

4th, 5th and 6th Avenue Traffic Calming Project Appendices



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Hillcrest Corridor

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Elements



Uptown Partnership, Inc.
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San Diego, CA. 92103

in Association with:

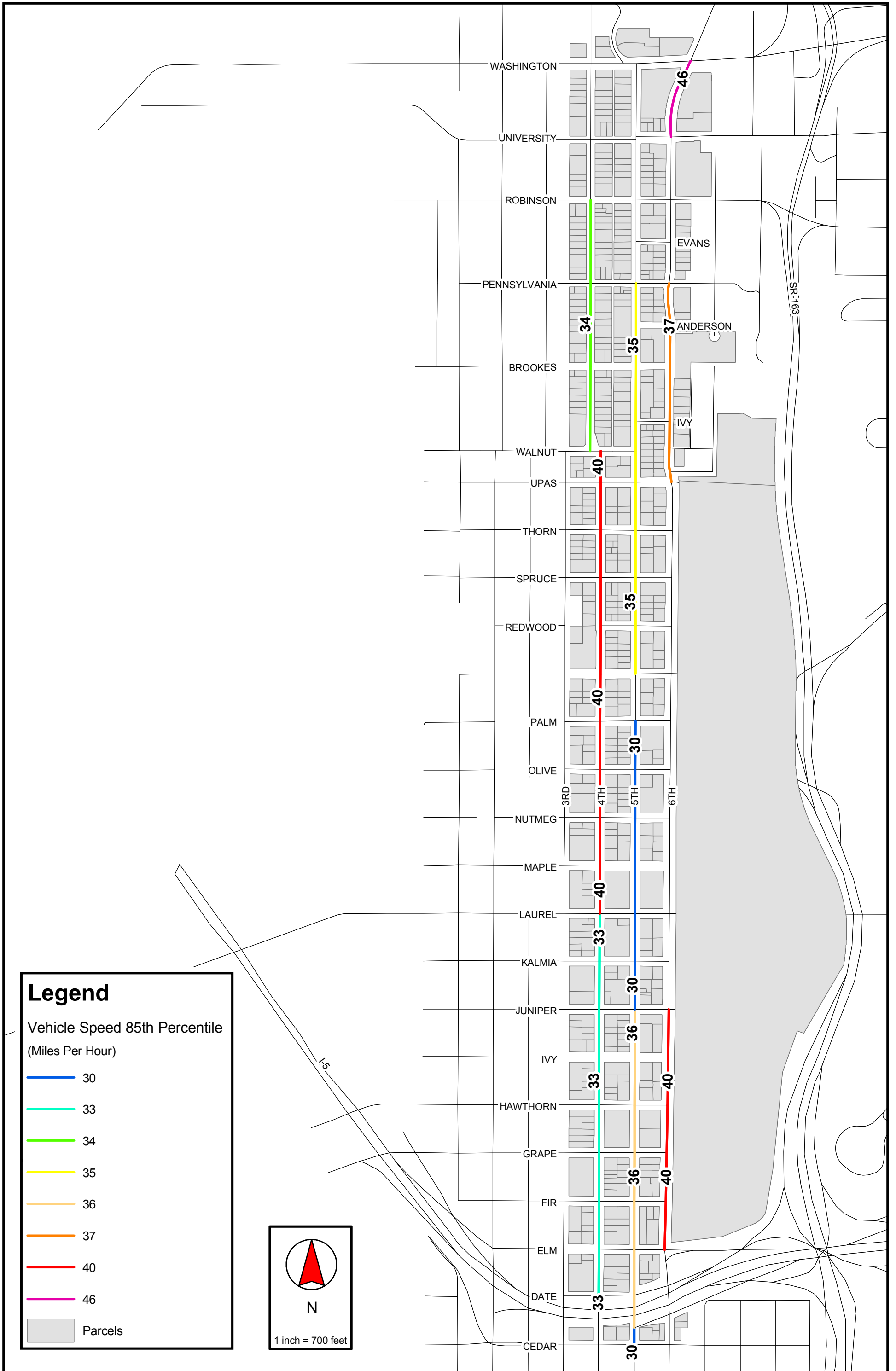


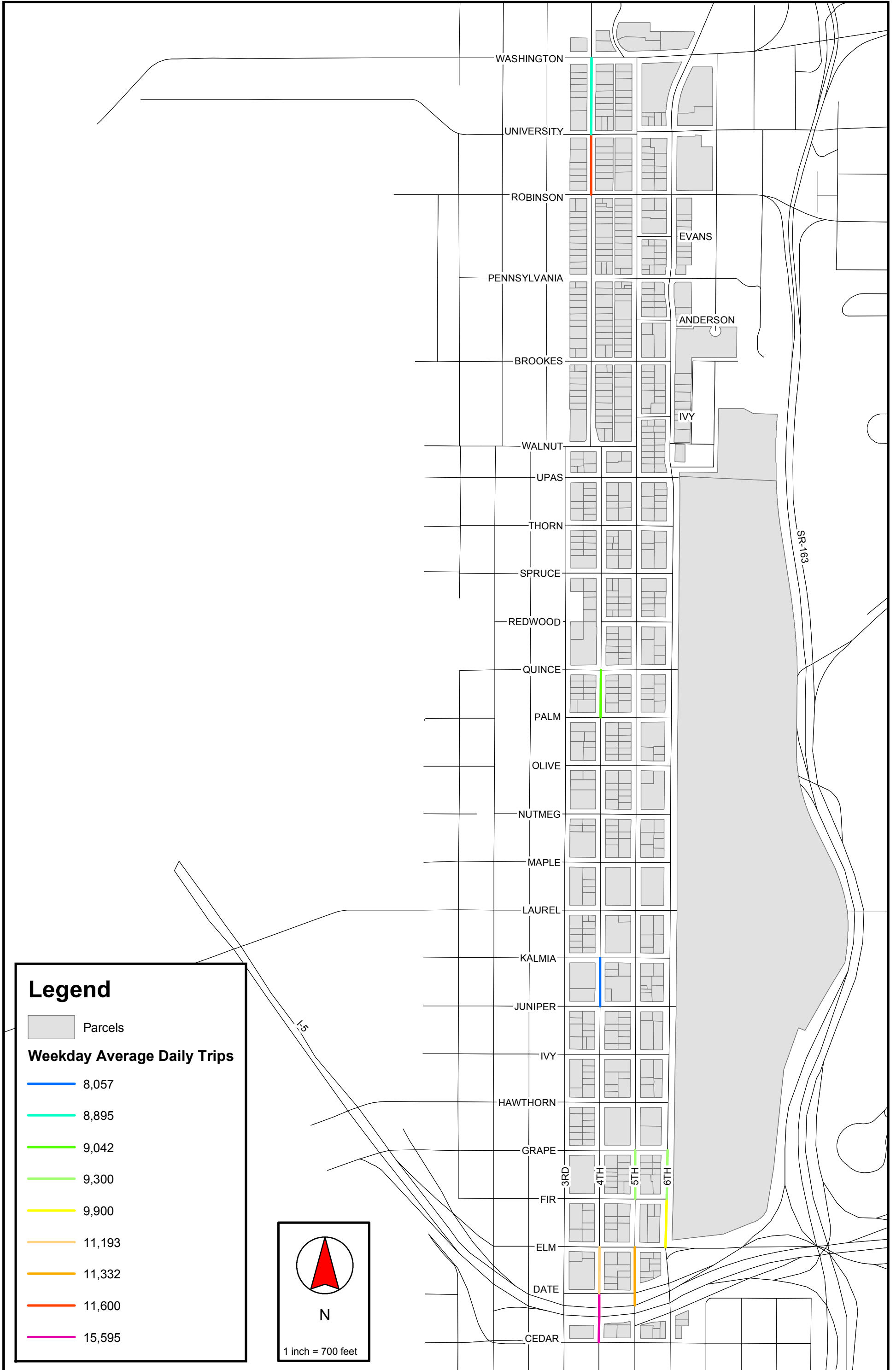
**KTU+A, Planning &
Landscape Architecture**

