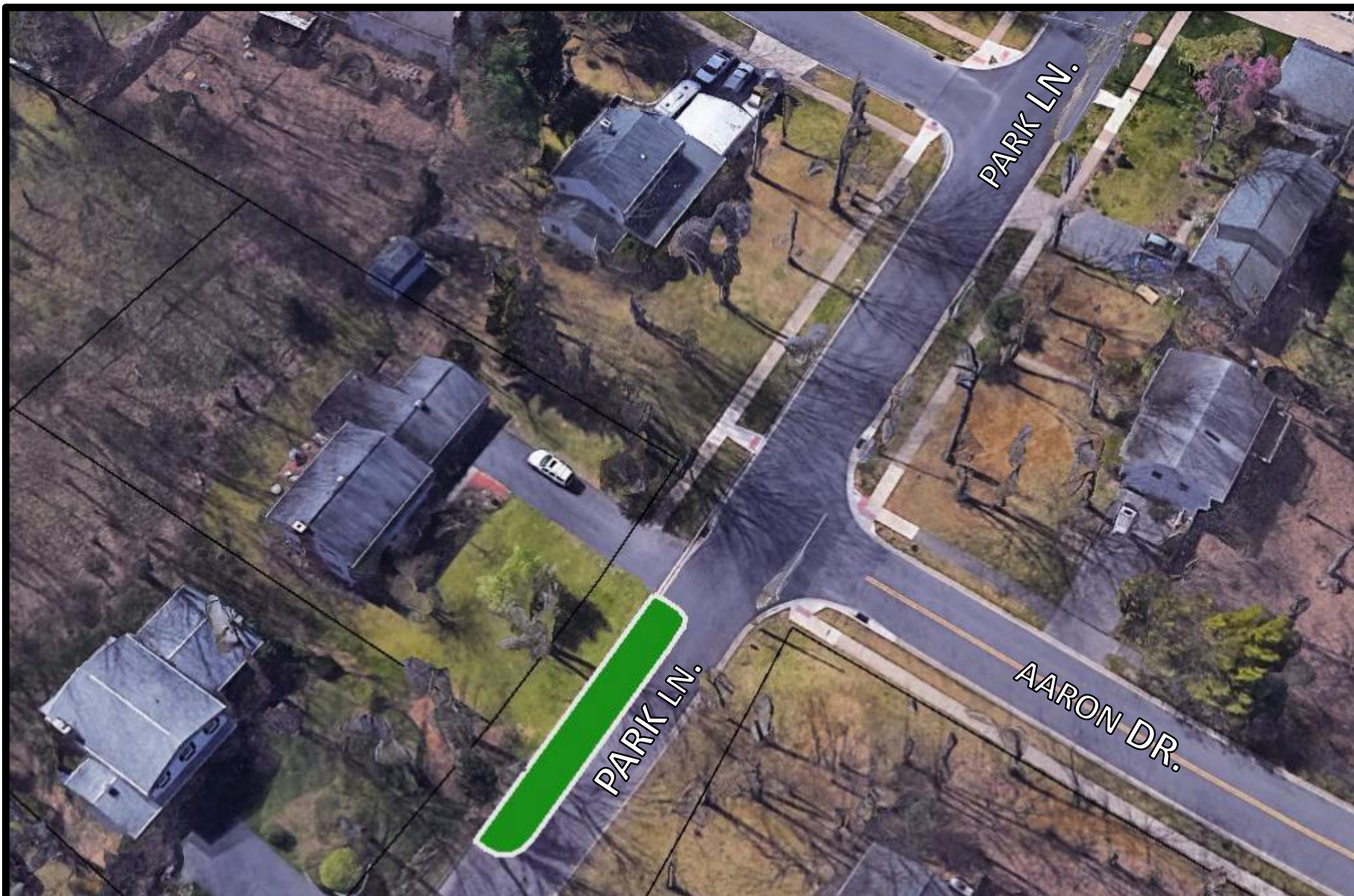
Township of
FERGUSON
Pennsylvania

East Park Hills Traffic Calming Study

TITLE

Location of Volume Mitigation Options

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



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



Township of
FERGUSON
Pennsylvania

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



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

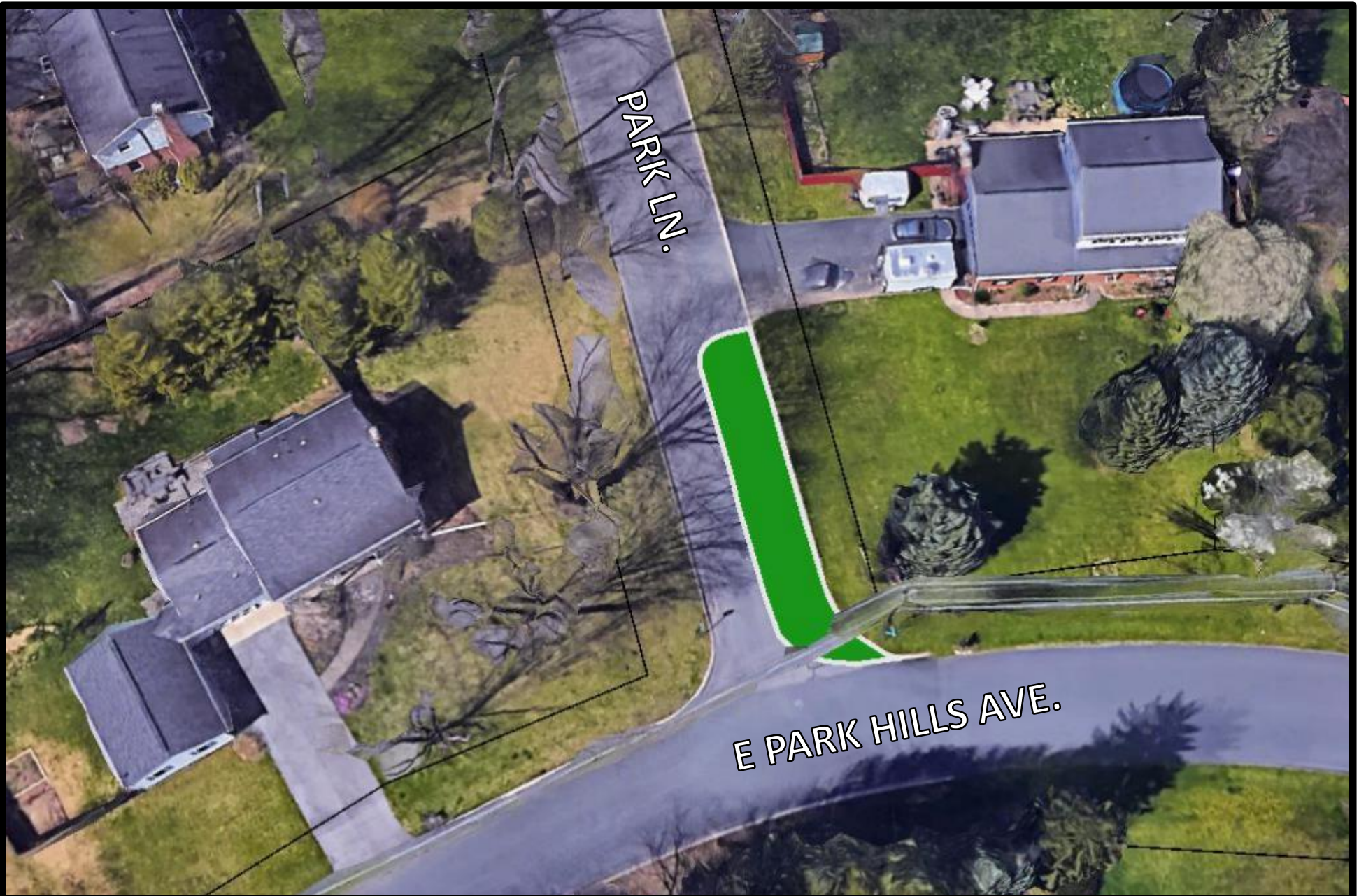


East Park Hills Traffic Calming Study

TITLE

Option 1 : Southbound Park Lane
Partial Diverter

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



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



Township of
