

Anderson Street Neck-Down Assessment *for the*

Durham Transportation Department

February 19, 2008



**MARTIN
ALEXIOU
BRYSON**

Agenda

- Key Characteristics of Anderson Street
- Comparison of Anderson Street to West Club Boulevard
- Traffic Calming Pros and Cons
- Options Considered to Date
- Key Design Consideration
- Where do we go from here?
- Receive Comments on Anderson Street Direction

Anderson Street Characteristics

- One-half mile in length
- 27 driveways
- Wrightwood Park Pedestrian Conflicts
- 4,500 vehicles per day
- Approximately 100 bicyclist per day
- Bicycle conflicts with neck-downs
- 36 feet wide from curb face to curb face
- Significant slopes at neck-downs to 12%

Anderson Street Characteristics

- More through traffic than local traffic
- Sidewalks only on one side of the street
- On-street parking is not essential, except for at Wrightwood Park
- Pedestrian crossings are not very visible
- 25 vehicle accidents in 4 years
- Critical Ambulance Route to Duke & VA Hospitals

Anderson Street Characteristics

Type of Accident Totals

Year	L- turn	R- turn	Rear End	Run off FO	Angle	Side Swipe	Other	Totals
2004	0	0	2	1	1	0	0	4
2005	2	0	2	5	2	1	0	12
2006	3	0	1	1	2	0	0	7
2007	0	0	1	0	1	0	0	2
Totals	5	0	6	7	6	1	0	25

Anderson Street Characteristics

Anderson Street Speed Statistics 2005-2007						
			w/ VMS "slow 30 mph"	w/Pavement Markings	w/ Neck Downs	w/ Neck Downs
	2005	2006	2006	2006	2007	2007
	9-Nov	7-Feb	8-Feb	6-Jun	15-Aug	14-Nov
	Wednesday	Tuesday	Wednesday	Tuesday	Wednesday	Wednesday
% Exceeding 30 mph	95%	96%	87%	95%	94%	93%
Mean Exceed mph	41	40	37	39	39	38
Max mph	64	64	70	65	63	58
Min mph	13	8	6	9	10	5
Mean mph	40	39	36	38	39	37
85% mph	45	44	41	43	43	42
95% mph	48	47	45	47	47	46
Median mph	40	39	36	39	39	37
Standard Deviation in mph	5	5	6	5	5	5

Anderson VS West Club

- Topography
- Amount of Traffic
- Number of Accidents
- Park Layout
- Sidewalks
- Setbacks
- Driveways
- On Street Parking