**Final Report
January 2005**



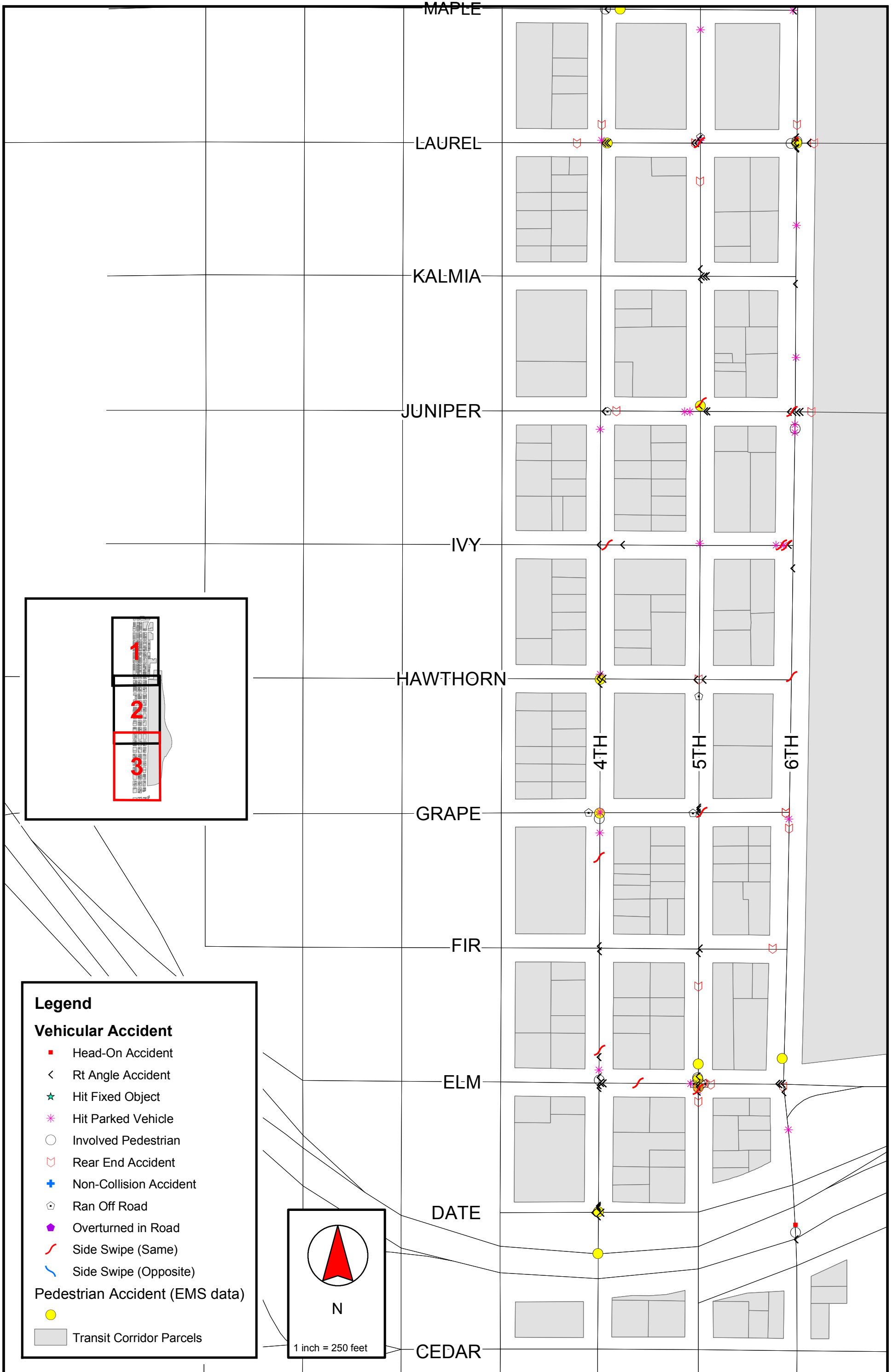
APPENDIX A
Historic Travel Information
Hillcrest Corridor
summer 2003

