

SOME OBSERVATIONS ON ILLEGAL U-TURN ACTIVITY

Gordon G. Baldwin

Introduction

Motor vehicle accidents have a financial cost, can have a human cost and can contribute to congestion. At areas where accidents have taken place, preventive measures in the form of prohibiting certain actions can be implemented. Despite this, drivers can be seen continuing to conduct the prohibited actions. Assuming that drivers have reasons for their behaviour, observations were taken at an intersection signed with multiple traffic signs warning that U-turns were not allowed and could result in a penalty of \$105. While some drivers continued to conduct the illegal U-turns, others found ways to achieve the same goal in a legal fashion. By observing on different days and in different traffic situations for a particular intersection in the city of Ottawa, some of the reasons for the behaviour are suggested.

What is an Illegal U-Turn?

The City of Ottawa by-law regulating traffic and parking on highways defines a “U-turn” as “the turning of a vehicle within the highway so as to proceed in the opposite direction to that in which the vehicle was travelling immediately prior to making the turn”.¹

Section 143 of the Ontario Highway Traffic Act defines which U-turns are illegal. These are:

“No driver or operator of a vehicle upon a highway shall turn the vehicle so as to proceed in the opposite direction when,
(a) upon a curve where traffic approaching the vehicle from either

direction cannot be seen by the driver of the vehicle within a distance of 150 metres;

(b) on a railway crossing or within 30 metres of a railway crossing;

(c) upon an approach to or near the crest of a grade where the vehicle cannot be seen by the driver of another vehicle approaching from either direction within 150 metres; or

(d) within 150 metres of a bridge, viaduct or tunnel where the driver's view is obstructed within such distance. R.S.O. 1990, c. H.8, s. 143.²

For the purposes of this study, one particular location was chosen where U-turns are prohibited and signed accordingly. While there could possibly be different opinions as to the visibility at a particular portion of roadway, the intersection in question is clearly marked with many signs to indicate that U-turns are prohibited (Figure 1).



Figure 1. Intersection of Island Park Drive and Island Park Crescent, Ottawa, ON

Possible Reasons for Making U-Turns

It was assumed that the drivers had reasons to perform the illegal U-turns. Three possible reasons or constraints that seemed likely were:

- Congestion travelling north on Island Park Drive making the drivers decide to make a U-turn, to drive south and try another route;
- Desire to go southbound on Island Park Drive (despite there being no southbound exit from Highway 417);
- Desire to reach Merivale Road (despite there being no turn from Island Park Drive northbound to Merivale Road).

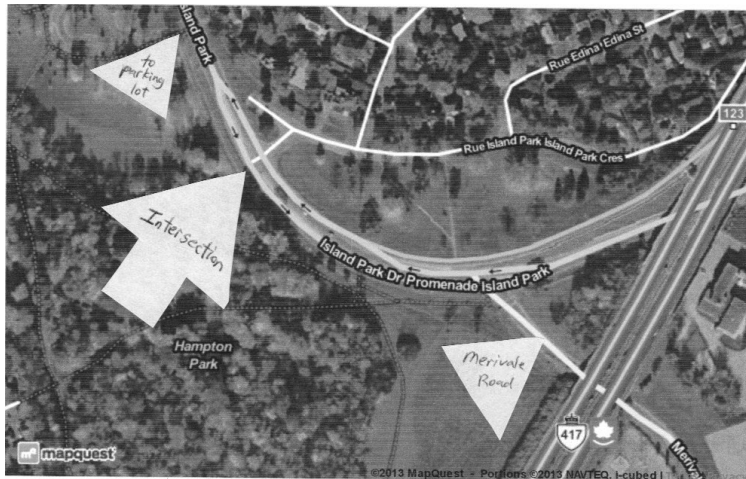
While drivers who were observed making illegal U-turns during the course of this study were not stopped and questioned as to their reasons for having made the turns, some of the reasons were suggested by their behaviour.

Traffic Layout at the Observed Intersection

The intersection observed in this study is Island Park Drive heading north and the intersection with Island Park Crescent (Figure 2). It is a major route to funnel traffic off the Trans-Canada Highway 417 to the province of Quebec via the Champlain Bridge. Traffic is typically heavier northbound in the evening (returning to Quebec) and southbound (heading to Ottawa) in the morning.

If one exits off Highway 417 at Island Park Drive, one can only head northbound, there is no southbound exit. This exit leaves one travelling northbound on Island Park Drive, there is no left hand turn on to Merivale Road from Island Park Drive northbound.

To try to solve the above three constraints, drivers northbound on Island Park Drive may be tempted to make a U-turn at the first break in the median separating northbound and southbound traffic. This break in the median occurs where Island Park Crescent meets Island Park Drive, and appears on a curve (likely the reason for the posting of signs indicating that U-turns are not allowed).



Source: Mapquest, downloaded January 14, 2013

Figure 2. Road Layout in Study Area, Intersection of Island Park Drive and Island Park Crescent, Ottawa, ON

Methodology

Observations were taken for the same evening time period on various dates in June 2011, and June and October 2012. The dates in 2011 were chosen since Merivale Road from Island Park Drive to Carling Avenue was closed due to construction projects thereby eliminating the reason to make a U-turn if the reason for doing so was to reach Merivale Road. For all dates, observations were taken during the evening between 4:00-5:15 pm for the traffic moving northbound. This time period was chosen as traffic tends to be the greatest at this period as Island Park Drive feeds traffic onto the Champlain Bridge for commuters returning to the province of Quebec from Ottawa at the end of the work day. This gave 25 different 15-minute periods of observations and 3,743 vehicles passed the observation point (bicycles were excluded from the vehicle counts but all cars, trucks and buses were included).