FERGUSON
Pennsylvania

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



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



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



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



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



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

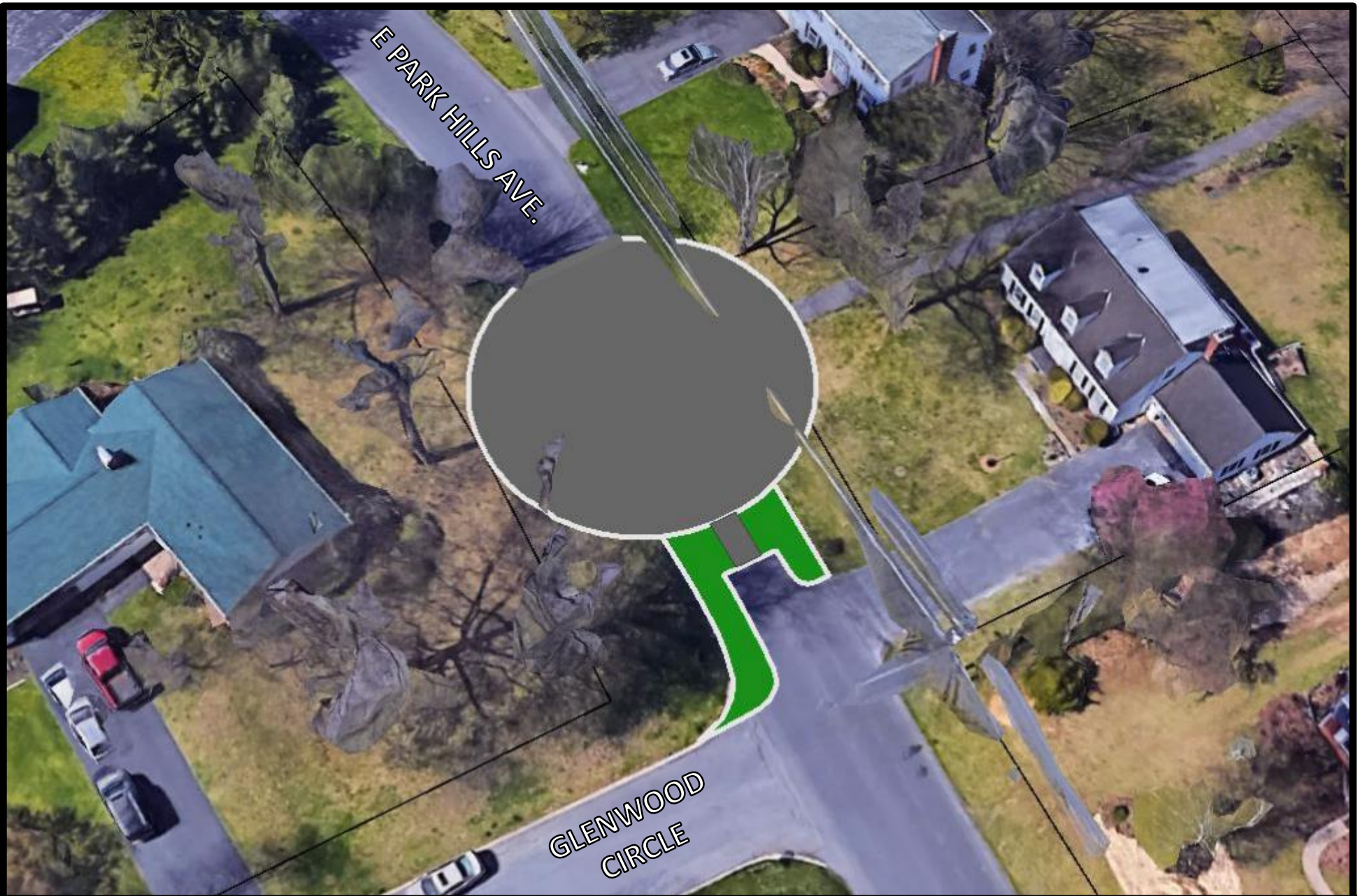


East Park Hills Traffic Calming Study

TITLE

Option 3 : Park Lane Full Diverter

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



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



Township of
FERGUSON
Pennsylvania

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.