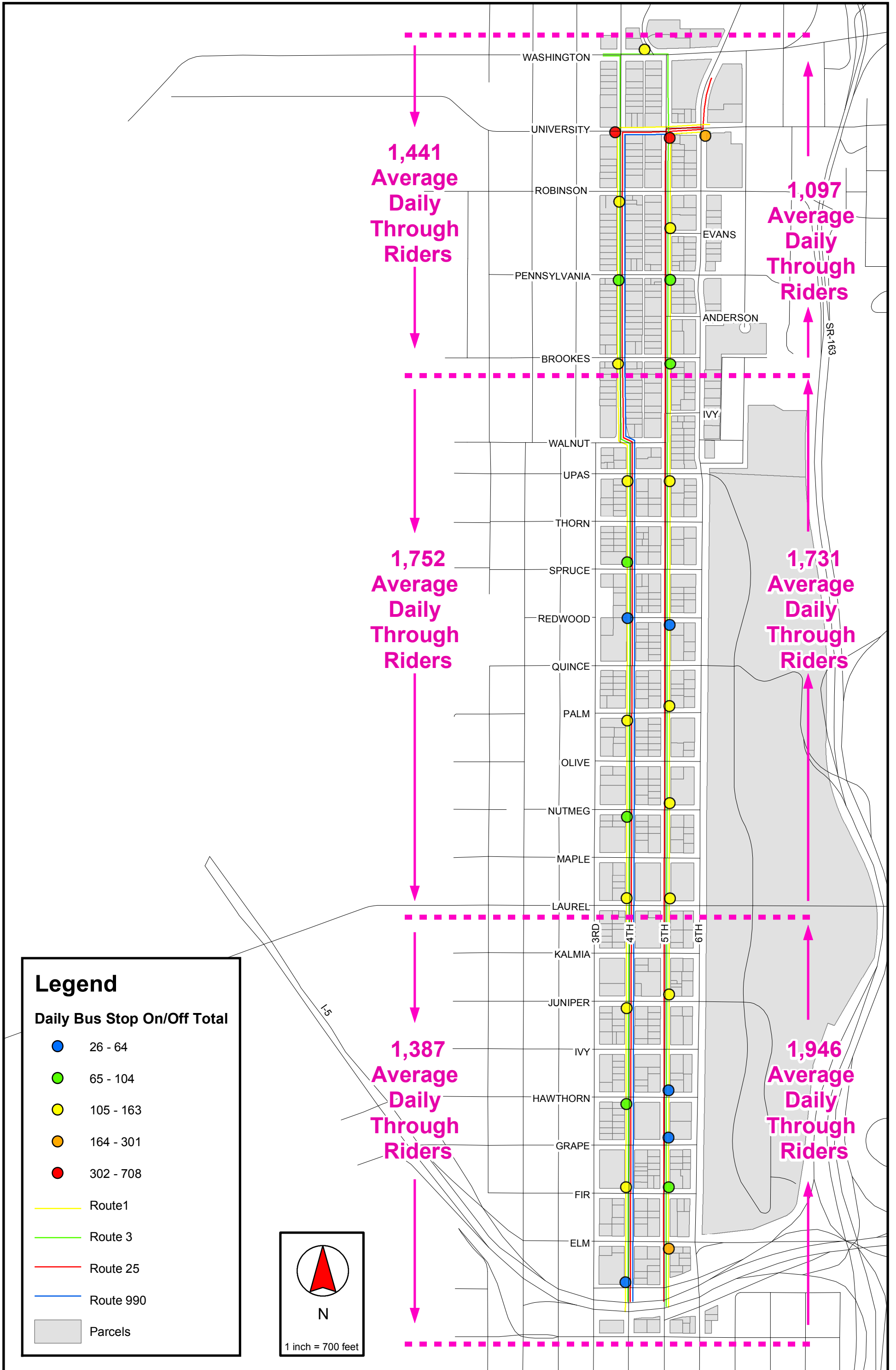




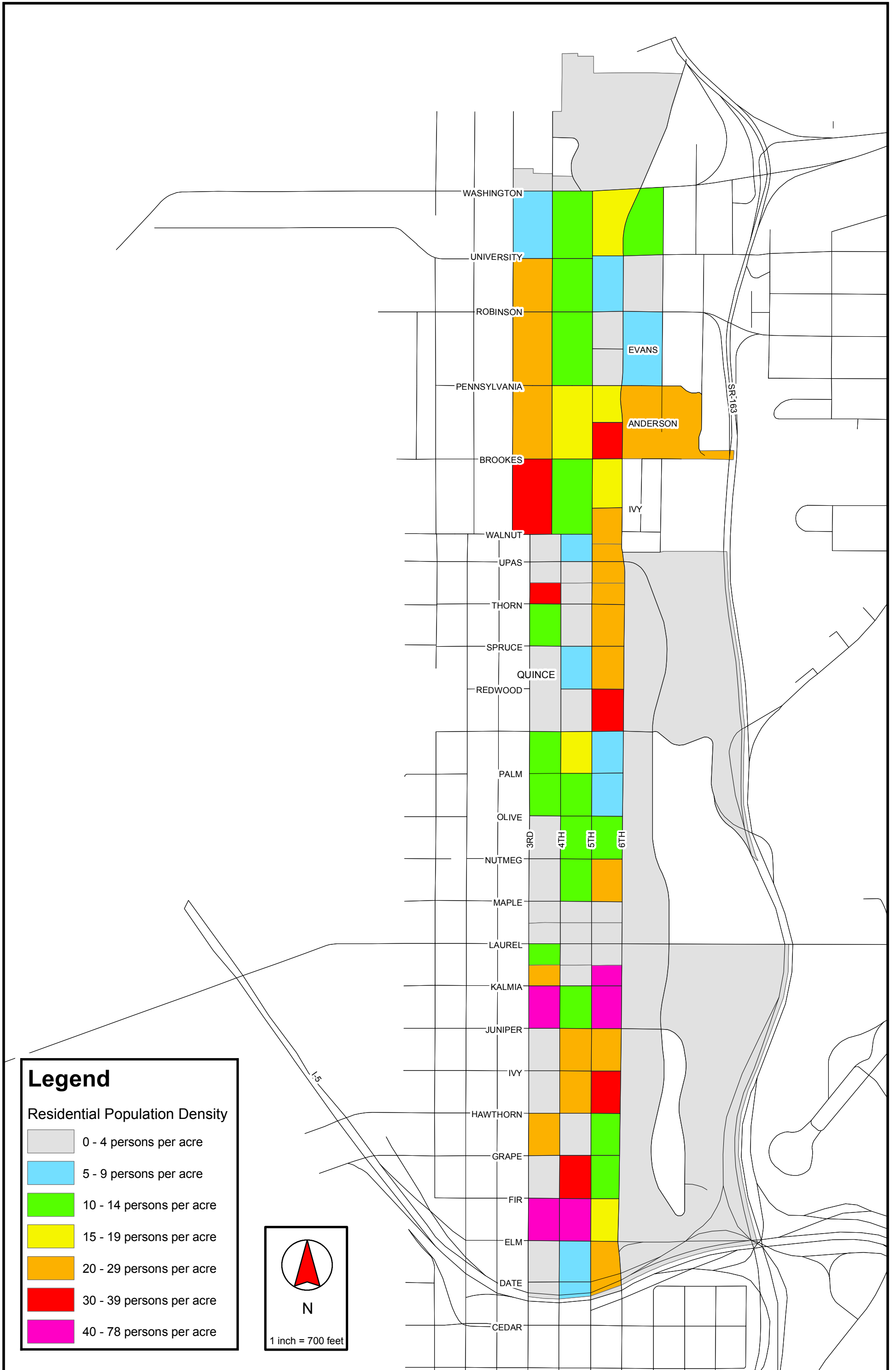


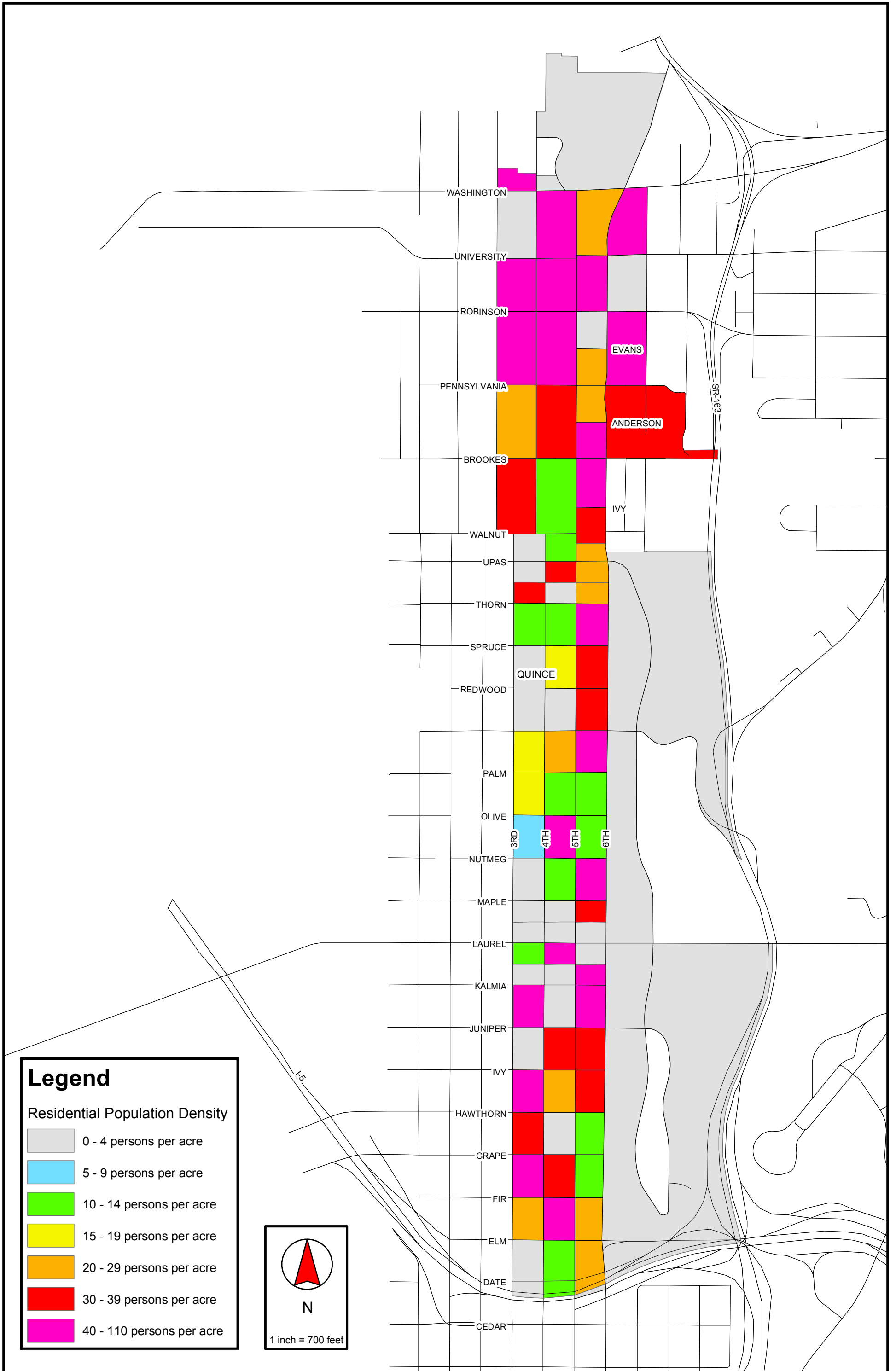






Ridership Data Source: San Diego Transit Corporation 2002 *Average Ridership is comprised from multiple transit segments measurements along routes







APPENDIX B
Traffic Calming Issues &
Suggested Solutions
may 2003

APPENDIX B
TRAFFIC CALMING ISSUES AND SUGGESTED SOLUTIONS
Developed by the Project Committee Following an Initial Public Workshop
May 2003

SPEEDING LOCATIONS

Fourth Avenue:	Walnut to Laurel Spruce to Palm - adjacent to the canyon
Fifth Avenue:	at Spruce Quince to Maple Laurel to Elm at Juniper
Sixth Avenue:	Pennsylvania to Upas Upas to Elm - adjacent to Balboa Park Upas to Laurel Laurel to Elm - near the freeway Juniper to Cedar
Robinson Avenue:	Near 163 - high speeds (needs speed bumps)

PROBLEM INTERSECTIONS

Fourth Avenue:	at Robinson – add southbound left turn lane at Walnut – jog of the street causes accidents & confusion
Fifth Avenue:	Pennsylvania to Upas – speeds dangerous for pedestrians at Spruce – speeds dangerous for pedestrians at Quince – provide 4-way stop at Nutmeg Laurel to Elm
Sixth Avenue:	at University alley north of Upas – causes confusion at Upas - jog of the street causes accidents & confusion at Spruce – speeds dangerous for pedestrians at Quince – provide 4-way stop at Nutmeg - provide 4-way stop at Laurel – high pedestrian use at Juniper - high pedestrian use at Elm – speeds dangerous for pedestrians
East-West Streets:	provide “protected” left turn lanes at major intersections

INCREASE VEHICULAR CAPACITY

University & Robinson: Convert into a "one-way" pair
Robinson: Remove parking to add one (or more) lane(s)
All Signalized Intersections: Coordinate traffic signal timing

OTHER

Fourth Avenue: Needs a sidewalk between Redwood to Palm
Fourth Avenue: at Quince – no sidewalk near pedestrian bridge
Fourth & Fifth Avenues: Provide Bicycle Lanes as a way to narrow travel lanes
Sixth Avenue: Stop freeway-bound traffic from downtown
Sixth Avenue: Pennsylvania to Upas – needs better sidewalks

DETAILED COMMENTS

Key to the Source of Comments:

C---- Comment Card from the April 30th, 2003 Workshop
M---- Mapped comment from the April 30th, 2003 Workshop
CM-- Mapped comment from the January 7, 2003 Uptown Planners Meeting
E---- comment submitted by e-mail