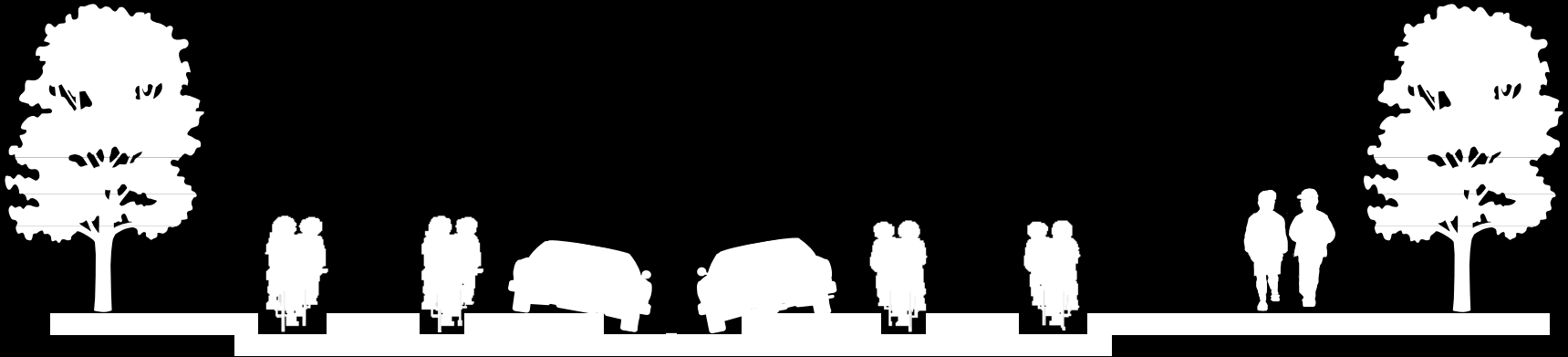
Traffic Calming Pros and Cons

Anderson Street		Projected Impact of Improvements to Existing Neck-Downs (ND)					
Improvement Measure or Modifications to Existing Neck-Downs	Vehicle Speed Reduction	Ambulance Delay/Patient Discomfort	Pedestrian Comfort	Bicyclist Comfort	Driveway Access Comfort	On-Street Parking	Magnitude of Cost
Bicycle Lane/Cycle Slip	No Change	No Change	No Change	Better	No Change	Eliminated	Major
Neckdown to 10' (no slip)	1-2 mph	No Change	Better	Much Worse	No Change	No Change	Major
Add Signage to ND	Maybe	No Change	No Change	No Change	No Change	No Change	Low
Vertical Elements to ND	Maybe	No Change	No Change	No Change	No Change	No Change	Low
Medians between ND	1-2 mph	No Change	Better	Much Worse	Much Worse	No Change	Major
Raised X-Walk/Speed Table at Park	3-4 mph	Some delay	Better	Worse	Better	Minor Red.	Moderate
Speed Cushions at ND (w/slip)	3-4 mph	Some delay	Better	Better	Better	No Change	Moderate
Pole Mounted Speed Detector	Maybe	No Change	Better	No Change	Better	No Change	Low
In-Street Ped Crossing Signs	Maybe	No Change	Better	Much Worse	Better	No Change	Low
In-Street Lane Delineators	Maybe	No Change	Better	Much Worse	Better	No Change	Low

There are no “silver bullet” solutions to slow speeds on heavily used streets like Anderson Street.

Options Considered to Date

Keep Neck-Downs + Speed Cushions



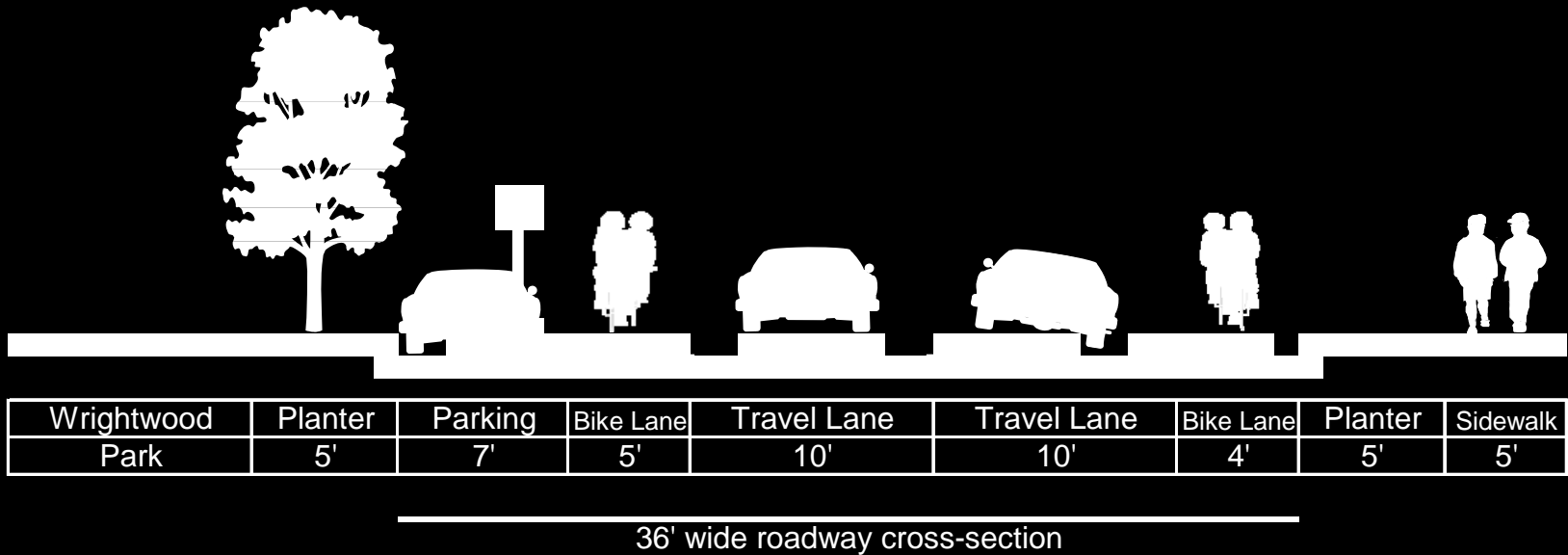
No Sidewalk	Neck Down	Travel Lane	Travel Lane	Neck Down	Planter	Sidewalk
North Side	7'	11'	11'	7'	5'	5'