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

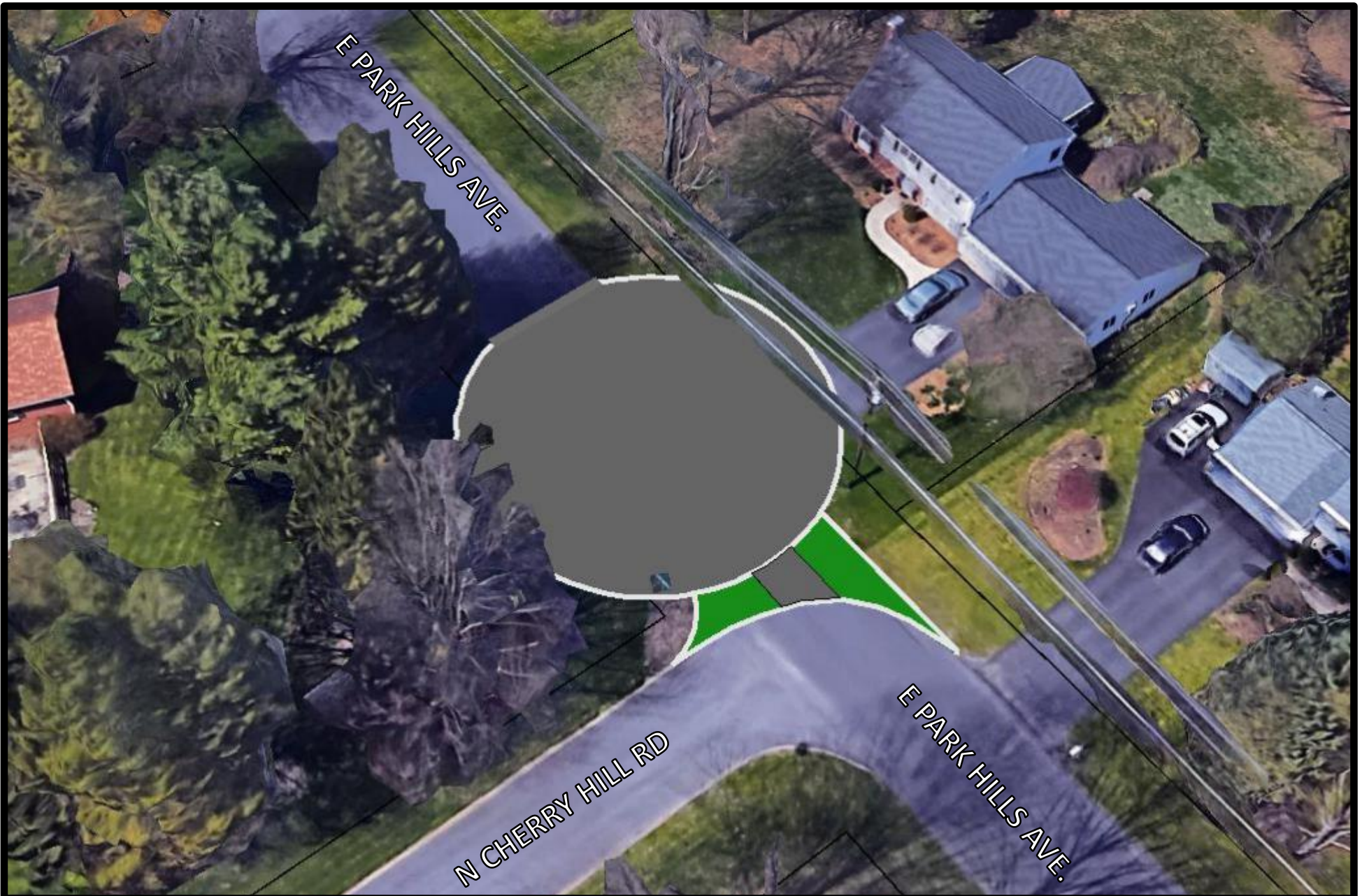


East Park Hills Traffic Calming Study

TITLE

Option 4 : Glenwood Diverter

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



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



Township of
FERGUSON
Pennsylvania

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



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



East Park Hills Traffic Calming Study

TITLE

Option 5 : Cherry Hill Road Diverter

PROJECT : FRGU1603
SCALE : NTS
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 policies 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

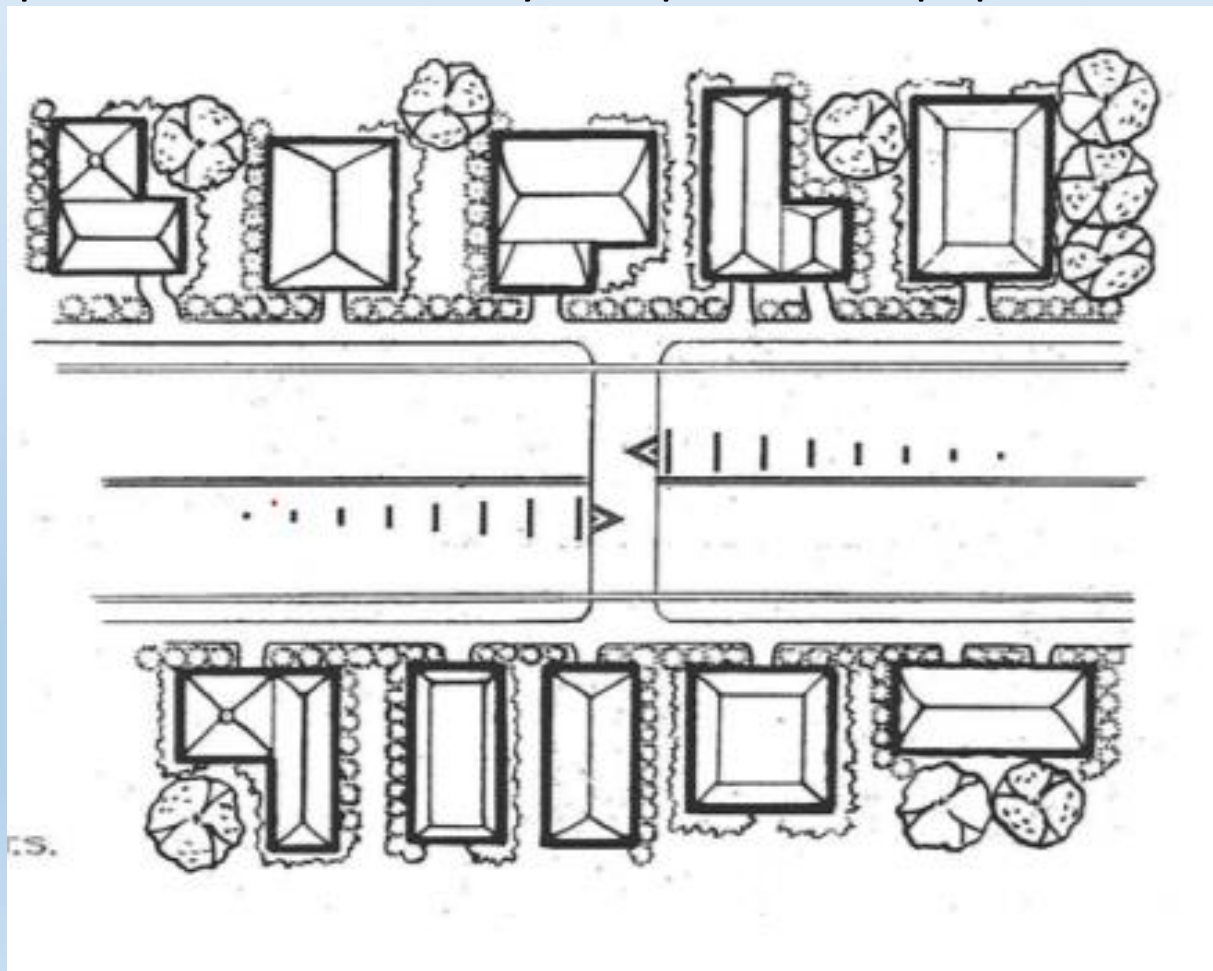
Speed Humps, Circle, Lines, Legends, Signs