L---- comment submitted by letter
P---- comment submitted by phone call

GENERAL ISSUES

Auto Traffic

- 1 Narrow travel lanes are unfriendly to bicyclists (unless bike lanes are provided). (C-10)
- 2 Traffic Violations and (C-12) Lack of enforcement. (P-3)
- 3 Enforce speed limits after 4:30 PM, potentially through the use of later shifts, cameras and speed bumps. (C-38)
- 4 East-west vehicular travel across 4th, 5th & 6th on most streets is difficult. (C-35)
- 5 Cars on 3rd move too fast. (CM-6)
- 6 Speeding along corridor. (P-3) Corridor is used as a race track. (M-40)
- 7 Drivers not stopping before turning at intersections. (P-2)
- 8 Large trucks unload at the curb. (C-17)

Pedestrian

- 9 Parking lot driveways are dangerous for pedestrians. (C-34)
- 10 Dangerous for pedestrians to cross 6th Avenue (CM-10) and to cross 5th Avenue (M-20)
- 11 Lack of crosswalks along 6th Avenue very dangerous (P-3) as well as 4th and 5th Avenue (M-2)
- 12 Difficult pedestrian & vehicle visibility at intersections. (C-1) (C-48)
- 13 Need better pedestrian access to Balboa Park (M-11) Dangerous crossing the street to get to the park. (M-15)

Parking

- 14 Limited parking in Balboa Park force visitors to park in residential areas to the west of the Park. (C-42)
- 15 Businesses and residents on 6th Avenue should provide enough parking so they don't use the park as parking (CM-2)
- 16 Can't find parking in the park, even when there is no one in the park (CM-3)

Development

- 17 Projected density increases are excessive. (C-28)
- 18 Concerned about increases in traffic from new development and ballpark. (P-2)
- 19 Consider traffic from the new ballpark. (C-14)(C-41)

Bus

- 20 Buses with routes through Uptown are parking along streets. (P-2)
- 21 No access to Mission Valley due to change in route #25. (P-2)

SPECIFIC PROBLEMS

4th Avenue

- 22 4th Avenue from Walnut to Laurel: high speeds. (CM-30)
- 23 Corner of 4th and Walnut cars speed right through 4-way stop. (M-13)
- 24 Southbound 4th Avenue traffic fast. (P-1)
- 25 4th and Pennsylvania - many near misses and accidents in last 6 to 10 years. (P-1)
- 26 4th and Quince missing sidewalk (CM-27) (M-24) need a marked crosswalk. (CM-28)
- 27 Pedestrians at 4th and Quince Street bridge invisible to cars. (M-27)
- 28 No easy Maple Canyon access along 4th Avenue (M-25)