36' wide roadway cross-section

Estimated Cost = \$36,350

Options Considered to Date

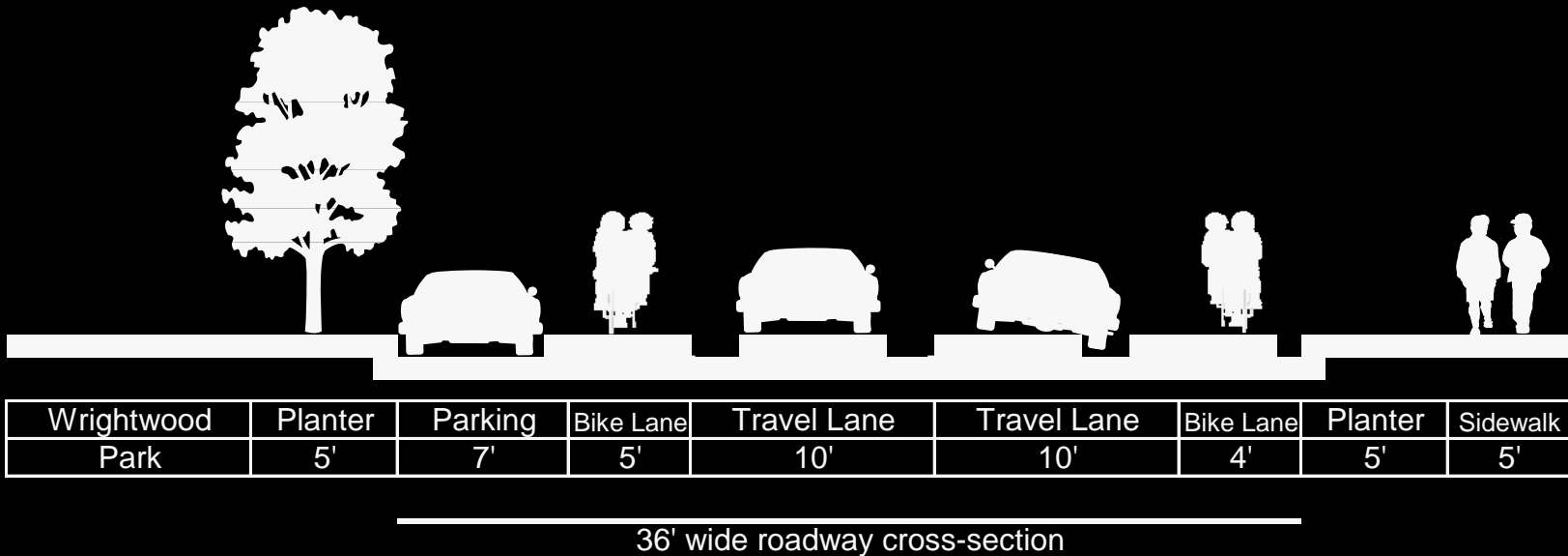
Eliminate Neck-Downs on West Side of Street & Keep East Side Neck-Downs + Speed Cushions