Speed Humps

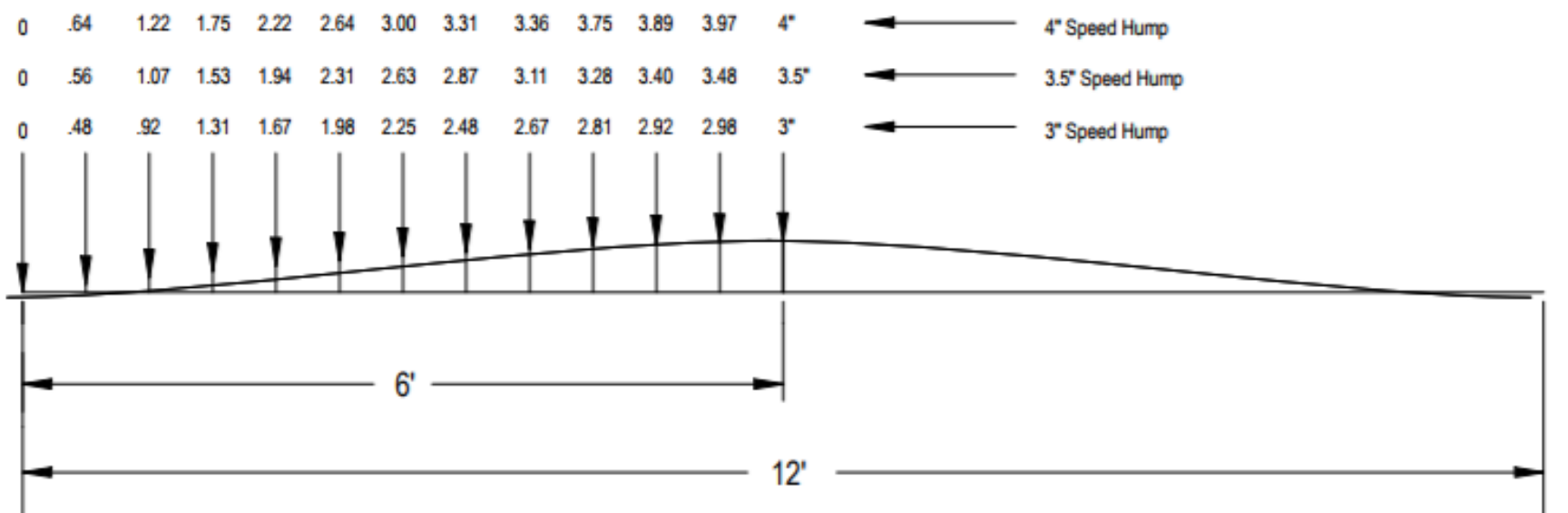
Description and Plan View

- 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

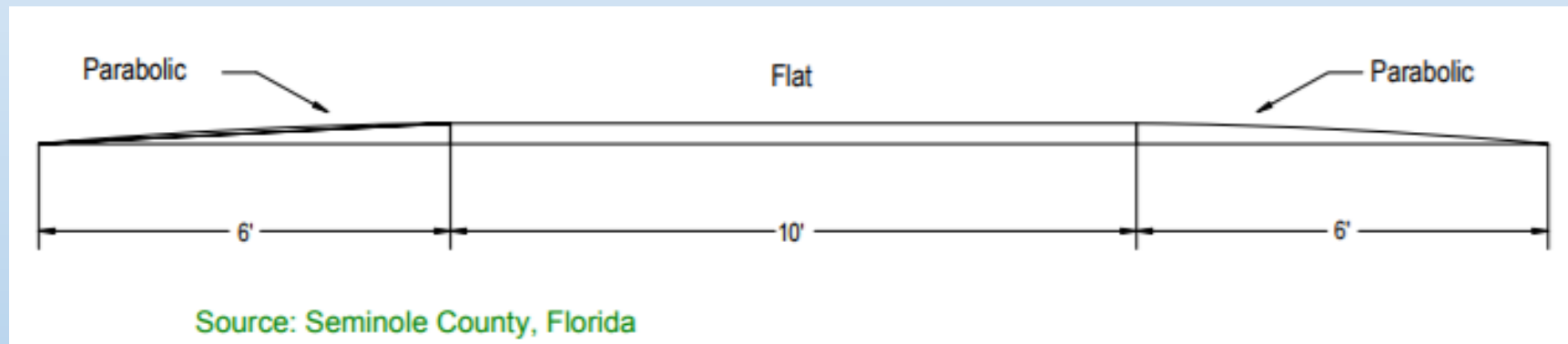
Watts Profile



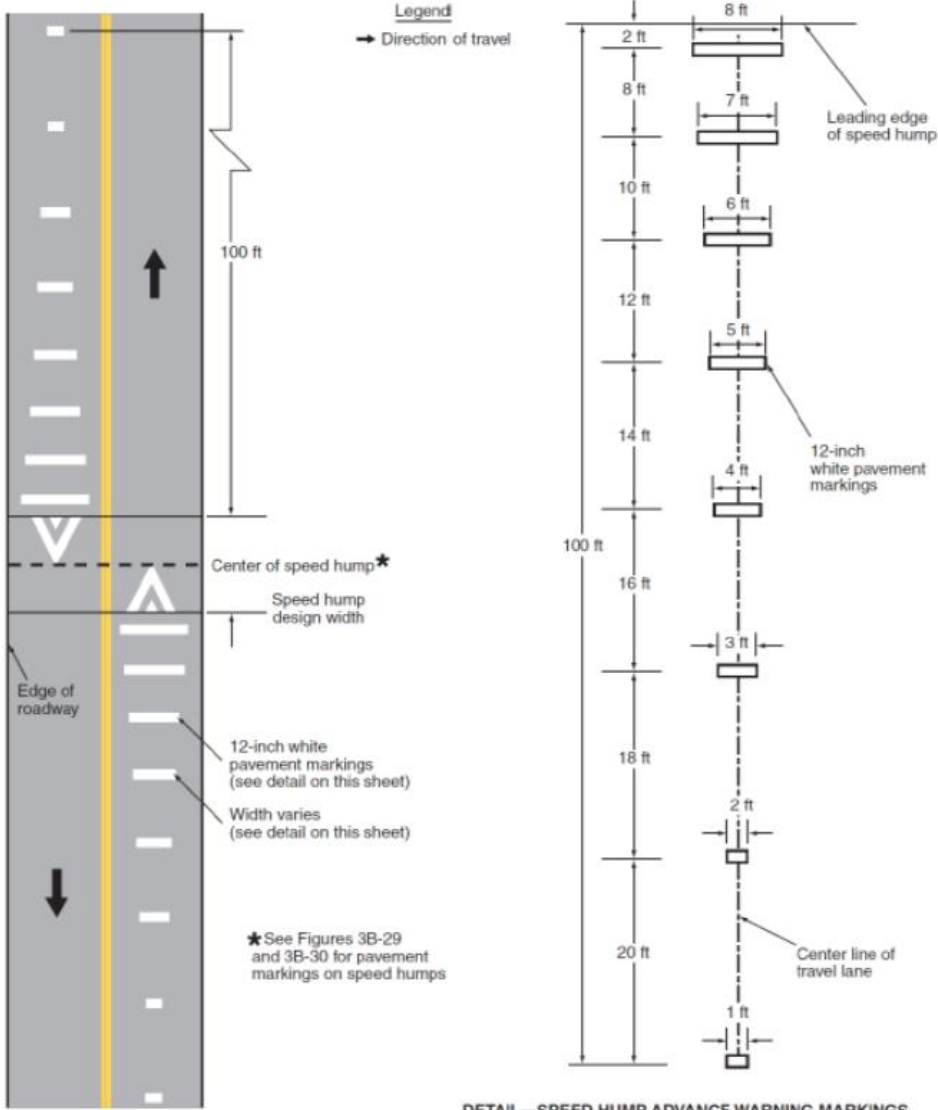
Source: ITE, Guidelines for the Design and Application of Speed Humps