5th Avenue

- 29 Walnut and 5th Avenue non reported incident of bicycle/vehicular accident (E-3)
- 30 Sidewalk space on East side of 5th between University and Robinson very narrow due café and newspaper racks. (P-4)
- 31 5th and Quince light need to be synchronized with 6th and Quince light. (M-28)
- 32 5th Avenue from Upas to Pennsylvania: high rates of speed. (M-9)
- 33 As membership and attendance of Cathedral grows, parking west of 5th becomes vital and crossing 5th becomes more difficult. (M-36)
- 34 Multiple accidents at intersection of Juniper and 5th Ave and high speeds, not just during rush hours. (M-42)
- 35 5th Avenue between Elm and Laurel speeding is out of control, very dangerous. (M-43)

6th Avenue

- 36 6th Avenue very high speeds (CM-18) (CM-22) (M-10) (M-44) from Laurel to Upas very dangerous (CM-19) no room for bicyclist. (CM-14)
- 37 Intersection 6th and Upas: many accidents (CM-1) (CM-29) (M-16) (M-17) (M-18) (M-23) may be caused by driveway ingress and egress (M-21) Concerned over traffic in alley. (M-19) (M-22)
- 38 Speeding on 6th (P-2) south of Laurel (C-29) (M-48) (C-46) and from Juniper to Cedar. (M-47)
- 39 6th Avenue backs up during rush hour to get onto 163N. (M-1)
- 40 Pedestrian crossing at 6th and Elm is horrible. (C-45) (CM-23)
- 41 Dangerous lane curve at 6th and Upas. (M-14)
- 42 Corner of 6th and Upas an issue of concern for foot traffic. (L-6)
- 43 Intersection of 6th and Upas many concerns from Southbound left turns, Northbound speeds, high amount of pedestrian traffic being adjacent to the park to accidents that occur at this problem intersection and the interest in future development of empty lot. (L-4)
- 44 Poor crossing at University and 6th Avenue (P-2)
- 45 6th Avenue between Robinson and University: white space is not used. (M-6)
- 46 6th Avenue from Pennsylvania to Upas is too narrow for pedestrians. (M-12)
- 47 Laurel and 6th is a major pedestrian node. (CM-21)
- 48 Juniper and 6th is difficult to cross. (M-46)

Overall Corridor

- 49 Speeding along 5th and 6th Avenue from Hawthorn to 5 freeway, cars jockeying. (CM-17)
- 50 Laurel between 1st and 6th consider traffic impacts due to density and access to Balboa Park (C-52)
- 51 Major congestion and grid lock within block for East and West traffic on Robinson, which conflicts with pedestrian crossing at 5th and 6th Avenues. (CM-13)
- 52 Walk signals on University are not long enough to allow safe crossing. (M-3)
- 53 3rd Ave north of Nutmeg: fast speeds, cars blow through stop signs. (M-33)
- 54 Construction workers park and then leave their trash on Nutmeg from 3rd to 5th. (M-37)

OTHER COMMENTS

- 55 Many motorists use Pennsylvania and 7th as a short cut to 163N because no left turn for southbound traffic onto Robinson. Wide Streets = Fast Cars (M-8)
- 56 Developers should provide traffic calming measures. (C-26)
- 57 Additional public & private infrastructure is needed before traffic calming actions. (C-25)
- 58 Underutilized on-ramp for 163 at 10th Avenue (CM-12)
- 59 Storm drain capacity is inadequate. (C-43)
- 60 Uptown is no longer a "walking neighborhood." (C-16)
- 61 Bus Route 16 is incorrectly routed on the consultant's presentation. (C-13)
- 62 Developers should not close sidewalks for long periods of time. (C-33)
- 63 The commercial use of the St. Paul's parking lot is not legal. (C-39) (C-40)
- 64 This study should include 1st Avenue. (C-49)
- 65 Homeless sleep in garage between 5th and 4th on Palm. (M-30)
- 66 Additional street cleaning is needed on the west side of 6th Avenue. (C-51)
- 67 Would like a traffic incident report for 6th and Upas intersection. (L-1) (L-3)
- 68 Have City Planning staff monitor and report on any variances and/or building deviations that could apply to whatever plans for construction might be submitted for a building at the northeast corner of 6th Ave and Upas. (L-3)
- 69 As a current resident, want to stay informed of upcoming projects within the area, as they have affects on the traffic congestion, especially around the intersection of 6th and Upas. (E-4)
- 70 Sidewalks in need of repair. (P-4)

- 71 Pedestrian ramps off sidewalks poorly designed – too steep, specifically at 5th and University. Please refer to the phone call for specific locations of trouble ramps. (P-4)
- 72 For vision of what the traffic calming study and project should do, please refer to L-5.
- 73 Sidewalks and curbs built in 1920s crumbling/broken on 3rd between Nutmeg and Olive. (M-34)
- 74 Lack of bathrooms in Park West after dark. (M-38)
- 75 Kate Session Trees are dying and need replacement. (M-49)

QUESTIONS

- 76 Does the City allow developers to widen sidewalks (by reducing the width of the streets), especially at corners? (C-7)
- 77 Are bicycle lanes considered traffic calming tactics? (C-8)
- 78 Is data available on bicycle use and accidents on 4th and 5th Avenues? (C-9)
- 79 What is the speed limit on 5th & 6th Avenues in Hillcrest? (C-15)
- 80 Where can residents report speeding violations? (C-30)
- 81 Are traffic lights on 4th, 5th & 6th timed for specific speeds? (C-36)
- 82 From Pennsylvania to Walnut along 4th, 5th and 6th Avenue, will you compare speeds and volumes? (CM-32)
- 83 People leave their cars parked for days. They take a \$6 dollar cab to the airport and back to avoid parking fees at airport. Can cars parked over 3 days be cited? (M-32)
- 84 Bike lanes on 4th and 5th? (M-39)

SUGGESTED SOLUTIONS TO CALM TRAFFIC

Signs and Signals

- A. UPI should provide “Slow Down” signs for residential areas. (C-2)
- B. At 6th and Upas, remove “No U-Turn” sign. (L-1) (L-3)
- C. Integrate public art and neighborhood entry signage as part of traffic calming measures. (C-50)
- D. Synchronize traffic lights (E-1) specifically along University, Washington and Robinson. (CM-9)
- E. Where warranted might need more traffic signals to discourage high speed thoroughfare. (CM-26) (CM-24)
- F. Use larger traffic signs. (C-15)
- G. Do not allow “right turns on red” in busy areas. (C-16) At intersection of 6th and Upas. (L-1) (L-3)
- H. Nutmeg and 6th as well as 5th needs stop light or 2 way stop signs! (CM-4)

- I. Stop Sign needed: 3rd and Kalmia (CM-5) 6th and Nutmeg. (CM-20)
- J. Stop Sign needed: 6th Avenue to permit pedestrian crossing. (C-31)
- K. Stop Sign needed: 6th & Juniper to slow traffic & permit pedestrian crossing. (C-46) (M-44) (M-45)
- L. Speed check signs would be effective in bringing speeds down. (M-31)
- M. Speeding between Elm and Laurel along 5th Avenue. Put in a light? Roundabout? (M-41)

Parking

- N. Provide bike lanes on 4th & 5th by eliminating parking on one side of the street. (C-11)
- O. Install diagonal parking (to reduce “cruising” for parking-increase revenue). (C-3)
- P. Remove corner parking on SW corner of Robinson and 5th to allow left turn lane. (M-5)