Estimated Cost = \$ 63,660

Options Considered to Date

Keep 11 Neck-Downs @ Wrightwood Park + Speed Cushions



Estimated Cost = \$ 73,080

Options Considered to Date

Modify Neck Downs + Speed Cushions - On-Street Parking



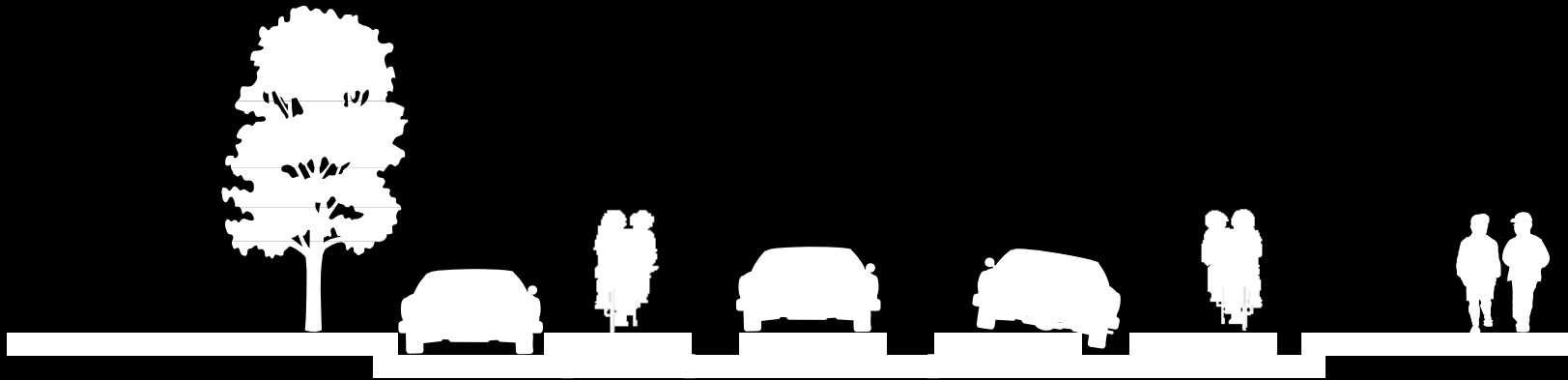
No Sidewalk East Side	Bike L	ND	Travel Lane	Travel Lane	ND	Bike L	Planter	Sidewalk
	6'	2'	10'	10'	2'	6'	5'	5'