Speed Hump/Table

Seminole County Profile



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

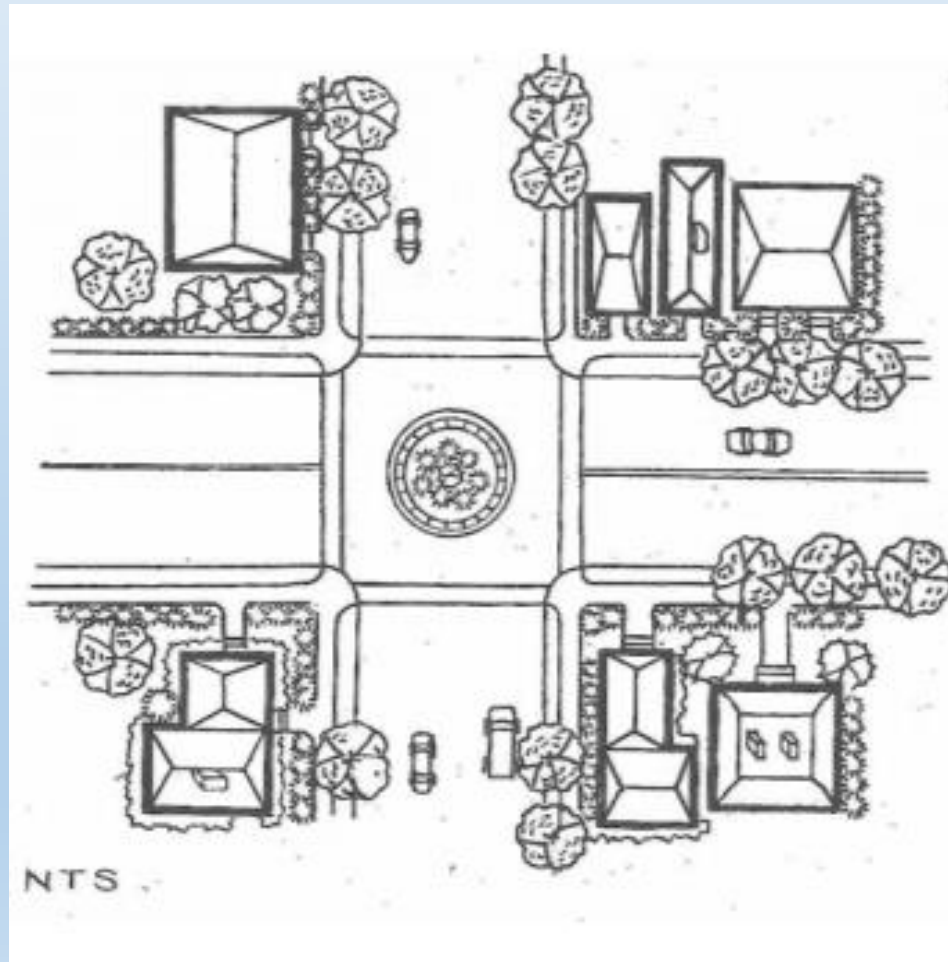
Photographs



Traffic Circle

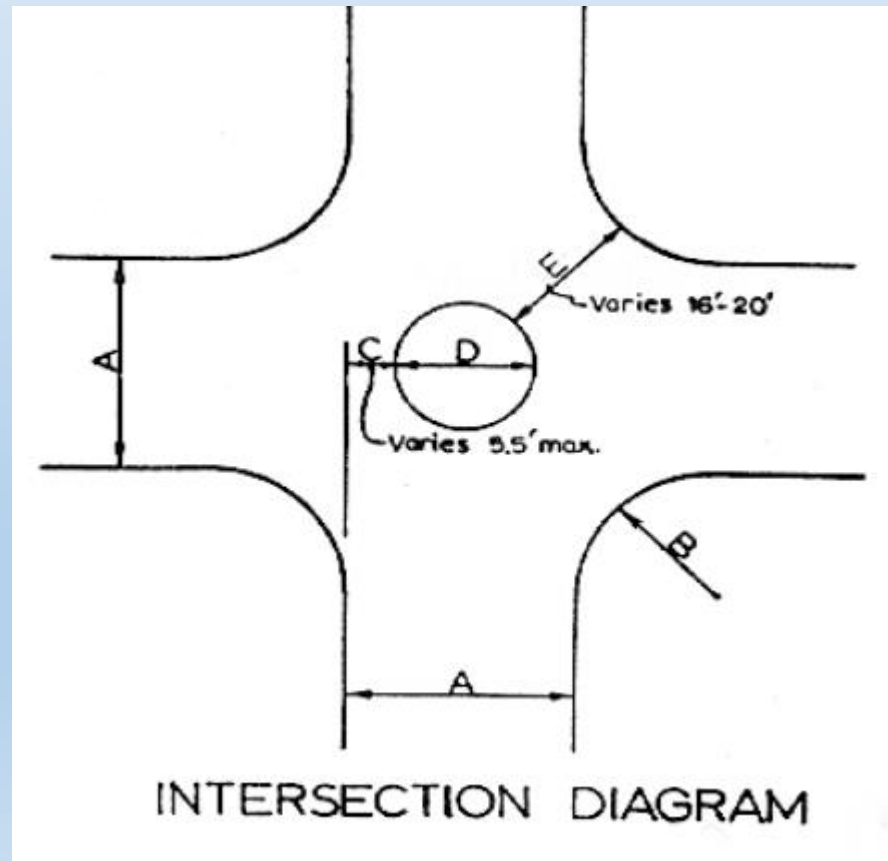
Description and Plan View

- 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

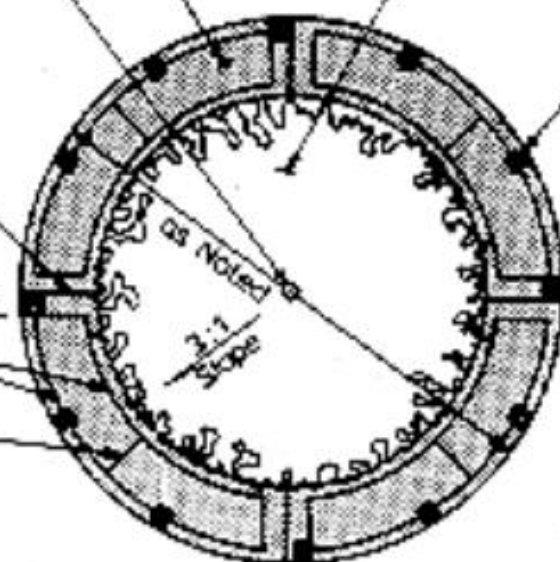
Plant Material

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)