Redesign Streets / Turn Lanes

- Q. 4th Avenue from Fir to Hawthorn high speed area in need of road narrowing to calm traffic. (CM-25)
- R. At Robinson and University need left protected turn. (CM-11)
- S. Problems at all hours, speed bumps? (CM-7)
- T. Need left turn arrows up and down Washington and University. (CM-8)
- U. Move the 5th and University bus stop(s). (C-19)
- V. Make University and Robinson a “one-way pair” west of 6th Avenue. (C-22)
- W. Widen sidewalks on 6th Avenue from Upas to University. (C-23)
- X. Provide curb bulb-outs at intersections. (C-27)(C-44)
- Y. Provide speed bumps, traffic lights or stop signs on 5th between Elm & Laurel. (C-47)
- Z. Provide pedestrian refuge islands on 6th Avenue. (C-37)
- AA. Make Robinson one way because traffic gets stuck between 3rd and 7th (M-4) or remove parking completely. (M-7)

Pedestrian

- BB. Boldly stripe pedestrian crosswalks. (C-6)
- CC. 6th Avenue needs crosswalks and/or pedestrian traffic signals. (CM-15)
Flashing lights at crosswalks would work great at night. (CM-16)

General

DD. Facilitate travel from the Hospital area to freeway on-ramps. (C-18)

EE. Do not allow alley access for the proposed project at 6th & Upas. (C-20)

FF. Provide more frequent transit service by staggering route schedules. (C-21)

GG. Limit building height on 4th, 5th & 6th to reduce density. (C-24)

SOLUTIONS TO OTHER ISSUES

HH. Oppose increasing the fine for parking in "Handicapped" spaces (C-4).

II. Increase trash receptacles on 6th Avenue and at bus stops (C-5) No trash can at 6th and Palm bus stop (M-29) Need trash cans along 6th Avenue in Balboa Park. (M-35)

JJ. Provide overhead walkway crossing major streets. (C-32)

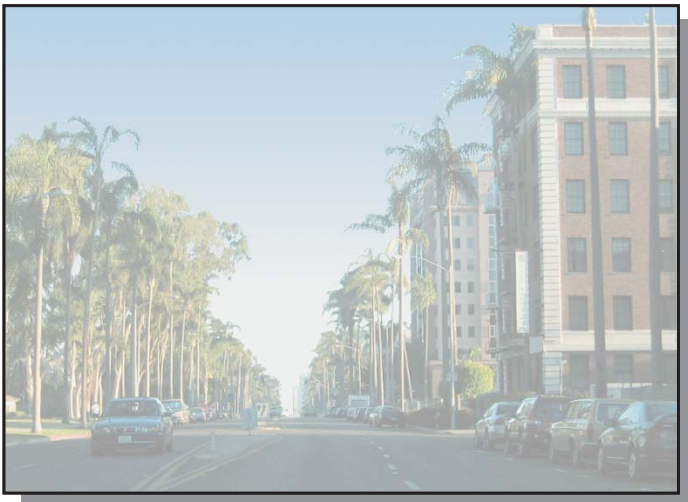
KK. Lengthen walking lights for pedestrians at 5th and University. (P-4)

LL. For pedestrian safety, need to educate public on safe walking and pedestrian habits. (L-2) (CM-31)

MM. Discourage through traffic from downtown on 6th Avenue, people are using it to bypass the 163 freeway. (CM-24)

NN. Close 5th Avenue between Robinson and Washington and make a pedestrian strip only. (CM-33)

OO. Intersection of 10th and Robinson needs speed bumps, right after freeway. (M-50)



APPENDIX C
October Workshop
Conclusions
november 2003

APPENDIX C
OCTOBER WORKSHOP CONCLUSIONS
November 2003

GENERAL SESSION – THE CORRIDOR TRAFFIC CALMING CONCEPT

- Current bus and proposed BRT doesn't go directly to Mission Valley Shopping Center from Hillcrest area. Passengers from Hillcrest must transfer at the Fashion Valley Transit Center and this transfer connection takes too long to get to the Mission Valley Center.
- The existing way-finding signs directing traffic to divert from 5th to 6th Avenues for access to Freeway 163 are not noticeable enough.
- Divert more freeway traffic to the 10th Avenue entrance to northbound Freeway 163 – this on-ramp is located between University & Robinson Avenues.
- Provide accident information on streets with diagonal parking vs. parallel parking
- Diagonal parking conflicts with bicycle traffic– Vehicles backing out of diagonal parking spaces, often with impaired visibility, create a very dangerous situation for bicycle riders. (2 comments)
- Diagonal parking on 4th & 5th Avenues would help calm traffic speeds.
- Will new parking (additional parking spaces re-striped) be free or metered?
- Traffic signals can be synchronized to regulate speeds and calm traffic. (2 comments)
- Install pedestrian activated traffic signals, especially along 4th and 5th Avenues.
- Disabled parking must be addressed in the study.
- Improve pedestrian crosswalks, using Santa Monica as a good example.
- A north-south pedestrian/bicycle path should be provided from 8th Avenue to the Park.
- Mark the edges of on-street parking spaces to increase parking capacity.
- Use mobile speed indicators to show drivers their vehicle speed.
- This study should identify its potential impacts on 1st Avenue and the other thoroughfares in Uptown.
- Provide off-street visitor parking in residential developments.

CENTRAL HILLCREST DISCUSSION GROUP (Mike Singleton)

- Add pedestrian crosswalk on the west leg of the 5th Avenue/Washington Street intersection.
- Improve pedestrian crossing at the 4th Avenue/Washington Street intersection.
- Encourage freeway-bound traffic to use Bachman (canyon) Road into Mission Valley.
- Add crosswalk onto east leg of 3rd Avenue/Washington Street intersection.
- Add 4-way stop sign or traffic signal at the 3rd and Robinson Avenues intersection.
- Provide a protected turn lane OR prohibit left turns from eastbound Robinson Avenue onto 5th Avenue or from 4th onto Robinson in the PM peak period.
- Widen Robinson Avenue east of 4th Avenue.
- Move the suggested Bus Rapid Transit (BRT) stop at of 5th and Robinson Avenues to 5th and University Avenues.
- Better synchronize the traffic signal system.
- Consider consolidating the 5th Avenue bus stops at Pennsylvania and Robinson Avenues.
- Locate and enforce a "Keep Intersection Clear" sign at the 6th and Robinson Avenues.
- Discourage jaywalking on 6th Avenue between Robinson and University Avenues.

- Encourage the use of the northbound Freeway 163 entrance on 10th Avenue between University and Robinson Avenues.
- Discourage through traffic from using 7th Avenue between Pennsylvania and University Avenues.
- Consider a mid-block crossing on 5th Avenue between Pennsylvania and Robinson Avenues.

WALNUT/UPAS STREETS AREA DISCUSSION GROUP (Marilee Kapsa)

- Use multiple-space (group) parking meters instead of individual meters in new diagonal parking areas to respect urban design.
- Change existing diagonal parking on the south side of Upas Street between 5th and 6th Avenues to parallel parking to improve turning movements at 6th Avenue.
- Consider the installation of a traffic circle at the 6th Avenue and Upas Street intersection.
- Support the installation of pedestrian pop-outs and diagonal parking.
- Extend the proposed 2-lane plus turn lane configuration on 6th Avenue north of Upas Street: do not maintain four lanes with no turn lane.
- North of Upas Street, consider 2 travel lanes and diagonal parking on 6th Avenue.
- Upas Street east of 6th Avenue should remain two-way. (The alley north of Upas is suggested for eastbound-only traffic to reduce turning conflicts onto 6th Avenue.