36' wide roadway cross-section

Estimated Cost = \$ 132,530

Options Considered to Date

Eliminate Neck-Downs + Speed Cushions + Move Centerline

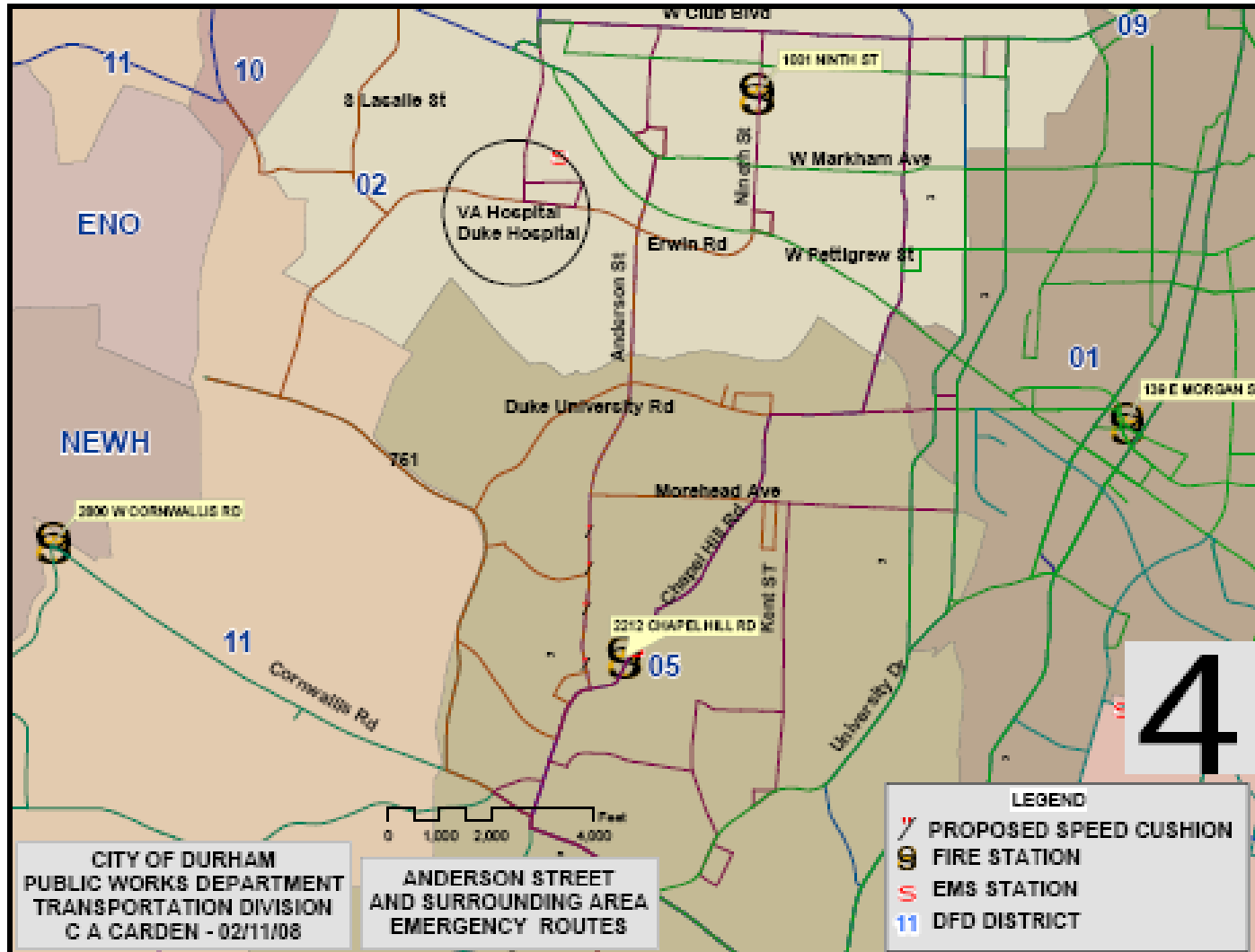


Wrightwood Park	Planter	Parking	Bike Lane	Travel Lane	Travel Lane	Bike Lane	Planter	Sidewalk
	5'	7'	5'	10'	10'	4'	5'	5'

36' wide roadway cross-section

Estimated Cost = \$ 132,660

Key Design Consideration



Where do we go from here?

Section 4C.05 Warrant 4, Pedestrian Volume

Support:

The Pedestrian Volume signal warrant is intended for application where the traffic volume on a major street is so heavy that pedestrians experience excessive delay in crossing the major street.

Standard:

The need for a traffic control signal at an intersection or midblock crossing shall be considered if an engineering study finds that both of the following criteria are met:

- A. The pedestrian volume crossing the major street at an intersection or midblock location during an average day is 100 or more for each of any 4 hours or 190 or more during any 1 hour; and
- B. There are fewer than 60 gaps per hour in the traffic stream of adequate length to allow pedestrians to cross during the same period when the pedestrian volume criterion is satisfied. Where there is a divided street having a median of sufficient width for pedestrians to wait, the requirement applies separately to each direction of vehicular traffic.

Where do we go from here?

Anderson Street		Projected Impact of Improvements to Existing Neck-Downs (ND)					
Improvement Measure or Modifications to Existing Neck-Downs	Vehicle Speed Reduction	Ambulance Delay/Patient Discomfort	Pedestrian Comfort	Bicyclist Comfort	Driveway Access Comfort	On-Street Parking	Magnitude of Cost
Bicycle Lane/Cycle Slip	No Change	No Change	No Change	Better	No Change	Eliminated	Major
Neckdown to 10' (no slip)	1-2 mph	No Change	Better	Much Worse	No Change	No Change	Major
Add Signage to ND	Maybe	No Change	No Change	No Change	No Change	No Change	Low
Vertical Elements to ND	Maybe	No Change	No Change	No Change	No Change	No Change	Low
Medians between ND	1-2 mph	No Change	Better	Much Worse	Much Worse	No Change	Major
Raised X-Walk/Speed Table at Park	3-4 mph	Some delay	Better	Worse	Better	Minor Red.	Moderate
Speed Cushions at ND (w/slip)	3-4 mph	Some delay	Better	Better	Better	No Change	Moderate
Pole Mounted Speed Detector	Maybe	No Change	Better	No Change	Better	No Change	Low
In-Street Ped Crossing Signs	Maybe	No Change	Better	Much Worse	Better	No Change	Low
In-Street Lane Delineators	Maybe	No Change	Better	Much Worse	Better	No Change	Low

- Modify or remove existing neck-downs
- Keep on-street parking
- Install pole mounted speed detectors
- Install in-street yield to peds crossing signs
- Increase speed enforcement

Comments?

- What are the limits of engineering human travel behavior?