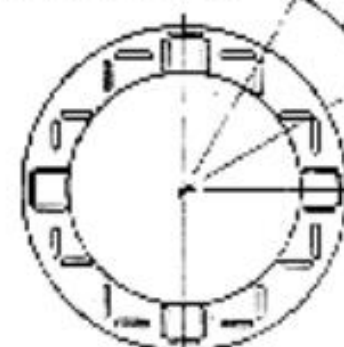
1/2"



Typical Traffic Circle

Lane Markers, Type No 28
See Reflector Layout
Diagram Below

Typical, See
Spacing
Chart



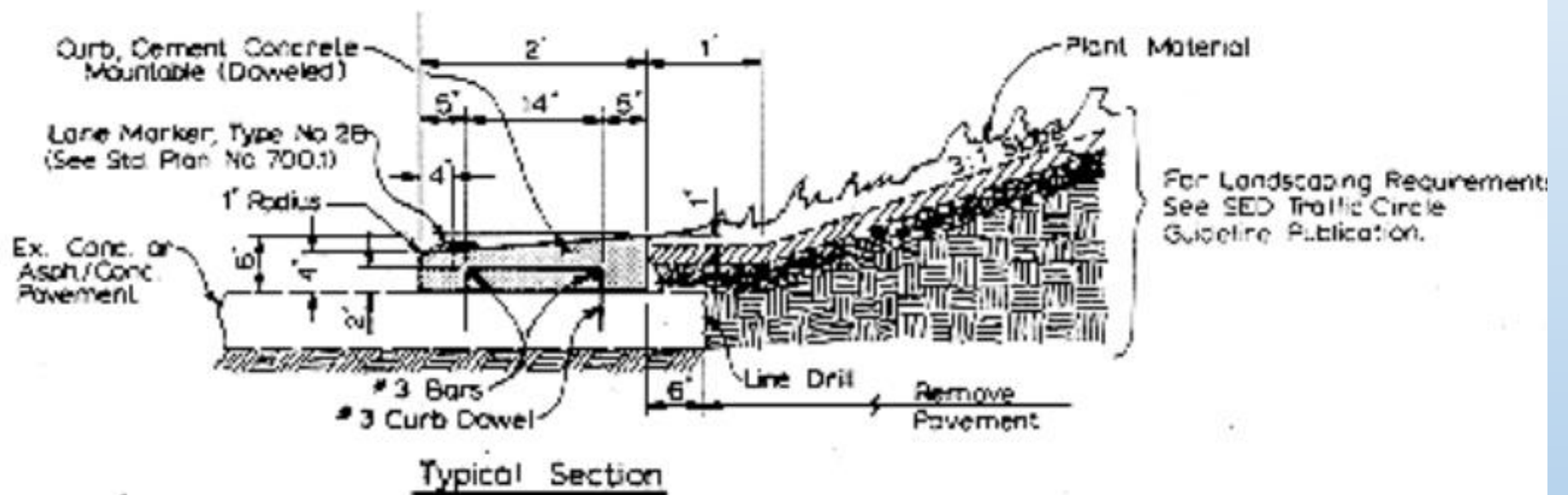
Centerline
of "St"

Centerline
of "Ave"

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

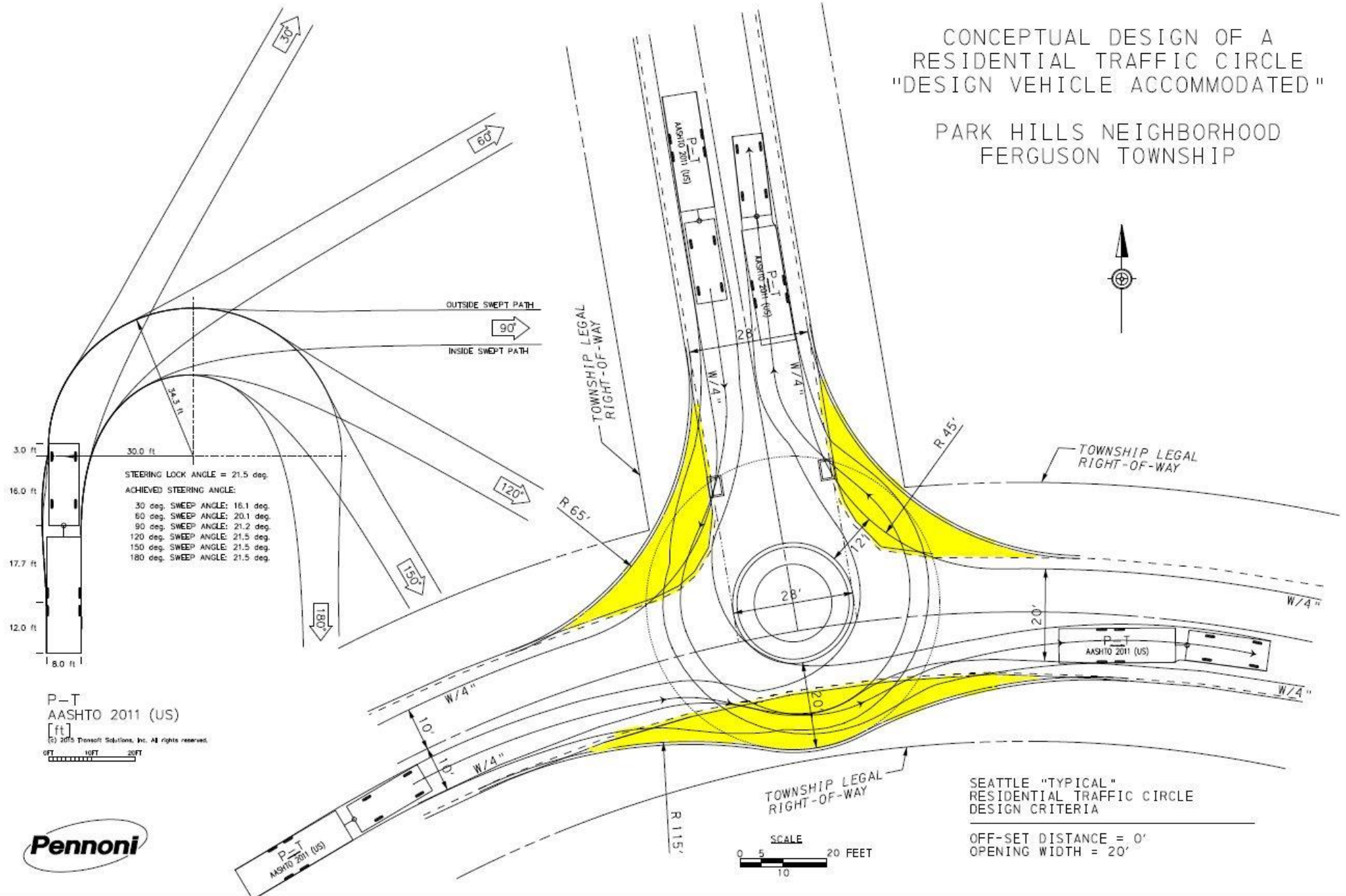
(Facing Vehicle Approaches)