PARK WEST NORTHERN AREA DISCUSSION GROUP (Andy Hamilton)

- 3rd Avenue has poor pavement quality from Washington to Walnut Streets.
- 3rd Avenue is too dark.
- Consider installing an imbedded pedestrian crossing light system at Spruce Street.
- Need #25 bus to go to Mission Valley Shopping Center.
- Bike activation of signals, loop detectors or bike button. LLMD make this happen faster.
- Pedestrian signal automatically come on with green.
- Access to Palm Canyon Trail.
- Along canyon on 4th, sidewalk and green square linear park.
- Diagonal parking on Olive, west of 4th.
- Traffic signals on Quince, yes!
- Crosswalks at Spruce and 6th and every other block to Park.
- Use group meters for new diagonal parking.
- Until signals are funded, put in stop signs.
- Way-finding signs, make high quality, aesthetics.

PARK WEST CENTRAL AREA DISCUSSION GROUP (Blake Hepburn)

- Most supported the proposed 6th Avenue concept – two auto travel lanes plus turn-lane/pedestrian refuge in the median.
 - The Study should address Handicapped parking.
 - Is the BRT really necessary? Why do we need BRT if we will continue to have regular buses too?
 - Why does the BRT need a reserved travel lane?
 - Uptown needs to have a comprehensive bus system - not these short incomplete showcase projects.
-
- Instead of the transit-only lane, just take one automobile travel lane away similar to the proposal for 6th Avenue.
 - Parking is the real issue – the Uptown Partnership, INC. should focus on parking because more businesses and residents are coming into the community.

- What will be the real impacts of the new mixed-use developments on Laurel Street on parking in the area. Will the new projects provide enough parking? (2 comments)
- Support the conversion for diagonal parking.
- Provide a permit parking program for residents only, similar to the program at hospital complex north of Washington Street. Vehicles that do not display permits could only park legally for a limited period of time. (2 comments)
- Businesses should not rely on on-street parking for their employees. Primarily local residents and business customers should use on-street parking.
- Consider the construction of a parking structure on the church lot at 5th Avenue and Nutmeg Street
- How long are people parking vehicles on the street?
- Consider using street sweeping to get people to move parked cars.
- Why is the west side of 6th Avenue swept weekly, but the west side is not swept?
- Even with a left-turn lane, one-lane in each direction on 6th Avenue won't adequately handle demand.
- What happens to parking when there are events in Balboa Park?
- Will the BRT really help reduce the need for parking?
- Traffic signal synchronization, have a smart system that knows what's happening, where the emergency vehicles are, where the buses are and where the pedestrians are need to cross.
- If traffic signal synchronization is good, why need bulb outs, reduction of lanes or pedestrian refuges?
- Stop signs vs. traffic signals, which are more effective?
- Can we put parking meters in residential areas?
- The diagonal parking on the map along 6th should be green, because not currently there.
- Add meters on 6th between Laurel and Kalmia.
- Why a red curb at Park Laurel on 6th Ave between Maple and Laurel?

PARK WEST SOUTHERN AREA DISCUSSION GROUP (Michele St. Bernard)

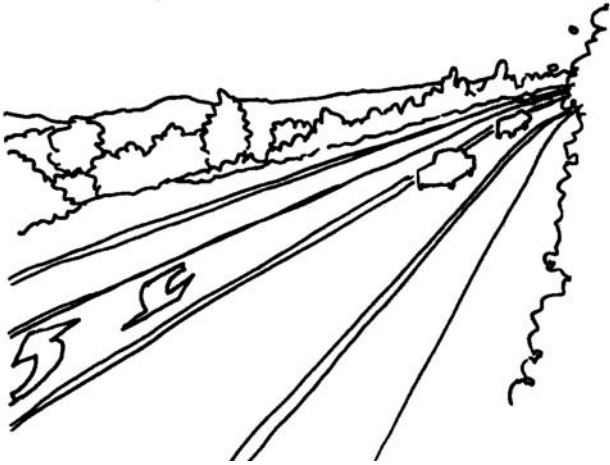
- The corridor currently has too few traffic signals.
- An additional traffic signal may be needed at Grape and 6th Avenue.
- Four MTS bus routes serve the corridor immediately west of Balboa Park.
- Flashing yellow pedestrian crossing signals are needed at Fir, Hawthorn and Ivy Streets.
- Pedestrian activated signals should not interrupt the traffic signal interconnect sequence.
- Because of pedestrians accessing Balboa Park across 6th Avenue at Ivy Street, relocate the suggested traffic signal from Grape Street to Ivy Street.
- On 6th Avenue south of Fir Street, two southbound travel lanes will be required: one for the BRT vehicles and one for other vehicles.
- Support diagonal parking on Ivy Street west of 6th Avenue.
- Use permanent or semi-permanent speed indicator signs as a technique to slow traffic speed.
- Plant trees to calm traffic, especially around 5th Avenue.
-
- Create a Lighting and Landscape Maintenance District, if necessary, to maintain bulb-out and other new streetscape improvements.
- Bus stops on 4th and 5th Avenues should align at Grape Street.
- Support pop-outs and diagonal parking.
- New marked crosswalks at 6th and Ivy, 6th and Hawthorn and other locations should not be installed unless traffic signals are also provided.

- Relocate the proposed diagonal on Elm Street from the south to the north side to better serve destinations in the neighborhood.
- Why does the southbound BRT transition from 4th Avenue to 6th Avenue at? The route should maintain a higher speed proceeding south on 4th Avenue without the diversion on Fir Street.
- Relocate the Bus Stop immediately north of the freeway on 5th Avenue from the south- to the north side of Elm Street.
- Consider diagonal parking on west side of 5th Avenue.



APPENDIX D
Examples of
Traffic Calming Elements
august 2004

APPENDIX D Examples of Traffic Calming Elements



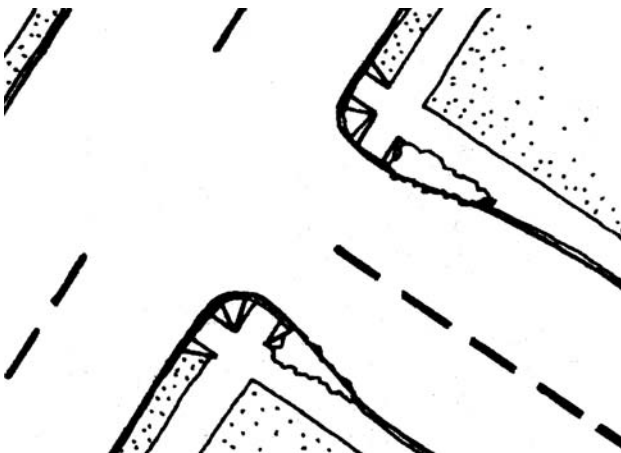
Narrower Travel Lanes :

Conventional width vehicle travel lanes encourage drivers to travel at higher rates of speed. The 10 & 11 foot lanes now permitted by the *Street Design Manual* encourage more moderate speeds.