Counts were kept for the number of:

- Vehicles using Island Park Drive northbound just before the intersection with Island Park Crescent;
- The number of U-turns made directly from Island Park Drive to go southbound on Island Park Drive;
- The number of U-turns made by turning onto Island Park Crescent and then U-turning to turn left on Island Park Drive southbound.

Counts were recorded in 15-minute intervals as an attempt at measuring congestion periods.

Illegal U-turn Activity Observed

It is possible that the visibility of the researcher had a dampening effect on illegal activity. The traffic counts were taken while the researcher was standing or sitting by the road and at times with a movie camera on a tripod recording the activity. Some pedestrian and bicycle passersby asked if this was a speed trap so it is possible that some drivers who had considered making illegal U-turns changed their minds with an observer present.

To a large extent, the findings were very positive from a roadway safety perspective. Of the 3,743 vehicles passing during the observation periods, only one performed an illegal U-turn on Island Park Drive (turning left across Island Park Drive to drive southbound). Given the volume of traffic, the speed of traffic and the visibility, this appeared to be the most dangerous point in this area for a U-turn and likely the reason that they were prohibited. Three separate signs warned that the activity was prohibited (Figure 1).

There was more observed illegal U-turn activity on Island Park Crescent where nine vehicles were observed making illegal turns. These vehicles turned off Island Park Drive and made a U-turn on Island Park Crescent despite three more signs showing that this was prohibited as well, see (Figure 3) then they turned left (southbound) on Island Park Drive. It is suspected that many more vehicles used this option as the volume of traffic on Island Park Crescent and the speed of the vehicles were both much less than on Island Park Drive.

This likely made the activity safer in the opinion of the drivers. It is possible that these no U-turns signs may have been posted after those on Island Park Drive, likely due to complaints by residents of the street unhappy with the U-turn activity on this quiet street.



Figure 3. “No U-turn” Signs on Island Park Crescent

During none of the 25 different 15-minute periods of observations was congestion heavy on Island Park Drive. Anecdotal observation by the researcher in the past had suggested that this may have been a reason for U-turns and for this reason congestion had been one of the three expected triggers for illegal U-turn activity and a reason that the number of vehicles passing was recorded for each observation period. But as the road was never heavily congested during the periods of observation, this was not observed during this study. There was no correlation found between U-turn activity and the time period nor U-turn activity and the number of vehicles travelling past the intersection in a 15-minute interval.

This study found that only 0.27% of the traffic performed an illegal U-turn during the observation periods. That few U-turns were observed was not entirely surprising. While data are difficult to come by, the US National Highway Traffic Safety Administration’s *National Motor Vehicle Crash Causation Survey—Report to Congress* found that only 0.2% of vehicles had been making a U-turn before a crash.³ An earlier field study in United States urban corridors

had found U-turns to be “from 0.01 to 3.2 percent” of the road traffic volumes at the locations studied.⁴

While three possible explanations for illegal U-turn activity had been suggested and tested for, every vehicle observed in 2012 making an illegal U-turn subsequently turned on to Merivale Road from Island Park Drive suggesting strongly that this was the motivation for the illegal activity. As noted earlier, there is no turn on to Merivale Road from Island Park Drive northbound. Those vehicles that made U-turns in 2011 could not turn on to Merivale Road as it was closed due to construction.

If it was positive that the level of illegal U-turn activity was low and that it was heavily concentrated on the lower speed, lower volume Island Park Crescent, another positive sign was the ingenuity shown by drivers to find a legal way of achieving the same result as the illegal U-turn on Island Park Drive. Although the count is incomplete, as it only was noticed and recorded during the last two days of observation, drivers have found another way of meeting the same result as the illegal U-turn, by turning left off Island Park Drive northbound into the parking lot for Hampton Park (Figure 2), driving through the parking lot circle and then immediately exiting the parking lot and heading southbound. Three vehicles were observed doing this in the final two days of observation although others may have done so earlier in the study. All three vehicles subsequently turned onto Merivale Road, which again strengthens this as being the likely principal motivator for U-turns on Island Park Drive. By using the Hampton Park parking lot, all three vehicles achieved the same result as they would have obtained with an illegal U-turn but avoided the illegal activity.

Conclusions

The volume of illegal U-turn activity observed was consistent with that found in other studies in North America. The drivers performed more illegal U-turn activity on the street with the lower traffic speeds and the lower traffic volumes. They also found creative ways to achieve the same result as the illegal U-turn with a legal move by

using a park parking lot to turn around. The majority of the drivers performed the illegal U-turns to enable themselves to turn from Island Park Drive northbound on to Merivale Road, a turn not permitted with the current road design—there was a purpose to their illegal activity.

Endnotes

¹ BY-LAW NO. 2003 - 530: DEFINITIONS,
http://ottawa.ca/en/licence_permit/bylaw/a_z/traffic/definitions/
accessed September 3, 2012

² Ontario Highway Traffic Act, http://www.e-laws.gov.on.ca/html/statutes/english/elaws_statutes_90h08_e.htm#BK221
accessed on September 3, 2012

³ U.S. Department of Transportation, National Highway Traffic safety Administration, National Motor Vehicle Crash Causation Survey—Report to Congress, (DOT HS 811 059), July 2008, page 22, Table 7

⁴ Transportation Research Board, NCHRP Report 524 Safety of U-Turns at Unsignalized Median Openings, (TRB 2004), page 79