Traffic Circle
Stimsonite Reflector Layout



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

PARK HILLS NEIGHBORHOOD
FERGUSON TOWNSHIP

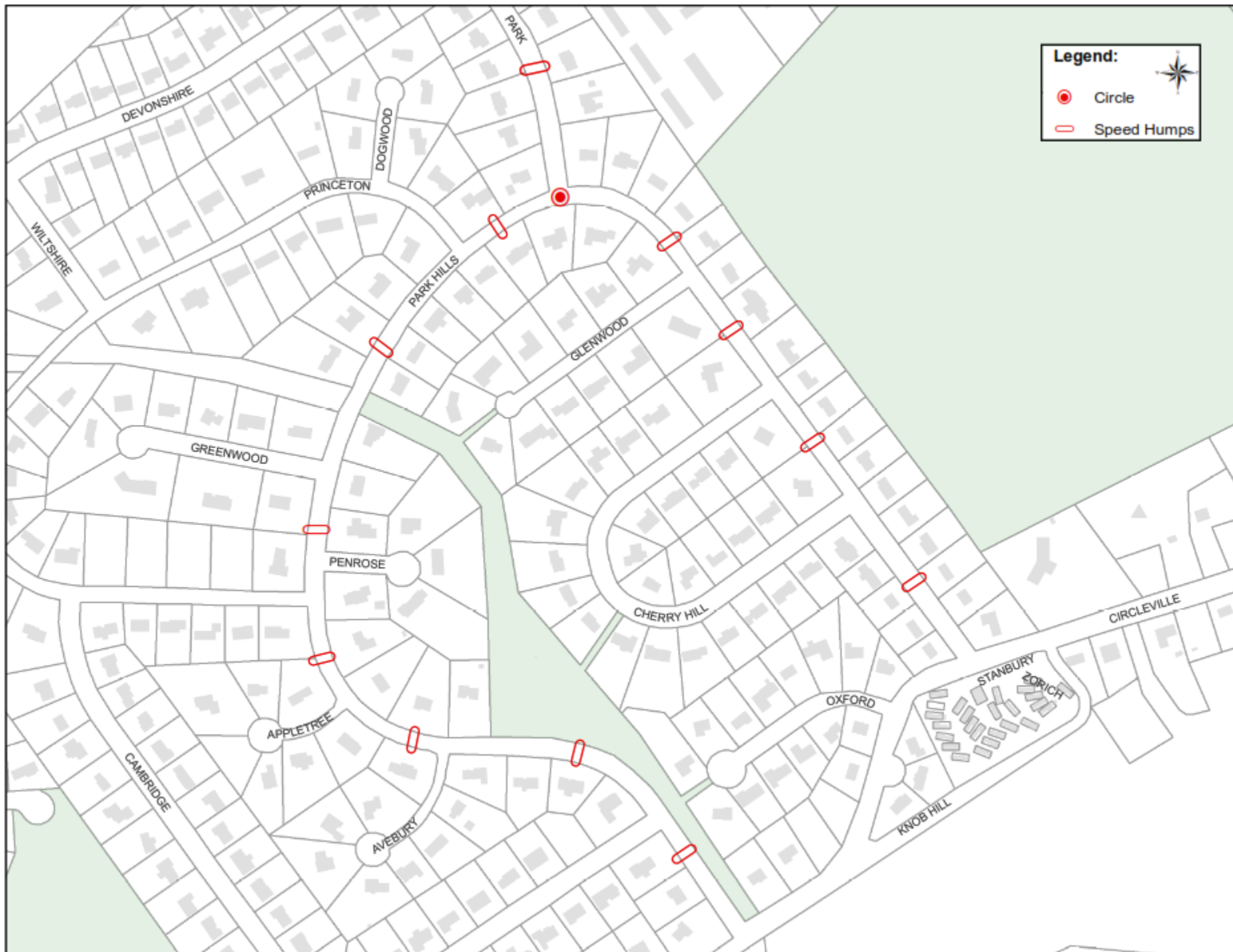


PARK HILLS NEIGHBORHOOD
FERGUSON TOWNSHIP



PARK HILLS NEIGHBORHOOD
FERGUSON TOWNSHIP







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



Township of
FERGUSON
Pennsylvania

East Park Hills Traffic Calming Study

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



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

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



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