Vertical Visual Restriction :

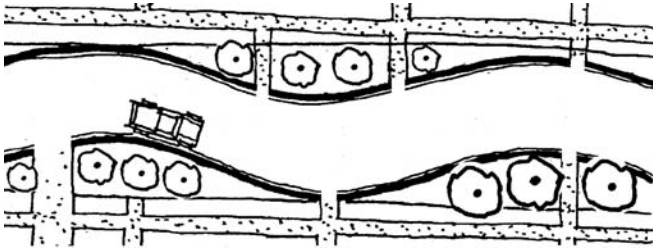
Trees and street furniture adjacent to the curb make the vehicle travel lane seem narrower to the drivers, reducing maximum automobile speeds.



Curb / Sidewalk Bulb-outs :

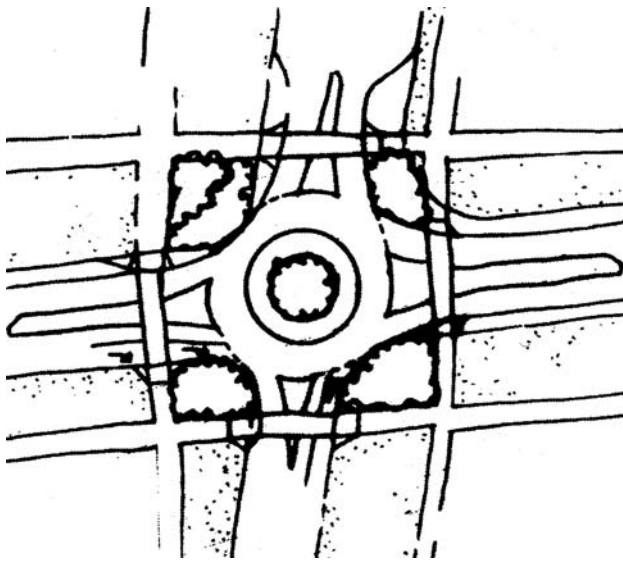
At intersections, curbs are bulbed-out into the street the width of the parking lane; as far as the vehicle travel lanes. These bulb-outs visually narrow the street, slowing traffic and shortening the pedestrian street crossing distance.

APPENDIX D Examples of Traffic Calming Elements



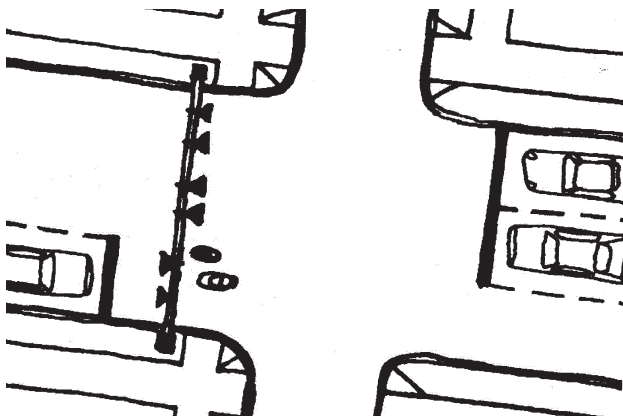
Horizontal Deflection :

Traffic moving in a straight line tends to travel faster than traffic turning. Median islands in the street, landscaped “chicanes” on alternating sides of the street and traffic circles deflects traffic and reduces vehicle speed.



Traffic Circles :

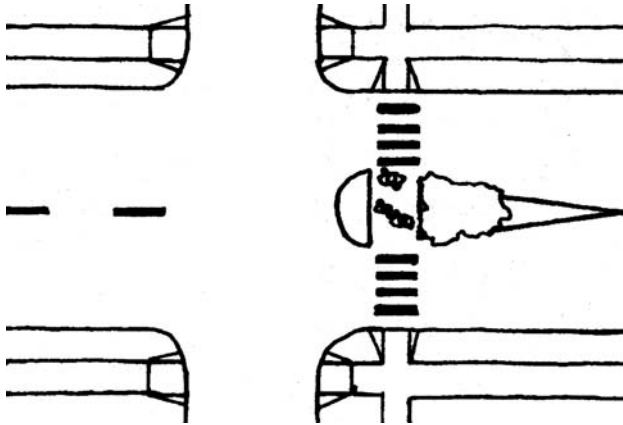
By diverting the linear path of traffic and allowing the continuous movement of vehicles, traffic circles can moderate the vehicle traffic flow - slowing through traffic and eliminating red lights. However, traffic circles require much more right-of-way than conventional street intersections.



Traffic Controls :

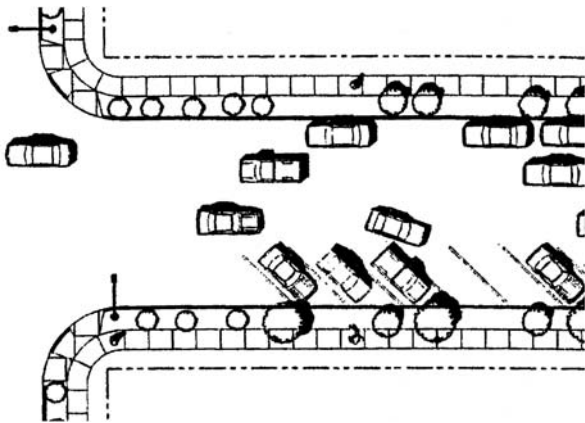
Traffic lights and pedestrian crossing signals are often not considered traffic calming techniques. However, if the signals are interconnected and timed to permit moderate speed, they can minimize vehicle stops and moderate vehicle speed.

APPENDIX D Examples of Traffic Calming Elements



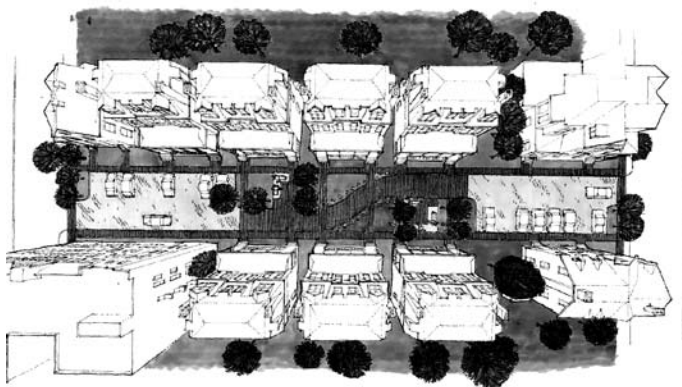
Pedestrian Refuge Areas :

A pedestrian refuge island placed in the center of the street at intersection or mid-block locations helps to protect pedestrians from motor vehicles. They also cause reduction in the lane width forcing vehicles to slow down when approaching.



Diagonal On-Street Parking :

Cars park diagonally, jutting out from the curb, rather than parallel to it. Changes both the perception and the function of a street. Shortens the "peering distance" for people crossing the street. Drivers pulling out must be alert to approaching traffic. Oncoming drivers must be alert to the cars pulling out. All of this added driver awareness creates more awareness of pedestrians.



Woonerf :

Woonerf (Dutch word which means "street for living") is common space shared by pedestrians, bicyclists, and low-speed motor vehicles. They are usually streets raised to the same grade as curbs and sidewalks. Vehicles are slowed by placing trees, planters, parking areas, and other obstacles in the street. Motorists are treated as the intruders and must travel at walking speed. This makes a street available for public use that is essentially only intended for local residents. A woonerf identification sign is placed at each street entrance.