Developing and Partially Implementing Traffic Calming Measures to Reduce Cut-through Traffic on Forest Lane in Pinetop-Lakeside, Arizona

Practicum Project for the degree of Master of Science in Applied Geospatial Sciences

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Residential street
Complaints about cut-through traffic
Cut-through traffic from and to subdivisions
Practicum Project Purpose
  – Evaluation of resident perceptions
  – Research of traffic calming measures
  – Potential traffic calming solutions
1. Introduction

2. Practicum Process
   a. Phase I
   b. Phase II
   c. Phase III

4. Conclusions
INTRODUCTION

• Purpose
  – Find potential solutions to reduce cut-through traffic

• Components
  – Public Input Meetings
  – Council Decision Request
  – Presentation at Town Council Meeting
BACKGROUND
PINETOP-LAKESIDE

• Elevation approximately 6,800 feet

• Attractive location for valley residents

• Large number of part-time residents
POPULATION

• Approximately 2,300 at time of incorporation in 1984
• Currently approximately 4,282 (2010 Census)
• Strong fluctuation of population numbers between summer and winter months
• In 2014 approximately 83% of vacant housing units were available for seasonal use
HOUSING UNITS IN 2014

- Total Housing Units: 3567
- Total Vacant: 1858
- Vacant for Seasonal Use: 1548

Source: American Community Survey
FOREST LANE
• Residential street

• 21’ wide

• Approximately 0.25 miles long

• 2 travel lanes and no sidewalk or bike lane
SUBDIVISION TRAFFIC
RESIDENTS’ PERCEPTION

COMPLAINTS
• High traffic volume
• Speeding

SOLUTIONS
• Turn Forest Lane into a dead-end street
PRACTICUM PROCESS

• Development of potential design solutions
• Phase I
  – Development and implementation of temporary traffic calming measure
• Phase II
  – Permanent implementation of traffic calming measure
• Phase III
  – Temporary change in traffic pattern
PHASE I

• Potential design solutions to reduce traffic volume
• Public input meeting
• Installation of temporary traffic calming measure
• Traffic count
DEAD END
INTERSECTION MODIFICATION
CHICANES IN ADDITION TO INTERSECTION MODIFICATION
WHAT IS THE ISSUE?  
SPEED OR VOLUME?

• Pinetop-Lakeside Police traffic count in winter 2014/2015
  – Traffic volume approximately 400 vehicles/day
  – Only two or three cars over speed limit

It’s traffic volume!
PUBLIC INPUT MEETING

• June 2015
• Approximately 30 residents
• Forest Lane residents ask for dead end
• Neighborhood disagrees
• “Streets are for everyone”
TEMPORARY DESIGN

Forest Lane Intersection Modification

Before: 5-Way Intersection

After: 4-Way Intersection
TEMPORARY DESIGN
RESULTS

• Drivers experienced change in traffic pattern
• Traffic count resulted in approximately 450 cars per day
• Intersection was changed from five-way to four-way intersection
• Angle of modification and stop signs required wider turns for vehicles pulling trailers
PHASE II

• Permanent intersection modification

• Traffic count did not show the expected volume reduction

• Council Decision Request for Speed Cushions
PERMANENT INTERSECTION MODIFICATION
WHY PERMANENT, IF TRAFFIC VOLUME WAS NOT REDUCED?

• Intersection was a five-way intersection

• Safer as four-way intersection with stop signs

• Wider angle and stop signs inconvenience drivers with larger trailers to cut through Forest Lane
SPEED CUSHIONS

• Convenient spacing for emergency responders
• Would inconvenience drivers to cut-through Forest Lane
• 30% reduction in traffic volume (Traffic Calming: State of the Practice)
• Flexible
TOWN COUNCIL

• Town Council Decision Request to purchase speed cushions for Forest Lane

• Town Council asked for cheaper solutions

• Staff to perform traffic count

• Staff to implement No-Left-Turn signs
PHASE III

• Temporary change in traffic pattern
  – No-Right-Turn sign
  – Stolen after 3 days
  – Never reinstalled
PHASE III

- Traffic count shows low numbers
- Less population during winter months
- Summer counts are approximately 70% higher
CONCLUSIONS

• Town Code and General Plan support traffic calming
• Political environment did not allow to create a precedent for speed cushions
• High fluctuation in traffic counts between summer and winter
• Potential traffic light may divert traffic from Forest Lane
THANK YOU.

QUESTIONS?