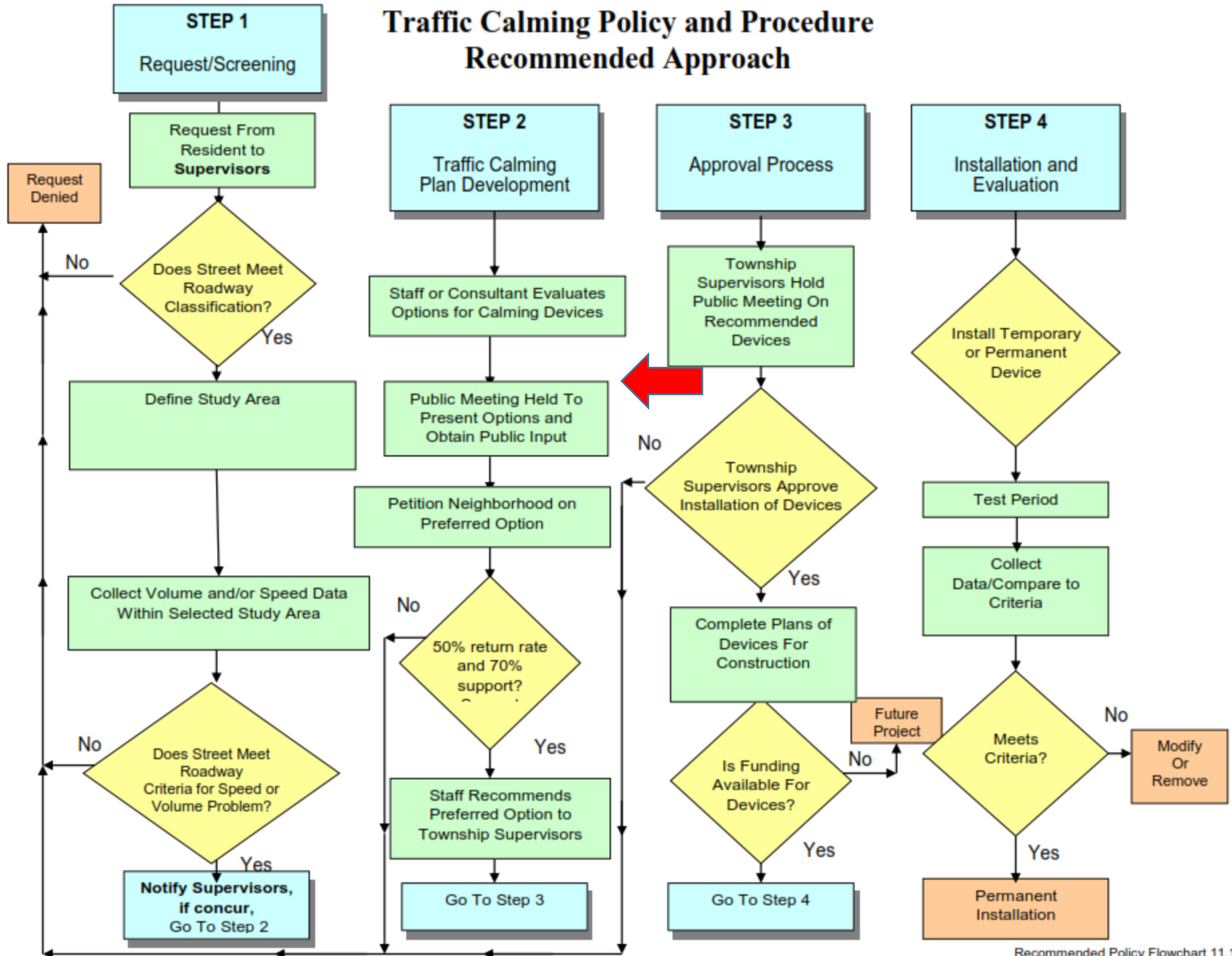
East Park Hills Traffic Calming Study

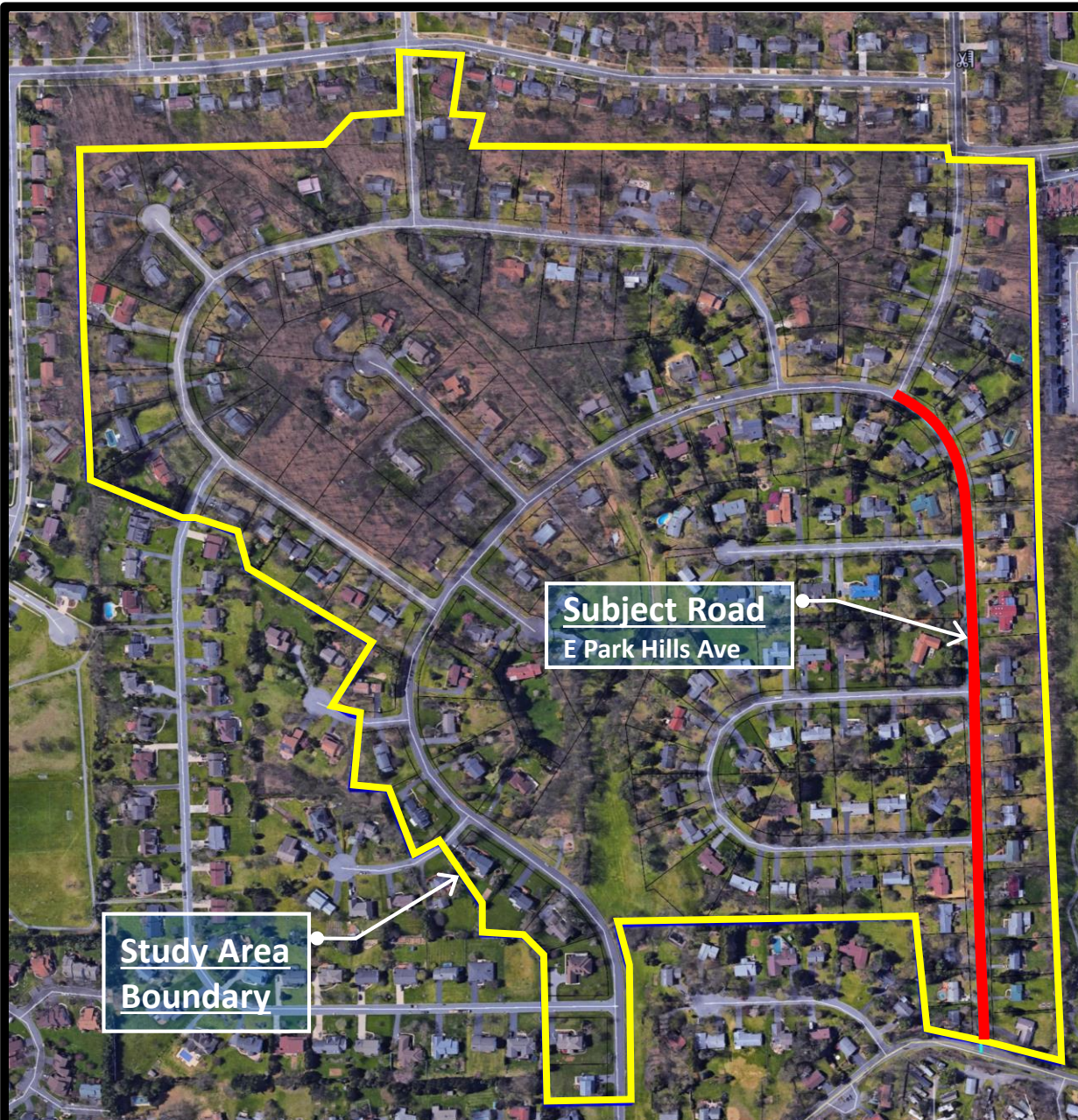
TITLE

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

Additional slides follow for clarity if needed

Traffic Calming Policy and Procedure Recommended Approach





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.



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

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



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

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



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