

# REPORT OF DEPARTMENT OF TRAFFIC

C J TILDEN, *Chairman*

## REPORT OF COMMITTEE ON TRAFFIC REGULATION IN MUNICIPALITIES

### ONE-WAY STREETS

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#### SYNOPSIS

The purpose of this study is to lay before public officials the reasons for and the effects of the designation of existing two-way streets for the use of traffic in one direction. A municipality may provide for increased traffic volume in this manner at practically no cost. Other reasons for one-way streets may be reduction of accidents, provision for heavy directional flows of traffic at certain hours, or the control of progression at desirable speed. One-way streets practically eliminate head-on collisions and side-swipe accidents between vehicles proceeding in opposite directions. It restricts the necessary scope of attention for both operators and pedestrians, reduces probability of turning accidents and eliminates headlight glare.

Among the disadvantages arising from one-way street traffic is the necessity for additional travel distance to reach certain destinations, the increased accident exposure to vehicles and pedestrians by reason of traversing two or more additional intersections, and the probability of accidents and confusion where streets are not one-way throughout.

A "one-way street" may be defined as one upon which all vehicular traffic flows in the same direction at the same time within the entire width available for such traffic.

For the purpose of this investigation the scope is limited to those streets that were originally designed and used for two-way traffic but later restricted to movement in one direction.

In general, a one-way street may be thought of as one-half of a two-way street. Obviously, the traffic stream in the opposite direction, displaced by the restriction to one direction, must be provided for on some immediately adjacent street. It follows that an adjacent street, or streets, must be available to accommodate the displaced flow, which shall have sufficient unused capacity at the time the

demand is made to absorb the traffic displaced from the first street, or failing that, shall be designated for one-way traffic in opposite direction from the other street.

A combination of two one-way streets, though separated by a city block, should have effects upon accident hazards and facility of movement similar in many respects to those of the rural highway upon which opposing traffic is separated by divisional islands. Modifying elements in this direct comparison, are the probable presence of parked vehicles on city streets and reduced sight distances at intersections as compared to divided highways. However the same general effect on accidents should follow even though the surrounding conditions are quite different.

## REASONS FOR ONE-WAY STREETS

1 To provide for increased volume of traffic without prohibiting parking by segregating opposing streams

2 To afford immediate relief to traffic congestion at substantially no cost

3 To facilitate movement on service streets or alleys, on which parking is of primary consideration, and which may be too narrow to accommodate two-way traffic

4 To discourage the use of narrow or residential streets by burden vehicles on thru traffic to by-pass a signalized intersection

5 To conform to street car movement

6 To reduce the accident hazard

7 To meet demand for heavy directional flows of traffic at certain hours, or under certain conditions

8 To provide means of controlling progression at desirable speed

9 To facilitate or simplify signalization of a complicated intersection where one or more streets may be of minor importance or little used

*Other Advantages are*

1 Practical elimination of head-on collisions

2 Elimination of the discomfort of glare at night and the accidents caused thereby

3 Practical elimination of sideswipe collisions between vehicles proceeding in opposite directions

4 Probable reduction of sideswipe collisions with parked vehicles

5 Restriction of scope of attention of operator on the one-way street and for operators and pedestrians crossing it

6 Reduction of hazards to pedestrians crossing the one-way street, both at intersections and between intersections

7 Reduction of probability of turning collisions

8 Better control of progressive signalization at speeds approaching theoretical capacity

9 More nearly complete use of street area through alternation of directional flow

*Some of the Disadvantages to be Considered are*

1 The necessity for additional travel distance to reach certain destinations

2 Additional accident exposure by reason of traversing two or more additional intersections to (a) vehicular traffic, and (b) pedestrians

3 Unless a street is designated for one-way traffic throughout, there is probability of accident and confusion at the termination of the two-way movement

## FACTUAL DATA

Little factual data to support the opinions advanced appears to be available

*Philadelphia Figures Seem to Indicate*

1 That speeds have been materially increased

## Chestnut Street when two-way (1929)

	M P H
Westbound	17 6
Eastbound	17 9
Eastbound (1928)	17 3

Since made one-way  
Eastbound (1937) 21 1  
An increase of 20-22 percent

## Walnut Street when two-way (1929)

	M P H
Westbound	16 8
Eastbound	18 6

Since made one-way (1937)  
Westbound 24 8

2 That traffic volumes carried have increased entirely out of proportion to the increase in general traffic

	1929 (two- way)	1934 (one way)	Per cent increase
7 a m 7 p m			
Chestnut at 52nd	7,137	12,938	81.5
Walnut at 52nd	4,052	12,098	200

Motor vehicle registrations in Philadelphia and adjacent Delaware County in same years were

1929	322,685
1934	328,358

Increase 1.75 percent

Gasoline taxed in Pennsylvania in same years were

1929	900,495,620
1934	1,136,343,197

Increase 26 percent

3 That accidents between intersections on one-way streets are materially reduced

	At inter sections	Between inter sections
Chestnut Street (One-way)	108	10
Walnut Street (One-way)	162	7
Market Street (Two-way)	302	82
South & Spruce (Two-way)	284	52

#### OPEN QUESTIONS

- 1 Width of cartway
- 2 Effect upon (a) Business areas,  
(b) residential areas
- 3 Objections advanced by the public

### DISCUSSION ON ONE-WAY STREETS

CHAIRMAN MORRISON Perhaps some of the conclusions that Mr Canning has not been able to get from other sources would be available from those in the audience This report is open for discussion

MR M O ELDRIDGE, *Department of Vehicles and Traffic, District of Columbia* We have tried rush hour one-way operation on four different streets in Washington and in that way we have in some cases doubled the traffic, and I believe in one case almost quadrupled it On Sixth Street we not only operate on a rush hour one-way basis but the traffic lights have been arranged with triple offsets so as to give a true progression so that when one enters that street and moves through at 22 to 23 miles per hour, one can move from one end of the street to the other without stopping

We are now trying an experiment with neon lights The neon light is arranged with an arrow which is turned on by a clock at 4 o'clock and remains in operation, indicating the direction in which traffic should move until 6 o'clock Then the arrow goes off In addition to the arrow the letters "one-way" are shown

and the arrow flashes, indicating clearly to those who approach the intersection that this is one-way operation and the direction in which the traffic should go I know that we have had considerable reduction in accidents on those streets

Very recently one-way operation has been developed through the driveways in the Parks also with greatly increased volume of traffic

The big advantage in rush-hour one-way operation over parallel one way streets is that everybody seems to be in favor of it and the drivers themselves help to enforce it When they meet a man going in the wrong direction they indicate very clearly that he is on a one-way street and so we have no difficulty at all in enforcing the rule We are increasing our volume, increasing our speed and reducing our accidents by this means

MR CANNING Recently in Philadelphia we had plenty of experience with a directional one-way street You might have heard about the Army and Navy game there We made Broad Street and most of the north and south streets in Philadelphia directional one-way south-

ward becoming northward after the game. There were some 5,000 cars more this year than last year and I am told that approximately 9,000 vehicles per hour were handled on Broad Street during the rush hour southbound.

CHAIRMAN MORRISON: Mr. Canning, do I understand that all of the traffic moved in that direction at the same time?

MR. CANNING: All traffic moved in the same direction at the same time.